IPTDS Subcommittee Meeting

April 5, 2022 09:00-12:00 PDT

Attendees: Brady Allen, Brian Knoth, Brian Davis, Tom Desgroseillier, Gabriel Brooks, Kory Kuhn, Kyle Meier, Randy Johnson, Ryan Gerstenberger, Ryan Kinzer, Zack Mays, Carley Simpson, Jeff Fryer, Derrek Faber, John Tenney, Daniel Wilson, Sebastian Dudek, Don, Warf, Craig White

Action Items from this Meeting

- Kyle will send info to Subcommittee on how Biomark uses VTTs to assess site uptime
- Kyle will present at next meeting about Biomark R&D and solutions from other customers
- Kyle will send one of the two production model IS1001-mux to PTAGIS-Kennewick to ensure software compatibility
- Randy will work on finalizing the optional stream bottom profile section of the Site Diagram standards
- Brian and Derrek will work on an SOP for getting M5 running on a Raspberry Pi
- Brady will loop in the Subcommittee on region-wide prioritization work at BPA
- John and Nicole will review options for obfuscating locations for Subcommittee to review and potentially bring to PTSC
- John will present more information about operational metadata received through M5 at next meeting to discuss options for taking in this type of data from instream sites and making it available

Review Actions from Last meeting

- Site diagrams standards and guidance completed and will be included in new website feature
- Guidance for VTT settings and PTAGIS report not completed

Introductions and Round Robin

Gabriel Brooks, NOAA: Runs BPA-funded research and development project. Has been the chair of the subcommittee for the past two years. Will present more about what is happening with R&D later in the meeting.

Brady Allen, BPA: Manages the project for Biomark O&M of instream sites and a member of the PTSC. Has some experience working with instream sites in the field with USGS. BPA is working on developing region-wide method for prioritizing instream sites when they need to be repaired or replaced. Will bring the framework to the committee for feedback when the more progress has been made.

Brian Knoth, IDFG: Primary use of instream sites is to monitor adult steelhead escapement. About 7-8 sites using mostly HDPE antenna sites. Manages 3 sites personally. Mostly used in conjunction with screw trap to help with the fish in/fish out analysis. Also working with Biomark to install some Litz cord pass—through sites to assess some juvenile survival. Most of the sites are BPA funded and rely on Biomark for O&M, but a few sites are not funded by BPA. Using minor trenching and over the top anchoring to double up anchoring for the bottom of the pass-through antennas. Subcommittee focus: Would like to work with PTAGIS on getting all data collected at sites into PTAGIS.

Carley Simpson, ONA: Took over for Nick Yaniw. ONA runs 4 mainstem Okanagan and 4 tributary sites. Will be installing antennas at Okanagan Lake dam this year, first year fish will be able to enter the lake. Mainstem sites are managed by Biomark, tributary sites managed by ONA with CCT. Planning to install a new site using an old Mux and other recycled equipment on a culvert on the Penticton Channel which only has water seasonally. They opened a flood plain area and want to monitor juvenile Chinook in and out of it.

Brian Davis, USFWS: Columbia River conservation office. Were really involved with instream sites 5-10 years ago, but now primarily have sites at hatcheries to monitor returns and lamprey. Also manage some arrays at weirs related to bull trout reintroduction. Working on a new project to monitor Little White to look at strays from the Big White. Also planning to use PIT tags to monitor results of an eradication effort. Working on comms from sites using Raspberry Pi running M5 to upload directly to PTAGIS. Interested in identifying projects that are not uploading data to PTAGIS and work with them to change that.

Tom Desgroseillier, WDFW: Took over for Ben Truscott. Worked on some early installs with Earl Prentice and Gabe. Manage arrays in the Wenatchee, Methow, Entiat that are used for adult movement abundance, abundance estimates for steelhead. Interested in the prioritization process BPA is working on. Installing PIT barge arrays in the next couple of months in the Lower Wenatchee and Methow rivers. Primarily for Juvenile detections, hoping to increase efficiency for better estimate of survival and movement into the Columbia. Barges will be installed below the existing instream sites closer to the confluence with Columbia. Gabe mentioned the potential avoidance behavior observed at the experimental PIT barges and suggested they monitor behavior around the barge during evaluation. Will work with Tom offline. Subcommittee focus: Interested in maintaining the infrastructure and the collected data and metadata efficiently and so it can be easily used.

