



R & E Grant Application 21-23 Biennium

Project #: 21-007

Investigation of John Day Steelhead Overshoot

Project Information

Requested Cycle: 21-1
R&E Project Request: \$79,151
Other Funding: \$603,322
Total Project: \$682,473
Spending Start Date: 7/1/2021
Spending End Date: 12/31/2021
Project Start Date: 7/1/2021
Project End Date: 12/31/2021
Organization: ODFW - La Grande Fish Research Office

Applicant Information

Name: Ian Tattam
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La Grande, OR 97850
Telephone: 541-962-3027
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Past Recommended or Completed Projects

This applicant has no previous projects that match criteria.

Authorized Agent

Name: Derrek Faber
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The Dalles, OR 97058
Telephone: 541-296-3023 x221
Email: derrek.m.faber@odfw.oregon.gov

Location Information

Where is it?

The project will occur on public land owned or managed by another party

Landowner Information

Name: U.S. Army Corps of Engineers
Affiliation: US Government
Address: 333 SW First Avenue
Portland, Oregon, 97204

Site Description

Street Address, nearest intersection, or other descriptive location.

Project will occur at the confluence of the John Day and Columbia rivers, immediately adjacent to Interstate 84.

Directions to the site from the nearest highway junction.

Project sites will primarily be accessible from the water, via the boat ramp at LePage Park, a U.S. Army Corps of Engineers facility accessed from I-84.

Following project completion, public anglers will be allowed the following level of access to the project site:

Full access

Please describe what leases, easements, agreements are in place to ensure angler access to the project site, and what is the length of each agreement.

Not Applicable.

Dominant Land Use Type:

Range/pasture
Cropland

Project Location

General Project Location.

County: Gilliam and Sherman
Town/City: Arlington
ODFW Dist: John Day
Stream/Lake/Estuary Name: Columbia-John Day rivers
Sub-basin: John Day River

Specific Project Location.

Latitude	Longitude
-120.653	45.733

Project Summary

Project Summary

Please provide a couple sentence summary of the proposal.

The majority of John Day River adult steelhead "overshoot" the river and migrate further up the Columbia. Overshoot contributes to low adult survival and reduces abundance of steelhead available for John Day fisheries. Improved monitoring of the John Day-Columbia confluence will expand the knowledge base needed to ameliorate this problem.

Overall Project Goals

Describe the primary goals or outcomes of the entire project, including elements not requesting funding from R&E.

This project will deploy passive integrated transponder (PIT) antennas to detect tagged steelhead at the John Day River mouth. Many John Day steelhead are PIT tagged as juveniles, this project will provide enhanced tracking of returning adults.

Detection of returning adults at the river mouth will improve identification of migratory corridors, timing, and facilitate comparison of migration routes and success between adults which do and don't overshoot the river mouth.

Primary objectives of R&E funding

Please describe the measurable objectives for the R&E portion of the funding request.

Build 4 large-loop (30'x 3.5') PIT antennnas and anchoring systems that will suspend the antennas at presumed steelhead travel routes and depths.

Deploy, operate, maintain and download the 4 antennas at the John Day-Columbia River confluence August-December 2021.

Manage and upload PIT tag detection data to the PTAGIS regional database to ensure transparency and availability.

Summarize detection data by location, depth, time period, and ambient environmental conditions.

Conduct detailed monitoring of water current velocity and temperature at multiple locations adjacent to the deployed antennas.

Evaluate the efficacy of antennas in this application for advancing our knowledge of adult steelhead migration patterns.

Current Situation/Justification

Please describe the current situation and explain why this funding is needed.

