



R & E Grant Application 21-23 Biennium

Project #: 21-019

White Sturgeon Recruitment in John Day Reservoir

Project Information

Requested Cycle: 21-2
R&E Project Request: \$84,427
Other Funding: \$140,930
Total Project: \$225,357
Spending Start Date: 1/1/2022
Spending End Date: 6/30/2023
Project Start Date: 4/1/2018
Project End Date: 6/30/2028
Organization: ODFW-Clackamas District office

Applicant Information

Name: Philip Simpson
Address: 17330 SE Evelyn St
The Dalles, OR 97015
Telephone: 971-673-6025
Telephone 2: 971-275-4553
Email: philip.c.simpson@odfw.oregon.gov

Past Recommended or Completed Projects

This applicant has no previous projects that match criteria.

Authorized Agent

Name: Tucker Jones
Address: 17330 SE Evelyn St.
Clackamas, OR 97015
Telephone: 971-673-6067
Fax: 971-673-6073
Email: tucker.a.jones@state.or.us

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: United States Government
Address: 333 SW First Avenue
Portland, OR, 97204
Phone: 5038084510

Site Description

Street Address, nearest intersection, or other descriptive location.

The project will occur in the mainstem Columbia River between The John Day Dam (river mile 215) and McNary Dam (river mile 292).

Directions to the site from the nearest highway junction.

Primary access points to the project are located at LePage Park (I-84 exit 114), Blaylock Canyon boat launch (I-84 exit 129), the Port of Arlington (I-84 exit 137), Irrigon Marine Park (off Hwy 730, Irrigon), and Nugent Park (off Hwy 730, Umatilla).

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.

N/A

Dominant Land Use Type:

Range/pasture
Cropland
Urban residential

Project Location

General Project Location.

County: UMATILLA
ODFW Dist: John Day
Stream/Lake/Estuary Name: Umatilla River
Sub-basin: 17070101
Tributary of: Columbia River

Specific Project Location.

Latitude	Longitude
45.82909	-119.90624

Project Summary

Project Summary

Please provide a couple sentence summary of the proposal.

Since 1997, little to no recruitment of juvenile White Sturgeon in the John Day pool has been observed during annual young-of-the-year (YOY) net surveys. To ensure commercial treaty and recreation retention fisheries remain viable, ODFW initiated an acoustic telemetry study to characterize spawning activity and identify potential recruitment bottlenecks.

Overall Project Goals

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

Using acoustic telemetry, identify seasonal migrations of adult White Sturgeon within the John Day Reservoir and characterize fine-scale movements and habitat use below McNary Dam during spawning.

Evaluate environmental variables and potential interspecies interactions to identify factors limiting recruitment.

Continue to refine the temporal and spatial parameters of the sturgeon spawning sanctuary that was created in 2006 and later expanded in 2019.

Primary objectives of R&E funding

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

Reestablish a passive array of acoustic receivers within the John Day Reservoir

Construct anchoring mechanisms for "acoustic release" receivers

Manage and analyze acoustic telemetry data and formulate management recommendations based on a thorough examination of the dataset.

Current Situation/Justification

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

Observations of young-of-the-year White Sturgeon in the Columbia River have been declining over the past two decades despite adequate numbers of potential adult broodstock. The John Day reservoir appears to be particularly vulnerable, where only 1 YOY sturgeon has been observed since 2012 during annual surveys. Based on the current length frequency distribution of sturgeon in the John Day reservoir, the number of fish recruiting into the harvestable size slot (43" - 54") will likely decline substantially within the next decade. In order to address potential recruitment bottlenecks, ODFW initiated an acoustic telemetry study in 2018 where 48 receivers were deployed to collect location data on 49 telemetered adult White Sturgeon. During 2018-2020, almost 80% of the receivers were lost due to vandalism, high flow, and inadequate mooring design. Because the tags implanted in sturgeon are viable for up to 10 years, an opportunity exists to reboot this telemetry project to address the recruitment issues currently plaguing this population. Although funding for several replacement acoustic receivers has been secured, additional funding is needed for additional receivers, mooring supplies, vehicle and boat transportation, and personnel time for data collection and analysis.

Recreation and Commercial Benefit

This project will provide benefits to:

- Recreational fisheries
- Commercial fisheries

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

The 2020 harvest guideline for commercial treaty and recreational harvest of White Sturgeon in the John Day reservoir was a combined 315 fish (210 commercial treaty, 105 recreational). Harvest guidelines are updated every three years to coincide with reservoir stock assessments, although they are subject to change (i.e. the initial commercial treaty guideline fell from 295 to 210 fish from 2016 to 2017). Despite the relatively low retention fishery, there were nearly 7,000 angler trips estimated for the John Day reservoir alone in 2020. The popularity of the Columbia River White Sturgeon fishery remains high from both the retention and catch-and-release perspectives. Maintaining a small retention fishery facilitates interest and opportunity for future generations of sturgeon anglers. Funding this project will help ensure that factors limiting recruitment are identified, while also refining our understanding of adult fish movement within the reservoir that are often targeted in catch-and-release fisheries.

