

**Bonneville Power Administration
Fish and Wildlife Program FY99 Proposal**

Section 1. General administrative information

**Eliminate Gravel Push-Up Dams On Lower North
Fork John Day**

Bonneville project number, if an ongoing project 9045

Business name of agency, institution or organization requesting funding
North Fork John Day Watershed Council

Business acronym (if appropriate) NFJDWC

Proposal contact person or principal investigator:

Name Robert Stubblefield
Mailing Address P.O. Box 95
City, ST Zip Monument, OR 97864
Phone 541-934-2141
Fax 541-934-2312
Email address waterguy@transport.com

Subcontractors.

Organization	Mailing Address	City, ST Zip	Contact Name
Monument Soil and Water Conservation District	P.O. Box 95	Monument, OR 97864	Jack Cavender
Columbia Power Co-op	P.O. Box 97	Monument, OR 97864	Jim Stubblefield
The Confederated Tribes of the Warm Springs Reservation of Oregon	P.O. Box 480	Canyon City, OR	Shaun Robertson, John Day Basin Office
Monument High School	P.O. Box 127	Monument, OR	Ron Gaither

NPPC Program Measure Number(s) which this project addresses.
5.4d.8, 7.8h.2, 7.10, 10.2c.2

NMFS Biological Opinion Number(s) which this project addresses.

Other planning document references.

”Wy Kan Ush Mi Wa Kish Wit --Volume II Subbasin Plans”-- Recommended Habitat Enhancement Action for John Day Subbasin: II. Instream Flow & Passage A. Instream Flows Enhancement . . .Implement more effecient irrigation methods and water conservation practices benefitting landowners and instream flows. III A. Watershed Management . . .Reduce sediment from agricultural practices . . .” (page 40). When addressing significant water quality parameters in the Snake River Basin (a basin with many climatical and geographical similarities to the John Day Basin) the “Oregon Plan Supplement on Steelhead” states: ”Temperature is the most significant parameter . . .Sediment is also of significant concern . . .Other parameters of concern include . . .flow modification” (page 7). Landowners have agreed to in-kind contributions and limited cost-sharing. Monument High School’s SWET (Student Watershed Enhancement Team) will monitor water quality throughout each phase of the project.

Subbasin.

North Fork John Day

Short description.

Modify irrigation pumping stations by replacing above-ground suction screens with sub-surface collectors. Eliminate flow modification, migration impediments, and vegetation disruption and destruction inflicted during construction of gravel push-up dams.

Section 2. Key words

Mark	Programmatic Categories	Mark	Activities	Mark	Project Types
X	Anadromous fish	X	Construction	X	Watershed
*	Resident fish		O & M		Biodiversity/genetics
*	Wildlife		Production		Population dynamics
	Oceans/estuaries		Research		Ecosystems
	Climate	*	Monitoring/eval.	*	Flow/survival
	Other	*	Resource mgmt		Fish disease
			Planning/admin.		Supplementation
			Enforcement	*	Wildlife habitat en-
			Acquisitions		hancement/restoration

Other keywords.

Section 3. Relationships to other Bonneville projects

Project #	Project title/description	Nature of relationship

Section 4. Objectives, tasks and schedules

Objectives and tasks

Obj 1,2,3	Objective	Task a,b,c	Task
1	Remove barriers to anadromous fish migration.	a	Remove any existing push-up gravel dams
2	Eliminate the need for push-up gravel dams.	a	Install permanent pumping stations and/or infiltration galleries.
3	Increase irrigation efficiency.	a	Compute annual pumping costs before and after installation of infiltration galleries and/or establishment of permanent pumping stations.
		b	Compute annual construction costs of push-up dams.
4	Decrease Evaporation	a	Minimize surface area of water and eliminate large, shallow, pooled areas created by gravel push-up dams.
5	Reestablish riparian vegetation in areas degraded by push-up dam construction.	a	Plant native trees, grasses and shrubs and install riparian fencing to ODFW specification.
6	Broaden landowner participation annually.	a	Maintain and enhance working relationships and meet regularly with participating and potentially participating landowners.
7	Eliminate pooled area, which may be potential heat source into surrounding waters.	a	Monitor water temperature and compare temperature of pooled water vs running water.
		b	

Objective schedules and costs

Objective #	Start Date mm/yyyy	End Date mm/yyyy	Cost %
1	7/1999	8/2001	5.00%
2	7/1999	8/2001	68.00%
3	5/1999	12/2001	5.00%
4	7/1999	10/2001	10.00%
5	10/1999	10/2001	10.00%
6	1/1999	12/2001	0.00%
7	7/1999	12/2001	2.00%
			TOTAL 100.00%

Schedule constraints.

