



R & E Grant Application 09-11 Biennium

Project #:
09-207

Adair Pond Water Control Structure

Project Information

R&E Project Request: \$15,621.00
Match Funding: \$18,296.00
Total Project: \$33,917.00
Start Date: 8/6/2010
End Date: 6/30/2011
Project Email: Gary.M.Galovich@state.or.us
Project Biennium: 09-11 Biennium
Organization: ODFW - Corvallis

Applicant Information

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Past Recommended or Completed Projects

Number	Name	Status
05-011	STAC Mini-Grant Program	Approved

Project Summary

This project is part of ODFW's 25 Year Angling Plan.

Activity Type: Miscellaneous (Enhancement)

Summary: The project will replace a failing water control structure at ODFW's 6.4 acre Adair Pond located at the South Willamette Watershed District Office several miles north of Corvallis. The leaking standpipe is not structurally sound and allows water levels to decline significantly during the spring, summer and early fall affecting the quality of the fishery and angling access. The project will also provide an opportunity to improve the warmwater fish habitat.

Objectives: The primary objective is to replace the existing standpipe, gate, and outlet pipe that were installed when the pond was constructed in 1984. Water flows through the rusted top of the standpipe and at several locations along its height resulting in pond elevations that are several feet lower than if the pipe were sound and functioning properly. The Waterman gate and outlet

pipe also installed in 1984 will also be replaced. Given the identical age of the outlet pipe, it likely also has areas of rust and failure.

Replacement of the water control structure will require the pond be drained and the dam excavated to replace the outlet pipe. Draining the pond will allow three additional objectives to be accomplished:

- Removal of unwanted fish and restocking to restore a balanced and more productive fish community;
- Removal of the non-native and more aggressive red swamp crayfish that have been illegally introduced into the pond;
- Re-contouring of pond banks and bottom to improve fish habitat.
- Placement of boulders, large wood, and trees on the pond bottom and along the shoreline to improve fish habitat.

Fishery Benefits:

Adair Pond is located in Adair Village near the cities of Corvallis, Albany, Monmouth, and Independence. It provides ADA access via a trail and angling platform and offers youth, adults, and families a safe and convenient angling location in a relatively natural setting. Although the pond currently receives a great deal of use, additional housing development is planned for Adair Village and particularly in lands to the south of the pond. Establishing and maintaining angling at sites located in or near urban areas such as this is a priority identified in the 25 Year Angling Enhancement Plan.

The pond is managed to provide a warmwater fishery sustained primarily by natural production. Species include largemouth bass, bluegill, redear sunfish, and brown bullhead catfish. Channel catfish do not spawn naturally in the pond and are periodically stocked, as are largemouth and redear when appropriate. Several unwanted fish species have been illegally introduced including goldfish and mosquitofish. Draining the pond will allow for the removal of unwanted fish, reduction in the number of overabundant and stunted bluegill, and restocking to restore fish community balance and provide a quality fishery.

The pond is used by ODFW, the Corvallis Boys and Girls Club, and the Corvallis Parks and Recreation Department to hold youth angling activities. Although angling success at these is typically fair, many of the fish caught are smaller and the quality can be improved by reducing or eliminating overabundant and unwanted fish.

The pond has also supported a healthy population of native crayfish that play an important role in the pond ecology and serve as prey to several of the fish species. However, the more aggressive red swamp crayfish have been illegally introduced and are now the dominant species. Draining the pond will provide an opportunity to eliminate the introduced crayfish.

Watershed Benefits: Adair Pond is located at the upper end of an unnamed tributary to Calloway Creek on land now managed under the EE Wilson Wildlife Area. Water from the pond outlet flows to Calloway Creek, then to Bowers Slough and the Willamette River. Replacement of the failing water control structure will ensure warmwater and other fish in the pond cannot escape. Elimination of the introduced crayfish and other unwanted species while the pond is drained will reduce the risk of these spreading into waters downstream.