Approximately 60% of adult steelhead returning to the John Day River "overshoot" the John Day River mouth and are detected 119 km upstream in the Columbia River at McNary Dam. After crossing McNary Dam, John Day adult steelhead must "fallback" in order to spawn in the John Day. Adult overshoot can directly (via physical injury during fallback at dams) and indirectly (via increased energy expenditure) reduce the survival and reproductive capacity of returning adults. Overshooting the John Day River contributes to a 7-year average Bonneville Dam to South Fork John Day conversion probability of 50%. This means that only half of the adult steelhead arriving at Bonneville Dam survive and return to their natal stream to spawn. Modelling indicates substantial risk of quasi-extinction at this conversion probability. During 2020 we monitored adult steelhead with acoustic transmitters and acoustic receivers at the John Day-Columbia River confluence. We will apply these migration route data (x,y, and z positions of steelhead) to inform deployment of PIT antennas. Using PIT antennas will allow us to continue monitoring steelhead tagged as juveniles in the John Day River, and will continue advancing our

understanding of mechanisms driving overshoot and how they can be ameliorated.

Recreation and Commercial Benefit

This project will provide benefits to:

Recreational fisheries

Explain how this project will contribute to current (and/or potential) fishing opportunities, access, or fisheries management.

When John Day River steelhead overshoot the river mouth, it means they often spend much of October-December in the Columbia and Snake River reservoirs. This is the time period when fishing conditions in the John Day are most consistently favorable to anglers. Understanding mechanisms driving overshoot can lead to identifying ways to reduce overshoot probability. Reducing overshoot probability increases adult returns to the John Day River during fall when they are more accessible to anglers. Improved access to adults and hence improved fishing for local and regional participants alike emphasizes the benefits accrued from habitat restoration and conservation. Hence, this would strengthen the place-based link between habitat conservation and return on investment via the social and economic benefits of a more vigorous John Day River steelhead fishery. These data will inform management to improve the productivity of the John Day steelhead population, aiding in the potential for a future wild fish fishery.

Percent benefit split between Commercial and Recreational anglers:

0 % Commercial

100 % Recreational

Please explain, or justify, how the percentage split was determined:

Benefits from this project would ultimately accrue to John Day River recreational anglers-- primarily steelhead anglers. However, understanding migration patterns of steelhead will also benefit John Day River Spring Chinook Salmon. Chinook also overshoot the river mouth (up to 20% of the total run), likely reducing their probability of escaping and contributing to sport fisheries (during years when John Day River Chinook fisheries are open). Management actions to reduce steelhead overshoot may also have benefits for Chinook.

This project has been identified as an ODFW priority for:

Basin/regional

Does this project directly support implementation of the ODFW Strategic Plan and/or current Fish Division priorities?

Yes

This proposal supports Objective 2.2 of the Strategic Plan. Reducing overshoot keeps Oregon steelhead in Oregon--this will increase access to steelhead (at Oregon state parks and BLM property) and increase participation in fishing. Conservation and Recovery Program District Level prioritization has also consistently identified tributary overshoot as a priority issue.

Please briefly explain when this was identified as a priority and what process or workgroup was used to identified this as an ODFW priority.

ODFW/NOAA Mid-Columbia Steelhead Conservation and Recovery plan identified an expanded knowledge of tributary overshoot as a priority in 2009.

Identify any plan or other document that identifies this priority.

Mid-Columbia Steelhead Recovery Plan-ESA

(https://www.dfw.state.or.us/fish/crp/mid_columbia_river_plan.asp).

An Army Corps of Engineers final report on steelhead migration patterns also identifies increased monitoring at tributary confluences as a high priority (<https://www.uidaho.edu/-/media/UIDaho-Responsive/Files/cnr/FERL/technical-reports/2016/Steelhead-synthesis.pdf?la=en&hash=127D24B19F957B294BCEB4A627507C780CE81248>).

Is this project part of an approved Salmon-Trout Enhancement Program (STEP) activity?

No

This project is intended to benefit the following species:

Spring Chinook Salmon

Summer Steelhead

This project will benefit anglers or fishery by providing:

Angling Opportunity

Monitoring/Research

Angling Opportunity

This project will:

Improve the opportunity for anglers to catch fish (better stocked fish, trapping)

Enhance natural production of fish stocks to levels that allow for recreational fishing opportunities

Create the knowledge needed to identify management actions which would increase availability of adult steelhead to anglers in the John Day River during accessible fishing conditions.

