



## PIT Tag Information System Columbia Basin

# Newsletter

**November 2020**  
**Volume 18**  
**ISSUE 2**

The PTAGIS Newsletter is published periodically by Pacific States Marine Fisheries Commission.

We welcome input from the PTAGIS community, so email us at [ptagis\\_newsletter@ptagis.org](mailto:ptagis_newsletter@ptagis.org) with your story ideas.

If you have questions regarding the contents of this publication, or about the PTAGIS program, please contact PTAGIS Staff.

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## New PIT Tag Antennas on Barge Load Lines

DARREN CHASE (PTAGIS Kennewick Office)



Figure 1. Barge load lines at Lower Granite Dam.

### Overview

PSMFC was asked by BPA to investigate the possibility of adding PIT tag detection on the barge load lines at Lower Granite, Little Goose and Lower Monumental juvenile fish facilities. PSMFC investigated and wrote a feasibility report along with cost estimates and submitted it to BPA. The report was reviewed and the decision was made to move forward with the installation of the new antennas and scheduled to start once the facilities shut down for the 2020 season. Prior to the facilities shutting down, PTAGIS gathered components and began construction of the necessary PVC pipes, electrical enclosures, antenna shields, and support structures for the new antennas.

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## New PIT Tag Antennas on Barge Load Lines

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Once the final locations and transitions were agreed upon, it was decided to install two antennas on the barge load line at Lower Granite, four antennas at Little Goose (they are currently the only facility that utilizes the barge load lines and direct barge load lines) and two antennas on the barge load lines at Lower Monumental. All antennas will be installed on new 10" PVC pipe sections provided by PSMFC.

In September PSMFC began working to assemble the necessary equipment for construction and installation of the new antennas. This included the design of a low profile donut style shield for shielding the antennas from outside interference. This work was completed at PSMFC's Kennewick lab.

As of November the progress has been moving forward on schedule. The infrastructure and electronic enclosures have been installed at Lower Monumental.

The antenna shields for all three sites were fabricated and the PVC pipe pieces are being constructed. This work should be completed within the next few weeks.

### Summary

The project has proceeded successfully thanks to the collaborative efforts of the USACE site biologists and their staffs. The new antennas will be installed and functional prior to the 2021 season. 🌀

## PTAGIS Field Operations & Maintenance Summary for 2020

SCOTT LIVINGSTON (PTAGIS Kennewick Office)



Figure 2. Lower Granite Juvenile Bypass Facility

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## PTAGIS Field Operations & Maintenance Summary for 2020

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### O&M Summary

The PSMFC PTAGIS Kennewick office is responsible for ensuring that the PIT tag detection systems in mainstem juvenile fish bypass facilities and adult fish ladders are functioning at peak performance while those passage systems are in operation. The Kennewick office also monitors and cooperatively maintains Separation by Code (SbyC) hardware at nine of those facilities, allowing researchers to selectively separate PIT-tagged fish as they move through passage facilities. The Kennewick staff also provided technical assistance for multiple other projects involving the installation or development of new detection systems, such as the new spillway system at Lower Granite Dam.

Juvenile fish bypass facilities on the Snake and Columbia Rivers began operating in March and April. Detection efficiency rates for 2020 are being kept at or above previous year's rates of greater than 99%. The single antenna in the Bonneville Corner Collector is the exception to this with an estimated efficiency rate in the seventies based on NOAA live fish testing using 12mm tags. Separation by Code diversion efficiency rates remain high for 2020 with all diversion gates running above 97%. Adult ladder detection efficiency also remains high in dam-to-dam comparisons. All sites maintained an approximate 98 to 99% detection efficiency over a 12-month rolling report period.

### Other PTAGIS Field Office Projects for 2020

#### Update: Prosser (PRO-Chandler Dam) Additional Communication Upgrades

PRO-Chandler Dam PIT tag transceivers in the right, center, and left ladders transmit detection data via radio link to a central data collection platform located at the Juvenile Fish Facility (JFF) approximately ½ mile east of Chandler Dam. The transceivers in the JFF transmit data over fiber optic cable directly to the data collection platform located in the JFF.