Jeff Fryer, CRTFC: A member of the PTSC. Works with ONA on funding their projects. Manages Zosel Dam site, that has four antennas in the fish ladders, 2 floating antennas above the spillway, 6 antennas across the base of the spillway. They have detected a lot of sockeye and chinook milling around at the base of the dam. Still waiting to see how they do with juvenile detections.

Kory Kuhn, YKFP: Taking over for Nico Romero. Manage 6 sites, 1 with floating antennas on the mainstem Klickitat and 5 fixed pass-over antenna sites. Working with PTAGIS on installing one upstream of Castile Falls that will be a large pass-through antenna.

Kyle Meier, Biomark: Manages after sales support for Biomark for North America. There has been a change at Biomark recently and we will support customers 100%. We submit data to PTAGIS from over 100 sites in the Columbia basin and handle data from over 500 sites globally. We are changing data retrieval protocols to be bi-directional so we can contact site and site can push data. We have a lot of resources in R&D from Merck. More than 80 sites covered with full O&M in Columbia basin. Globally over 200 sites with full O&M. Two IS1001Mux production units should be delivered this month. 50 production units should ready to go by beginning of 4th quarter after the first two are fully tested, if supply chain issues don't get worse. Interested in prioritization process.

Randy Johnson, CCT: Manage 24 sites in the Okanagan basin, mostly on tributaries to the Okanagan. 7 sites upload through Biomark. 5 sites are not on PTAGIS and are operated for the habitat improvement program to assess barriers to adult steelhead movement and not expecting many detections. Some sites

are seasonal and have manual downloads. Interested in Raspberry PI running M5 solution for some of our year-round sites. Just finished installing site on Salmon Creek above the diversion. Subcommittee focus: Would like to continue with the site diagrams, particularly the stream bottom profile. Also interested in working on VTT standards and reports.

Ryan Kinzer, NPT: Filling in for Rick Orme, who has moved on. Not much experience from the hardware side, but lots of experience on the analytical side. Worked with Biomark and other staff to develop models to estimate adult abundance for spring/summer that uses data from about 130 sites and relies on adult tagging at Lower Granite. NPT maintains about 10 sites to monitor various things. Biomark provides O&M on many others across the Snake Basin. Very focused on the prioritization process. Internally have been thinking about it and our objectives for all this work, recognize we need to broaden the scope and work with everyone on it. Meeting with BPA staff next week to get the ball rolling. Subcommittee focus: permanent home for operational data that can be accessed by everyone. Arrays are part of sampling design so we need operational data to meet assumptions of the models.

Ryan Gerstenberger, CTWS: Manages three sites in the Hood River Basin, a few other temporary sites as well as a couple on the reservation that are managed by Biomark. Hood River Mouth site lost some antennas we need to replace and we are working on a site for an irrigation diversion to monitor juvenile movement. Subcommittee focus: Working with PTAGIS to make some of the software and website easier to use for organizations that don't have much tech support, which is one reason why some sites d not submit data to PTAGIS.

Zack Mays, YINN: Build, install and manage our PIT tag arrays. Around 14 arrays for monitoring steelhead escapement into the Yakima basin. 15-20 sites installed for habitat restoration monitoring, bull trout monitoring, and others. Several sites are not on PTAGIS for various reasons. Mostly HDPE flat plate on larger systems, using a 1-inch hex design with pass-through antennas on small streams to monitor juveniles. I have one site installed with both flat plat and pass-through to analyze difference in detection probabilities between them for juvenile. Subcommittee focus: Would like to continue what we did last year to keep creating uniformity.