Monitoring/Research

This project will be used to evaluate:

Out migrant/return rates

Fishery contribution

Distribution (i.e. presence, absence, abundance)

Has this project been reviewed or developed by an individual with appropriate qualifications (i.e ODFW biometrician, research professor)?

Yes

Lead applicant, Ian Tattam, has been studying John Day salmonids for 17 years; seven of those years were spent studying exclusively steelhead with Oregon State University in the South Fork John Day watershed, and as an initial collaborator in the Bridge Creek Intensively Monitored Watershed. For the past ten years, Ian has split effort between steelhead and Chinook salmon research and monitoring, as Research Project Leader for ODFW's John Day Life Cycle Monitoring efforts. Ian has been lead author or contributor to numerous technical reports and presentations, and seven peer-reviewed journal articles documenting research/monitoring results from the John Day basin. ODFW's East Region Research Program Manager, Dr. Jim Ruzyski, who has 21 years of experience researching John Day steelhead, has also been involved with development of this proposal.

This project continues an ongoing collaboration with Oregon State University. Drs. Guillermo Giannico and Jonathan Armstrong have been involved in project development, and will continue to be instrumental in project completion.

Is this study critical to fishery management decisions?

Yes

The key question we are answering is: Are there habitat, flow, or Columbia River hydrosystem

management options to reduce adult overshoot probability and hence increase the proportion of John Day River steelhead which return directly to the John Day River, rather than overshoot?

Yes

The potential habitat management actions to reduce overshoot identified by this study will be advanced to ODFW's Columbia River Coordination program and other regional and local partners. While this study will largely endeavor to build a vehicle for PIT tag detection at the John Day-Columbia confluence; it will concurrently collect water velocity and temperature data throughout the confluence area. Measurements will occur during varied operation of John Day Dam (e.g., spill and no-spill). Ultimately, these data will be used to describe the physical lotic and limnetic conditions of this confluence, which can then be related to patterns of adult steelhead detection. These data will allow us to develop hypotheses that could then be tested via alternate flow management strategies. After internal consideration, actions will be further disseminated and discussed with all appropriate regional partners and groups to identify pathways toward implementation.

Detection data at the John Day confluence will also provide improved evaluation of McNary Dam operations. The current Columbia River System Biological Opinion (NOAA) proposes increased surface spill at McNary Dam to provide downstream passage for overshoots, but increased PIT monitoring in the lower John Day (e.g., the confluence) will be necessary to fully evaluate the efficacy of this strategy and its benefits to Oregon fisheries and steelhead conservation.

While not as tangible as a localized reach or creek scale habitat/fishery project, our monitoring proposal will impact all steelhead that rear in and return to the thousands of stream miles of steelhead habitat in the John Day River basin--as they all must find their way through the John Day-Columbia confluence. To that end, data gathered from this proposal can ultimately help boost the productivity of steelhead (and steelhead anglers) in an entire river basin that covers a vast extent of Eastern Oregon.

Is there a plan to repeat this monitoring or research in the future?

Yes

We will pursue additional years of both PIT and acoustic tag monitoring from non R&E sources in the future. Ideally we will find a year when both approaches can be implemented simultaneously for cross-calibration. Federal agencies have thus far been unwilling to fund detailed research of overshoot at tributary confluences, and have focused on their obligations for dam passage only. We are requesting R&E funds to build upon the initial data collection that was supported by OWEB. Since addressing overshoot directly benefits Oregon anglers (as well as species conservation), we propose to use R&E funds to support this new monitoring work, and "keep the momentum" for data collection at the John Day-Columbia confluence. With this funding from R&E, we aim to grow this monitoring into comprehensive evaluation of overshoot that is supported and funded by regional partners. The data we herein propose to collect with R&E support will be necessary to advocate for both management experiments to reduce overshoot, and advocate for application of future federal funding to this issue. Both of these tracks will ultimately benefit Oregon anglers through increased availability of steelhead to Oregon fisheries.

Will the data be reported or published?

Yes

The PIT tag detection data will primarily be collected, managed and analyzed by an NRS-1 funded through this grant. The research Project Leader will assist with data dissemination in

multiple venues (John Day Basin Partnership, Columbia River management groups/forums, Mid-C steering group, Oregon Chapter AFS meetings, and peer-reviewed publications) as appropriate.

