



R & E Grant Application 05-07 Biennium

Project #:
05-147

Blitzen River Redband Study

Project Information

R&E Project Request: \$20,964.00
Match Funding: \$53,478.00
Total Project: \$74,442.00
Start Date: 1/15/2006
End Date: 6/30/2007
Project Email: steve.jacobs@oregonstate.edu
Project Biennium: 05-07 Biennium
Organization: ODFW - Corvallis Research Lab

Applicant Information

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Past Recommended or Completed Projects

This applicant has no previous projects that match criteria.

Project Summary

This project is NOT part of ODFW's 25 Year Angling Plan.

Activity Type: Research
Summary: Assessment of Migratory Life History and Fishery Characteristics of Fluvial Redband Trout in the Blitzen River.
This study will focus on the large migratory redband trout in the Blitzen River Basin. Specifically, we will investigate migration patterns and moment of migratory fish through irrigation diversions in the watershed. This work will evaluate the efficacy of passage improvements that have been completed. Additionally, we will evaluate the angler use and recreational fishery contribution of this redband trout population. This study will be conducted in conjunction with OSU Department of Fisheries and Wildlife and support a Master's Thesis project.

Objectives:

Objective 1.0 -- Determine the life history and migratory characteristics of adult redband trout in the Blitzen River and associated tributaries. This includes assessing timing of spring and fall movement, spawning and summer rearing locations, potential passage problems.

Task 1.1 Collect adult redband trout at selected irrigation diversion structures in the lower Blitzen River during the spring of 2007.

Task 1.2 Collect redband trout by angling in the Blitzen River above Page Springs gauging weir and/or by collecting fish at the Page Springs irrigation diversion structure during the spring and summer of 2007.

Task 1.3 Record length and weight of each fish captured. Collect scale and genetic samples from a representative subsample. Tag all fish not receiving radio tags with numbered anchor tags.

Task 1.4 Surgically implant radio tags into 40 adult redband trout. Radio tag approximately 20 fish collected in the lower Blitzen River, and 20 fish collected near the Page Springs gauging weir.

Task 1.5 Track redband trout movement in the mainstem Blitzen River and selected tributaries using radio telemetry receivers. Operate fixed receiver stations and conduct mobile tracking surveys.

Objective 2.0 -- Determine angling pressure, distribution of angling effort, and potential harvest impacts on redband trout in the Blitzen River and selected tributaries.

Task 2.1 Develop a statistical angler survey.

Task 2.2 Conduct angler survey from 27 May through 31 October in 2007 and 2008.

Task 2.3 Derive statistical estimates of number of anglers, distribution of anglers, catch rate, harvest rate, and proportion of marked redband trout in the catch.

Task 2.4 Estimate angler catch and harvest impact rate by estimating proportion of anchor-tagged redband trout caught, and estimating proportion of anchor-tagged redband trout retained by anglers.

Fishery Benefits:

Statistical angler surveys of the Blitzen River trout fishery have not been conducted in many years, but periodic angler checks indicate that the area supports a popular and possibly growing number of anglers. The Blitzen provides opportunity to catch large, migratory redband trout, especially during wet climate cycles. Currently the Blitzen River is managed to provide a consumptive trout fishery; anglers are allowed to retain two trout per day during the summer months. However, from the first of November through late May, angling is catch and release only. Without estimates on the magnitude of angler harvest and harvest rates it is impossible to assess the compatibility of current harvest management with the productivity of Blitzen River redband.

Watershed Benefits:

According to Bowers et al. (1999), redband trout populations in the Malheur Lakes basin historically connected through Malheur Lake. At the time, fish populations from Silver Creek, the Silvies River, and the Donner und Blitzen River were connected. Climate change, in addition to construction of irrigation diversion dams, has reduced or eliminated connection between redband trout populations. A series of irrigation diversion structures and a gauging station weir on the Blitzen River have restricted trout movement, at least during portions of the year. Recent improvements to passage at irrigation diversion structures, as well as proposed changes to the Page Springs gauging weir, have (or will) improve connectivity between the lower Blitzen River and its upper reaches and tributaries. However, limited data has been collected on trout movement upstream of the Malheur National Wildlife Area. Past studies by the ODFW Native Trout Project documented the presence of migratory individuals in the lower mainstem Blitzen in the late 1980s (Buchanan et al. 1989), however limited tag recovery of marked individuals prevented a detailed assessment of migratory characteristics of passage issues. In addition, an unpublished study conducted by staff from the Malheur National Wildlife Refuge (in cooperation with ODFW) noted limited movement of redband trout from the lower river to areas upstream of the Page Springs gauging weir. Since that time, passage improvements have been implemented on most of the irrigation diversion dams

Current Situation:

The Blitzen River supports a unique, relatively abundant group of rainbow (redband) trout (*Oncorhynchus mykiss*). Blitzen River redband include resident and migratory (fluvial and possibly adfluvial) life histories. The persistence of large migratory fish represents a life history that was much more widespread among inland redband populations but is now relatively rare because of anthropogenic alterations of flow regimes. Redband trout in the Blitzen River and its tributaries are managed for natural production consistent with the Native Fish Conservation Policy (ODFW 2003). The Blitzen system is managed for featured species (ODFW 1987). Management for featured species and waters includes: Habitat protection, and maintenance of productive capacity, genetic integrity, and life history characteristics (ODFW 1987).

