

Harney Basin Wetlands Initiative Partners

Harney Basin Wetlands Initiative Focused Investment

VISION

The Harney Basin Wetlands Initiative Partners' vision is to conserve and enhance the health of Malheur Lake by managing in harmony with ecological forces in collaboration with our neighbors, partners, and friends and to learn from our efforts, successes and failures. The surrounding flood irrigated wet meadows are managed using science-based management practices that are common to public and private lands. There is a cooperative relationship between local ranching families and the Malheur National Wildlife Refuge staff working to build understanding of how to manage the flood irrigated wet meadows in a manner that reduces carp reintroduction, provides food for migrating waterbirds, and provides a sustainable economic return for ranching families.

ECOLOGICAL PRIORITY

Oregon Closed Lakes Basin Wetlands Habitat
Aquatic Habitat for Native Fish Species

FOCAL SPECIES

Water and land birds that depend on wetlands
Redband trout and other native fish species

PARTNERSHIP MEMBERS

Initiative Coordination / Cooperation:

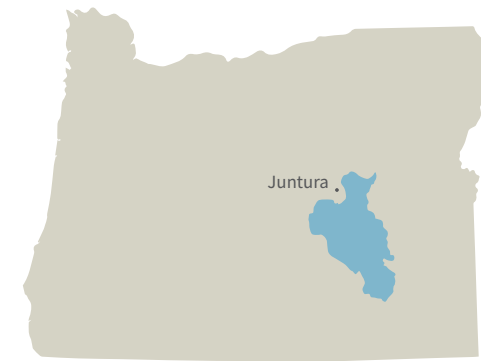
- High Desert Partnership
- Harney County Court
- Harney Soil and Water Conservation District
- Harney County Watershed Council
- Private landowners
- Burns Paiute Tribe
- Universities

Implementing Partners – Malheur Lake:

- Malheur National Wildlife Refuge
- Ducks Unlimited
- Natural Resources Conservation Service
- Friends of Malheur Refuge
- Oregon Wildlife
- Portland Audubon Society

Implementing Partners –
Floodplain Wet Meadow / Pasture:

- The Wetlands Conservancy
- Natural Resources Conservation Service
- Intermountain West Joint Venture
- Portland Audubon Society
- Ducks Unlimited
- OSU Extension Service
- USDA, Agricultural Research Service