Project Description

Schedule

Activity	Date	RE Funding
Antenna site identification based on acoustic tag data	July, 2021	No
Antenna construction	July, 2021	Yes
Antenna Deployment	August, 2021	Yes
Antenna operation/maintenance/download	Aug-Dec, 2021	Yes
Data management and uploading	Aug-Dec, 2021	Yes
Data summarization/initial analysis	Nov-Dec, 2021	Yes
Antenna removal/storage	December, 2021	Yes
Final data analysis and dissemination	January-June, 2022	No

Permits

Permit	Secured?	Date Expected
	No	

Project Design and Description

Please describe in detail the methods or approach that will be used to achieve the project objectives.

Increased monitoring of steelhead movement patterns at tributary confluences has been repeatedly identified (e.g., Keefer et al. 2016) as a critical need to improve our understanding of tributary overshoot. For steelhead returning to the John Day River, opportunities for detection of PIT tagged fish are available at John Day Dam (2km downstream of the John Day River mouth), McNary Dam (119 km upstream of the John Day River mouth), and at “JD1” which is a PIT array in the John Day River 32 km upstream from the river mouth. These detection sites only serve to frame the issue of tributary overshoot, and do not provide data localized to the John Day-Columbia confluence on a spatial scale appropriate to develop and test hypotheses about the mechanisms driving overshoot, nor possible ameliorative strategies.

As an initial step toward providing data at the appropriate spatial scale, ODFW staff are currently (fall-winter 2020) using acoustic transmitters to track migration patterns of adult steelhead at the John Day-Columbia River confluence. Data from this monitoring will provide initial mapping of migratory pathways at the confluence. While acoustic tracking is perhaps the most effective way to undertake such a study, it is also expensive as adult steelhead must be captured at Bonneville Dam and implanted with acoustic tags. We propose to use these initial data as guidance on where to most effectively deploy four 30' x 3.5' PIT detection antennas at the John Day-Columbia River confluence to detect returning John Day origin adult steelhead tagged as juveniles. Use of PIT tag antennas will be, in the long run, much less expensive than use of acoustic telemetry, in part because some returning adult steelhead have already been PIT tagged as juveniles in the John Day River and hence provide cost share. Development of this proposal can ultimately provide the ability to monitor adult steelhead migration during multiple years across different environmental conditions, which maximizes data contrast in an observational monitoring study. Consistent monitoring of the confluence area, which is not financially possible with acoustic telemetry, given the high cost of individual tags, will be necessary to fully address the tributary overshoot issue.

We will assemble and build 4 large loop PIT antennas and associated deployment hardware during July 2021. Deployment of the antennas will commence in August 2021, coincident with the arrival of PIT tagged adult steelhead to the John Day Dam pool. Antenna placement will ultimately be guided by the data from acoustic tagged steelhead that we are currently collecting. Some adult steelhead were implanted with tags that transmit their depth of travel. Using depth data, in tandem with the x-y coordinate mapping from all the acoustic tags (and the dense network of acoustic receivers currently in place- see attached Figure 2), will allow us to build three dimensional migratory routes for steelhead at the confluence. Prior evidence from other locations in the Columbia suggests steelhead, when migrating through deep areas such as the confluence of the John Day-Columbia (which is approximately 90 feet deep) travel primarily near the banks and at 15' depth. If current monitoring corroborates this for the John Day-Columbia confluence, our antennas will be located near the artificial rock 'points' that mark the edges of the John Day River as it enters the Columbia. Antennas will be suspended mid-water column, to target the depth most frequently traveled by adult steelhead. The antenna operation equipment and power (solar panels) will be located above the antennas on small floating barges (several agencies have potential 'loaner' options and equipment available).