This next phase of communication upgrades will consist of replacing the legacy serial multiplexer RocketPort I/O cards. These cards are obsolete and will not integrate into the long-term plan of Ethernet I/P based communications schema. PSMFC-Kennewick office developed a Serial to Ethernet (STE) converter that allows a transceiver to be I/P addressable while still sending data via serial communications. Ethernet I/P allows for a more maintainable, cleaner and modern approach to data collection. This upgrade will also integrate well into the new M5 data collection software. The upgrade is scheduled for completion in November 2020.



Figure 3. Upgraded communications panel ready for installation at PRO.

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### Slide-Gate Cylinder Replacement Prototype

With the support of the USACE site biologists and site maintenance personnel at three of the Snake River dams, PTAGIS Kennewick staff began research and development to replace the legacy pneumatic cylinders currently used to actuate the slide diversion gates with a more reliable and consistent actuator. PTAGIS proposed the use of an electric motor and actuator which is digitally controlled by a Programmable Logic Controller (PLC). This allows for precise positioning and control of the slide gates. This will drastically reduce the daily and annual maintenance required by the current pneumatic cylinders.

In March of 2019, with full support of the Lower Monumental Dam site biologist, a prototype electric cylinder and actuator was installed on the B-side slide gate in place of the pneumatic cylinder. During the full season of 2019, the diversion efficiencies on the B-side slide gate met or exceeded efficiencies from 2018.

After some slight modifications and enhancements to the prototype cylinder this winter, it remained in service during the 2020 season for further evaluation. With the success of the B-side gate, the A-side gate was also fitted with an electric actuator. Both gate's 2020 diversion efficiency rates exceeded those of 2019.



Figure 4. New electric cylinder at Lower Monumental Dam Juvenile Bypass Facility B-side gate.

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### Lower Granite Spillway Project 2020



Figure 5. Lower Granite Dam Spill bay # 1, PIT tag detectors in operation and detecting tags, May 2020.

On April 3, 2020, the spill gates were opened and the GRS Pit tag detection system began immediately detecting PIT tags at an exceptional rate. All 11 antennas exceeded detection rate expectations throughout the duration of the spill. The spill season ended on September 1st, although the OGEE is periodically opened, then closed for various reasons. As of Nov. 4th, 2020, all 11 antennas have detected nearly 160,000 PIT tags combined.

Before April 3rd, in conjunction with the US. Army Corps of Engineers, PSMFC, and NOAA fisheries conducted short-duration test spills to evaluate the system performance before the mandated, continuous spill. During these tests, an issue arose on antenna 0A located in the lower row. After extensive troubleshooting and evaluation, in order to determine the cause of the failing antenna was to access components inside the antenna itself. During the evaluation, it was found that a gland fitting used to keep water out of critical locations within the antenna body had failed and water had come in close contact with one of the antenna cable connections. This caused severe electrical arcing due to the high voltage generated by the antenna, loss of antenna current, and excessive interference.

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Figure 6. Antenna cable end damaged by electrical arching.



Figure 7. Work skiff providing access to the OGEE.

After repairs were made to the antenna cable end, along with the failed cable gland fitting, the antenna was returned to service and was operating as expected. Currently, there have been no additional failures on any of the 11 antennas as they continue to operate at peak performance.

Currently, a few remaining construction issues are being addressed.

1. Junction boxes the antenna cables pass thru periodically loosen due to vibration from the spill, causing electrical noise in the transceivers. PSMFC is working with the USACE to resolve this and has proposed a solution to permanently correct this.
2. The conduits that contain the antenna cables are filling with water due to mass head pressure. PSMFC consulted with the USACE regarding this and have come up with a solution to prevent the water from backing up into the transceiver enclosures.

To provide future access to the OGEE surface for repairs and or inspection of the antennas, a work barge access platform is currently being designed by the USACE and will provide the access necessary for long-term maintenance of the GRS detection system.