NOAA R&D Update – Gabriel Brooks

Presentation

Funded R&D for 2021-2022

- Biomark IS1001-Mux
- FACA – Flexible antenna cable array operated in tandem with the trawl in the lower Columbia
- Two pile dike sites to test some new equipment
- GRS Spillway detector synchronization upgrade to ensure that if one reader goes down it won't affect the whole site

Funded for 2022-2023

- Field testing of IS1001-Mux, looking for volunteer to help with that
- Will use one on the trawl
- Live fish release at GRS
- Upgrade GRS power supply and work barge

IS1001-Mux

- Lower cost (target 5-7k)
- Six-antenna multiplexing unit for replacement of original mux
- 23-25 inch read range on 100 ft cable
- FDX, HDX and half-telegram tag
- Lower power requirements that MTS
- Gabe is looking for volunteers to field test one of the production units, contact him if interested

Flexible Antenna Cable Array

- Not primary data collection in lower Columbia, will use it as a secondary means of detection to maximize detections this year
- After season will test improvements to reduce noise; cable fairing to reduce vibration; prototype enclosures that are more robust; net reel modification for deployment

Pile Dike Sites

- PD7 reinstalled last week with new batteries, new comms, replaced antennas
- PD57 new site to be installed with six large flexible antennas
- Tested installing on a small pontoon with whip lines
- Solar panels for power

Spillway Detection

- Increased detection due to LGR spillway
- Upgrade power supplies for GRS to tune them remotely
- Live fish release test: a little better than 50% detection on standard 12mm tag

Bonneville Ice and Trash Sluiceway

- Researching installing antennas on the movable gates to increase detection by 2.2%
- Stainless steel shields and hardened enough to withstand large debris
- Prototype antenna tested dry, need to waterproof and test at NOAA Pasco in water
- Adding detection to fixed gates is also a possibility, would be more expensive because water height is greater

McNary

- Juvenile detections at McNary have dropped considerably due to increased spill, looking into adding detections
- Possibilities:
    - Barge in forebay or tailrace
    - FACA in forebay or tailrace
    - Fin antennas on MCJ outfall structure
    - TSW antennas

PTAGIS Update – John Tenney

Presentation

- I5 interrogation software released February 2022
- M5 real-time interrogation data collection software to be released to public May 2022
    - Runs on windows 10/11 or LINUX ARM64 (Raspberry Pi)
    - Already in use at PTAGIS sites since last year
- Retiring PIFF, MiniMon and the MiniMon file format by end of the year
- Web API for submissions of JSON (M5) file formats
- Retiring email and FTP file submissions by end of the year
- New JSON interrogation file in production use
- Website dashboard provides access to download data files; view and submit event logs
- Coming soon: A page for site stewards to update site diagram to the new IPTDS standard
- PTAGIS will draft and send an email on behalf of the committee to site stewards requesting they update the diagrams
- Coming soon: a page to request a new interrogation site

Questions

Zack asked if there is a way to import previously submitted files to I5 and start from there for downloading buffers that are not cleared. Nicole said there is not currently a way to do that. PTAGIS will add that as a feature request for I5.

Kory asked about obfuscating some of the more precise location information for interrogation sites; they had a recent break-in during which expensive equipment was stolen, and the map, coordinates and diagrams make it easy to find our sites. John said that the site locations are available to anyone through the public part of the website without logging in and on the PSMFC fish facility GIS data available on StreamNet. PTAGIS is open to moving the site location information to the dashboard so users would at least need to log in to get it. If the Subcommittee thinks this is important, PTAGIS will come up with some possibilities which the Subcommittee can then bring to the PTSC for final decision. Brady noted that having the data available to registered users would meet the publicly accessible requirement for federally funded data. John noted that a lot of fisherman have created PTAGIS accounts recently. Other participants said that fake security cameras have worked well for preventing theft at their sites.

A majority of the Subcommittee voted that this was an important topic and would like to review options and discuss with PTSC.

Derrek asked about working with PTAGIS to install M5 on Raspberry Pi and John invited any others interested in it to contact him to work on that process. Gabe asked Derrek and Brian to work on an SOP when they get up and running.

Elect Chair and Co-Chair

Gabriel will remain chair and Carley will be co-chair.

Next Meeting

Next meeting planned for mid-July through mid-August timeframe, PTAGIS will send a doodle poll to the group.