Antennas will be operated from August to December 2021 as an initial trial period. Each antenna would be checked, tested, and have data downloaded at least once per week during this period. Detection data will be submitted to the regionally operated public PTAGIS database as "passive recaptures" in order to facilitate tracking of individual steelhead. Detection events will be date and time stamped. This will allow matching detections to an array of stream temperature data, as well as stream discharge data for the John Day and Columbia rivers. We will maintain stream temperature loggers at or near PIT tag antennas that are greater than 400 m distant from another antenna with a temperature logger. We also maintain historical water temperature data collected by ODFW that was collected at approximately 2 m depth near the shorelines. We propose to continue monitoring shoreline temperature, and also conduct temperature monitoring at the depth of the PIT antennas. Concurrent with PIT antenna maintenance, we will also conduct extensive monitoring of surface currents in the confluence area at multiple levels of flow, wind, and at different John Day Dam operations (e.g., deep spill, shallow spill, no spill). Surface currents will be monitored and mapped by floating "drogues" with attached GPS units (ODFW currently has both drogues and GPS units available for use) that record tracks and velocity. Mapping surface currents and temperature in the vicinity of the PIT antennas will allow us to relate steelhead position (ascertained from PIT detections) to these environmental parameters to improve our understanding of why adults do or don't overshoot.

The R&E grant funds are proposed for application to two primary avenues: first is purchase of PIT antenna components and supplies, and second is support for an ODFW NRS-1 to execute project implementation. We project the need for an NRS-1 from July 1, 2021 through December 31, 2021. While PIT antennas won't be removed from the confluence area until late December, 2021, data will be downloaded and provided to PTAGIS weekly. Hence, the R&E funded NRS-1 and Project Leader (match funded) will be able to actively manage and analyze detection data on a monthly basis. Ultimately we will use these data to relate the fate of individual steelhead (e.g., overshoot vs. direct John Day entry) to the location and timing of their detection at the John Day-Columbia confluence. These monitoring data provide the framework for understanding the drivers of adult overshoot and developing solutions to ameliorate the problem.

Steelhead anglers in the John Day are like the steelhead themselves, in that they migrate to the John Day when the opportunity for fishing is best. The overarching goal of this project is to make more John Day steelhead available to Oregon anglers in total, and especially in October-December. We break this into two components, because first, some John Day steelhead that overshoot never return, and wind up spawning in the Walla Walla, Tucannon, Touchet, Asotin, Grande Ronde, and other Blue Mountain streams where they are mostly available to Washington anglers. In addition to the dramatic biological consequences of this straying by John Day adults (both demographically and genetically), the John Day adult steelhead, are in some cases completely lost to John Day River anglers. Secondly, those John Day steelhead which are able to successfully return following overshoot are delayed by months, and often don't enter the John Day River until January through March. River conditions for fishing are far less favorable in winter than fall, due to frequent ice flow and cold water, sometimes nearly immediately followed by flooding and turbidity. Hence, in some years, the John Day River is essentially unfishable during January - April, when most of the overshoot steelhead that are able to return finally make it into the river. This can drastically limit Oregon anglers' opportunity to fish for John Day steelhead with a reasonable chance of success. In contrast, flows in the October-December period are more benign and predictable, creating the opportunity for more angler success. If through this project, we are able to identify ambient environmental variables and mechanisms to reduce overshoot behavior to increase the proportion of steelhead entering the John Day River during fall, anglers will follow the increase in steelhead fishing opportunity and reap the benefits.

Engineering

Does the project involve capital improvement, engineering, site grading or other construction?

No

Project Management and Maintenance

What is the life expectancy of R&E funded construction, structures, equipment, supplies, data or fishery?

Data will be housed on ptagis.org indefinitely. Data summaries/analyses will be disseminated through presentations and publications. PIT detection equipment will last approximately 10y. Equipment would ideally accomplish future monitoring at the John Day-Columbia confluence, or alternately, be re-allocated based on District/Region guidance.

Who is responsible for long term management, maintenance, and oversight of the project beyond what is funded by R&E.

John Day Fish Research staff will coordinate with District, Region, and Fish Division staff as appropriate to ensure proper long-term management of PIT equipment funded by R&E. Continuity in data analysis and dissemination will ultimately be provided by ODFW's John Day Fish Research Staff.

Will the project require ongoing maintenance?