Construction and installation pumping stations can most easily and effectively be accomplished during periods of low flows (normally beginning mid-July on the lower North Fork). May have to acquire brief extension on permits for instream work.

Completion date.

2001

Section 5. Budget

FY99 budget by line item

Item	Note	FY99
Personnel		\$6,000
Fringe benefits		
Supplies, materials, non-expendable property		\$30,000
Operations & maintenance	Primarily monitoring	\$1,500
Capital acquisitions or improvements (e.g. land, buildings, major equip.)		
PIT tags	# of tags:	
Travel		\$ 500
Indirect costs		\$1,000
Subcontracts		\$25,000
Other	Outside consulting	\$2,500
TOTAL		\$66,500

Outyear costs

Outyear costs	FY2000	FY01	FY02	FY03
Total budget	\$70,000	\$70,000		
O&M as % of total	2.10%	2.10%		

Section 6. Abstract

The goal of this project is the elimination of gravel push-up dams on the lower North Fork John Day over the next four years. Elimination of push-up dams will remove impediments to anadromous (Spring Chinook salmon, Summer Steelhead trout) fish migration, improve water quality and habitat for both anadromous and resident fish, reduce sediment load from construction and washouts, and shrink surface area of water during annual periods of highest temperatures and solar radiation. Installation of infiltration galleries in other subbasins of the John Day has been successful both scientifically and aesthetically. Water quality will be monitored throughout each phase of the project with turbidity and temperature as the primary criteria. Landowner participation and satisfaction is also a primary criterion for success of the project. The North Fork John Day Watershed Council will begin eliciting landowner participation and support in January of 1998 with the goal of removing four push-up dams from the Wall Creek--Kimberly reach annually through 2001. Monitoring of water quality and landowner satisfaction will continue through December of 2001.

Section 7. Project description

a. Technical and/or scientific background.

Gravel push-up dams represent impediments to anadromous fish, resident fish, and human recreational use. Hastily-constructed and ill-conceived push-up dams within the John Day Basin have received statewide attention, have been frequently photographed and described as “eyesores.” There are over 40 pumping stations located on the lower North Fork John Day between Kimberly and the mouth of Wall Creek (a 20-mile reach). Fully one half of these pumping stations require some degree of instream flow modification during periods of low flow. These modifications collectively result in numerous migration impediments, large pools of standing water, and increased sediment loads both during construction and washout.

Many push-up dams remain instream until they are washed out during spring runoff. These washouts result in exponential increases in turbidity and erosive capability. Although the usefulness of push up dams is short-term, the damage to the watershed is long-term.

This project will monitor water temperature in the pools behind push-up dams to determine if these constructs acts as “heat sinks,” which eventually release warmer water into the free-flowing stream. Temperature degradation on the reach of the North Fork

between Wall Creek and Kimberly can best be improved by enhancing tributary flows, increasing riparian vegetation, and removing obstructions which result in broad, shallow pools. This project addresses the latter of these components--the component which has received the least attention, yet is most quickly and easily improved.

b. Proposal objectives.

- 1--Removal of barriers to anadromous fish migration.
- 2--Eliminate the need for any future gravel push-up dams.
- 3--Increase irrigation efficiency.
- 4--Shrink area of surface water and decrease evaporation during periods of highest solar radiation.
- 5--Reestablish and protect riparian vegetation in areas degraded by push-up dam construction.
- 6--Broaden landowner participation annually.

c. Rationale and significance to Regional Programs.

The removal of push-up dams and replacement with infiltration galleries has been a successful program on both the upper and lower section of the John Day River. Sediment and temperature concerns along the lower North Fork John Day have not been significantly addressed.

The majority of the riparian areas along the North Fork John Day are bordered by hay fields. Overgrazing is a primary concern only along isolated segments of the Monument-Kimberly reach. Instream and riparian disturbance caused during the construction of push-up dams is the most efficiently altered limiting factor to water quality.

The Monument SWCD 1997-98 work plan outlines "improving water quality in the North Fork of the John Day River Basin" as its number one goal for the ensuing year. Goal #10 specifically states "develop planning projects which address . . . push-up dams for irrigation withdrawals . . . Re-establishment of riparian vegetation in critical areas."

This project is specific both in geographic area and objectives. Results can be efficiently monitored, recorded, and stored. The criteria for success is specific and readily discernible. The project has broad-based and diverse support locally and regionally from both private and public interests, including private landowners, schools, and agencies.

d. Project history

e. Methods.

