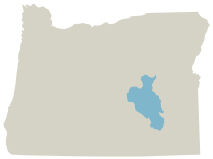
Harney Basin
Wetlands Collaborative

Harney Basin Wetlands Collaborative Focused Investment[1]

OWEB FOCUSED INVESTMENT PARTNERSHIP
PROGRESS REPORT / BIENNIA 2 & 3: 2017-2021

CLOSED LAKES BASIN WETLANDS



The Harney Basin Wetlands Collaborative (HBWC) focus area encompasses Malheur Lake and surrounding wetlands, including the floodplain wetlands of the Silvies River, Donner und Blitzen River, Silver Creek, and other tributaries. In total, the geographic scope encompasses 513,000 wetland acres, including the 187,000-acre Malheur National Wildlife Refuge. These wetlands provide critical habitat for Pacific and Central Flyway migratory and resident birds. In recent decades, the expanding invasive common carp population and dynamic physical conditions have changed the Malheur shallow lake ecosystem from a clear lake with abundant aquatic plants and invertebrates to a muddy water body. The high turbidity results in a lake with nearly no submergent vegetation and fewer associated insects. Throughout the Southern Oregon Northeastern California (SONEC) Wetlands area, flood irrigated wetlands critical for spring migratory birds have declined, reducing this critical Pacific flyway resource. Improving the capacity to flood irrigate the floodplain meadows of the Silvies River is an important step to continuing the support for the spring migration. HBWC is a diverse group of partners working to address the complex land and water issues to find ways to reverse the conditions of Malheur Lake and maintain the critical flood irrigated wet meadow system while supporting the needs of the local community and creating positive impacts that stretch far beyond the basin.

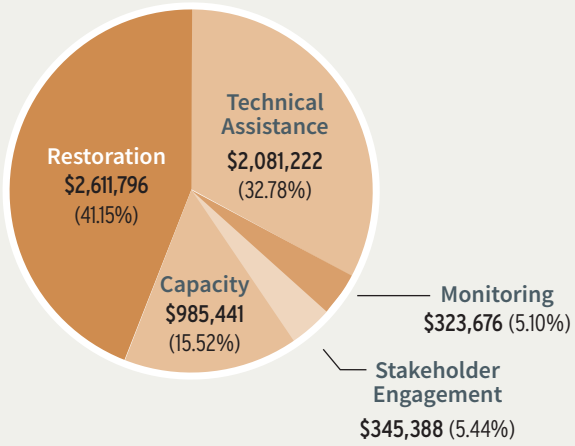
High Desert Partnership's Role

As a collaborative working group, High Desert Partnership (HDP) supports HBWC's activities, promotes open communication, and keeps the wheels of progress moving forward so the collaborative can do its important work. This effort is led by 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, nonprofit partners, and others who share a love and concern for the Harney Basin.

[1] *The Partnership changed their name in 2020 from Harney Basin Wetlands Initiative to Harney Basin Wetlands Collaborative.*

Funding

OWEB awarded $6,347,524 in funding with $2,198,891 in matching funds.



Benefits

- *Increased knowledge and understanding of the distribution and behavior of invasive carp and methods to control them to restore Malheur Lake*
- *Developed a shared science systems approach model to understand unique interactions in this important closed basin lake ecosystem that offers the collaborative a way to prioritize projects to implement and where resources can best be utilized*
- *Improved the understanding of water table and plant community dynamics in wet meadows with new tools for land managers to adapt to changing climatic conditions*
- *Added new irrigation infrastructure to enhance and increase best management of flood-irrigated wet meadows to promote both wildlife and ranching*
- *Building community in Harney County by engaging landowners, community groups, and partners to increase interest in and support for local conservation and supporting a new natural resource economy*
- *Coordinated monitoring approach among multiple partners to measure progress and quantify outcomes*

ABOUT THIS REPORT

The Focused Investment Partnership (FIP) grant program is a bold, new conservation approach that supports high-performing partnerships to implement strategic restoration actions and measure ecological outcomes through coordinated monitoring. In January 2016, the Oregon Watershed Enhancement Board awarded a FIP grant to the Harney Basin Wetlands Collaborative partners. This report documents projects for which funding was obligated in Biennia 2-3 (2017-2021) and cumulative progress since the FIP was initiated in 2016.

