



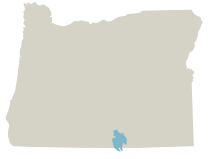
Starveout Diversion Fish Passage Project

Warner Basin

Aquatic Habitat Partnership

AQUATIC HABITAT FOR NATIVE FISH SPECIES

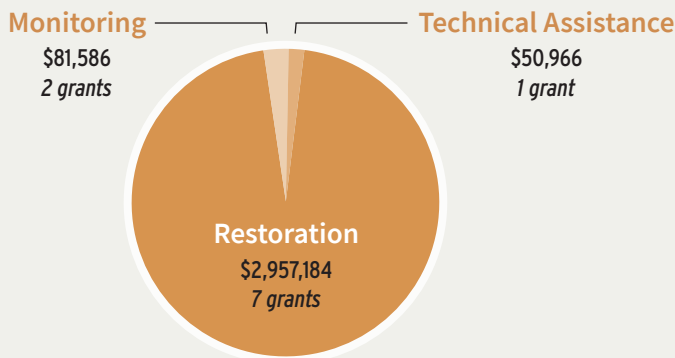
The initiative is focused on the three main tributaries (Twentymile Creek, Deep Creek, and Honey Creek) that support Warner Sucker and Warner Lakes Redband Trout, as well as Pelican, Crump, and Hart Lakes. The three tributaries represent over 45 miles of Warner Sucker designated critical habitat and the primary stream habitat for the two species.



Addressing existing limiting factors will require a collaborative effort among WBAHP members, the local community, landowners, and water users. Recovery of Warner Sucker and Warner Lakes Redband Trout will preserve and ensure the continued existence of the valued fish community that is unique to the Warner Basin.

Funding

OWEB awarded \$3,089,736 in funding that leveraged \$1,408,339 in matching funds



Benefits

- Access to higher quality spawning, rearing, and refuge habitats for native fish species is improved
- Individual populations of native fishes become self-sustaining and function as a self-sustaining metapopulation
- Irrigation infrastructure is improved and enhances assurance of water availability for all needs

ABOUT THIS REPORT

The Focused Investment Partnership (FIP) grant program supports high-performing partnerships to implement strategic restoration actions and measure ecological outcomes through coordinated monitoring. In January 2019, the Oregon Watershed Enhancement Board (OWEB) awarded a FIP grant to the Warner Basin Aquatic Habitat Partnership (WBAHP). This report documents cumulative progress since the FIP was initiated in 2019. 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 Warner Basin. Accomplishments included in the report only reflect actions completed with OWEB FIP funding.

PARTNERS



Lake County Umbrella Watershed Council, Lakeview Soil and Water Conservation District, Oregon Department of Fish and Wildlife, US Fish and Wildlife Service, US Bureau of Land Management, US Forest Service, River Design Group

GOAL

Streams and lakes in the Warner Basin are connected, providing access to the high-quality spawning, rearing, and adult holding habitats that are necessary for Warner Sucker and Warner Lakes Redband trout to complete their diverse life-history strategies.

STRATEGIES

- Restore fish passage
- Screen unscreened diversions

- Increase the assurance of water availability
- Reduce non-native fish populations