No

Is there a plan to collect baseline data and to conduct monitoring efforts to measure the effectiveness of the project?

Yes

Baseline adult migration route data are currently being collected via an OWEB funded acoustic

telemetry project.

Project Funding

Funding

Have you applied for OWEB funding for this project?

Yes

OWEB application number: 219-6035-16666

Received an award.

Has this proposal, or similar proposal for this project location, previously been denied by OWEB or other funding source?

No

Other Funding Source	Type	Secured	Dollar Value	Comments
Bonneville Power Administration	Cash	Secured	360000	Costs for PIT tagging of juvenile steelhead that will be detected during adult return.
Oregon Watershed Enhancement Board	Cash	Secured	223232	Acoustic telemetry project funding--data from this project provide guidance on where to deploy PIT antennas funded by this R&E proposal.
Bonneville Power Administration	In-Kind	Secured	17290	Jet Boat on BPA inventory but used by ODFW. Miscellaneous temperature loggers and dock parts.
State of Oregon General Fund	Cash	Secured	2800	Funding support for Project Leader for final analysis, review and dissemination of project data.
		Total	603322	

Budget

Item	Unit Number	Unit Cost	In-kind or non-cash contributions	Funding from other sources	R&E Funds	Total Costs
PROJECT MANAGEMENT						
ODFW SFWB (I.Tattam-Project Lead)	40	70.00	0	2800	0	2800
ODFW NRS-3 (D. Faber-PIT Systems Lead, Data Upload)	200	65.00	0	0	13000	13000
		SUBTOTAL	0	2800	13000	15800
IN-HOUSE PERSONNEL						
ODFW NRS-1 (L. Breshears-Construction, Install, Maint.)	1056	32.00	0	0	33792	33792
ODFW Juvenile Steelhead Tagging (2 years, many staff)	2	180000.00	0	360000	0	360000
ODFW Acoustic Telemetry (1 year, multiple staff)	1	223232.00	0	223232	0	223232
		SUBTOTAL	0	583232	33792	617024
CONTRACTED SERVICES						
			0	0	0	0
		SUBTOTAL	0	0	0	0
TRAVEL						
ODFW Vehicle Mileage (primarily The Dalles-LePage Park)	434	0.58	0	0	252	252
ODFW Boat Fuel	1	125.00	0	0	125	125
		SUBTOTAL	0	0	377	377
SUPPLIES/MATERIALS						
Supplies for building 4 PIT antennas	1	11672.00	0	0	11672	11672
Anchoring supplies for 4 PIT antennas	1	3632.00	0	0	3632	3632
		SUBTOTAL	0	0	15304	15304
EDUCATION/OUTREACH						
			0	0	0	0
		SUBTOTAL	0	0	0	0
EQUIPMENT						
ODFW Boat	1	12000.00	12000	0	0	12000
ODFW Water Temperature Loggers	10	129.00	1290	0	0	1290
Electronic components for operating 4 PIT Antennas	1	16678.00	0	0	16678	16678
Sampling Barges/Dock Floats	4	1000.00	4000	0	0	4000
		SUBTOTAL	17290	0	16678	33968
FISCAL ADMINISTRATION						
			0	0	0	0
		SUBTOTAL	0	0	0	0
		BUDGET TOTAL	17290	586032	79151	682473

Internal Review Results

Review Score: 0.8 out of 3

(0 = Do Not Fund, 1 = Strengthen Proposal, 2 = Recommend, 3 = Strongly Recommend)

Summary of Review Team Comments

The review team was not supportive of this proposal based on the current content of the application. While correcting overshoot is important, there is concern that the resulting data will not actually lead to management change or benefit to angler as overshoot has been known about for over a decade. There was also concern that R&E is not the appropriate funding source and this proposal may be proposing to use R&E funding as backfill for recent budget reductions. Scores included zero 3s, one 2, six 1s, and three 0s.

Specific Review Team Comments

Several members expressed they were not confident that if R&E funded this, much would be gained to further prove there is a problem, let alone how to solve it. It seems as if enough information has already been collected to show that overshoot is a documented issue for the John Day Steelhead.