Percent benefit split between Commercial and Recreational anglers:

- 0 % Commercial
- 100 % Recreational

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

The current allocation of retention fisheries in the John Day reservoir is 65% commercial treaty and 35% recreational, however recreational fisheries also realize catch and release benefits which, although not easily calculated, should be accounted for, thus estimating a 50/50 split.

This project has been identified as an ODFW priority for:

- Basin/regional
- Statewide

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

Yes

This project supports several Strategic Plan objectives, specifically maintaining high quality access experiences (2.2.2), development of science-based natural resource decision-making (4.1.1), and development of information systems to better maintain and analyze data needed for fish science, conservation and management (4.3).

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

The 2011 Lower Columbia River White Sturgeon Conservation Plan states "The high public interest and importance to local communities make white sturgeon a conservation priority." ODFW staff worked with regional experts and the public to develop a plan to manage and conserve the species while continuing to provide harvest opportunity.

Identify any plan or other document that identifies this priority.

https://www.dfw.state.or.us/fish/crp/docs/lower_columbia_sturgeon/LCR_white_sturgeon_conservation_plan.pdf

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

No

This project is intended to benefit the following species:
White Sturgeon

This project will benefit anglers or fishery by providing:
Angling Opportunity
Monitoring/Research

Angling Opportunity

This project will:
This project will address critical uncertainties related to White Sturgeon recruitment.

Monitoring/Research

This project will be used to evaluate:
Habitat (i.e structure, passage, water quality)
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

A main component of this project is to hire an employee at the Natural Resource Specialist 1 level (Gabriella Brill) to conduct the majority of field data collection, analysis and reporting while simultaneously working towards her Master's degree from Oregon State University. Dr. Melanie Davis, Assistant Unit Leader of the Oregon Cooperative Fish and Wildlife Research Unit, has committed to mentoring Gabriella as she works towards her degree.

As ODFW Columbia River White Sturgeon Project Leader, I, Phil Simpson, will directly oversee Gabriella's field activities and data summary and analysis. I completed my Master's Thesis in 2008 focused on assessing spatial and temporal habitat utilization patterns of Atlantic Sturgeon, and utilized acoustic telemetry as the primary evaluation tool, and am well-suited to guide Gabriella's field data collection and analysis.

This project was not established with the purpose of helping a student obtain a graduate degree—this telemetry project was established three years ago with the goal of addressing recruitment failure in the John Day Reservoir. Circumstances independent of one another have brought the project to the point where it is mutually beneficial to incorporate Gabriella as a Master's candidate and realize the numerous benefits of partnering with Oregon State University and the USGS Cooperative Fish and Wildlife Unit. Restoration and Enhancement funding would be integral towards restarting this telemetry effort and facilitating the development of a lasting, mutually beneficial relationship with ODFW's White Sturgeon Program.

I initially hired Gabriella to work on the ODFW East Region Fish Research Hood River Research Project in 2020 to assess salmon and steelhead populations. Gabriella expressed an interest in studying sturgeon from the time she started working on the Hood River Project while also showing an aptitude for higher education. Gabriella and I had discussed pathways for her to obtain her graduate degree studying sturgeon long before I had any premonition I would be leading ODFW's White Sturgeon project. I maintain a close working relationship with my graduate school advisor, Dr. Dewayne Fox, who has been studying Gulf and Atlantic sturgeon intensively for the past 20 years. I was actively seeking opportunities for Gabriella through my

relationship with Dewayne throughout 2020.

After I was hired to lead ODFW's White Sturgeon Project in January 2021, I hired Gabriella as a seasonal Biological Science Assistant, and she continues to be an exemplary employee. At the time of my hiring, I also inherited the John Day Reservoir telemetry project which had ultimately been suspended because of gear loss as well as a lack of internal resources to manage and evaluate the data being collected. However, because the ultrasonic tags utilized in the study have a lifespan of up to 10 years, I saw an opportunity to jumpstart this project and not waste the money and effort it took to tag nearly 60 adult sturgeon in the John Day reservoir. Additionally, the questions surrounding White Sturgeon recruitment failure continue to go largely unanswered.

Merging our suspended telemetry project with Gabriella's energy and interest in sturgeon seemed like a serendipitous pairing and doing so by means of partnering with Oregon State University brings additional expertise and resources to the project. Dr. Melanie Davis (Assistant Unit Leader, USGS Oregon Cooperative Fish and Wildlife Research Unit) has agreed to serve as Gabriella's advising professor and brings a wealth of knowledge to project. Her research focuses primarily on evaluation of habitat restoration and climate change mitigation, aquatic food webs, and ecosystem resilience to climate change. Dr. Davis also has several years of experience overseeing telemetry projects.