Alternatives:	None N/A
Designer:	ODFW Native Fish Investigations Project, ODFW High Desert Region, and ODFW Recreational Fisheries Staff; Oregon State University Department of Fisheries and Wildlife.
Methods:	<p>Methods</p> <p>Redband trout will be collected using traps in fish ladders at selected irrigation diversion dams in the lower Blitzen River during the spring of 2007. Potential trapping locations include Sod House, Grain Camp and Page Springs Dams (Note that Page Springs dam may be used as the upper collection site). In addition, redband trout will be collected in the stream reach above the Page Springs Gauging weir by angling. Radio tags will be surgically implanted in 40 redband trout larger than 400 mm in total length. Radio tags will be inserted in approximately 20 fish collected in the lower Blitzen River, and 20 fish collected near or above the Page Springs gauging weir. Tags will be capable of providing a signal for a minimum of 400 days. All redband captured but not radio-tagged will be tagged with numbered anchor tags to assess angler catch rates and harvest rates.</p> <p>Tracking of radio-tagged redband trout will continue into the summer of 2008. Redband trout will be tracked to determine spawning and summer rearing location, passage problems, timing of and delays in migration, and habitat use. Redband trout will be tracked approximately biweekly during periods of high movement and approximately bimonthly during more sedentary periods. Mobile tracking will be undertaken using portable receivers (on foot, horseback and by vehicle). In addition, 3-4 solar powered stationary receivers will be placed at the mouths of major tributaries, and near key passage structures, such as the Page Springs gauging weir. Fixed wing aircraft will be used to track redband trout that cannot be located via mobile tracking surveys.</p> <p>All locations of radio-tagged fish observed from tracking will be geo-referenced via a GPS receiver. GIS will be used to correspond coordinated fish locations to a digital stream network. Additionally, general habitat characteristics occurring at fish locations will be collected to associate fish distribution with associated habitat features such as spawning, holding and feeding habitat.</p> <p>A statistical creel survey will be conducted on the mainstem Blitzen River and major tributaries during the consumptive angling seasons of 2007 and 2008. Pressure counts and angler interviews will be conducted. Additionally, harvested fish will be measured and examined for the presence of tags, and anglers will be asked for information on tagged fish caught and released.</p>

Literature Cited

Bowers, W., R. Smith, R. Messmer, C. Edwards, and R. Perkins. 1999. Conservation status of Oregon Basin redband trout. Oregon Department of Fish and Wildlife, Salem.

Buchanan, D.V., A.R. Hemmingsen, D.L. Bottom, P.J. Howell, R.A. French, and K.P. Currens. 1989. Native trout project. Oregon Department of Fish and Wildlife, Fish research Project F-136-R. Portland.

Oregon Department of Fish and Wildlife. 1987. Oregon's Trout Plan. Oregon Department of Fish and Wildlife, Portland, OR.

Oregon Department of Fish and Wildlife. 2003. Native Fish Conservation Policy. Oregon Department of Fish and Wildlife Policy 635-007-0502, Salem, OR.

United States Government (?). 2000. Steens Mountain Cooperative Management and Protection Act H.R. 4828.

Inspector: Final Report/ peer reviewed publications(s) submitted to R&E Board.

Funding Elements: Purchasing radio tags and fixed station receivers.

Partners: Yes

Existing Plan: BLM-funding for S&S (vehicles, field supplies)
USFWS-traps at irrigation diversions for capturing fish
Yes

Affected Contacted: Steens Mountain Cooperative Management and Protection Act (2000) established a redband trout reserve, and promoted conservation, management, and protection of healthy watersheds on Steens Mountain.
Yes

Affected Supportive: Yes

Affected Comments: Met with BLM and USFWS on 6 Jan 2006. Both agencies will provide both direct and in-kind support.

Project Schedule/Participants/Funding

This project has no Schedule/Participants/Funding.

Affected Species: Redband Trout

Project Permits

This project has no permits.

Project Monitoring

This project has no monitoring.