Current Situation: Adair Pond was constructed in the early 1980's by adult trainees from a local labor school working under the guidance of ODFW staff. Water was impounded by constructing a dam across the unnamed stream, excavating portions of the area above the dam, and then capturing surface runoff. The dam measures approximately 850 feet in length and has a maximum height of about 16 feet above the stream channel where the outlet pipe is located. The top width of the dam is approximately 20 feet and the base width at the outlet pipe is 164 feet.

The pond elevation is regulated by a 13 foot high, 24 inch diameter corrugated metal standpipe attached to a Waterman canal gate and 164 foot long, 24" diameter corrugated metal outlet pipe set at a 1% grade. Flows exceeding the pipe capacity can drain via a grassed spillway, though there is no record of it ever having been active. At full pool, the pond has a surface area of 6.4 acres, a maximum depth of 14 feet, and storage of 43 acre-feet. The Waterman gate allows the pond to be drawn down when necessary.

Regularly scheduled dam safety inspections conducted by the Oregon Water Resources Department (OWRD) during the late 1980's and 1990's noted that some leakage may have been occurring along the buried length of the outlet pipe, but this was not confirmed and the pond stayed at or close to full pool.

In the early 2000's, staff and the public noted the water levels were lower than normal and particularly during the summer and early fall. Leakage along the outlet pipe was again suspected, but leakage at several locations along the height of the standpipe was for the first time also observed. More recent observations have noted the top two feet of the standpipe is rapidly rusting and failing leading to dramatically lower pond levels at all times of the year. Additional sources have been investigated including seepage along the dam, but all other components of the pond infrastructure have been determined to be sound. The corrugated metal culvert material used in the original construction in 1984 had an expected lifespan of approximately 30 years so failure is not unexpected.

The shallower depths and the smaller pond footprint have reduced the available fish habitat. As the pond shoreline recedes during the dry portion

of the year, angling access is limited or prevented by the exposed but muddy pond bottom.

Alternatives:

Several project alternatives were considered:

1. Permanently remove the water control structure and impoundment;
2. Replace the water control structure to existing measurements using identical materials;
3. Replace the water control structure to existing measurements using different materials to provide a longer lifespan.
4. Replace the water control structure with a higher standpipe to increase water storage and the pond footprint using either identical or improved materials.

Option 1 would result in the net loss of fish and wildlife habitat and of a recreational resource so was not viable. Option 2 would be the least expensive approach to maintaining the pond, but would also have the shortest lifespan before the control structure would again need to be replaced. Option 4 was attractive because it would increase the size of pond and include additional shallow water habitat in some areas. However, any change to the existing control structure dimensions and pond storage would require a revised water right and involve a lengthier and more costly approval process.

Option 3 was selected because it maintains the pond while maximizing the lifespan of the replacement effort and because it requires little more than a notification to OWRD that the control structure is being replaced. The material improvements recommended include a heavier gauge of pipe, use of aluminized pipe that provides a minimum 75 year lifespan, sectional bands and neoprene gaskets, and an anti-seep collar and wing walls where the outlet pipe enters the dam.

Designer: The project has been designed by ODFW staff including the EE Wilson Wildlife Area Manager, and SWWD Habitat and Western Oregon Warmwater Game Fish Management project staff.

Methods: ODFW will begin notifying the public of the project if/when the R&E grant proposal is approved by the Fish and Wildlife Commission. We expect there to be questions and public concern given the pond will be drawn down during what is typically the warmest part of the year. Notice will be made via press release in area newspapers and posting at the parking area and access trails used by visitors.

Beginning early June, ODFW will work with volunteers to daily operate trap nets in Adair Pond to volitionally capture fish for removal. Fish designated for re-stocking in the pond will be transported to a holding pond at the defunct ODFW St. Paul Warmwater Fish Hatchery. These fish may be temporarily held in net pens at EE Wilson Pond until sufficient numbers warrant a trip to the St Paul facility. The majority of other captured fish will be transferred to other waters where they will provide benefit. Fish not suited for re-stocking or transfer such as goldfish and mosquitofish will be disposed of.

