U.S. Fish & Wildlife Service

Fisheries Restoration and Irrigation Mitigation Act

Accomplishments Report
Fiscal Years 2002-2012

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Promoting fish-friendly water for continued water usage

Farmers Conservation Alliance flatplate screen on Deadpoint diversion, Oregon
Peter Marbach, courtesy Farmers Conservation Alliance

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Farmers Irrigation District diversion, Hood River, Oregon
Peter Marbach, courtesy Farmers Conservation Alliance

Executive Summary

The Fisheries Restoration and Irrigation Mitigation Act (FRIMA) enacted by Congress in 2000 (P.L. 106-502) establishes a voluntary, non-regulatory program for irrigators and water users to provide safe passage for fish while continuing to meet their water use needs. The FRIMA Program, administered by the U.S. Fish and Wildlife Service (Service), provides matching federal funding for design and construction of fish passage projects at water diversion structures in the Pacific drainage area of Oregon, Washington, Idaho, and western Montana.

Fishery and water resource managers in the Pacific Northwest recognize the critical need for improving fish passage at irrigation and water diversions to protect and rebuild salmon, trout, and other fish populations. This understanding is broadly held – managing for sustainable fisheries and sustainable water uses go hand-in-hand; both are essential in a vibrant and productive economy. The FRIMA Program is oriented around this concept and offers irrigators, water users, farmers, ranchers, fishery management agencies, tribal governments, and conservation organizations a positive, solution-oriented way to achieve both objectives.

Congress appropriated funding to the Service for the FRIMA Program from fiscal year 2002 through 2007. The original act expired in 2007 and was re-authorized in 2009, extending it to 2015. No funding has been appropriated since fiscal year 2007. A report on FRIMA Program accomplishments was prepared and distributed in 2005, summarizing expenditures and attainments from fiscal year 2002 – 2004. This report summarizes all FRIMA Program accomplishments from its inception through fiscal year 2012.

To date, roughly $13.8 million in federal funding has been appropriated by Congress for the FRIMA Program, distributed almost equally between the four states. Federal FRIMA funds have been matched by over $15.9 million in partner funds, exceeding the 35% non-federal match requirement. The total federal and partner match for the FRIMA Program to date is $29.7 million.

Overall, a total of 127 projects have been funded resulting in 1,130 miles of habitat re-opened to fish passage, 56 fish passage barriers removed or modified, 130 water diversions and irrigation pumps screened, and 18 fish passage inventories completed. Many different fish species benefit from FRIMA projects as do many local communities. FRIMA funding invested to date has also yielded substantial economic benefits in communities.

The FRIMA Program is making a significant difference in fish habitat conservation in the Pacific Northwest while allowing continued water uses by irrigators and other water users. The program is very well received and embraced by all those involved. Although many projects have been completed, tens of thousands of water diversions and irrigation pumps remain unscreened in Oregon, Washington, Idaho, and western Montana. A tremendous need remains!

CONSERVING AMERICA'S fisheries

Program Overview

Through the FRIMA Program, the Service provides matching federal funding to screen water diversions, allowing irrigators and other water users to meet their needs while providing safe passage for fish. Many water diversions are unscreened allowing fish to swim freely into them, winding up in canals or ditches and unable to make it back into their home stream: a threat to the population's sustainability.

The two main goals of the FRIMA Program are to: **1)** decrease fish mortality associated with water withdrawals (used for irrigation and other purposes) without impairing the continued use of water rights, and **2)** decrease the incidence of juvenile and adult fish entering water supply systems.

In order to accomplish these goals, local, state, tribal and federal governments collaborate to screen water diversions, install fish passage devices, and remove barriers while accounting for water users' needs. This team effort requires cooperation among agency partners, private landowners, and water users which includes sharing staff, funds, and resources to complete projects.

The Service, along with partner agencies, tribal governments, and non-governmental organizations, is working to create a greater awareness of the substantial number of remaining barriers and water diversions that still need to be addressed. In addition, the Service and other partners are conducting research to identify effective fish passage solutions for species other than salmon and trout, such as Pacific lamprey, in order to better address future conservation challenges.

Bart Gamett of U.S. Forest Service leads field tour of FRIMA projects in Big Lost River, Idaho.
Dan Shively/USFWS

Coastal cutthroat trout
Roger Tabor/USFWS

FRIMA projects are often complex, requiring several years to secure landowner support, complete engineering designs, acquire permits, and construct. The FRIMA Program's flexibility is one of the keys to its success.

Lastly, the FRIMA Program creates substantial economic benefits in Pacific Northwest communities. Based on economic studies of fish habitat restoration in the Pacific Northwest and using multipliers consistent with other federal agencies in the Columbia River Basin, FRIMA Program investments to date have created an estimated 451 jobs and over $66.5 million in goods and services.

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U.S. Fish & Wildlife Service
Fishery Resources, Pacific Region
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Portland, OR 97223
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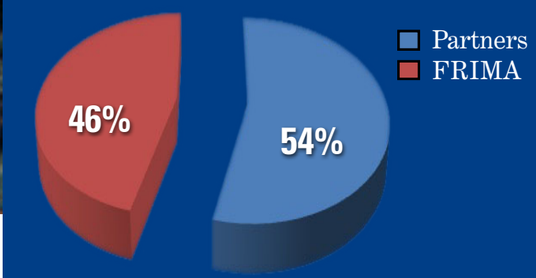
http://www.fws.gov/pacific/Fisheries/frima

Regional Overview

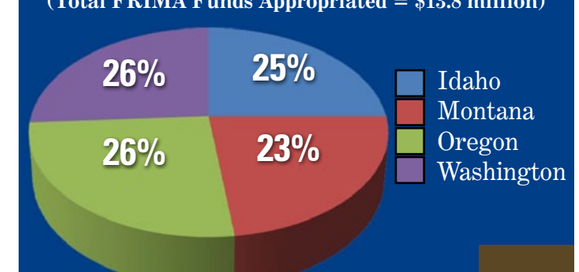
Cost-Share (FRIMA - Partner)
FY 2002 - 2012 (Total = $29.8 million)