Participating landowners during the first year (1998) will be encouraged not to construct push-up dams. If needed, assistance will be offered to reach a sufficient water source in the short term until the permanent pumping station is completed.

Infiltration galleries will be installed by using sub-surface collection tubes varying in size from 20-40' in length and 12-18" inches in diameter. The number of tubes and the size of the tubes will be determined by the composition of aggregate and the supply of and demand for water. The tubes will flow into vertical culverts, which will again vary in size (minimum of 3' in diameter) based on supply and demand of irrigation water.

Annual pumping costs for participating landowners will be averaged for four years preceding the project and compared to pumping costs of each year following the project. The cost of construction of push-up dams will also be computed and subtracted from the pumping costs following the project.

It is assumed water quality will be improved in a number of parameters by the removal of push-up dams. Water quality will be carefully and consistently monitored throughout and beyond the life of the project. A decrease in summer temperatures and year-round decrease of sediment and turbidity are expected outcomes.

There will be minimal streambed and riparian disruption during the construction phase of the project. Any disruption or destruction will be rehabilitated and will be minimal compared to the damage caused during unsupervised and unmonitored construction of push-up dams.

Guided tours will be conducted by the North Fork Watershed Council and Monument SWCD in order to make landowners throughout the John Day Basin and North Fork subbasin aware of project benefits.

f. Facilities and equipment.

The North Fork Watershed Council will provide day-to-day supervision and implementation of the project out of the Council's Monument office. Clerical work will be provided by the Monument SWCD which has staff in place.

Engineering, materials, and technical support will be provided by Columbia Power Co-op.

Technical assistance and engineering will be provided by NRCS, ODFW, and the John Day Basin Office of The Confederated Tribes of the Warm Springs.

Water quality monitoring will be provided by Monument High School's SWET program. StowAway data loggers, Hach DRL 2000 test kits, and the computer capability to store the data are already in place at Monument High School. They will monitor conductivity, turbidity, and temperature. The Monument High School SWET program has been doing this type of monitoring since 1994 and has cooperated and collaborated with a diverse range of groups including ODFW, USFS, BLM, private ranchers and landowners, and Prairie Wood Products.

Construction and equipment will be supplied, or contracted by, participating landowners.

The Monument SWCD nursery will provide native trees and plants to rehabilitate areas long degraded from construction of push-up dams and to repair any disruption

caused during the installation of infiltration galleries. The planting and replanting will be a largely volunteer effort coordinated by the North Fork Watershed Council and Monument SWCD

g. References.

Wy-Kan-Ush-Mi-Wa-Kish-Wit Spirit of the Salmon The Columbia River Anadromous Fish Restoration Plan of the Nez Perce, Umatilla, Warm Springs, and Yakama Tribes, Columbia River Inter-Tribal Fish Commission, Portland, Oregon.

The Oregon Plan Supplement on Steelhead, Oregon Plan, Capitol Building, Salem, Oregon.

Monument SWCD Annual Work Plan, Monument SWCD, Monument, Oregon.

Healthy Native Stocks of Anadromous Salmonoids in the Pacific North West and California, Huntington, Nehlsen, and Bowers, Oregon Trout, 1994, Portland, Oregon.

Section 8. Relationships to other projects

Division of State Lands specifies in project permits that instream work must be completed within the windows specified in the Oregon Department of Fish and Wildlife “Oregon Guidelines for Timing of In-Water Work to Protect Fish and Wildlife Resources.” This period is between July 15 and August 31 for John Day Basin streams. Permits may have to be extended into early September 1998 if possible.

The North Fork Watershed Council works closely with ODFW, NRCS, and Monument SWCD on each and every on-the-ground project undertaken. The elimination of push-up dams along the lower North Fork is an example of the separate entities of the watershed collaborating for watershed improvement and enhancement. This project involves utilizing the majority of funds for on-the-ground improvement, exactly as outlined in the Council’s mission and goals. The project brings together private landowners, state agencies, the watershed council, and schools.

Section 9. Key personnel

Jack Cavender
P.O. Box 405
Monument, OR 97864
Phone:541-934-2432

Project Involvement

As Chairman of the North Fork John Day Watershed Council, I will be directly involved in planning and implementing the project from its conception to completion.

The problem of irrigation withdrawals that require annual instream work has existed for years and has an adverse effect on water quality and, in some cases, riparian ecology.

Education

1939-1943 Oregon State College (University): Corvallis, Oregon
B.S.--Agriculture

Additional credits earned toward certification for Vo-Ag teaching.