While the telemetry fieldwork component could possibly be completed by a seasonal or temporary employee(s), the data management and analysis aspects require a team of people with specialized expertise. Hiring Gabriella as a Natural Resource Specialist 1 (appropriate for this level of work) will provide the opportunity for her to complete the fieldwork aspects of the project while developing her data management and analysis skills. The funding requested from R&E will cover the first year of Gabriella's salary and benefits (secured first-year funding is required for admittance into the OSU Fish and Wildlife graduate program) however she will pay her tuition at Oregon State University out-of-pocket. Having Gabriella work as an NRS1 conducting the fieldwork component while also taking graduate coursework, as opposed to a standalone employee, exponentially increases the potential for this project to be successful by incorporating the expertise and resources of Dr. Davis. Additionally, executing this project as a team with the USGS Co-op provides an opportunity to utilize the statistical modeling expertise of other staff like Jim Peterson (Unit Leader), whom I've worked with previously on steelhead smolt abundance and survival modeling. The USGS Co-op may also provide funding for other aspects of Gabriella's research (e.g. field supplies, transportation, lodging, per diem). Establishing a relationship with them on this project may likely lead to further studies in the future. Ascertaining the current spatial and temporal spawning patterns of adult White Sturgeon in the John Day Reservoir represents the first step in this process—because of the complexity surrounding the issue, additional research will certainly follow as potential limiting factors are identified.

Is this study critical to fishery management decisions?

Yes

Recruitment failure in the John Day Reservoir is likely a multifaceted problem with no single solution. Declining recruitment is apparent in The Dalles and Bonneville Reservoirs as well, but the most alarming data trend originates from the John Day where only one young-of-the-year sturgeon has been observed since 2012 in annual gill net surveys. Recruitment failure of sturgeon populations in general was identified as a key cause for declining abundance as well

as a limiting factor for population recovery. Recruitment of White Sturgeon in the Fraser River has been declining for the past two decades, resulting in a 70% decline in juvenile abundance (60-99cm fork length) from 2004 – 2019 (Canadian Science Advisory Report 2021). Because White Sturgeon are a late-maturing species where it commonly takes a female 20 or more years to reach age of first reproduction, extended periods of recruitment failure can impact the sturgeon population for many years. Hence, if recruitment failure in the Columbia River persists, commercial treaty and recreational retention fisheries will become greatly diminished or possibly eliminated.

Several factors have been identified as likely contributors to recruitment failure, including but not limited to declining adult spawner (particularly female) abundance, altered prey communities that can be at least partially attributed to flow management in the Columbia River, habitat alterations such as increased fine sediment loads and decreased hard-bottom or cobble/gravel substrate, variable flow and temperature regimes, mortality due to by-catch in commercial salmon fisheries, and the presence of non-native predators. With regard to the John Day Reservoir, because the estimated number of adult spawners averaged 2,638 (range 1,272 – 4858) between 2010 – 2019, as opposed to 724 adults (range 457 – 874) during 2001 – 2009, it seems unlikely that inadequate spawner abundance is a limiting factor. More likely, factors affecting the egg and/or larval stage are primarily responsible for poor recruitment. For example, eggs may become suffocated (since they are highly adhesive) by fine sediments if hard-bottom substrate is not available. Additionally, as the fertilized eggs develop, the larvae will often seek refuge within interstitial spaces of the substrate (e.g. cobble or gravel). If those habitats are unavailable, predation of sturgeon eggs and larvae by non-native fish may increase substantially. When this telemetry project was initiated, the receiver array was focused in the tailrace to look at fine scale habitat usage by mature white sturgeon, since the downstream juvenile bypass was rerouted in 2012 and now bifurcates the area immediately upstream of where USGS biologists found fertilized sturgeon eggs.

Empirical data collected by our program demonstrates a positive correlation exists between average discharge at McNary Dam (May – July) and recruitment in John Day, The Dalles, and Bonneville Reservoirs. The mechanisms behind that positive relationship are not well understood, since they could be related to a “reset” of the substrate (e.g. clearing of fine sediments, loosening of armored cobble/gravel), more suitable temperatures typically associated with high runoff, prey community response to increased flow, more natural larval drift, or other factors.

Yes

In order to guide potential management action or mitigation options, it's critical to have a complete understanding of spawning timing and location since our recruitment bottleneck seems to be occurring at the egg/larval stage. What we can learn from our telemetry study does not begin and end with tracking fish movements. One element to monitoring telemetered sturgeon that has not been implemented up to this point is manual tracking. Unlike passive tracking using receivers, which indicates a telemetered fish was simply in range of a receiver (which can detect fish up to 4 km away), manual tracking of fish is performed using a directional hydrophone on a boat and can provide more location-specific information. We can combine that information with benthic substrate maps we will create in conjunction with WDFW. Laura Heironimus, WDFW's Sturgeon, Smelt, Lamprey Unit Lead, recently acquired an EdgeTech 4125i Side Scan Sonar and both WDFW and ODFW staff spent a couple of days on the water with a trainer from Edgetech learning how to use the unit. It's a powerful tool that can not only be used to visually

locate individual sturgeon, but it can also be used to map sediment types. If we associate our telemetry relocations with habitat/sediment type, we can use a free software program called MaxEnt to build probability maps of sturgeon spawners that can indicate where the highest priority use areas are. We might then be able to say something about the habitat types where sturgeon are choosing to spawn, and whether or not they are effective at producing viable larvae. Benthic mapping potential spawning areas during years where flows change dramatically may also provide insight as to whether or not sturgeon spawning habitat is changing as well. And because we have telemetered adult sturgeon in the area, we may also be able to determine whether or not spawning sturgeon are selecting for different habitats based on ideal substrate.