Work completed under the FIP grant program is part of a much larger on-going collaborative effort of federal, state and local agencies, private landowners, and non-governmental organizations in the Harney Basin. ***Accomplishments included in the report only reflect actions completed with OWEB FIP funding.***

HARNEY BASIN Wetlands COLLABORATIVE

Audubon Society of Portland, Burns Paiute Tribe, Ducks Unlimited, Eastern Oregon Agriculture Research Center, Friends of Malheur National Wildlife Refuge, Harney County, Harney County Watershed Council, Harney Soil and Water Conservation District, Intermountain West Joint Venture, Malheur National Wildlife Refuge, Natural Resources Conservation Service, Oregon Department of Fish and Wildlife, Oregon State University, Oregon Wildlife Foundation, Private Landowners, Ranching and Agricultural Business Owners, The Wetlands Conservancy, U.S. Fish & Wildlife Service, U.S. Geological Survey, Wet Meadow Partners

GOAL

Enhance and restore a crucial ecosystem that is a magnet for migratory birds on the Pacific flyway while maintaining a sustainable ranching community in southeastern Oregon.

STRATEGIES

- Control carp populations in Malheur Lake and surrounding aquatic ecosystems
- Improve management of flood irrigated wet meadows on refuge and private lands

IMPLEMENTATION ACTIONS FUNDED (2017-2021)

Restoration

Wetland, Wet Meadow, and Stream Habitats

1 AUTOMATED IRRIGATION SYSTEM INSTALLED
to flood irrigate 300 acres of migratory bird habitat.

100 ACRES PLANTED

2 FISH LADDERS INSTALLED
to allow passage

2 WATER CONTROL STRUCTURES REPLACED
to improve flood irrigation

654 ACRES OF FLOODPLAIN HABITAT CONNECTED

9.3 MILES OF IMPROVED ACCESS
for juvenile fish

10 ACRES PROTECTED BY FENCING

26.2 STREAM MILES WITH CARP REMOVED

4,000 ACRES OF FLOOD IRRIGATED WET MEADOW HABITAT
enhanced through infrastructure improvements

Planning

5 TECHNICAL DESIGNS FOR FLOOD IRRIGATION INFRASTRUCTURE COMPLETED

(The metrics shown reflect actions that have been completed or for which funding has been obligated in biennia 2 and 3.)

Scientific Investigations & Monitoring

- Completed Malheur Lake restoration feasibility analyses and collaborative restoration summit.
- Implemented mesocosm studies to bridge the gap between the laboratory and the real world in Malheur Lake to inform restoration.
- Developed state and transition model tool to help manage wet meadows under a changing climate.
- Improved understanding of ecological drivers affecting the turbid state of Malheur Lake and restoration opportunities.
- Completed basin-wide aquatic health water quality study.
- Completed basin-wide baseline fish distribution study, including eDNA sampling
- Completed avian habitat relationships study to understand bird response to plant community and water regime.

Engagement

6 STAKEHOLDER GROUPS

engaged through

10 IN-PERSON & ONLINE CHANNELS

Key to HBWC engagement is the practice of meeting people where they are and practicing social equity in engagement through the use of multiple communications channels. These channels form a network of communications that can spread exponentially.

Tours, events, festivals, workshops, one-on-one interactions, e-newsletters, articles, social media, films, radio interviews and profiles of collaborating partners all serve to meet people where they are in their understanding of HBWC's efforts.

OUTCOMES

Expected Near Term 0-10+ YEARS

- Improved understanding of the ecology and ecosystem interactions of Malheur Lake
- Improved understanding of the plant-water regime relationships of flood irrigated wet meadow systems
- Improved water clarity and quality
- Water table dynamics support emergent wetland plant communities
- Extent of reed canary grass is reduced
- Aquatic vegetation in the lake is more abundant and diverse
- Invertebrate fauna recovers
- Increased abundance of breeding and migratory birds

Expected Long Term 10+ YEARS

- Native wet meadow communities are enhanced
- Native fish density and diversity improves
- Increased survival and reproductive success of waterbirds
- Waterbird populations increase and become more stable

FIP Initiative Progress, Biennia 1-3

Progress on metrics reflects implementation supported by OWEB funding, and does not represent all progress achieved via other funding sources.