PSMFC-Kennewick staff continue to provide daily monitoring of the GRS PIT tag system performance and supporting infrastructure. 🌀

## PIT Tag System Upgrades at Bonneville Dam

Don Warf (PTAGIS Kennewick Office)

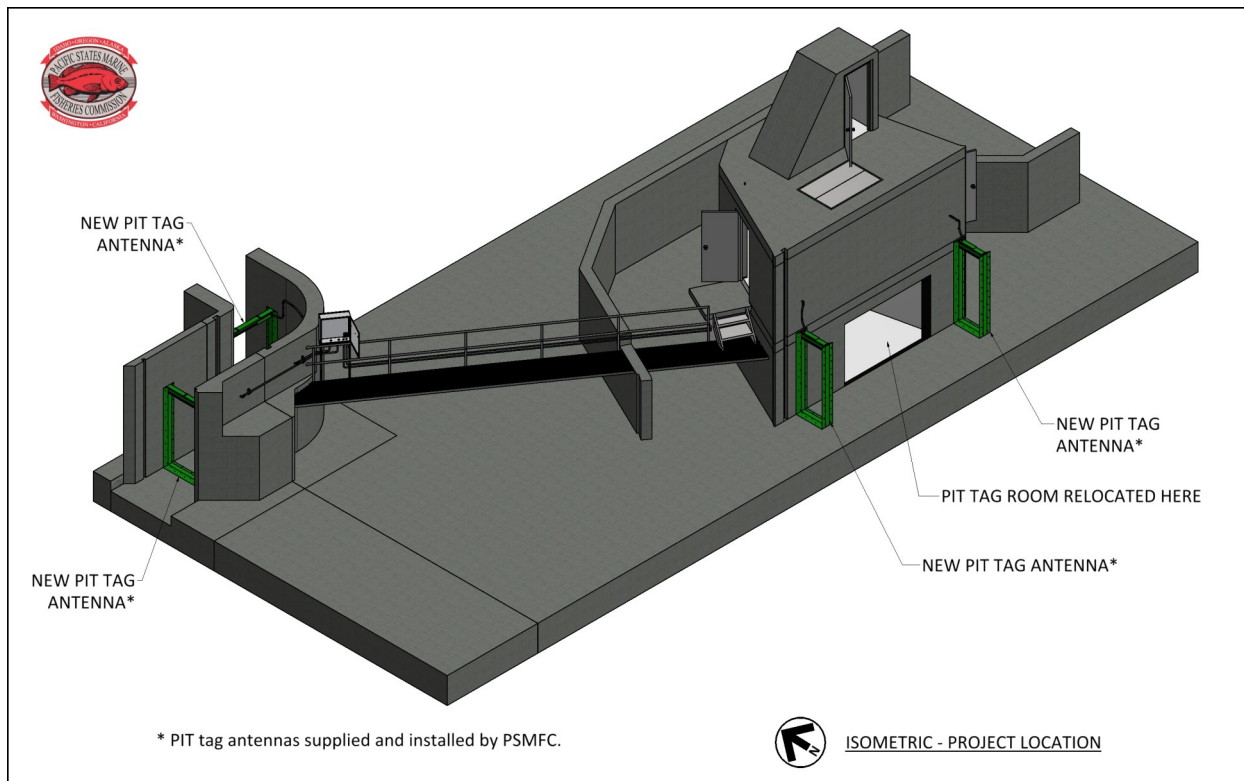


Figure 8. BO2 UMT / Counting Window Conceptual Design Provided by Alan Brower, PTAGIS Kennewick Office.

Two major upgrades to the PIT tag detection system at Bonneville Dam are slated for this winter. First is the complete relocation of the Cascades Island system (BO2). The main reason for the relocation is due to subsidence of the area around the existing system. This has caused the PIT tag electronics room to sink and list to the point of possibly becoming unusable. Access to the ladder transceivers could also be restricted in the near future.

The new location will be at the juncture of the ladder counting window and the Upstream Migrant Tunnel (UMT). Two antennas will be mounted within the UMT and two will be mounting within the counting window slot. These highly-efficient thin body, ferrite tile antennas will improve detection efficiency over the existing system in two ways. First, the antennas will cover 100% of the passage area where the existing system only covered the weir-wall underwater orifices and not the overflows. Secondly, the new system will have the capability of running in dual-mode, detecting both HDX and FDX tags. The existing system can only read FDX tags.

The antennas are slated to be installed during the winter outage. The installation date of the infrastructure to support the system is yet to be determined as the USACE works through the funding process. Once the infrastructure is in place the new system will come into operation.