Accomplishments Summary

- 127 projects funded (91% completed, 9% ongoing)
- 1,130 miles re-opened to fish passage
- 56 fish passage barriers removed or modified
- 130 water diversions & irrigation pumps screened
- 18 fish passage barrier inventories completed
- Fish species benefited: coho, Chinook, chum and pink salmon; steelhead; bull trout; Pacific lamprey; rainbow trout; coastal cutthroat trout; westslope cutthroat trout; Yellowstone cutthroat trout; mountain whitefish; and others

FRIMA Funding Distribution to States
FY 2002 - 2012
(Total FRIMA Funds Appropriated = $13.8 million)



Idaho

Correcting fish passage barriers on Rainey Creek, South Fork Snake River

Rainey Creek is one of four key spawning tributaries for Yellowstone cutthroat trout in the South Fork of Idaho's Snake River Basin. Nearly 15 years ago, construction of a development known as the Rainey Creek Meadows Subdivision altered habitat and blocked access for spawning Yellowstone cutthroat trout.

Shurtleff and Beam irrigation diversions on Rainey Creek. The vertical black screen rotates preventing fish from entering the diversion, as irrigation water goes through the small slots.
Trout Unlimited

Matt Woodard, Project Manager for Trout Unlimited's South Fork Snake River Watershed Project, helped oversee the restoration work in Rainey Creek. With help from FRIMA and other partners' contributions, seven of the nine barriers have been removed from Rainey Creek, restoring connectivity for Yellowstone cutthroat trout. FRIMA funds were used to design a fish screen for the eighth barrier, which is now waiting construction funding.

Woodard notes the crucial role of federal matching funds for project completion: "FRIMA funding certainly played a key role in helping us get other funding." Additional benefits from the work in Rainey Creek include improved water quality, streamflow, bank stability, and cooler water temperatures. All of these benefits collectively contribute to better habitat conditions for fish and wildlife in this important tributary to the South Fork Snake River.

Today habitat conditions are improving. "FRIMA has provided an important funding mechanism for conserving native resident fish," said Jody Brostrom of the Service's Idaho Fishery Resources Office. "Willing landowners have been able to improve fish passage and prevent fish from entering their diversions.

> *"It's a win-win. Landowners are happy, we're happy and the fish are happy, so we're doing a good job."*
>
> *- Matt Woodard, Trout Unlimited*

In addition, they've achieved instream water savings through ditch consolidation, conveyance improvements, and gains in irrigation efficiency through complementary programs."

One of these willing landowners includes Steve McGrath of Swan Valley Idaho, who donated $8,000 in cash and labor to improve habitat associated with the Rainey Creek projects. FRIMA provided impetus for McGrath to take on other needed restoration work including relocating over 1,700 feet of stream channel on his property to its historic location. The channel had been straightened over time for irrigation purposes, and had become detrimental to fish, also creating negative effects for waterfowl nesting in the area known as Miller's Slough.

"We view them as very, very successful," McGrath said of the completed FRIMA projects, adding "I would love to do more." Another landowner who benefited from FRIMA funding, Celeste Beam, said she hoped the FRIMA funded fish passage projects would bring more trout to the area.

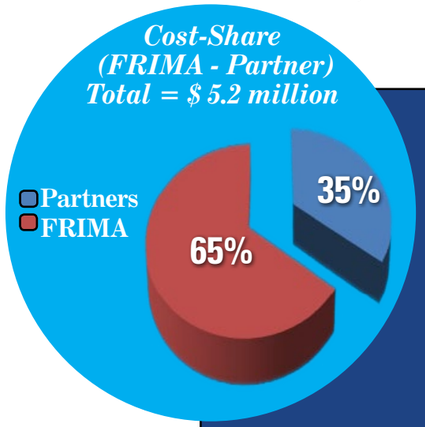
Woodard noted that they are seeing many more fish than in the past. Woodard also said he can see new vegetation flourishing along the stream banks, which will help prevent future erosion and provide shade, improving fish habitat.

"Things are heading in the right direction, but it takes time," he said. "This is a long term vision." There is still more work to be done. By acting now, we improved the status of Yellowstone cutthroat trout and increased population abundance. The collaborative work done here provides a successful model that can be replicated elsewhere.

"It's a win-win" Woodard said. "Landowners are happy, we're happy and the fish are happy, so we're doing a good job." The Service, Trout Unlimited and landowners all agree that the FRIMA Program has been very successful to date. Two fish passage barriers remain along Rainey Creek and need to be remedied in order to secure it as a stronghold tributary for Yellowstone cutthroat trout; one of these is design-ready and awaits construction funding. "We're excited and ready to complete the job," said Eric Leitzinger of the Idaho Department of Fish and Game.

Warren Colyer of Trout Unlimited and Les Perkins and Dan Kleinsmith of Farmers Conservation Alliance assessing a flatplate screen installation on a diversion in Idaho.
Farmers Conservation Alliance

A Sample of Successful Projects, Idaho



State Overview

- 40 projects funded (90% completed, 10% ongoing)
- 355 miles re-opened to fish passage
- 19 fish passage barriers removed or modified
- 31 water diversions and irrigation pumps screened
- 7 fish passage barrier inventories completed

Dan Shively/USFWS

1 Garden Creek

Completed: 2005

Overview: In partnership with the Garden Creek Restoration Project, three fish-friendly, bottomless-arch culverts were installed, two diversion points were relocated, a 5 cubic feet/second (cfs) fish screen installed, and a newly constructed stream channel was fenced and re-vegetated to prevent livestock disturbance.