Project Maintenance

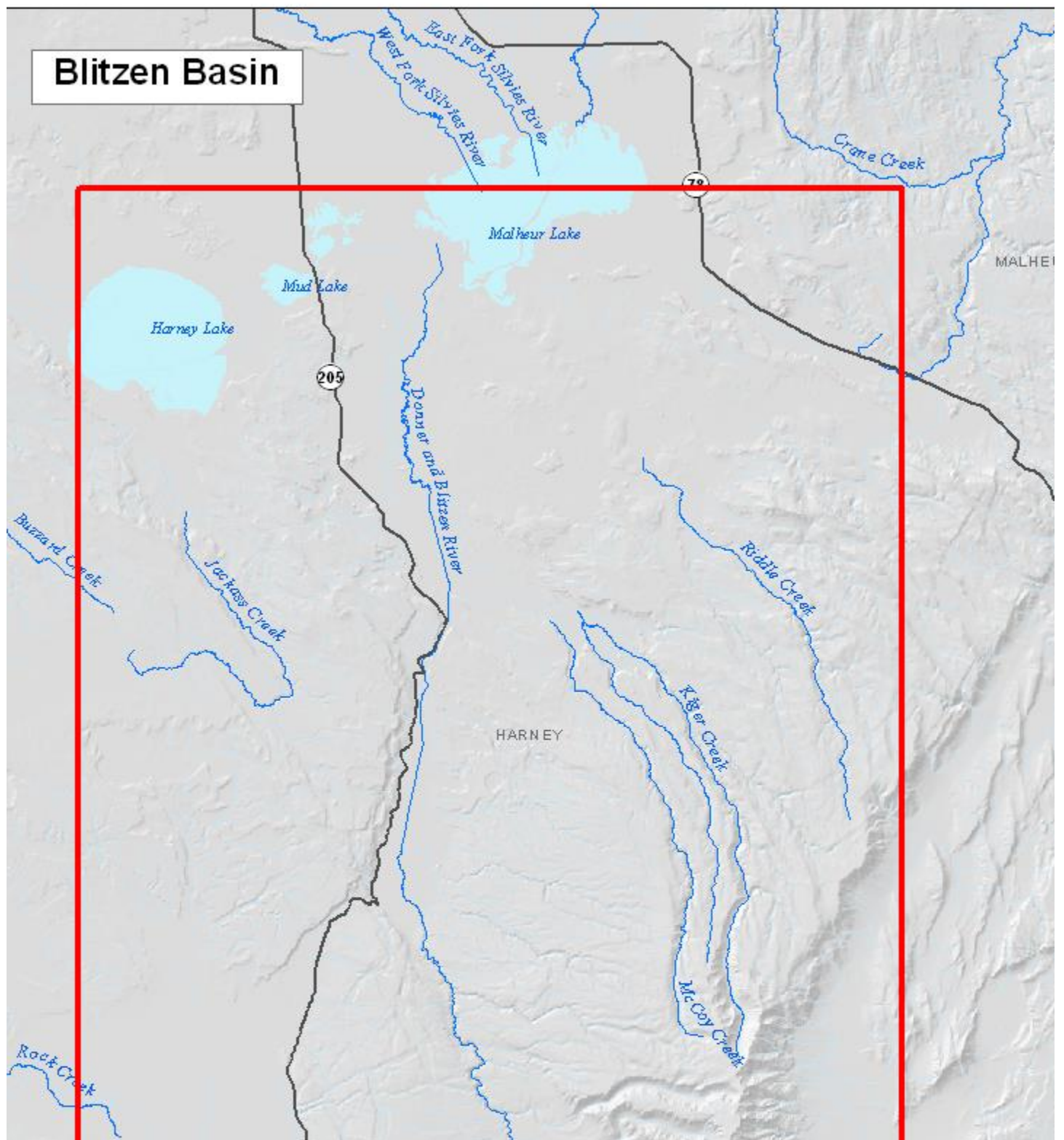
This project has no maintenance plans.

Project Match Funding

Funding Source	Cash	In-Kind	Other	Description	Total	Secured?	Conditions?	Comments
R&E Request	\$20,964.00	\$0.00	\$0.00		\$20,964.00	No	No	
ODFW Sports Fish Restoration Match funds	\$33,478.00	\$0.00	\$0.00	Graduate Student Stipend	\$33,478.00	Yes	No	
ODFW Staff time	\$0.00	\$20,000.00	\$0.00		\$20,000.00	Yes	No	
				Total Match Funding:	\$74,442.00			

Project Budget

Item	Item Type	Units	Unit Cost	R&E Funds	Match Funds	Total
Graduate student support	Contracted Services	1	\$33,478.00	\$0.00	\$33,478.00	\$33,478.00
Fixed Station Radio Tag Receiver	Equipment	1	\$7,950.00	\$7,950.00	\$0.00	\$7,950.00
Lotek NTC-6-2 Nano Radio Tags	Equipment	40	\$250.00	\$10,000.00	\$0.00	\$10,000.00
Solar powered environmental enclosure	Equipment	1	\$2,764.00	\$2,764.00	\$0.00	\$2,764.00
Yaggi Antennas	Equipment	1	\$250.00	\$250.00	\$0.00	\$250.00
ODFW staff time	Personnel	5	\$4,000.00	\$0.00	\$20,000.00	\$20,000.00
					Total Budget:	\$74,442.00



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