The second major upgrade is the replacement of the slot antennas within the Washington Shore serpentine weirs (BO4). The system, originally installed in 2005, has seen periodic failures of the antennas due to water leakage into the windings. PTAGIS has kept the system in operation using a rotation of repaired spare units. In early 2020 one of the spare units was found to be non-repairable.

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## PIT Tag System Upgrades at Bonneville Dam

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The original antennas were a completely potted design, making them heavy (3000+ pounds) and expensive to build. With this in mind, PTAGIS began designing a replacement antenna using NOAA's recently developed underwater cable. This cable allowed us to build the antennas without a watertight housing. This reduced the weight by two-thirds and reduced the cost to less than 25% of the original.

The four new antennas are slated to be installed during the winter outage using crane support from the project. 🌀



Figure 9. BO4 PIT tag antennas under construction at the Kennewick lab.

## PTAGIS Program Update

JOHN TENNEY (PTAGIS Portland Office)

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Overall PTAGIS staff are healthy and the program continues to meet objectives while following safety guidelines to prevent the transmission of the coronavirus. Our work environment remains highly collaborative and productive thanks to infrastructure enhancements made by the PSMFC IT department to support telework. All PTAGIS systems are functioning without issue and field data is continuously loading and made available in near real-time according to the program's goals. Please [contact us by email or phone](#) during normal office hours if you need any technical support.

Earlier this summer [we announced the postponement](#) of the *PIT Tag Workshop* planned for this January. We will continue to work with the PIT Tag Steering Committee (PTSC) and Bonneville Power Administration (BPA) to reschedule this event in 2022.

Staff coordinated two meetings with the Instream PIT Tag Detection Subcommittee (IPTDS) this year. The meeting notes can be viewed here: <https://www.ptagis.org/resources/document-library/meeting-notes>. The next meeting, scheduled for December, will include review and discussion of draft site diagram standards. Please contact your agency representative if you have any questions or concerns related to instream PIT tag sites.

The annual PTSC meeting will be held early next year. The agenda for this meeting has yet to be formalized. Likewise, if you have any technical/coordination concerns, please forward them to your PTSC representative by the end of the year.

Staff continue to make progress on a number of program objectives this year and a brief update is provided in the following sections of this article. The focus this year is to deliver a new PTAGIS website, new systems to collect and process interrogation data and metadata, and new systems to support requests, implementation and operation of Separation-by-Code (SbyC).

### Server Upgrades

A beta release of the new PTAGIS web site will soon be hosted for review by a focus group comprised of members of the PTSC, IPTDS Subcommittee and others to ensure it's ready for production release. The beta release includes an upgraded reporting server and PTAGIS Web API. Metadata for interrogation and MRR sites have been enhanced along with the integration of GIS maps.

The processing of interrogation data has been completely upgraded in the database. These enhancements include overall performance tuning, improved validation and alerting. A new submission process in support of a new interrogation file format has been implemented, tested and is awaiting production release. A new O&M system has been developed and tested to identify any parameters or settings out of compliance from the hundreds of transceivers deployed at PTAGIS interrogation sites.

Millions of raw data files containing field data submitted to PTAGIS over the years were audited and migrated into a new virtual file repository. The file repository provides additional metadata, on-demand auditing features, and enhanced security. Features implemented in the new website and API allow researchers to efficiently browse and access these files.

The workflow to request and approve SbyC projects has been refined in the new website. Implementation of approved SbyC projects has been advanced with custom configuration management software used by staff to push updates to interrogation sites running new interrogation software (M5).

### M5 Software

The finishing touches have been applied to new interrogation field software called M5. This software will run unattended at sites capturing and submitting interrogation data to PTAGIS. It is a replacement for previous versions of PTAGIS interrogation software (M4 and MiniMon). M5 has been rigorously tested in the lab and field capturing data and submitting files via the new server Web API submission system. This testing has included a thorough evaluation of a new industrial PC platform to replace existing systems in the field that are almost a decade old.

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## PTAGIS Program Update

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The complex SbyC features have been implemented and sophisticated regression testing in the lab is being performed to ensure M5 will meet the high standards of performance and availability of the M4 software currently diverting fish at interrogation sites.

The new M5 platforms will be deployed to the field early next year to operate in-situ with existing production platforms. Once fully evaluated by O&M staff, a decision will be made to promote the M5 platform as production. After this evaluation, an announcement will be made to the community so that agencies operating MiniMon in the field can begin to upgrade to M5.