Staff will begin draining Adair Pond in late June via the existing gate using a controlled release to minimize significant changes to downstream flows and water quality. A series of nets will be placed in the channel downstream of the outlet to ensure any fish that escape the pond during the drawdown are not transported to areas downstream. Operation of the trap nets in the pond will continue for as long as the water depths allow. As the pond shallows, staff will work with volunteers to seine the pond and continue the fish removal.

During the drawdown, crayfish traps will also be used to capture both native and introduced species of crayfish. Native crayfish will either be held for re-stocking or relocated. Any non-native crayfish captured will be disposed of.

Throughout the latter half of August, boulders, logs, and trees will be brought from varying locations and stockpiled on-site for placement as fish and wildlife habitat after the water control structure has been replaced.

A rented excavator and ODFW backhoe will be used to excavate and remove the existing water control structure in late August after the work area and pond bottom has sufficiently dried. The rented excavator will be operated by ODFW staff. At this time, an ODFW tractor will begin disking the exposed pond bottom. A crawler on-loan from the US Fish and Wildlife Service (USFWS) will then be used along with the backhoe to re-contour the pond bottom and banks to improve fish and wildlife habitat.

The excavator and backhoe will begin preparing the installation site after the existing control structure is removed. Gravel used as the base for the new outlet pipe will be purchased from a quarry located less than two miles from the site and will be brought in using a dump truck on-loan from the USFWS and driven by ODFW staff. Concrete will be purchased and delivered to construct a base for the new Waterman gate and wing walls at the head of the outlet pipe. The standpipe, gate, and outlet pipe will then be placed using the backhoe. The backhoe and excavator will place the excavated dam material as fill over the new outlet pipe. The crawler will be used to compact the new surface. The backhoe will then be used to place the boulders, logs, and trees for fish and wildlife habitat.

Disturbed areas and selected areas of the pond shoreline and bottom will be seeded to minimize turbidity and enhance pond productivity. The rate at which the pond re-fills will depend on fall and winter rains, and area runoff. Warmwater fish and native crayfish will be stocked or re-introduced when pond depths are sufficient to sustain them.

Inspector: ODFW EE Wilson Wildlife Area, Habitat Project, and Warmwater Game Fish Management Project staff; OWRD

Funding Elements: R&E funds will be used for the purchase of the water control structure materials (outlet pipe, standpipe, pipe connection bands and gaskets, anti-seep collar and wing wall, Waterman canal gate and frame), concrete and delivery, the purchase of gravel, rental and delivery of the excavator, all equipment fuel costs, and a portion of the costs of transporting from varying locations the boulders, logs, and trees that will be used for fish and wildlife habitat. Staff time includes EE Wilson Wildlife Area Manager, Assistant Manager, and Technician, and Habitat Project Biologist and Technician for project design and equipment operation; Western Oregon Warmwater Fish Biologist and Experimental Biological Aid for project design, habitat enhancement, fish salvage, and fish stocking.

Partners: Yes
Individual volunteers will assist with fish salvage, fish stocking, and habitat enhancement activities

Existing Plan: No

Affected Contacted: Yes

Affected Supportive: Yes

Affected Comments: Pond users and ODFW staff recognize the value of the pond and the need to replace the control structure.

Project Schedule/Participants/Funding

Activity	Date	Participants
Begin pond drawdown and fish salvage	7/1/2010	ODFW, volunteers
Begin habitat enhancement (addition of trees, logs, boulder, etc)	8/23/2010	ODFW, volunteers
Begin water control structure replacement	8/30/2010	ODFW
Begin crayfish control effort	8/2/2010	ODFW, volunteers
Begin re-stocking of pond	11/1/2010	ODFW, volunteers
Complete water control structure installation	9/3/2010	ODFW

Affected Species:
Warmwater

Project Permits

Name	Issued By	Secured?	Date Secured	Date Expected
Permit to Appropriate Public Waters	OWRD	Yes	11/7/1984	1/1/0001
Permit to Construct Reservoir and Store Water	OWRD	Yes	11/7/1984	1/1/0001