Depending on what conclusions we reach based on empirical data, management action could be focused on flow management, continued refinement of the spawning sanctuary either spatially, temporally, or both, substrate alteration, habitat restoration (particularly nearshore rearing habitats), improved water quality, non-native fish eradication, hatchery mitigation, or a "trap and haul" process. What is for certain is that there is a strong multi-state and tribal interest in restoring sturgeon populations in the Columbia River for the use and enjoyment of present and future generations. White Sturgeon fisheries, both retention and catch-and-release, are extremely popular.

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

Yes

Since most of the acoustic tags utilized during this project are potentially viable for up to 7-10 more years, the project will be continued--but not necessarily repeated--for several years following the conclusion of R&E's contribution towards the project.

Will the data be reported or published?

Yes

The primary reporting mechanism would be via the thesis produced by the prospective OSU Master's degree candidate, but secondary reporting mechanisms would include publication in fishery science periodicals and/or inclusion into annual progress reporting for Bonneville Power Administration.

Project Description

Schedule

Activity	Date	RE Funding
John Day reservoir White Sturgeon acoustic tagging and initial data collection period	April 2018 - May 2021	No
Acquisition of 15 additional Vemco VR2AR (AR = acoustic release) receivers	June 2021	No
Mooring permitting and construction	July 2021 - April 2022	Yes
Redeployment of acoustic receiver array in the John Day reservoir	Nov 2021 - April 2022	Yes
Data collection and analysis (OSU Master's candidate)	May 2022 - June 2024	Yes
Data collection and analysis	June 2024 - May 2032	No

Permits

Permit	Secured?	Date Expected
--------	----------	---------------

Scientific take permit issued under US v OR	Yes	continuous agreement
Permission from USACE to connect receiver cable moorings to handrails or other infrastructure	No	
Permission from USCG to connect receiver cable moorings to navigation markers	No	

Project Design and Description

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

White Sturgeon *Acipenser transmontanus* is the largest species of North American sturgeon and is found from southern California to the Gulf of Alaska (Scott and Crossman 1973). White Sturgeon inhabit approximately 1,600 kilometers of the main stem Columbia River from the estuary upstream to Idaho and Canada. Overharvest during the late 1800s resulted in substantial population declines, warranting harvest closures of all white and green sturgeon *Acipenser medirostris* populations (Craig and Hacker 1940). By the 1950s, White Sturgeon abundance had increased enough to support limited commercial and recreational fisheries. Declining harvest opportunities for anadromous salmon *Oncorhynchus* spp. at this time led to increased angler participation in the White Sturgeon fishery. Harvest of White Sturgeon doubled in the 1970s and again in the 1980s (Tracy 1993). In 1986, ODFW and other state, tribal and federal agencies began long-term status & trend monitoring of sturgeon populations in the impounded lower Columbia River reservoirs (ILCRR) from Bonneville Dam to the mouth of the Snake River. This monitoring work was intended to develop a better understanding of White Sturgeon population dynamics and aid in developing appropriate management and mitigation actions to maintain and enhance White Sturgeon populations.

Age-0 recruitment surveys conducted in John Day Reservoir since 1997 have documented only intermittent recruitment despite generally adequate numbers of broodstock-sized White Sturgeon. In 7 of the last 8 years, there has been no detectable recruitment.

Beginning in April 2018, ODFW, Grant and Chelan County PUDs, BlueLeaf Environmental and Yakama Nation Fisheries along with local guides collaborated to capture and acoustic tags up to 50 mature White Sturgeon within the John Day Reservoir. Sturgeon were tagged with VEMCO V16-6H acoustic tags with a battery life of ~5-10yrs at a 600s ping rate. Detection simulations run by VEMCO indicated a high probability of tag collisions (i.e. – multiple signals canceling each other out) at higher ping rates and longer ping durations (as with temperature tags) given the relatively large number of fish present during a spawning aggregation.

Targeted setlines were used to capture mature White Sturgeon using a single 20/0 barbed circle hook baited with either whole pikeminnow or shad was deployed on a gangion consisting of a spring loaded snap attached to a 45-cm length of parachute cord. This gangion is clipped to a loop in a 25ft length of ¼" rope attached to a single 40lbs. "rocker"-type anchor. A piece of ¼" rope of a length appropriate to the depth of the set (~25 – 200 ft) was attached to the anchor and run to an orange LD-Type surface buoy. Setlines were deployed predominantly during daylight hours and checked every ~2 hrs.