GEOGRAPHIC SCOPE

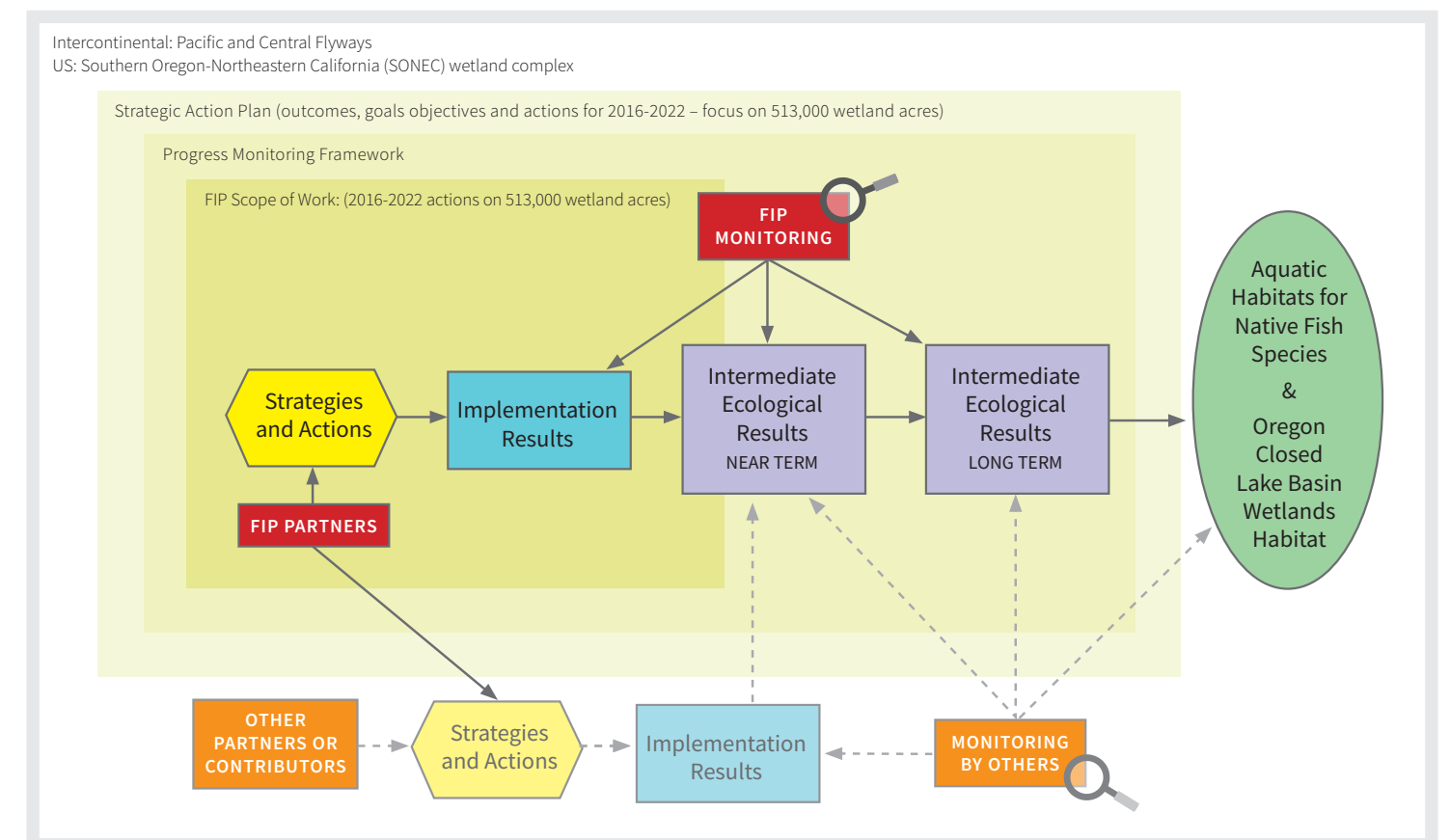
The Harney Basin Wetlands Initiative focus area encompasses Malheur Lake and adjacent wetlands, the tributary floodplain wetlands of the Silvies River, the Donner und Blitzen River, Silver Creek and associated tributaries that drain into Malheur and Harney Lakes. The focus area contains 513,000 wetland acres that includes the 187,000-acre Malheur National Wildlife Refuge.

Operational Context

This Initiative has local, regional and international significance for the conservation of wetland dependent fish and wildlife species. It is an important part of efforts to manage and conserve the Southern Oregon-Northeastern California wetland complex with an even broader continental significance for migratory birds of the Pacific and Central Flyways.

The Strategic Action Plan is focused on goals, objectives, and actions the Partnership will strive to accomplish within the six-year time frame of the FIP funding program. The Strategic Action Plan represents an effort to integrate the most immediate objectives and actions from three existing plans that most directly address the goals of the Initiative (Malheur National Wildlife Refuge Comprehensive Plan, the Conservation Implementation Strategy for Harney Basin Aquatic Health Improvement, and the Conservation Implementation Strategy for Working Lands Waterbird Habitat Conservation in the SONEC Region).

Figure 1: Operational context of the OWEB-funded Focused Investment Partnership Initiative



Theory of Change.

SITUATION

In recent decades, the use of Malheur Lake by resident and migratory waterbirds, redband trout, and other native fish has declined dramatically with changes in the shallow lake ecosystem from a clear lake with abundant submerged aquatic vegetation and invertebrate fauna to a turbid lake with nearly no submergent vegetation. This change has resulted from the expansion of the non-native common carp population.

There is also a growing threat to spring migratory bird habitat posed by the conversion of flood irrigation to sprinkler irrigation of the wet meadows in the Harney basin and the conversion of these working lands to development. The flood irrigated pastures and wet meadows are critical staging and feeding areas for migratory birds.