### P4 Software

A new version of P4 software (1.32) was recently released with the following changes:

- Updated RKM Ext field to accept values over 999 km.
- Updates to Project Defined fields to allow appending to values already in those fields
- Improved Session validation error messages generated by Custom Validations
- Additional logging if P4 setup fails due to a pending reboot
- P4 version number now shows in window title and Windows 10 taskbar

Please see the [release notes](#) for more details about changes in this version and all previous versions.

### P4 Tutorial Videos

Staff have been working on a new series of videos to replace the original training webinar video that was recorded when P4 was first released. The tutorial videos are short, from five to fifteen minutes long, and cover specific tasks or features in P4. Completed videos cover how to configure P4 with each of the Configuration Tools, updating and using Validation Codes, importing data into P4, backing up and transferring P4 data to another computer, and data collection. Future videos will cover editing and validating data in Record Management, submitting data to PTAGIS in Session Management, and querying P4 data in Query Management. The new P4 tutorial videos are available on the [Tutorials](#) page of the PTAGIS website.

### I5 Software

I5 is new PC-based software to replace the existing PTAGIS Interrogation File Formatter (PIFF2) software with extended features to support configurable data collection directly from a transceiver. This software will have more robust data management features to allow repeated importing of similar datasets to eliminate data gaps and improved QA/QC. Staff plan to demonstrate a preview of this software at the upcoming IPTDS Subcommittee meeting and discuss next steps. 🌀

## Adult Chinook, Sockeye and Steelhead PIT Tagging at Bonneville Dam

JEFF FRYER (Columbia River Inter-Tribal Fish Commission )

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If you have been dealing with adult salmon PIT tag detections in the Columbia Basin, no doubt you have encountered adult Sockeye, Chinook, or steelhead tagged at Bonneville Dam. This is part of a project the Columbia River Inter-Tribal Fish Commission began in 1985 shortly after the Adult Fish Facility opened, allowing easier trapping of salmonids passing Bonneville Dam. This Pacific Salmon Treaty funded project was initiated to estimate length and age composition of Sockeye and spring Chinook salmon and conduct stock identification experiments using scale pattern analysis.

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## Adult Chinook, Sockeye and Steelhead PIT Tagging at Bonneville Dam

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In subsequent years summer and fall Chinook and steelhead were added, genetics sampling began in 2002, and PIT tagging of Sockeye salmon was initiated in 2006 and expanded to Chinook in 2007. With the Columbia Basin Accords, BPA funding was added to further expand sampling and include steelhead PIT tagging in 2009.

The project samples Chinook and Sockeye salmon and steelhead from mid-April through mid-October, typically five days per week for five to six hours per day but subject to restrictions set by the Fish Passage Operations and Monitoring (FPOM) Coordination Team and the Army Corps of Engineers. Fish subject to trapping are those moving up the Washington shore ladder. A picket weir diverts fish into the Adult Fish Facility collection pool. Fish then move through a false weir putting them into a flume where an operator identifies and diverts fish into an anesthetic tank or back to the fish ladder. Fish are sampled, tagged, allowed to recover, and released. Data collected by this project is used in harvest management, run reconstruction, and run forecasting for Chinook, Sockeye, and steelhead. We often cooperate with other projects in the use of the trap, most recently the 2020 ODFW steelhead acoustic tagging project (subject of another article in this newsletter) and with Whooshh in 2019.

Fish tagged by this project go nearly everywhere! Over the past four years (2017-2020), we have on average tagged 3,200 Chinook, 1,400 Sockeye, and 940 steelhead which have generated 284,340 detections annually at a total of 236 sites (75%) out of approximately 317 current interrogation sites upstream of Bonneville Dam (Figure 1).