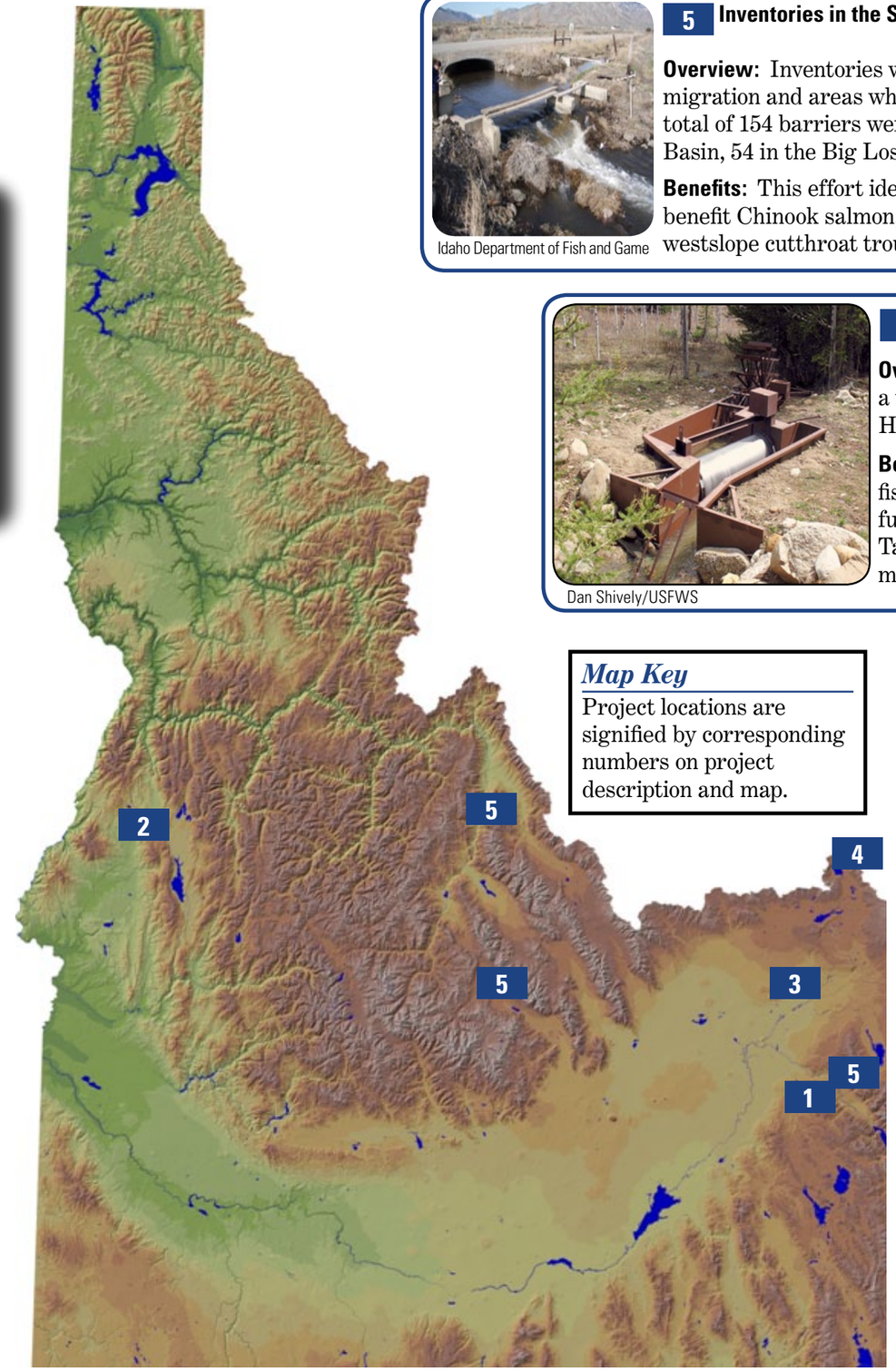
Benefits: The screened diversion and fishway provide safe upstream and downstream passage for Yellowstone cutthroat trout.

2 East Fork Weiser River

Completed: 2004

Overview: Working collaboratively with several other partners, the West Central Highlands Resource Conservation & Development Council removed a key migration barrier and screened irrigation flows along the East Fork Weiser River.

Benefits: The screened diversion and fishway benefits bull trout and redband trout by providing safe downstream passage and re-connecting five miles of habitat upstream.



Map Key

Project locations are signified by corresponding numbers on project description and map.

Idaho Department of Fish and Game

5 Inventories in the Salmon River, Big Lost River, and Teton River Basins

Completed: 2007

Overview: Inventories were conducted to identify barriers to upstream fish migration and areas where native fish species enter into water diversions. A total of 154 barriers were identified, including 41 in the Upper Salmon River Basin, 54 in the Big Lost River Basin, and 59 in the Teton River Basin.

Benefits: This effort identifies future potential FRIMA projects that will benefit Chinook salmon, steelhead, bull trout, Yellowstone cutthroat trout, westslope cutthroat trout and mountain whitefish.

Dan Shively/USFWS

4 Targhee Creek

Completed: 2008

Overview: A diversion was screened on Targhee Creek, a tributary to Henrys Lake in the headwaters of the Henrys Fork drainage, Snake River Basin.

Benefits: The new fish screen reduces the number of fish entering into the irrigation diversion and allows full access to additional spawning habitat upstream in Targhee Creek. Yellowstone cutthroat trout fry now move safely downstream into Henrys Lake.

3 Chester Dam Fish Ladder

Completed: 2011

Overview: A fish ladder was installed in the fall of 2011. This work complements other fish passage work completed at the dam to prevent loss of Yellowstone cutthroat trout to irrigation water withdrawals.

Benefits: A total of 35 miles of stream is re-opened to fish passage, benefiting Yellowstone cutthroat trout, mountain whitefish and bluehead sucker.