APPROACH

The results chain (*Figure 2*) articulates the partnership's theory of change by displaying the relationships between strategies, implementation results, and the intermediate ecological results partners predict will occur in response to strategy implementation that will ultimately lead to restoration of the FIPs ecological priorities.

Numbered results identified in *Figure 2* are those the partnership has highlighted as part of a monitoring approach. They will allow the partnership to measure progress in both the near (e.g. six-year FIP timeframe) and long term, and to identify where key uncertainties might exist with regards to confidence of predicted outcomes or relationships between results.

Each numbered implementation result is associated with the corresponding objective in the Strategic Action Plan (*Tables 1 and 2*). For intermediate ecological results, objectives are included if identified; however, for many ecological results, the degree (and timeframe) to which they will be achieved is not yet well understood. Given this complexity, continued assessment and planning will be required to support development of specific, measureable objectives for the desired ecological outcomes.

The narrative below summarizes the resulting theory of change. Implementation results and ecological results prioritized for monitoring during the six-year FIP timeline are indexed to correspond to the results chain (*Figure 2*) and measuring progress tables (*Tables 1 and 2*).

STRATEGIES

The Strategic Action Plan contains two primary strategies intended to address the situation described above - carp control to improve water quality and the ecological health of wetlands and rivers, and the design and implementation of conservation measures to maintain the spring flooded wet meadow conditions of the tributary floodplains.

STRATEGIES

1 Control carp populations in Malheur Lake and surrounding aquatic systems

This strategy includes assessments and modeling to fill information gaps regarding carp distribution and population dynamics, identification and testing of carp control methods and locations to implement them, and continuation of ongoing carp control measures including commercial harvest and operation of fish traps.

Theory of Change.

Life history assessments of carp will improve the partners' understanding regarding the distribution and behavior of carp and the relationship between carp density and water quality¹:

- This knowledge will aid in establishing target densities² necessary to achieve ecological outcomes and control measures to achieve those densities, and
- Implementation of control measures in targeted locations³ will result in a reduction in the spatial distribution and density of carp;
- These results will reduce the overall impacts of carp, leading to an increase in water clarity and other water quality attributes¹²;
- Improvements in water quality will promote recovery of aquatic vegetation¹³ and associated invertebrates¹⁴.
- Together these results increase retention and abundance of breeding and migratory wetland obligate water and landbirds¹⁵.

2 Manage wetlands / flood irrigated wet meadows on refuge and private lands

The partnership will address the limiting factors of aging infrastructure, changes in water management and agricultural patterns and land development by implementing the following actions:

- Assessing water table and plant community dynamics in wet meadows;
- Designing and constructing diversion replacement systems;
- Implementing of management practices to improve on-farm water delivery and habitat values on flood-irrigated wet meadows;
- Investigating hydrology, vegetation, management scenarios, and bird use to evaluate and adapt restoration treatments;
- Outreach to third-party land trusts to recruit willing easement holders; and
- Establishing conservation easements on privately owned flood-irrigated wet meadows to maintain existing land management practices and secure habitat values.

Theory of Change.

Improved understanding of flood irrigated wet meadow systems and methods to enhance and maintain them will result in the implementation of effective conservation actions on privately owned wetlands⁴ that deliver ecological outcomes as well as continue to support traditional haying and grazing activities⁵. The partnership will provide needed assistance to landowners to ensure these objectives are achieved⁵.

Improving the ability for the water table to support emergent wetlands¹⁶ across a larger area¹¹ will increase the habitat available for water and land birds that depend on wetlands for part of their life cycle. Birds will stay in these habitats longer and in larger numbers¹⁵. This can be accomplished by developing and implementing projects on privately owned flood-irrigated wetlands⁴.

These water management methods will also reduce the extent of non-native reed canary grass and result in the enhancement of native meadow plant communities¹⁷.