Annual reports from our Bonneville sampling projects since 1987 (which includes PIT tagging since 2006), are available at <https://www.critfc.org/fish-and-watersheds/fishery-science/scientific-reports/>. I have heard informally from PTAGIS users that they also utilize this data from Bonneville Dam-tagged adults to supplement data from returning juveniles. If you do use this data, I would be very interested in hearing more as it would be useful to show additional benefits provided by this project in response to a recent ISRP review as well as in BPA project proposal renewals. I could also let you know of caveats and nuances that you may be unaware of that you may want to consider in your use of the data

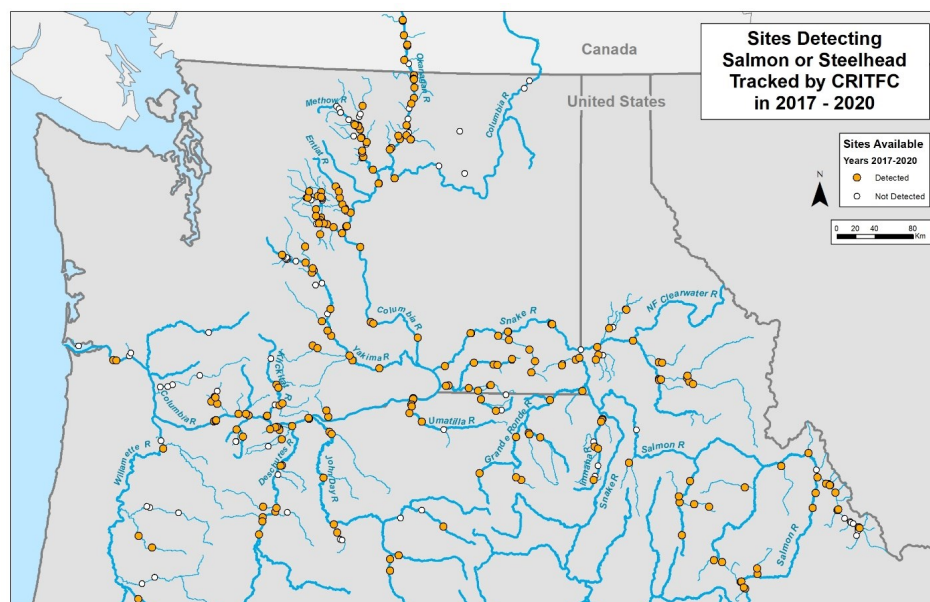


Figure 10. Sites detecting Chinook or Sockeye salmon or steelhead tracked by CRITFC from Bonneville Dam 2017-2020.

## Acoustic Plus PIT Tagged Steelhead Coming Soon to Your Basin! A 2020 ODFW Project with Another Planned in 2022.

JEFF FRYER (CRITFC), IAN TATTAM (ODFW) AND LOGAN BRESHEARS (OSU)

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This summer, ODFW, in cooperation with CRITFC, the Oregon Watershed Enhancement Board, and BPA, conducted an adult steelhead acoustic tagging project at Bonneville Dam using Vemco V13 acoustic tags. The goal is to monitor adult overshoot at the mouth of the John Day River by focusing tagging efforts on individuals previously PIT tagged as juveniles in the John Day basin. However, the Bonneville Dam Adult Fish Facility location and facility procedures limit trapping to only about 2% of returning adults from such a program using the PTAGIS sort-by-code system. To boost the sample size of known John Day River steelhead, ODFW was forced to acoustic-tag steelhead with similar run timing, as well as other physical characteristics typical of John Day steelhead in previous migration years. Targeted adults were A-run (<78 cm), tall dorsal, non-ad clipped steelhead migrating between mid-July and early September. A total of 200 steelhead were acoustic tagged via gastric implant, with the acoustic tags set at a one-year lifespan. Fifty of these steelhead had acoustic tags that included temperature plus depth sensors. All steelhead were PIT tagged and genetically sampled so stock could be determined post-season. Acoustic receivers were primarily deployed around the mouth of the John Day River, with additional receivers deployed in the mainstem Columbia River between Bonneville and Priest Rapids dams (including the mouths of major tributaries and cold-water refuges on both the Oregon and Washington shores). A small set of receivers were also deployed further upstream in the John Day Basin.

As was expected, numerous acoustic-tagged steelhead have been detected in locations throughout the Columbia River Basin other than the John Day Basin (Figure 1 and Table 1). Based on PIT tag detections as of November 10, 2020, 49 (24.9%) were last detected at Bonneville, The Dalles, or John Day dams (all of which are en-route to the John Day River) or in the John Day River. A total of 80 steelhead (40.6%) were last detected in the Snake River, 10 (5.1%) in the Yakima River, and 22 (11.2%) upstream of Priest Rapids Dam.