Jim DeRito/Henrys Fork Foundation

Montana

Fish screen and siphon installation, Skalkaho Creek

Workers install siphon on Skalkaho Creek, which will prevent fish from entering the irrigation ditch.
Montana Fish, Wildlife & Parks

This story all began with a little fish that could. Chris Clancy, a fisheries biologist for Montana Fish, Wildlife & Parks, was monitoring native populations of westslope cutthroat trout and bull trout along the Skalkaho Creek in the Bitterroot River Basin when he came across a spawning westlope cutthroat trout he suspected was stuck.

"We found him at the base of the first diversion (of three they were monitoring) and thought, well, this is as far as this guy's going," Clancy said. Clancy was wrong. The fish managed to get up past the diversion and eventually past all three, making it to the national forest in the headwaters of Skalkaho Creek.

"It made us really want to help the fish," Clancy added. "We thought 'Gosh, this guy's really had to work hard to get up there, we should help him out."

Skalkaho Creek supports a variety of native fish populations, including bull trout, westslope cutthroat trout and mountain whitefish, in addition to non-native rainbow trout and brown trout. The creek, which connects to the Bitterroot River, supports both resident and migratory trout populations. Over time, the migratory trout populations have diminished significantly due to passage barriers, the introduction of non-native trout and the dewatering of tributaries for irrigation withdrawals in the summer, Clancy explained.

Providing safe passage for native trout, restoring populations of migratory trout, and improving the overall ecological health of the stream were the top priorities for those who sought FRIMA funding for the three screens and two siphons installed along the creek.

"The three screens helped fish pass safely by the irrigation diversions and the two siphons prevent fish from entering into ditches," said Mark Lere of Montana Fish, Wildlife & Parks. The project reconnected about 10 miles of habitat for fish.

"A lot of projects are focused on single diversions, and this one focused on an entire watershed and the diversions associated with it," Lere explained.

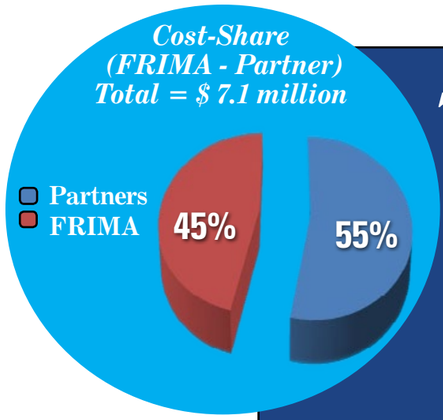
In addition to the initial restoration of passage for native trout populations, it was important to monitor the sites to ensure they are working efficiently and are functional for both adult and juvenile fish. This project became the thesis focus of two Montana State University graduate students who helped with monitoring fish passage at the site.

"We know, through the graduate projects, hundreds and hundreds of fish that went down the ditches aren't doing that anymore, and are going back into Skalkaho Creek," Clancy said. "Having FRIMA in a valley like this, where irrigation is a top priority, certainly was a gift," Clancy said.

> *"Having FRIMA in a valley like this, where irrigation is a top priority, certainly was a gift."*
>
> *- Chris Clancy, Montana Fish, Wildlife & Parks*

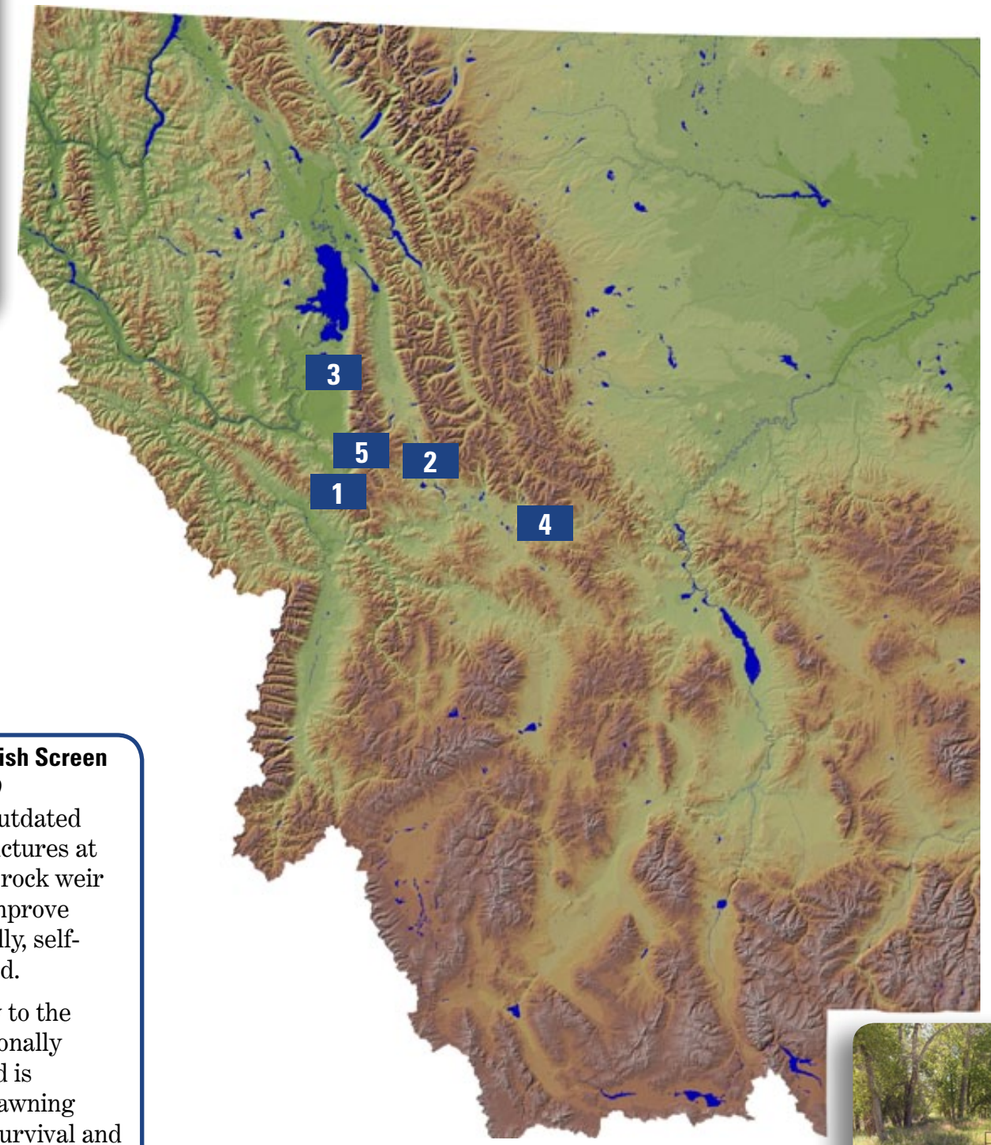
A newly installed vertical screen on a diversion at Skalkaho Creek. Irrigation water passes through screen holes while fish are redireted back to the creek.
Montana Fish, Wildlife & Parks