OUTPUTS	OBJECTIVE	PROGRESS
Assist landowners to **improve irrigation infrastructure and management**	5,000 acres	12,192 acres impacted through better water management
Conservation actions for managing privately owned flood irrigated wetlands are defined and implemented	1 study and model to support wet meadow management	10 studies; 4 models
Understanding of ecosystem improved and carp control levels established	2 ecosystem and carp models developed	2 models +1 restoration feasibility summit
Develop community **outreach and communications plan** with multiple strategies to engage diverse stakeholders	1 communication plan developed	1 communication plan implemented

Monitoring Approach

- Collect basin-wide baseline data on water quality conditions, fish and macroinvertebrate communities, and submerged aquatic vegetation cover to monitor changes over time
- Develop a model to determine the restoration strategies that will most effectively improve water clarity and quality
- Increase understanding of flood-irrigated wet meadow communities to determine the management approach that will increase habitat values, suppress invasive species, and optimize agricultural production

The partnership plans to continue long-term monitoring efforts associated with lake projects and wet meadow management projects if work to secure funding is successful. There is an effort to build capacity for 3rd party monitoring into the future, primarily to bring information back to the partners to be applied in an adaptive management framework. One effort is to use a regional approach for wetlands that is becoming available for the entire SONEC area.

PHOTO Tara Lemezis

Adaptive Management

The Harney Wetlands Collaborative has seen the effort to restore the clear water state of Malheur Lake and maintain high quality flood irrigated wet meadows as an adaptive management problem. Many assumptions about the ecological processes were made but have proven to be overly simple, requiring a change in restoration strategies. The application of research on the invasive carp population and lake hydrology has significantly shifted the approach to Malheur Lake restoration. Likewise, as information on climate change and water management and availability information is developed, management approaches to maintaining flood irrigated wet meadow systems are adapting to the new and future conditions.

Restoration

CHALLENGES / OPPORTUNITIES	LESSONS LEARNED	ADAPTATIONS
Substantial progress was made in understanding the key drivers of Malheur Lake degradation and how to focus restoration efforts	The partnership's initial thinking that the main driver of Malheur Lake degradation was high invasive carp populations was broadened to include multiple drivers impacting the system including wind, vegetation, ice, and other factors The partnership's shared science model findings were used to frame project ideas and make collective decisions	The partnership placed more focus on lake restoration research and modeling to develop an ecosystem-scale approach which informed restoration activities and pilot restoration projects that will guide future restoration activities In response to modeling outputs and research the partnership shifted carp suppression to target multiple life history stages, exploit mortality imposed by other factors in the environment, and identify and use vulnerabilities within the carp population to increase their carp removal efficiencies
Some actions were more challenging to accomplish than initially assumed	Installing a carp control structure on the lower Silvies River and recruiting landowners, interested in wetland easements was challenging with available resources	Metrics associated with these actions were changed as focus shifted to other areas

Partnership Capacity

CHALLENGES / OPPORTUNITIES	LESSONS LEARNED	ADAPTATIONS
Limited resources, staffing shortages, and staff turnover at key partner organizations/agencies continued to present challenges	FIP funding and other leveraged resources have expanded staff capacity with NGO partners during the initiative The addition of multiple living wage positions has also had a significant impact on the local rural economy	NGO partners allocated significant time assisting the partners with funding and staffing challenges and assumed the lead on several projects that would not have been otherwise completed
Events, including the militia occupation of the refuge at the start of the initiative and the ongoing global pandemic created challenges in day-to-day work and maintaining the function and operation of the partnership	The High Desert Partnership (HDP) as a neutral support organization seeking holistic outcomes has been invaluable in sustaining capacity and continuity through a series of challenging events over the past several years In collaborative meetings, neutral facilitation delivered by Oregon Consensus has been key to the partnership's success Stakeholder engagement and building and maintaining relationships are crucial to the success of the projects	High Desert Partnership staffing roles (administration, collaboration, stakeholder engagement, communication, project implementation) will continue to focus on supporting collaborative work of the initiative.

Adaptive Management, continued

Engagement

CHALLENGES / OPPORTUNITIES	LESSONS LEARNED	ADAPTATIONS
Some partners do not have the capacity or mission to help tell the full story of landscape scale project implementation	Partners can tell their individual stories, but it takes support capacity to roll up communications to reach a broad audience of stakeholders and to keep partners' communication lines open	With support capacity secured through the FIP, HBWC has created an overarching communications plan that is agreed upon and shared by all partners

Addressing Climate Change

- The Harney Basin is impacted by climate change including timing and type of precipitation expected in the near and long-term. Climate models project the basin will receive similar amounts of moisture but in different forms (e.g., rain as opposed to snow) and with greater volumes of water at different times of the year. This, as well as the overallocation of water, will be especially evident in the Silvies River floodplain but also in the Silver Creek basin and the Blitzen River valley.

- One constraint the partnership faces is a massive basin-wide water planning effort now underway that may influence groundwater and surface water use. This process, when completed, may influence some planning changes that may contradict management goals set forth before this information is produced or any forthcoming regulations are enacted. The partners are tracking and involved in the water planning process and will adapt as needed.