Specific comments included:

- a. While the study design is to test hypotheses about mechanisms driving overshoot, it seems the main issues arise with water management and availability in both systems. Those mechanisms are difficult if not impossible to change. More discussion is necessary on the potential mechanisms driving overshoot and what actions would be taken to remedy each potential mechanism. For example,
 - i. One issue is irrigation withdraw on the John Day that extends until October 1, once irrigation is shut down attractant flows recover. How would water rights and flow management be affected by this information?
 - ii. A number of John Day R. steelhead used to be captured at Sherars Falls on the Deschutes R. also. Is that still happening? The Deschutes R. is a cold water refugia when the Columbia and John Day are running warm. How would the results of this proposal be used to address this?
 - iii. If you find that there are physical factors that cause the overshoot, (temperature, flow, vis-a-vis spill...) is there any likelihood that Col. R. dam operations would be altered to address overshoot? Is there any assurance/commitment from Hydropower Operations that they will adjust spill to reduce overshoot, if such mechanisms are identified?
- b. Instead of collecting more data showing it is an issue, which seems proven based on the write up, why not collect funding to try and solve the overshoot problem?
- c. This will be a stretch to determine why/what physical factors cause them to overshoot, then convincing policy makers to adjust hydropower spill in such a way as to reduce overshoot. Ed Bowles spent many years attempting to get federal managers to address this issue and others, how will this proposal change the paradigm and lead to actual change?
- d. Although the information would be good to have, it is not clear that there is a direct benefit to the angler. It would only be one year of data, and one possible outcome is there is nothing that can be done to get more steelhead in the John Day. Speculation of a wild steelhead fishery seems premature. Application also discusses alternate uses for the antennas, suggesting the study may not be continued.
- e. We have known for over a decade that steelhead overshoot their natal tributaries. How is this proposal different from BPA and LSRCP funded evaluation and what new information will be learned?

This project needs to more clearly describe how this will be a benefit to the angler. There are currently no wild steelhead harvest opportunities in the John Day River. It is not clear how this research would result in more opportunity for anglers. It is also unclear when or if management actions can be

implemented to affect a change for fish and anglers. As such, this proposal doesn't fit the intent of the R & E program. Improving the discussion of JDR steelhead angling could be useful to better justify the potential angler benefit.

The budget indicates this request is to fund existing NRS 1 and NRS 3 positions, given it names the individuals. Please explain why R&E funds are being requested to cover a portion of existing staff members time. What would happen if these months were not funded by R&E? It is understood that recent reductions in federal funding have occurred, however R&E funds are not appropriate for, or available to, back fill of any budget reductions or funding shortfalls. If they are funded on grants where time cannot be spent on these activities you must explain that.

- While it is good research, it is a federal responsibility and R&E does not appear to be the appropriate source of funds as there is not a clear benefit to anglers. Purchase of equipment may be a more appropriate use of R&E funds than funding staff. Explain what other funding sources have been pursued?

Specific Review Team Questions

If this is such an important project, why isn't the project leader taking on the role of collecting and managing the data? How can the NRS 1 be the primary person to collect, manage, and analyze the data if only funded during the field season (prior to all data being collected)? Perhaps a BSA could be hired to monitor the PIT arrays and bring the data back to staff to analyze and report.

We have identified staff that have specialized experience and capabilities to successfully deploy equipment and analyze the data. Data collection will be ongoing after construction and installation of antennas during mid-Summer. Hence, the NRS-1 will be actively managing, collecting, and conducting initial analysis of data on a routine basis throughout late summer and fall. Generally, we are not allowed to use BSA's (Biological Science Assistant position classification) when analysis is required--and that will be the case in this application, as actively managing and analyzing the data will be critical to ensure that any necessary adaptive management (e.g., adjustment of antenna tuning, changes in antenna placement based on number of detections) can occur. This is outside the scope of work for a BSA and necessitates a Natural Resource Specialist-1 (for which analysis is a common job duty).