A Sample of Successful Projects, Montana



State Overview

- 36 projects funded (83% completed, 17% ongoing)
- 153 miles re-opened to fish passage
- 10 fish passage barriers removed or modified
- 31 water diversions and irrigation pumps screened
- 4 fish passage barrier inventories completed



1 Schley Creek, Doney Ditch Screen

Completed: 2010

Overview: A vertical, flat screen was installed on the Doney Ditch to prevent entrainment of Yellowstone cutthroat trout.

Benefits: The project increased survival for a genetically important population of Yellowstone cutthroat trout found in Schley Creek.

Yellowstone cutthroat trout.
Latham Jenkins/Circumerro Stock

2 Morrell Creek Passage and Fish Screen

Completed: 2010

Montana Fish, Wildlife & Parks

Overview: This project removed outdated wood-pin and plank diversion structures at two sites, and replaced them with rock weir check structures (step-pools) to improve upstream fish passage. Additionally, self-cleaning fish screens were installed.

Benefits: Morrell Creek, tributary to the Clearwater River, supports a regionally unique population of bull trout and is considered the most important spawning tributary. This project benefits bull trout in Morrell Creek by increasing survival and providing upstream access to additional spawning habitat.

5 Middle Fork Jocko River, Tabor Feeder Canal

Completed: 2007

Overview: A 140 cfs fish screen was installed in the canal to allow safe downstream passage of fish.

Benefits: This project increases survival of genetically pure westslope cutthroat trout and bull trout.

4 Poorman Creek

Completed: 2007

Montana Fish, Wildlife & Parks

Overview: A comprehensive restoration project began on lower Poorman Creek in 2002 with irrigation diversion modifications including screening to eliminate fish losses, improvement of upstream fish passage, and increases in instream flow.

Benefits: The project improves connectivity of genetically pure westslope cutthroat trout.

3 Post Creek Kicking Horse

Completed: 2010

Overview: Working in partnership with the Confederated Salish & Kootenai Tribes, a large, 350 cfs diversion was screened to eliminate fish losses to irrigation water withdrawals in the Flathead River Basin.

Benefits: The project provides safe downstream passage for westslope cutthroat trout and bull trout.

Fish are protected from entering this irrigation diversion by a series of rotary drum screens seen here, typical of many FRIMA projects.
John Stephenson/USFWS.

Oregon

A look at the state's largest FRIMA funded fish screen project

Finished screen at the Santiam Water Control District Project Site, looking downstream.
Oregon Department of Fish and Wildlife

On paper, the fish screen located on the North Santiam River in Stayton, Oregon looks big. The project totaled more than $1.6 million dollars, of which FRIMA provided $400,000. In person, the screen appears even more massive, stretching for 275 feet and passing up to 1,050 cubic feet of water per second. For those involved in the construction of the screen and the landowners who've benefited from the project, massive barely begins to describe the success of the project. It is the largest FRIMA funded project in the State of Oregon that benefits steelhead, Chinook salmon, Oregon chub, and Pacific lamprey.

"I think whoever you ask, be it fisheries biologists or landowners, they'll all say it was a benefit to their interests," said Brent Stevenson, manager of the Santiam Water Control District. "This project helped protect over 17,000 acres of farm ground, and if we wouldn't have had it, that much farm ground would have been jeopardized, and the farming community can't afford to fund these types of projects on their own."

The project's total cost isn't only reflected in the benefits provided to landowners and community members, it's also visible in the sheer size of the screen. The size of this project was a huge challenge for the project manager, Mike Lambert, who tackled its complex design features.

Lambert said a key to the successful design for this project was to decide early on to build one large, continuous screen instead of five smaller screens that resemble some of the other projects around Oregon.

Lambert noted that other screening projects of this size cost up to 10 times as much, which highlights the Santiam Water Control District's cost efficiency in construction. He credits this efficiency to forums held by the Service, Oregon Department of Fish and Wildlife, and other partners, that provided opportunities for concerns to be voiced and solutions sought during the design phase.

"There was cooperation and discussion, and people could voice their interests and concerns, so the project moved forward smoothly," Lambert said. "We have a wonderful thing in this business in that nearly everybody wants to protect fish."

> *"We have a wonderful thing in this business in that nearly everybody wants to protect fish."*
>
> *-Mike Lambert, project manager*

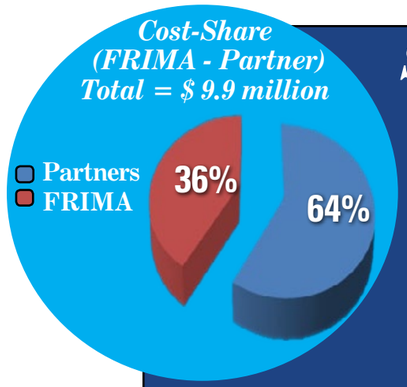
Alan Ritchey, Fish Screening Coordinator for ODFW, agreed the project's success can be attributed to the strong partnerships between federal and state agencies in addition to landowners.