These non-target steelhead offer the opportunity for researchers in other basins to deploy VR2Ws to learn more about steelhead in their respective basins. Chelan PUD and Douglas PUD, who maintain VR2W receiver networks between Rock Island and Wells dams, are monitoring these fish and the Okanogan Nation is ready to deploy receivers if any make it to Canada (so far two are in the lower Okanogan, but none have passed Zosel Dam near the border).

If you are interested in learning more about acoustic-tagged steelhead and the VR2W settings to detect them, please contact Logan Breshears ([logan.breshears@oregonstate.edu](mailto:logan.breshears@oregonstate.edu)), Ian Tattam ([ian.a.tattam@state.or.us](mailto:ian.a.tattam@state.or.us)), or Jeff Fryer ([fryj@critfc.org](mailto:fryj@critfc.org)). Also, in 2022, we are hoping to conduct an expanded ODFW steelhead study plus a CRITFC (in cooperation with BPA, the Okanogan Nation, and Canada DFO) sockeye acoustic tagging study. If there are other agencies and researchers interested in participating with tags, funding, or unused VR2W receivers, please get in touch with us. Given the VR2W network we hope to have deployed in 2022 and the personnel already doing the work, we could inexpensively expand the reach of this acoustic project. Like participating in PTAGIS does with PIT tags, we could all work together on building a bigger VR2W network for 2022 and increase acoustic tagging to learn more about migrating adult salmon and steelhead.

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## Acoustic Plus PIT Tagged Steelhead Coming Soon to Your Basin! A 2020 ODFW Project with Another Planned in 2022.

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Table 1. Number and percentage of acoustic tagged steelhead by site of last PIT tag detection site as of November 5, 2020, for steelhead tagged at Bonneville Dam by ODFW in 2020.

Site of Last Detection	N	Percentage
Bonneville Dam	20	10.2%
Klickitat Basin	4	2.0%
The Dalles Dam	15	7.6%
Deschutes Basin	4	2.0%
John Day Dam	4	2.0%
John Day River	10	5.1%
Umatilla Basin	2	1.0%
McNary Dam	27	13.7%
Snake Basin	80	40.6%
Yakima Basin	10	5.1%
Priest Rapids Dam	1	0.5%
Wenatchee Basin	3	1.5%
Rocky Reach Dam	4	2.0%
Entiat Basin	1	0.5%
Wells Dam	9	4.6%
Methow Basin	2	1.0%
Okanogan Basin	2	1.0%