Project Monitoring

Organization	Address	Activity	Frequency
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ODFW	7118 NE Vandenberg Ave Corvallis, OR 97330	Monitor dam operation, pond fish and wildlife and public use	Ongoing
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Project Maintenance

Organization	Address	Activity	Frequency
ODFW	7118 NE Vandenberg Ave Corvallis, OR 97330	Maintain dam and water control structure, and fish and wildlife habitat	Ongoing

Project Match Funding

Funding Source	Cash	In-Kind	Other	Description	Total	Secured?	Conditions?	Comments
R&E Request	\$15,621.00	\$0.00	\$0.00		\$15,621.00	No	No	
ODFW	\$0.00	\$18,296.00	\$0.00		\$18,296.00	Yes	No	
				Total Match Funding:	\$33,917.00			

Project Budget

Item	Item Type	Units	Unit Cost	R&E Funds	Match Funds	Total
Excavator rental - 1 week w/ delivery	Equipment	1	\$3,000.00	\$3,000.00	\$0.00	\$3,000.00
Excavator operation	Personnel	50	\$30.00	\$0.00	\$1,500.00	\$1,500.00
Fish salvage, stocking, habitat - staff	Personnel	48	\$30.00	\$0.00	\$1,440.00	\$1,440.00
Fish salvage, stocking, habitat - staff	Personnel	32	\$15.00	\$0.00	\$480.00	\$480.00
Fish salvage, stocking, habitat - volunteer	Personnel	144	\$20.00	\$0.00	\$2,880.00	\$2,880.00
Annular bands - 24" Alzd, 12" wide	Supplies/Materials /Services	8	\$28.50	\$228.00	\$0.00	\$228.00
Anti-seep collar w/ 4'x4' wing wall, 24" Alzd	Supplies/Materials /Services	2	\$225.00	\$450.00	\$0.00	\$450.00
Backhoe, operation	Supplies/Materials /Services	50	\$80.00	\$0.00	\$4,000.00	\$4,000.00
Concrete, delivery	Supplies/Materials /Services	12	\$91.00	\$1,092.00	\$0.00	\$1,092.00
Crawler, operation	Supplies/Materials /Services	30	\$80.00	\$0.00	\$2,400.00	\$2,400.00
Equipment fuel	Supplies/Materials /Services	700	\$3.00	\$2,100.00	\$0.00	\$2,100.00
Fish Screen, materials and fabrication	Supplies/Materials /Services	1	\$200.00	\$0.00	\$200.00	\$200.00
Fish transport	Supplies/Materials /Services	40	\$2.90	\$0.00	\$116.00	\$116.00
Freight for control structure materials	Supplies/Materials /Services	1	\$400.00	\$400.00	\$0.00	\$400.00
Gravel - 5 loads 3/8" minus (40 yds)	Supplies/Materials /Services	5	\$120.00	\$600.00	\$0.00	\$600.00
Gravel delivery	Supplies/Materials /Services	6	\$80.00	\$0.00	\$480.00	\$480.00
Habitat boulders, trees, logs	Supplies/Materials /Services	1	\$1,200.00	\$1,200.00	\$0.00	\$1,200.00
Neoprene pipe gaskets - 24", 12" wide	Supplies/Materials /Services	8	\$16.00	\$128.00	\$0.00	\$128.00
Outlet pipe - 24" Alzd CSP 12 ga	Supplies/Materials /Services	162	\$24.00	\$3,888.00	\$0.00	\$3,888.00
Standpipe - 24" Alzd CSP 12 ga, "t", 13' riser	Supplies/Materials /Services	1	\$850.00	\$850.00	\$0.00	\$850.00
Tractor w/disk, operation	Supplies/Materials /Services	60	\$80.00	\$0.00	\$4,800.00	\$4,800.00
Waterman canal gate - 24" C10, 13' H frame	Supplies/Materials /Services	1	\$1,685.00	\$1,685.00	\$0.00	\$1,685.00
					Total Budget:	\$33,917.00

Additional Files

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