"Between FRIMA and the State of Oregon, we can provide great assistance for water users and landowners who have fish passage barriers at their facilities," Ritchey said.

Barriers to fish passage are still present throughout Oregon. "It's going to be a continued long-term funding issue if we want to restore the fish passage barriers completely," Stevenson emphasized. The desire to fix these barriers exists at the state and federal levels, as well as with landowners who want to improve their water use without harming fish.

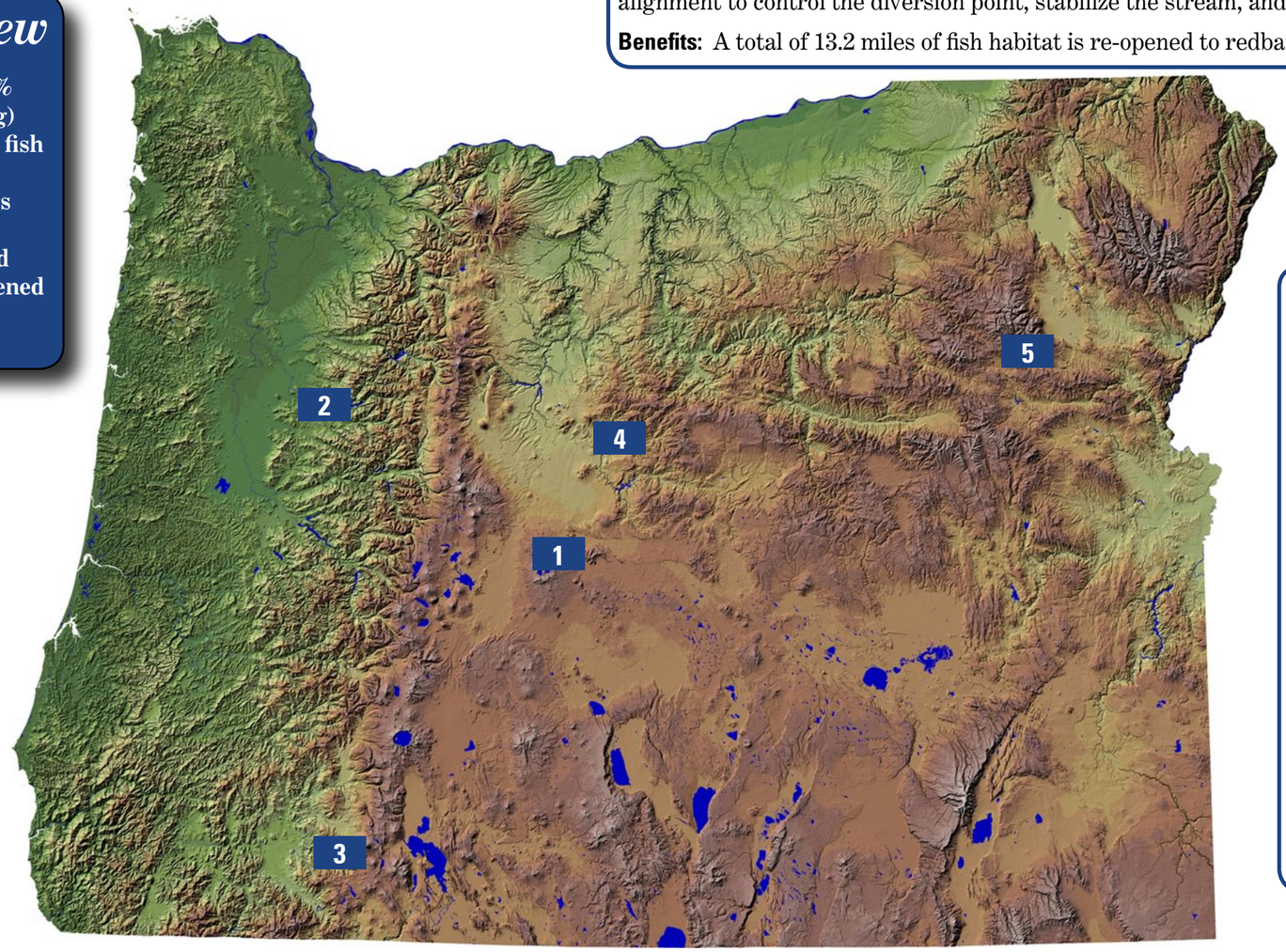
Pacific lamprey.
Jeremy Monroe/Freshwaters Illustrated

A Sample of Successful Projects, Oregon



State Overview

- 26 projects funded (96% completed, 4% ongoing)
- 365 miles re-opened to fish passage
- 12 fish passage barriers removed or modified
- 17 water diversions and irrigation pumps screened
- 2 fish passage barrier inventories completed



5 Sumpter Fish Screen

Completed: 2007

Overview: This project included several activities: removal of a concrete diversion dam, installation of five rock weirs, and construction of a new stream channel within its historic alignment to control the diversion point, stabilize the stream, and provide upstream fish passage.

Benefits: A total of 13.2 miles of fish habitat is re-opened to redband trout and bull trout.

4 Crooked River Central Fishway

Completed: 2008

Overview: A new fishway and fish screens were installed.

Benefits: Thirty-four miles of habitat are now accessible upstream for redband trout, Chinook salmon, and steelhead.

Dan Shively/USFWS

1 Tumalo Irrigation District - Fish Screen and Ladder

Completed: 2010

Dan Shively/USFWS

Overview: A 160 cfs, self-cleaning vertical panel fish screen and fish ladder were constructed on Tumalo Creek.

Benefits: Redband trout, kokanee, and mountain whitefish pass safely up and downstream.