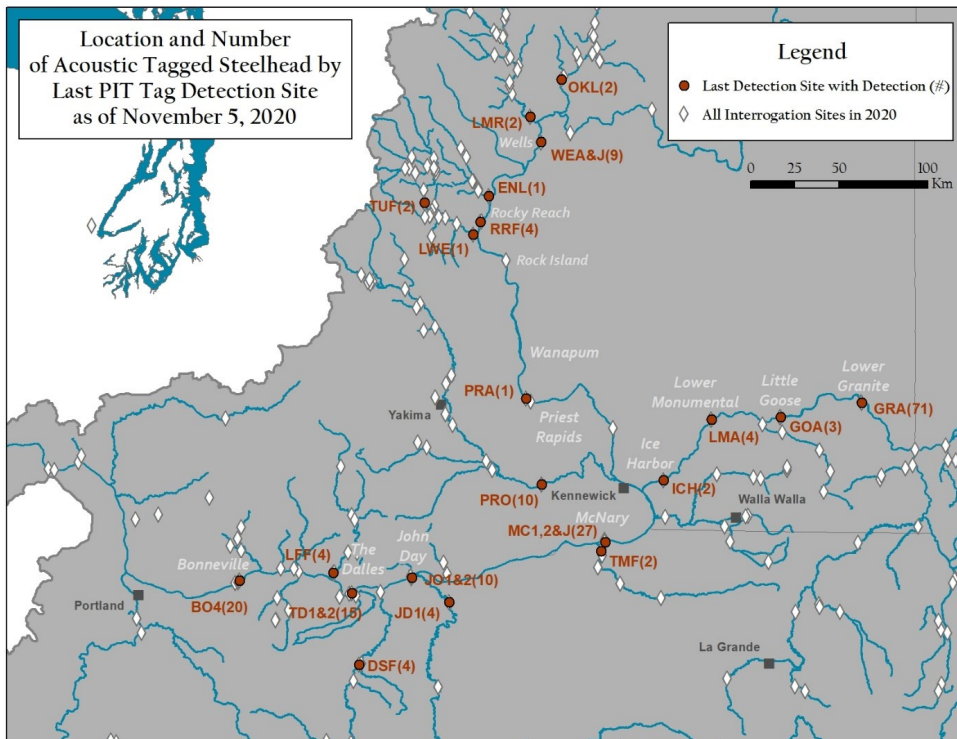


Figure 11. Location and number of acoustic tagged steelhead by last PIT tag detection site as of November 5, 2020.

## Status of the Deschutes River Mouth (DRM) PIT Tag Interrogation Site

JEFF FRYER (Columbia River Inter-Tribal Fish Commission )

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Many PTAGIS users are familiar with the DRM site at the mouth of the Deschutes River. Adult salmon and especially steelhead are commonly detected at the site on their upstream migration, particularly when Columbia River temperatures are high. However, this site has not been operative since August 9, 2019, due to a bad cable that runs from the controller to the upstream array, likely from water damage. DRM was installed in 2013 primarily to detect salmon migrating up the Deschutes; however, the site had a relatively low detection efficiency. Of the adult salmon tagged by CRITFC at the Bonneville Dam Adult Fish Facility (AFF) and then detected upstream of DRM in the Deschutes Basin, the percentage missing detection at DRM for the years 2013-2018 ranged from 47.4% to 80.5% annually. The site was expensive to maintain, required divers to access the antennas, and proved less useful than expected for within-basin analyses. Thus, no one has stepped forward to repair this site and it has, in effect, been abandoned.

DRM may not have been as useful as hoped for within-basin analyses, but it has been useful for researchers and managers looking more broadly in the region as they noted the number of upstream migrating salmon and steelhead detected at DRM. Of the 1,212 salmon and steelhead tagged in the aforementioned AFF study that were detected at DRM between 2013 and 2019, only 3.7% were last detected at Deschutes River sites upstream of DRM, 40.0% were not detected after DRM, and 56.3% were last detected elsewhere in the Columbia Basin ranging from Zosel Dam (Okanogan River) on the Canadian border to the Wallowa and Upper Salmon rivers in the Snake Basin. Detections at DRM occur primarily in the summer as the Deschutes River is recognized in the region as a cold-water refuge. Indeed, in the draft EPA Columbia River Cold Water Refuges Plan the installation of DRM in 2013 is called “an investment that has provided valuable information on cold water refuge (CWR) use in the Deschutes River CWR. Installation of PIT tag detectors at the mouth of other CWRs would be beneficial for future analysis.”

Thus, the region has a site which is arguably of some benefit for a number of projects and purposes, but not of much benefit for the purpose for which it was installed. Currently, in-stream PIT tag sites are funded, installed, and maintained by a single project and are often small arrays located in upper tributaries to answer questions particular to that project. Sites in lower rivers such as DRM are bigger and much more expensive to install and maintain and can be more vulnerable to flooding. Maintaining these sites can become too expensive for a single project despite it potentially being important for a multitude of other project and purposes. Other examples of notable “holes” in the PTAGIS network can be found in the lower Yakima, Grande Ronde, and the Middle Fork of the Salmon River where antennas have never been installed, likely due to installation and maintenance costs despite their potential benefits for multiple projects.

There is a new BPA project, In-stream PIT Tag Detection Systems Operation and Maintenance, 2018-002-00, created to fund data management, operations, and maintenance of BPA-funded arrays in northeast Washington and parts of the Snake River. This project is in its infancy and is looking at methods to prioritize sites to ensure the most valuable sites maintain detection efficiency into the future. The effort to prioritize could be expanded to include sites throughout the Columbia Basin and create forums to generate regional support for a prioritization framework. These regional forums could also identify stable funding mechanisms to fund O&M for the highest priority sites if they are not already covered by an existing agreement. Sites such as DRM might benefit from such an approach. 