Hook-and-line capture techniques were also deployed from 1 - 2 guide boats. While exact specifications varied depending on Guide preference, equipment used was sufficiently robust (i.e. – heavy action rods, high test line, large gauge circle hooks, etc.) to securely hook and quickly land and capture White Sturgeon so as to minimize handling stress.

Blue Leaf Environmental staff performed surgical implantation on the shoreline area nearest to

the recapture location. Sturgeon were brought to shore and secured in a large vinyl stretcher. River water was pumped through the mouth over the gills. Biometrics including fork length, total length, girth, scute-marks, and condition were recorded and the sex and stage of maturation was assigned using the criteria published in Webb et al. (2017). An ~3 cm incision was made on the abdomen, four to six scutes anterior from the pelvic fin and halfway between the ventral mid line and scutes. The tag was inserted into the abdominal cavity and the incision was then closed with two to three sutures and the fish was immediately released following surgery. The surgical procedures followed the most up-to-date basin-wide standards (described by Webb et al. 2013 and Liedtke et al. 2012). All fish were released in a live and healthy state at the Umatilla Marina.

Tracking of tagged White Sturgeon will occur at multiple spatial and temporal scales including both mobile and fixed components. Up to 20 acoustic release VEMCO VR2 (69kHz) receivers and up to 20 VEMCO VR2W receivers will be deployed at varying densities across spawning, staging and transit habitats throughout the John Day Reservoir. To capture fine-scale movements during the spawning season specifically, a spatially dense array will be deployed within known spawning habitat above the Interstate 82 bridge within the McNary Dam tailrace.

To capture long-range movements, acoustic receivers will be fixed to navigation markers throughout much of the main channel of the Columbia throughout the John Day reservoir, and may be supplemented by acoustic release receivers where navigation aids are not present. Our data collection may also be supplemented by a concurrent study led by ODFW John Day Project Leader Ian Tattam and OSU Master's candidate Logan Breshears with the goal of evaluating overshoot behavior of John Day steelhead. Ian and Logan are also using VEMCO technology, which allows for a very opportunistic data sharing relationship. That project received R&E funding during the 21-1 cycle.

Independent acoustic receiver (Vemco VR2AR (AR=acoustic release) receivers) moorings will be anchored and connected to the VEMCO designed float collar system using ~5 ft. of 1/4" galvanized steel chain. Up to 15 acoustic release receivers will be utilized. The VR2AR's are located under the surface of the water and are retrieved using the VR100 manual receiver unit. The VR100 sends an acoustic signal to the VR2AR that is underwater, upon which the VR2AR detaches itself from the mooring unit and floats to the surface using the float collar system. Using the subsurface VR2AR's should greatly reduce issues pertaining to vandalism. Additionally, VR2W receivers hard mounted to USCG navigation aids and/or USACE property will be connected with 1/4" stainless steel cable with a pyramid or kettleball style weight at the bottom. During my three years in graduate school, we deployed 40-70 receivers per year using similar setups, and never lost a receiver.

Mobile tracking may also occur during the spawning season in the upper sections of the John Day Reservoir to assess suspected spawning and staging areas. A VEMCO VR100 receiver with either an omni-directional or a directional hydrophone will be used for mobile tracking. The omni-directional hydrophone was used to listen for any potential tags in the area. Once a tag was identified, the directional hydrophone was employed to more closely pinpoint the location of the tag. Once the vessel was judged to be as close to the tag as possible, a GPS point was logged for future retrieval.

Multi-state mark-recapture modeling may be used to independently calculate detection probabilities at acoustic gate locations. Multi-state modeling calculates three parameters:

apparent survival (S), recapture probability (p) and movement probability (ψ). In an acoustic telemetry context, recapture probability (p) is interpreted as detection probability at a given time and location. The model will set survival to 1 (no death or emigration), detection probability will be a function of acoustic gate location and time, and movement probability will be a function of acoustic gate location to/from, sex of fish and time. Survival will be fixed to 100% so long as detections in subsequent time periods show that all fish survived the spawning period.

Additionally, depending on the type of data (passive vs. active relocations) collected, we could possibly evaluate telemetry data using the software program MaxEnt (short for Maximum Entropy). The MaxEnt program (MaxEnt v3.3.3), utilizes presence only records along with associated environmental and geographical attributes (Phillips et al. 2006) to predict habitat occupancy. MaxEnt uses relocation data to initiate the maximum entropy of a given area and then restricts the area using selected habitat variables, which in turn develops a distribution map displaying the probability of occurrence to be used as a surrogate for habitat suitability modeling (Phillips et al. 2006).

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?