Dan Shively/USFWS

2 Lacomb Irrigation District Fish Screen

Completed: 2007

Overview: A horizontal, flateplate screen was installed for this 65 cfs gravity-fed irrigation diversion on a tributary to the North Santiam River.

Benefits: The screen provides safe downstream passage for Chinook salmon, steelhead, coastal cutthroat trout, and Pacific lamprey.

3 Medford Irrigation District - South Fork & North Fork Little Butte Creek Diversions/ Fish Screen & Ladder

Completed: 2005

Overview: Two separate FRIMA grants provided funding for a 65 cfs fish screen and passage project at one site and a self-cleaning, vertical panel fish screen at another.

Benefits: Safe downstream fish passage is now provided and 35 miles of fish habitat re-opened, benefiting coho salmon, steelhead and coastal cutthroat trout.

Washington

Newly constructed fish passage ramp at Fulton Dam, Chewuch River

Fulton Dam, located on the Chewuch River in eastern Washington, is subject to extremely high and low flows throughout the year. Prior to the improvements made at this site, endangered spring Chinook salmon and threatened steelhead and bull trout experienced difficulty passing the dam during summer flow periods. This was evident in the low numbers of spawning fish being recorded above the dam.

"The old structure was problematic for passage and with the new fish passage ramp, fish are able to pass more freely and irrigators are able to get their water," said Eric Egbers of the Washington Department of Fish and Wildlife Habitat Program. "This project improved passage for a number of important fish species."

> *"We're asking people to engage on their property, and that's a really big thing to ask."*
>
> *- Jennifer Molesworth, Bureau of Reclamation*

Pre-project Photo -- A boulder weir diversion prior to FRIMA project. Bureau of Reclamation

In addition to creating safe passage for fish, project managers had to consider the needs of landowners and kayakers who also rely on the river for water withdrawal and recreational uses.

Chris Johnson, the Methow Salmon Recovery Foundation Project Coordinator for this site, said it's not always easy to appease such a variety of stakeholders, but he believed it was necessary for the success of the project. Initiating ongoing conversations with stakeholders was vital to the project's completion.

Post-project Photo: Fish passage ramp in place during low summer flow. Bureau of Reclamation

"We're asking people to engage on their property, and that's a really big thing to ask," Jennifer Molesworth, fisheries biologist with the Bureau of Reclamation, said, reaffirming the need to listen and spend one-on-one time with stakeholders. The fish passage ramp was constructed in the center of the river (as seen in the photo above) and provides fish with a slot they are able to navigate successfully.

During winter construction, a massive flood in the area was another obstacle to finishing the project. Two months of work was washed away, which could have easily discouraged a multitude of project stakeholders and implementers.

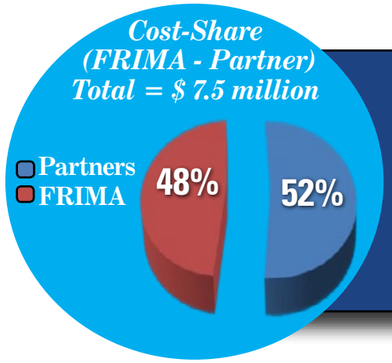
"It was one of those situations that wasn't easy," Johnson said, elaborating there were no signs of any mid-construction damages. "Now, if anybody were to come and look at it they'd think it was a model project."

Since the barrier was removed and the natural looking fish passage ramp constructed, Johnson said they're seeing a great deal of improvement in the number of spawning fish upstream.

Molesworth confirmed this, describing the satisfaction she feels when seeing fish holding in pools with suitable habitat for spawning upstream.

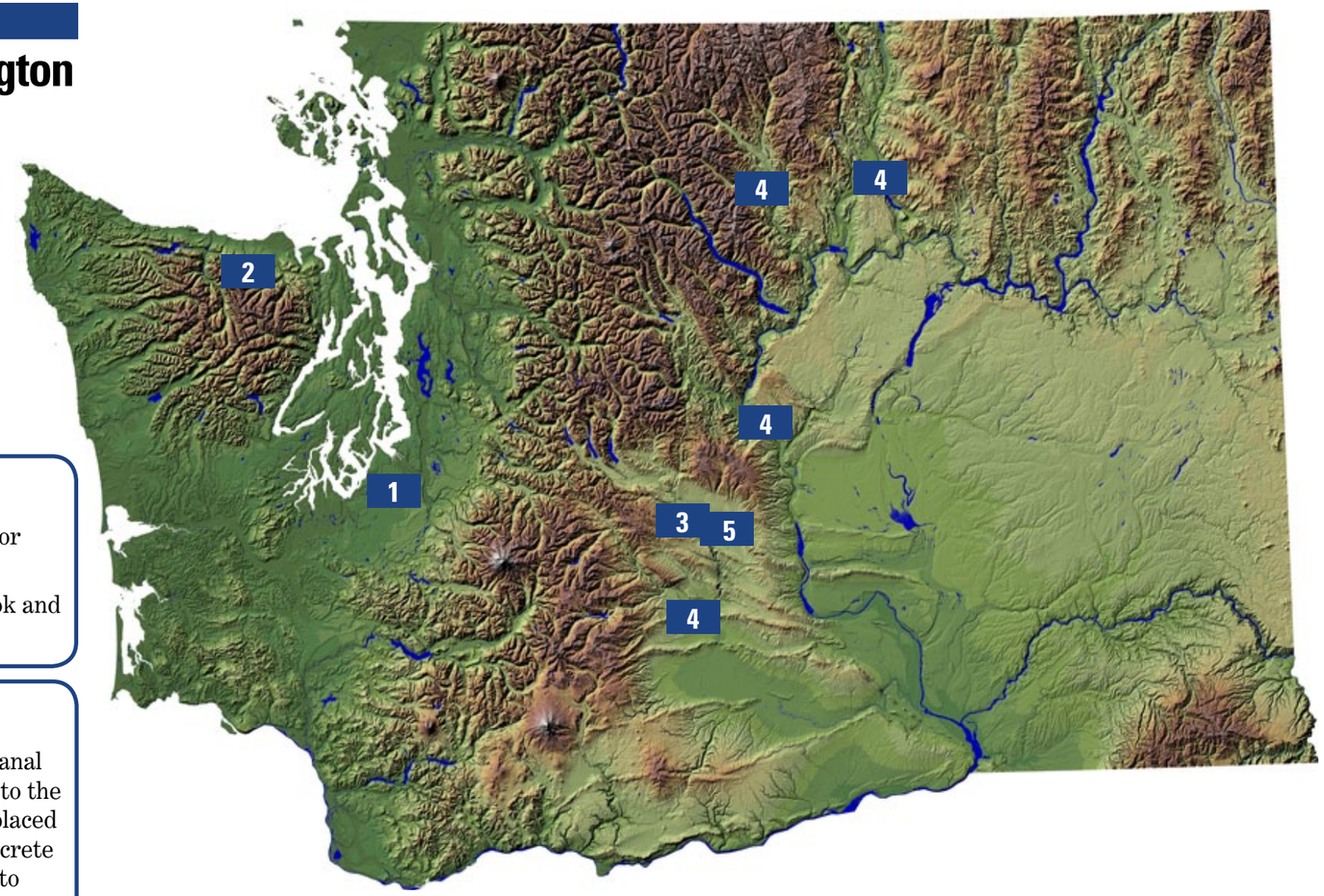
A bull trout, one of several fish species benefiting from FRIMA projects. Joel Sartore/National Geographic