Work History

1949-1957 Vo-Ag Instructor (Adult Education)
Monument School District: Monument, Oregon
Provided classroom and instruction under the GI Bill

1990-1997 Chairman, Monument Soil and Water Conservation District

1995-1997 Chairman, North Fork John Day Basin Watershed Council

1957-1997 Irrigation Engineer, Columbia Power Cooperative Assn:
Monument, Oregon

1949-1997 Ranch Owner and Operator, Self-Employed, Monument, Oregon

Comments

While I am of retirement age, I continue to be active in conservation work and do consulting for Columbia Power Cooperative Assn. on irrigation design and implementation problems. I also manage the Monument SWCD Plant Materials Nursery in partnership with the North Fork John Day Watershed Council and Monument School. Coordinated Resource Management Planning (CRMP) is incorporated in most projects.

RONALD E. GAITHER
Star Rt. 1
Kimberly, OR 97848
541-987-2370

Current Status: Science teacher: Monument HS

Education: M.S. Rangeland Resources; Oregon State University (1980)
B.S. Range Management/Wildlife Ecology; University of Florida (1977)
Forest Technician Certificate; Lake City Forest Ranger School, FL (1967)

Teaching Certificates: Standard Biology; Oregon State University (1980)
Basic Integrated Science; Oregon State University (1980)
Basic Elementary; Eastern Oregon State College (1983)

Teaching Experience:

1987-present Science Teacher, Monument Schools (7-12)
Biology, Chemistry, Physical Science, Earth Science, Astronomy, Oceanography, Health, Statistics, Natural Resources

1989-1990 Instructor with OMSI Young Scholars Fisheries Research Team. Taught fisheries research techniques in the John Day Basin in 6-week programs funded by the National Science Foundation and cooperation with OSU professors.
in

1984-1987 Classroom Teacher, Monument Schools, Grades 7-8

1980-1984 Classroom Teacher, Monument Schools, Grades 5-6

Affiliations Oregon Science Teachers Association
Oregon Trout

Publications: Buckhouse, J.C. and R.E. Gaither. 1982. Potential sediment production within various vegetative communities found in the Blue Mountains of Oregon. J. Soil and Water Cons. 37:120-122

Oregon

Gaither, R.E. and J.C. Buckhouse. 1981. Comparing a high intensity simulated rainfall to theoretically characteristic storms within the Range Validation Study Area. In: Proc. Oregon Academy of Science. 17:10-15.

Gaither, R.E. and J.C. Buckhouse. 1981. Hydrologic outputs from woodland, shrubland, and grassland, ecosystems in relation to grazing management strategies: An annotated bibliography.

State Univ. Agr. Exp. Sta. Spec. Rep. 640. 26 pp.

Gaither, R.E. and J.C. Buckhouse. 1983. Infiltration rates of various vegetative communities within the Blue Mountains of Oregon. J. Range Manage. 36:58-60.

Robert Stubblefield
P.O. Box 325
Monument, OR 97864
541-934-2134

Current Status: Coordinator: North Fork John Day Watershed Council

Education: B.A. English, Eastern Oregon State University, 1992
M.F.A., Creative Writing, University of Montana, 1994

Work History Teaching Assistant, English Department, University of Montana
1992-1994.

Editor, *Oregon East*, 1990-92

Sports Reporter, *Clackamas Print*, 1988-90

Stubblefield family farm, 1980-88

Relevant Publications: "Weight", *Left Bank, Writing and Fishing the Northwest*,
1991

Section 10. Information/technology transfer

Water quality data will be monitored throughout and beyond the completion of the project. Data will be stored at Monument High School and made available to landowners, agencies, and any interested parties. Data will also be available for classroom study at Monument, Long Creek, and Ukiah high schools (the three schools within the North Fork Watershed). Monument High School's SWET program has been the subject of segments on OPB's "Oregon Field Guide" and KPTV's "One Oregon." The SWET program is an unqualified success with a proven track record of monitoring similar projects.

The North Fork John Day Watershed Council will use the elimination of gravel push-up dams as a pilot project and provide photographs and documentation of the scientific and aesthetic successes and failures of the program. This information will be distributed and open to scrutiny during the quarterly watershed improvement workshops held by the North Fork John Day Watershed Council.

The North Fork John Day Watershed Council will highlight the project during volunteer tree planting drives and also conduct and lead guides for agencies, individuals, and environmental groups during annual Monument SWCD meetings. The North Fork Watershed Council, Monument SWCD, Monument High School, Confederated Tribes of the Warm Springs, and Oregon Department of Fish and Wildlife cooperate in guided tours and volunteer projects involving high schools and youth organizations statewide. Ukiah and Long Creek high schools will participate in water quality monitoring.