Any VR2W receivers acquired can last several years (>10) beyond the timeline of the project, as can the float collars for the acoustic release receivers. Given the long-lived, late-maturing nature of White Sturgeon, the data collected during this study could guide management decisions for several years into the future.

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

Columbia River White Sturgeon Project staff will continue to collect passive telemetry data until the acoustic tags used in the study are no longer valid. What we hope to establish during the years where R&E funding is incorporated is the establishment of an acoustic array that is more stable than the previous design, and development of analysis techniques (particularly evaluating environmental and ecological covariables) that are effective and repeatable.

Will the project require ongoing maintenance?

Yes

The project will be continued, but R&E funding will not be needed for maintenance.

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

No

Project Funding

Funding

Have you applied for OWEB funding for this project?

No

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
ODFW Columbia River Coordination Program	Cash	Secured	76695	Purchase of 15 Vemco VR2AR's (receivers) and VR100 hydrophone
Bonneville Power Administration	Cash	Secured	6850	Tag and track movement of adult White Sturgeon
ODFW VR2W Receiver loan	In-Kind	Pending	22385	Usage of acoustic receivers in the John Day pool
Blue Leaf Environmental	In-Kind	Secured	29000	Tagging of adult White Sturgeon in John Day Reservoir
USGS Oregon Cooperative Fish and Wildlife Unit	In-Kind	Pending	6000	Faculty advisor for Gabriella Brill
		Total	140930	

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 (Phil Simpson--Project Lead)	80	70.00	0	5600	0	5600
OSU Asst Coop Leader Dr. Melanie Davis	60	100.00	6000	0	0	6000
ODFW NRS1 Gabriella Brill	1578	32.00	0	0	50496	50496
		SUBTOTAL	6000	5600	50496	62096
IN-HOUSE PERSONNEL						
ODFW NRS1 Kevin Rybacki	25	50.00	0	1250	0	1250
		SUBTOTAL	0	1250	0	1250
CONTRACTED SERVICES						
Blue Leaf Environmental	58	500.00	29000	0	0	29000
		SUBTOTAL	29000	0	0	29000
TRAVEL						
ODFW Vehicle mileage	2000	0.58	0	0	1160	1160
ODFW Boat Fuel	1	500.00	0	0	500	500
		SUBTOTAL	0	0	1660	1660
SUPPLIES/MATERIALS						
Release Lug for VR2AR and Ascent Acoustic Release Receivers	20	50.00	0	0	1000	1000
Ascent/VR2AR Redeployment Parts	10	68.00	0	0	680	680
Shipping	1	656.00	0	443	213	656
Magnetic Activation Probe for acoustic receivers	1	39.00	0	0	39	39
Dangerous Goods (Lithium Battery) Handling Fee North America	2	25.00	0	25	25	50
Trawl Floats for acoustic receivers	44	23.00	0	0	1012	1012
Downrigger weights for VR2W receivers	20	25.00	0	0	500	500
Hardware for riggings (shackles, chain, rope)	1	700.00	0	0	700	700
1/4" X 500', 7x19, Type 304 Stainless Steel Cable Reel	2	461.00	0	0	922	922
Magnetic Activation Probe for acoustic receivers	1	0.00	0	37	0	37
		SUBTOTAL	0	505	5091	5596
EDUCATION/OUTREACH						
			0	0	0	0
		SUBTOTAL	0	0	0	0
EQUIPMENT						
VEMCO Acoustic release floatation collars	20	545.00	0	0	10900	10900
VR2W-69kHz Coded Acoustic Receiver	19	2035.00	22385	0	16280	38665
VR2AR-69 kHz Coded Acoustic Receiver with Acoustic Release	150	4630.00	0	69450	0	69450
VR100 Surface Transponder and Manual Tracking Receiver	1	6740.00	0	6740	0	6740
		SUBTOTAL	22385	76190	27180	125755
FISCAL ADMINISTRATION						
			0	0	0	0
		SUBTOTAL	0	0	0	0
		BUDGET TOTAL	57385	83545	84427	225357

Internal Review Results

Review Score: 1.1 out of 3

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

Summary of Review Team Comments

It was good to see a project related to sturgeon as they do not frequently come in front of the team for review. As such the team was supportive of improving sturgeon management and improving sturgeon opportunities for anglers. The team had several concerns with the application as written including identifying the priority and management implications of the project, budget, and how past complications with the project would be addressed with this effort. The application could be supported by the team if strengthened, scores included five 1s and two 2s.

Specific Review Team Comments

The budget presented needs to be cleaned up and additional explanation should be added to the table and/or project description.

- With all the other funding and managers on the Columbia, explain why R&E is being asked to pay the bulk of this.
- Please explain if this is this a stand-alone project that does not have funding or did recent budget cutbacks or funding shortfalls necessitated this ask.
- Project funding show \$214,347 but the budget table totals \$97,502. These totals need to match, and it needs to be clear what those other funds are being used for. Is the \$20,350 for John Day Research from the recent R&E grant for steelhead overshoot or is this other funding?