A Sample of Successful Projects, Washington



State Overview

- 25 projects funded (100% completed)
- 257 miles re-opened to fish passage
- 15 fish passage barriers removed or modified
- 51 water diversions and irrigation pumps screened
- 5 fish passage barrier inventories completed



1 City of Tacoma Green River Fish Ladder

Completed: 2004

Overview: A state-of-the-art fish ladder was built to restore fish passage upstream of this major municipal water supply intake that serves close to 100,000 customers.

Benefits: Roughly 100 miles of historic habitat in the upper Green River is available to Chinook and coho salmon, steelhead, rainbow trout, coastal cutthroat trout, and Pacific lamprey.

Washington Department of Fish and Wildlife

2 Sequim Prairie

Completed: 2007

Overview: A complete retrofit of the irrigation diversion at Sequim Prairie now allows farmers to irrigate their agricultural lands with fish-friendly water. New fish screens and a fish return bypass system were installed.

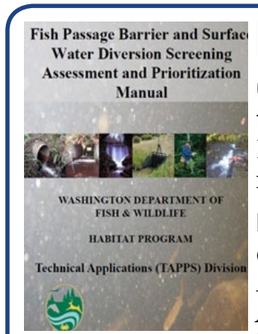
Benefits: Chinook and chum salmon, steelhead, and bull trout now pass safely downstream into the Dungeness River where they can contribute to the production of fish populations at-large.

3 Taneum Creek

Completed 2011

Overview: The irrigation dam and canal intake on Taneum Creek, tributary to the Yakima River, was removed and replaced with a new, low-head reinforced concrete sill. A roughened channel was built to improve upstream fish passage.

Benefits: This project eliminates the final human-made fish passage barrier on Taneum Creek, re-opening 30 miles of habitat for spring Chinook salmon, steelhead, and reintroduced coho salmon.



4 Washington FRIMA Inventories

Completed: 2006

Overview: Fish passage barrier inventories were completed from 2002 through 2006 and included the Ahtanum Creek Watershed (Yakima River Basin); four state-owned wildlife areas; Okanogan and Methow river basins, and several smaller watersheds near Wenatchee, WA.

Benefits: These efforts led to identification of barriers in need of correction and the development of a state-wide manual on "*Fish Passage Barrier and Surface Water Diversion Screening Assessment and Prioritization,*" published by the Washington Department of Fish and Wildlife in 2009.

Washington Department of Fish and Wildlife

5 Caribou Creek

Completed: 2009

Overview: Two irrigation diversions were consolidated into one new fish-friendly diversion on Caribou Creek, tributary to the Yakima River. An old diversion structure posing an upstream fish passage barrier was removed. The new state-of-the-art facility provides fish screens that meet state and federal criteria and an engineered fishway for upstream passage.

Benefits: Two barriers to upstream fish passage are removed, reconnecting two miles of habitat for steelhead and resident rainbow trout. Fish also now pass safely downstream.

Future Needs and Acknowledgments

Many FRIMA projects have been completed to date and are showing amazing results for improving fish habitat while making needed improvements at water diversions. In many local communities, FRIMA Program investments have helped secure fish-friendly uses of water to ensure sustainable livelihoods, such as ranching and farming. There are still a handful of FRIMA projects in progress. Tens of thousands of unscreened water diversions remain in the states of Oregon, Washington, Idaho, and western Montana.

The Service Gives a Special Thanks to All of Our Supporting FRIMA Partners!

Together, we've made a difference for sustainable fisheries and water management.

Agricultural fields below Mt. Hood in Upper Hood River Valley, Oregon
Alan Dyck/ U.S. Forest Service

FRIMA provides matching federal funding to irrigators and other water users to make needed improvements while benefiting fish passage.
Here a wheel line sprinkler irrigates fields in the Lemhi River Valley, Idaho.
Joel McNee/ Natural Resources Conservation Service

FRIMA restores habitat for a wide range of fish species.
Seen here is a juvenile steelhead in its natural habitat.
NOAA Fisheries

FRIMA promotes sustainable agriculture in local communities.
Here a farmer in southern Idaho harvests his hay crop irrigated by fish-friendly water.
Charma Comer/ Natural Resources Conservation Service

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U.S. Fish & Wildlife Service

http://www.fws.gov/pacific/Fisheries/frima

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