3 Community and partner outreach and communications

The Partnership will carry out strategies and actions outlined in the 2015 Harney Basin Wetlands Initiative Communications Plan to:

- contribute to advancing strategies 1 and 2;
- leverage funding;
- demonstrate success;
- increase public and constituent understanding; and
- change behaviors and perceptions where necessary.

The focus of communications strategies will be on improving internal communications within the partnership and bringing attention to external audiences with call-to-action messages to support the vision and goals of the Initiative. Target audiences include:

- Initiative Partners and their constituents;
- Harney County communities and landowners;
- the regional conservation and scientific communities; and
- regional decision and policy makers, funders, and the interested general public.

Theory of Change.

As the communications plan is implemented⁷, the awareness and support of stakeholders, partners, and the general community is enhanced, resulting in their increased interest and support⁹. This result supports successful implementation of wet meadow enhancement and maintenance projects with private landowners and other agricultural interests.

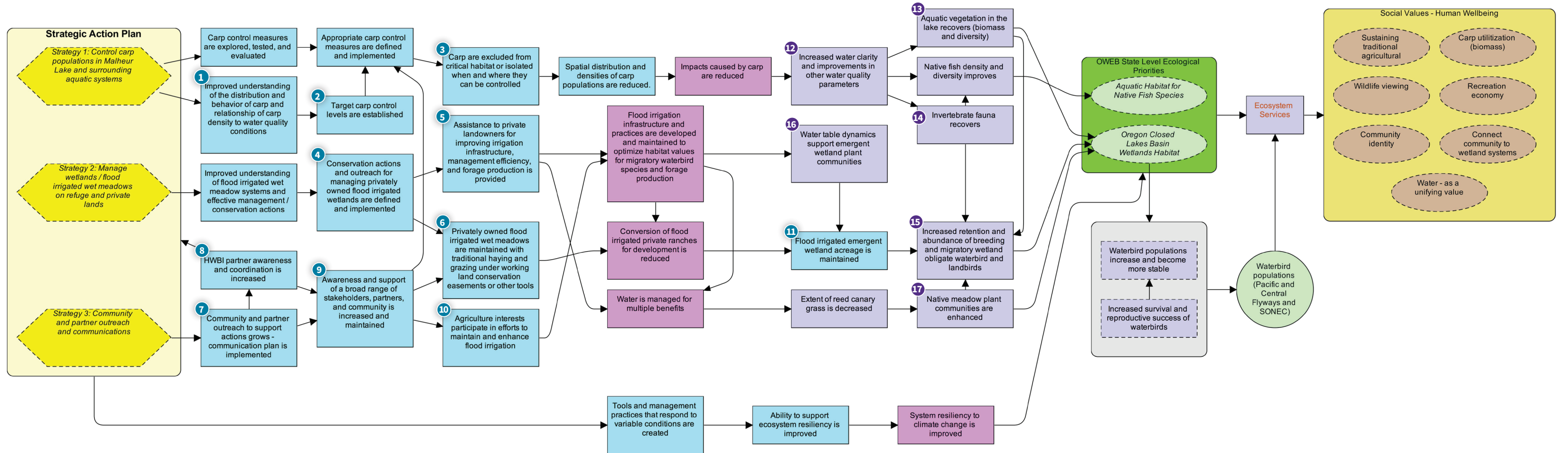
Successful implementation of the communications plan⁷ also supports partner awareness within the Initiative, and coordination is improved and maintained⁸. Improved communication and coordination within the Initiative improves the successful implementation of all strategies and long-term ecological outcomes.

Superscript numbers ¹⁻¹⁷ can be cross referenced on the Results Chain diagram and the Implementation Progress/Ecological Progress tables on the following pages.

Results Chain

Figure 2: Results chain for the Harney Basin Wetlands Initiative

Progression of the Results Chain.



OUTPUTS

Implementation Progress

Table 1. Implementation results objectives and metrics. The result numbers correspond to results shown in the results chain (Figure 2) and theories of change.