IMPLEMENTATION ACTIONS

Habitat Restoration



Planning



Outreach



Monitoring



OUTCOMES

Near Term 0-10 YEARS

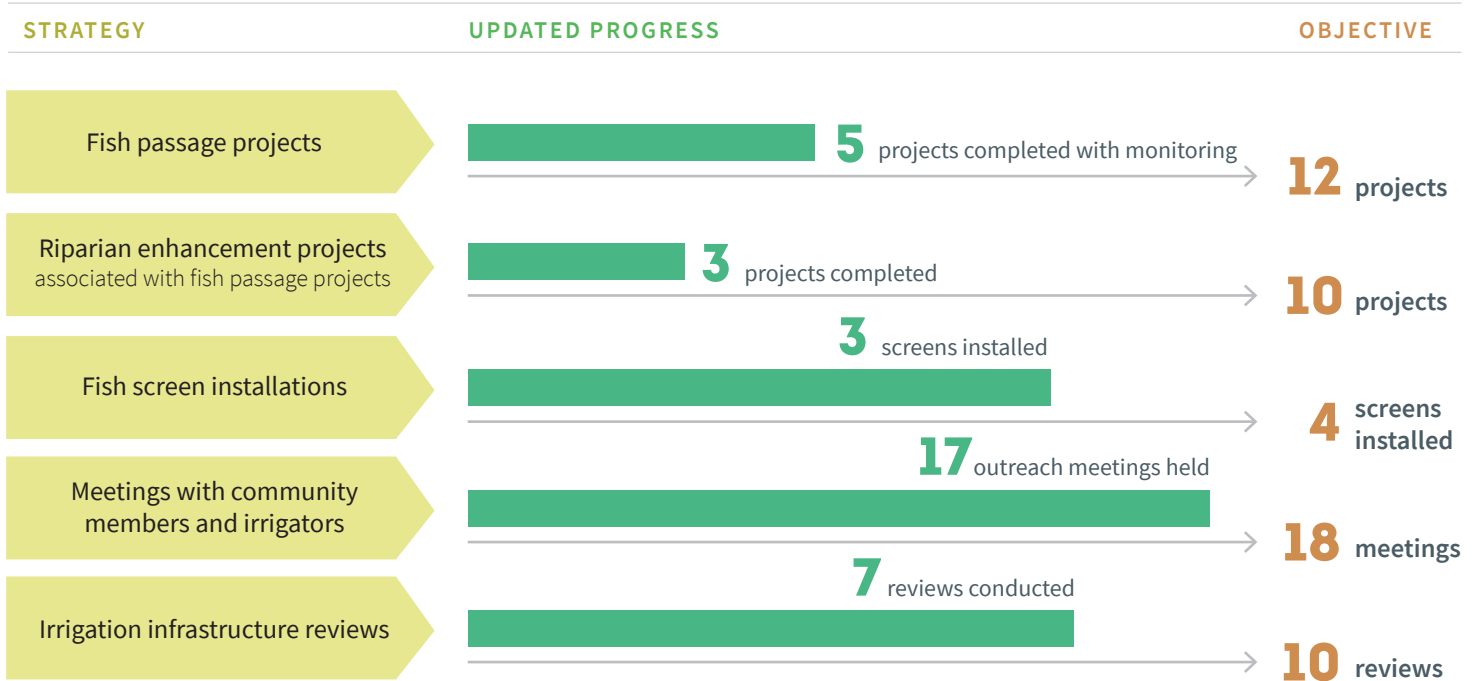
- Habitat connectivity and accessibility for native fish is restored
- Availability of water supplies is assured

Long Term 20+ YEARS

- Multiple age-classes including adults, juveniles, and young-of-year, are represented and approximate normal frequency distributions
- Population sizes of native fishes are stable or increasing

FIP Initiative Progress, Biennia 1-2

Progress on metrics includes actions completed as well as actions proposed through obligated OWEB grants. Progress reflects implementation supported by OWEB funding, and does not represent all progress achieved via other funding sources.



Monitoring Approach

WBAHP's monitoring approach includes annual evaluations at the project level and biennial evaluation at the Plan level. Long-term monitoring will be completed at 3-yr and 5-yr post-project periods. Long-term monitoring beyond the life of the FIP will be funded by WBAHP's member organizations.

Project-level monitoring is envisioned to include:

- 1 As-built survey and project completion documentation to ensure the project was built as designed.
- 2 Out-year monitoring including site visits and repeated photo points to see how the project site has changed.
- 3 Biological monitoring to be coordinated with ODFW, which may include documentation of fish passage.

Plan-level monitoring would leverage monitoring networks and studies typically administered by USFWS, BLM, and ODFW. The long-term monitoring would be used to assess how goals and objectives are being met and if native fish recovery and conservation is on-track.