The application generically references a “selected” student but the budget specifically names a person. R&E does not typically fund grad students, it funds projects that are necessary for fish management. It would be beneficial if you could address the following to help alleviate concerns or questions.

- Whether this funding is to help a student get their MS/PHD or for a project that is utilizing a grad student to get the work done.
- Why you are not using a seasonal or temporary employees instead of a grad student.
- Why the cost for a graduate student is \$50,000 (\$32/hr) as it seems potentially excessive (e.g. This includes tuition. It is only an hourly wage. It is the hourly wage plus benefits.)
- How the named individual was selected to do this project (e.g. They have a history with the project. This will help them get a grad degree. Need to keep them employed or find a landing place).

The application currently focuses only on the components of the project you are seeking R&E funding for. It seems like there is a more to the story than what is outlined and more information should be provided to give the full picture of the work. Please include things like:

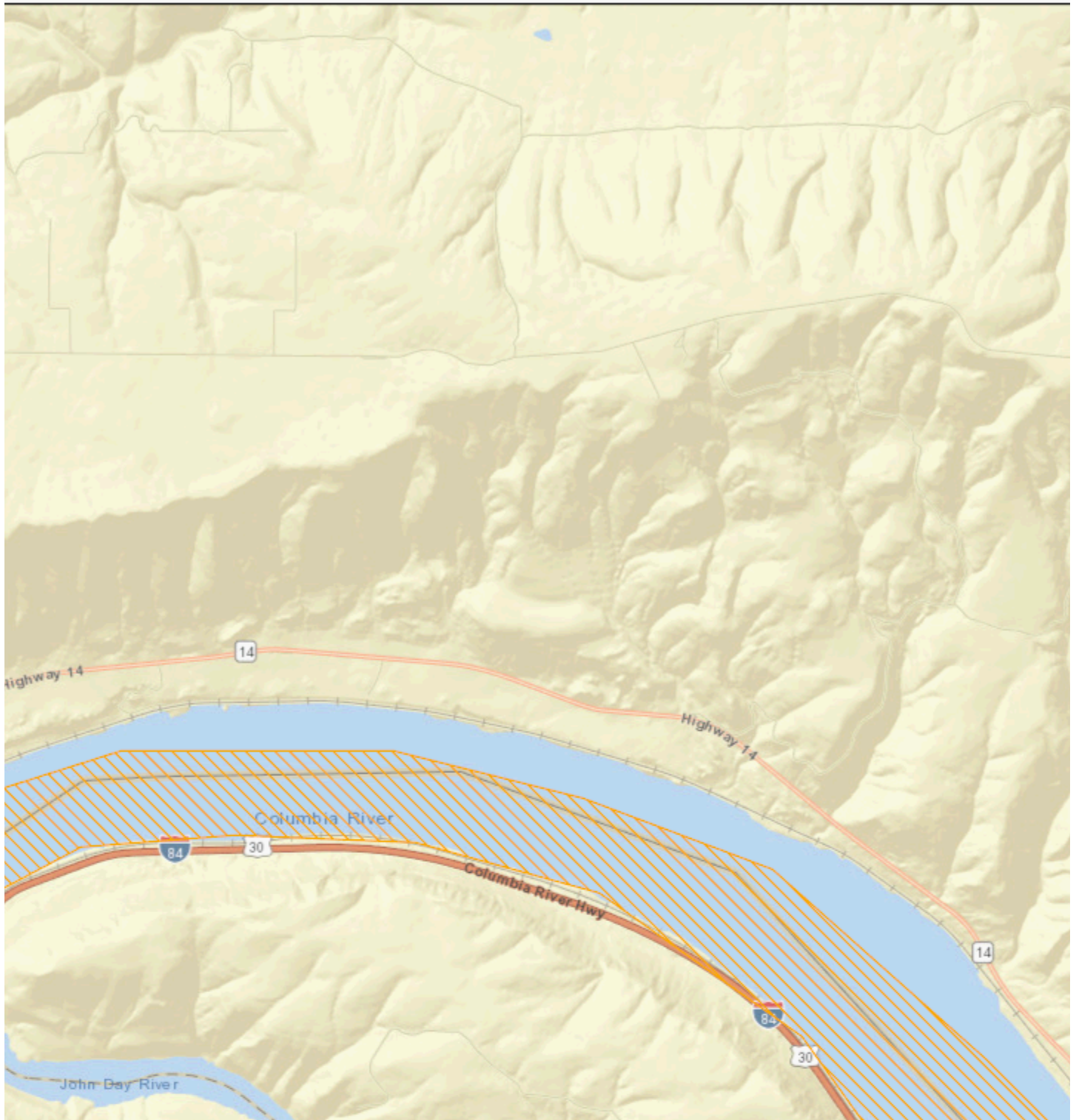
- What likely management changes or actions will result from the expected results?
- How will you be able to identify limiting factors from just tracking movements of fish?
- How will the information gained be used to inform practitioners on habitat or management improvements that will benefit the sturgeon population?
- What are the impediments to favorable white sturgeon habitat now?
- Are “political/economical” flows at the root of sturgeon recruitment issues? If so, how will this study affect that limiting factor?
- How does this connect with other monitoring projects or management efforts currently underway for sturgeon?
- Is this a priority for Columbia River management or a grad student project?