This is an important project for John Day sport fisheries, and Research Project Leader Ian Tattam and PIT Operations Project Leader Derrek Faber will be involved in all aspects, including field implementation, data collection and analysis of the data. Ian and Derrek will jointly cover final analysis of the data, which will begin in December 2021 and continue after the end of funding for the NRS-1. It is important to note though, that analysis will be ongoing during summer-fall and both Project Leaders will be involved in oversight of initial analysis and adaptive management. Time spent on this project will be covered by match funds for Ian Tattam, but involvement by Derrek Faber (the technical operations specialist) has to be covered by this grant. Without this funding, Derrek will be engaged on other contract-driven PIT tag detection projects throughout the state. In sum, the project and program leaders will take an active role in evaluating and publishing this information.

Are permits required to suspend the antennas in the water? Will these be located in areas that interfere with angling, boating, or navigation? Seems like review from USACE would be needed due to navigation.

Placement of the antennas will be crucial to the success of the study, and in doing so, must not interfere with boating or navigation. The mouth of the John Day is not a part of the

transportation navigation channel, and will not interfere with commercial navigation. It is possible that fishermen that are trolling or casting fishing gear will encounter the antennas, although we have observed little fishing or boating activity at this specific site during prior field sampling--most anglers seem to go further upstream into the protected waters of the John Day River. The antennas will be deep enough to not interfere with recreational boats. However, we will still mitigate any possible impact with adequate signage at the LePage boat ramp. Permitting for small-scale research activities outside the navigation routes is not required, but we will inform the US Coast Guard on the placement of the antennas so they can communicate the locations on their daily bulletin. We will also coordinate with other entities who have installed floating PIT tag barges in the Columbia River downstream of Bonneville Dam, and follow their lessons learned regarding signage and measures to minimize public impact.

Additional Files

Budget Information

[Itemized Budget for PIT Antennas](#)

Maps

[John Day Overshoot Figure and Map](#)

Photos

Design Information

[PIT Antenna Vertical Deployment Schematic](#)

Management Plans and Supporting Documents

[Adult Steelhead Migratory Routes Investigation](#)

Funded OWEB Application providing Matching Funds

[Follow Up to Internal Review Team Comments](#)

Permits and Reviews

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Completion Report

Objectives and Accomplishments

Build 4 large-loop (30'x 3.5') PIT antennnas and anchoring systems that will suspend the antennas at presumed steelhead travel routes and depths.

Did you meet the objective? Yes

We built and installed 6 different individual antennas at expected steelhead travel depths and routes.

Deploy, operate, maintain and download the 4 antennas at the John Day-Columbia River confluence August-December 2021.

Did you meet the objective? Yes

Yes, we installed and operated antennas in the John Day - Columbia confluence and the impounded section of the John Day River.

Manage and upload PIT tag detection data to the PTAGIS regional database to ensure transparency and availability.

Did you meet the objective? Yes

Yes, we are developing these antennas as the "JD0" detection site in PTAGIS for long-term use, storage and retrieval of these data.

Summarize detection data by location, depth, time period, and ambient environmental conditions.

Did you meet the objective? Yes

Yes, we are summarizing data by antenna location and time period.

Conduct detailed monitoring of water current velocity and temperature at multiple locations adjacent to the deployed antennas.

Did you meet the objective? Yes

Yes, we have measured temperature and velocity at and near the PIT antennas.

Evaluate the efficacy of antennas in this application for advancing our knowledge of adult steelhead migration patterns.

Did you meet the objective? Yes

We detected both PPIT tagged adult steelhead and adult coho salmon. Low abundance of returning steelhead in 2021 limited the number of tagged adult steelhead present in the John Day pool and lower John Day River, however, despite the much lower than normal number of returning and tagged adults, we were able to detect multiple adult steelhead, providing confidence that these systems can be effective, especially in years when more PIT tagged adult steelhead are present in the river.

Comments

We recently presented a technical talk about John Day River steelhead overshoot. This presentation includes: how the acoustic tagging (OWEB match for this project) and PIT tag detection technologies merge, current state of the data, and future directions. The presentation was recorded and is available here: <https://youtu.be/pGuSvQtrmUs> for any and all interested in viewing.

Grantee agreed to forfeit all remaining funds.