IMPLEMENTATION RESULTS	OBJECTIVES	METRICS
1 Improved understanding of the distribution and behavior of carp and relationship of carp density to water quality conditions	Determine carp population range and age/size distribution by 2018. Identify carp populations and movements within the basin by 2020.	Assessment completion Assessment completion
2 Target carp control levels are established	Determine the threshold carp population for lake change.	Target density of carp population
3 Carp are excluded from critical habitat or isolated when and where they can be controlled	Identify strategic locations to restrict carp movement within the hydrologic system by 2020.	Areas to restrict carp movement
4 Conservation actions and outreach for managing privately owned flood irrigated wetlands are defined and implemented	Evaluate management practices and irrigation infrastructure changes and improvements on wet meadow systems as reflected by plant community changes	Description of management practices and associated changes in plant communities upon implementation of the practices
5 Assistance to private landowners for improving irrigation infrastructure, management efficiency, and forage production is provided	Assist private landowners in improving irrigation infrastructure, management efficiency and forage production on 5,000 acres of wet meadow habitat within the focal investment priority area.	Instances of assistance delivered to private landowners Acres where private assistance has facilitated improvement to irrigation infrastructure and management
6 Privately owned flood irrigated wet meadows are maintained with traditional haying and grazing under working land conservation easements or other tools	By 2020, secure 1,500 acres of privately owned wet meadow habitat under working land conservation easements.	Acres of privately owned wet meadow habitat brought into working land conservation easements
7 Community and partner outreach to support actions grows - communication plan is implemented	Develop communications strategy and tools to increase partners' awareness and coordination to achieve goals.	Communications strategies and tools developed
8 HWBI partner awareness and coordination is increased	HWBI partners understand the role of High Desert Partnership	Level of partner understanding regarding the role of the High Desert Partnership
9 Awareness and support of a broad range of stakeholders and partners is increased and maintained	Use various communication tools and outreach events to increase awareness and deliver products and messages to local community and land owners in Harney County.	Communications tools and outreach events successfully implemented
10 Agriculture interests participate in efforts to maintain and enhance flood irrigation	5,300 acres by 2020	Acres or working lands where flood irrigation enhancement actions are implemented
11 Flood irrigated emergent wetland acreage is maintained	10,300 acres are maintained	Acres of flood irrigated emergent wetlands maintained

OUTCOMES

Ecological Progress

Table 2. Ecological results potential objectives and potential metrics. The result numbers correspond to results shown in the results chain (Figure 1) and theories of change.

Given the complexity of ecosystems, continued assessments and planning will be required to support development of specific, measurable objectives for desired ecological outcomes.

LIMITING FACTOR REDUCTION OR INTERMEDIATE ECOLOGICAL RESULTS	POTENTIAL OBJECTIVES	POTENTIAL METRICS
12 Increased water clarity and improvements in other water quality parameters	To be determined through continued assessment and planning	Water quality parameters including Secchi depth, pH, T, DO, specific conductivity, salinity
13 Aquatic vegetation in the lake recovers (biomass and diversity)	To be determined through continued assessment and planning	Species diversity and percent ocular estimates
14 Invertebrate fauna recover	To be determined through continued assessment and planning	Macroinvertebrate abundance and species diversity
15 Increased retention and abundance of breeding and migratory wetland obligate waterbirds and landbirds	To be determined through continued assessment and planning	Abundance, species richness, species composition
16 Water table dynamics support emergent wetland plant communities	To be determined through continued assessment and planning	Depth to water table / soil water-holding efficiency Plant species composition
17 Native meadow plant communities are enhanced	To be determined through continued assessment and planning	Vegetation surveys (biomass and diversity)

Status & Trends

ECOLOGICAL PRIORITIES

- Oregon Closed Lakes Basin Wetlands Habitat
- Aquatic Habitat for Native Species Waterbirds and landbirds
- Native fish

Monitoring the status and trends of ecological priority habitats and focal species will include coordination with agencies or conservation organizations operating at the appropriate landscape or population scales. FIP partners will work with these entities to establish a process for integrating their monitoring framework with existing status and trends monitoring programs (if they occur) or to establish an approach for identifying key ecological attributes that should be measured to document and communicate change in the status and trajectory of ecological priority habitats and focal species populations.