Sturgeon fishing opportunities are getting harder to come by these days and the more knowledge we

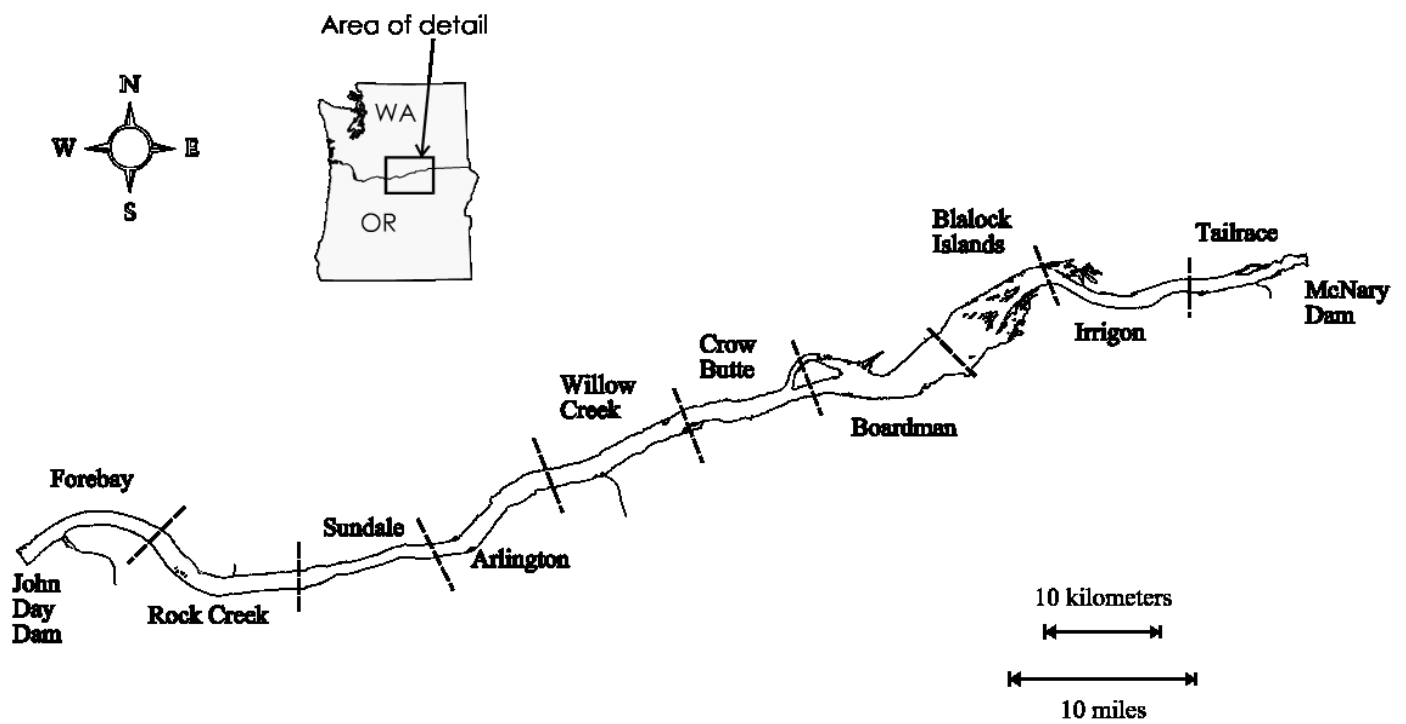
have on these populations, the better we can manage them and allow angling of them. However, the current application does not fully describe the link between the information gained (potential)/benefits to sturgeon and subsequently benefits to anglers. R&E funds are derived from fishing license sales, projects need to clearly identify a benefit to anglers, please make sure to fully describe the current fishery and how this project or resulting management changes will ultimately benefit anglers.

The application noted the initial study was hindered by loss of receivers due to vandalism, high flow, and poor mooring design. The new application outlines how the receivers will be deployed but does not specifically state how the proposed method address all three of the failure components from the first attempt. Please explain why the proposed deployment methods will address each of those failure modes to make sure this deployment uses better methods to secure the devices.

Project Map



Project Map 2



Additional Files

Budget Information

[Float collar quote](#)

[stainless cable quote](#)

[VR2W quote](#)

[VRWAR and VR100 quote](#)

Maps

[Project Map](#)

Map image of project location

[Project Map](#)

Photos

[VR2W Receiver schematic](#)

Design Information

Management Plans and Supporting Documents

Permits and Reviews

Partnerships

Public Comment

Administrative Documents

[signature auth](#)

Completion Report

A completion report has not been submitted for this project.