The first biennium of work identified a top-priority data gap to inform habitat management for the Warner Sucker. WBAHP observed unintended consequences of providing fish passage at the diversions. Non-native fish species were able to move upstream. Also, Warner Suckers were going down the irrigation canal and unable to return to Deep Creek during high flows. WBAHP has submitted an OWEB Technical Assistance proposal to help better understand the situation and inform management options.



Adaptive Management

Restoration

CHALLENGES

Warner Basin has continually fluctuating stream flows and uncertain water availability. It is challenging to meet water user irrigation needs and fish passage goals in this environment.

WBAHP partners have concerns with the management of diversions to ensure fish passage goals. Water users have concerns about the constraints associated with water management for fish passage at the diversions as flows fluctuate.

Very low flows in 2020 and 2021 affected willow cutting survival and fish passage. Revegetation efforts as part of fish passage projects have also been given a lower priority when the project areas are grazed.

At the Deep Creek Town Diversion, providing passage has resulted in an increase in Warner Suckers entering the irrigation network which may impact populations over time, increasing the need for screening.

Other challenges include the ability to acquire materials for construction; increases in supply cost; and time constraints. These challenges result in difficulty budgeting into next projects.

LESSONS LEARNED

WBAHP partners have learned about the daily fluctuations in flows in a flashier desert system driven by snow melt. These flows fluctuations can be drastic throughout the day/week/season.

WBAHP partners have learned about the different types of fish passage designs, water rights, and water law. Additionally, they have learned about water user operations, needs, and concerns within this network.

ADAPTATIONS

WBAHP has remained consistent with internal communications and meetings, completing on-the-ground work and meeting fish passage objectives. WBAHP has learned to plan contract implementation work with sufficient time to secure materials prior to work being implemented.

WBAHP partners have shown flexibility throughout the biennium as challenges arise, maintaining an open dialogue with the private landowners and irrigators who we are working with in the basin. When projects have not been managed for fish passage, WBAHP members reach out to the irrigators to discuss management concerns.

These discussions resulted in common ground whereby the irrigators are able to deliver the water requested by their patrons while also meeting WBAHP's fish passage goals.

WBAHP has prepared operations manuals for the diversions and fish passage structures so that there is a clear understanding of how the fish passage structures are to be used.

Adaptive Management

Monitoring

CHALLENGES

Low-water drought conditions interfered with our ability to monitor passage success at several diversions due to lack of water through passage routes.

The Deep Creek Town Ditch network has presented monitoring challenges as there is lack of understanding on how sucker and trout travel through the irrigation network.

To date, monitoring has been site specific and not at the basin scale.



LESSONS LEARNED

The monitoring approach must include flexibility to respond to factors outside partners' control, such as drought.



ADAPTATIONS

Biological monitoring was extended for another season at some projects (Deep Cr) to provide more robust information on passage success under more typical flow conditions.

One unintended consequence of providing fish passage at the diversion is the possibility of Warner Suckers moving through the irrigation canal and then being unable to return to Deep Creek during periods of high flow.

WBAHP partners have gained deeper understanding about water issues in the Basin, including water law and water rights, operations, management needs and concerns. Partners have also learned about different types of fish passage designs.

Engagement

CHALLENGES

ODFW proposed In-Stream Water Right Filings have raised concerns with water users in the Warner Basin and throughout Lake County, resulting in uncertainty about the next level of project work.

WBAHP is working to ensure that information is passed through the proper communication channels with all stakeholders (funders, water users, partnership, community), discussing how to accommodate all water users needs on the same system with one design plan.



LESSONS LEARNED

The Warner Basin is very dynamic. Flows are drastically different each season, and it is important to understand how each water structure is operated. Regular and consistent communication with all stakeholders is necessary.

This approach has begun to improve fish passage, water users' infrastructure, and the community's understanding of native fish species in the Warner Basin.



ADAPTATIONS

Partners have continued to meet annually as a whole group (WBAHP and water users) to discuss status of work, objectives achieved, monitoring results to date, and gather feedback.

This open communication approach provides involvement in the planning process to reduce the likelihood of last-minute changes to project designs. WBAHP continues quarterly meeting and site visits, while working to be flexible to meet water users' requests and reach fish passage and screening objectives.