IPTDS Subcommittee Meeting

January 9, 2020

PSMFC Office, Portland, OR

Attendees: Ben Truscott (WDFW), Gabriel Brooks (NOAA), Ryan Gerstenberger (CTWSR), Chris Beasley (Biomark), Brian Knoth (IDFG), Brady Allen (BPA), Jeff Fryer (CRTFC), Brian Davis (USFWS), Rick Orme (NPT), Derrek Faber (ODFW), Nick Yaniw (ONA), Skyeler Folks (ONA), Nicolas Romero (YN), Randy Johnson (CCT), Zack Mays (YN), John Tenney (PTAGIS), Nicole Tancreto (PTAGIS), Daniel Wilson (PTAGIS), Don Warf (PTAGIS), Sebastian Dudek (PTAGIS), Craig White (PTAGIS)

Action Items:

- John asked each member to go back to their agency and find out if there are any barriers to attending a workshop in 2021
- Subcommittee will refine the list of possible instream workshop topics (see 2021 PIT Tag Workshop Planning section) and find presenters for each topic. Presenters will focus on different techniques/methods for each topic.
- PTAGIS will develop and distribute a survey to the community to determine interest level in instream topics at the workshop

John started off the meeting by clarifying Subcommittee **membership and roles**:

- Zack Mays is the Yakama Nation representative, Nico Romero is participating as an interested party for Yakama Nation as they cover two different large regional areas
- Chris Beasley is participating as an interested party to prevent conflict of interest since Biomark is the primary vendor of equipment and services used for IPTDS in the Columbia Basin
- Interested parties are non-voting members
- Jeff Fryer will be joining the subcommittee as a representative of CRTFC
- Subcommittee members are expected to coordinate with their respective organizations and to provide feedback
- Subcommittee will elect a chair and co-chair who will coordinate with PTAGIS staff on meetings, coordinate with PIT Tag Steering Committee on recommendations from the Subcommittee, assign actions to members and ensure timely completion, work for consensus among committee members, and call for vote to resolve disputes
- PTAGIS staff will provide meeting coordination and logistics, regional coordination on behalf of the Subcommittee

Introductions

Brief **introductions** from members gave their background and experience with ITPDS, updated the Subcommittee on agency IPTDS activities, and talked about desired outcomes from the Subcommittee.

- Members have a wealth and breadth of experience in designing, building, installing and managing instream systems
- Some desired outcomes include:
    - Work with PTAGIS to provide community feedback for IPTDS tools for site managers and data users
    - Better feedback to NOAA R&D project on community needs
    - Provide expertise to organizations without dedicated instream personnel
    - Improved communication and knowledge sharing
    - Development of best practices for installation, operation and maintenance of instream sites
    - Improve automated metadata availability
    - Techniques for dealing with shed tags getting trapped at detection sites

2021 PIT Tag Workshop Planning

PTAGIS is planning to hold a **PIT Tag Workshop in 2021** and the Subcommittee discussed ideas for an IPTDS session or demonstration, and settled on an afternoon half-day session on the last day of the workshop, where a panel could be convened to do quick 10 minute presentations on very specific aspects of building a site, focusing on different methods for doing the same thing. The "Instream Afternoon" could have the following topic areas:

- Troubleshooting – showcase specific issues (e.g. noise reduction, vibration reduction, ghost tags) and solutions
- Antenna strategies: type, construction, anchoring
- Power supplies
- Data retrieval and remote communication strategy
- Statistical methods – detection efficiency analysis
- Site operation efficiency methods

Gabriel proposed that these presentations be followed by an open forum discussion to help the NOAA R&D project get specific feedback about what problems need solving.

Nico proposed that a field trip to a nearby instream site be organized. There are several sites on the Wind River and tributaries.

John proposed that PTAGIS could sponsor a table in the vendor area if the subcommittee wanted to preview some examples of equipment from the "Instream Afternoon" sessions.

How PTAGIS Can Better Support IPTDS Site Mangers and Data Users

The Subcommittee spent a few hours after lunch discussing **how PTAGIS can better support data stewards and users.**

John presented the problem statement:

- PTAGIS principally designed for large-scale interrogation sites
- IPTDS activities are primarily agency initiatives outside of PTAGIS/PTSC
- Past coordination efforts resulted in limited feedback
- Currently, PTAGIS only accepts and reports observations from instream sites and maintains slowly changing site metadata
- IPTDS observations can and should be used for multiple studies, but PTAGIS has received feedback that limited metadata makes this difficult

John also presented (https://www.ptagis.org/docs/default-source/associated-meeting-documents/recent-ptagis-iptds-efforts.pdf?sfvrsn=2) software, website, and database tools PTAGIS is currently planning for or working on that could be useful to instream community:

- Development of light-weight M5 field software for running on PC/Linux to collect real-time interrogation data; replacement for Minimon and M4
- Enhancement of PIFF (now called I5), that would allow for local and remote download of interrogation data, data management and QA/QC features, manual uploads to PTAGIS
- RESTful API for data submission and file status, file retrieval, and file corrections
- New interrogation file format using JSON standard
- Database server enhancements to move parsing of transceiver data from individual field computers to server
- New PTAGIS website with enhanced Interrogation Site Metadata page
- Reporting system upgrade
- PTAGIS Data Specification (https://www.ptagis.org/data/data-specification)
- Interrogation Site Steward portal – for requesting new sites and possibly maintaining interrogation site metadata
- Potential to accept and provide to data users automated metadata from instream sites

Discussion

Ghost tags – bare tags that end up getting detected on interrogation sites long after the original host fish is dead. Creates problems with large amount of detection records if tag gets stuck in or near an antenna. Particularly a problem for sites near spawning grounds.

Best way to handle it is to find and remove the tag.

Question: could PTAGIS remove observation records from ghost tags?

- PTAGIS does not remove observation records, but if it is a significant problem a procedure could be developed to screen these records from the reporting system.
- New interrogation files will allow corrections of files similar to P4 files. Data steward could remove all the ghost tag observations and reload the file

Gabe talked about efforts to kill tags using high frequencies which were not successful. The ISO standard does not allow a tag to be killable, but NOAA R&D could look into developing a non-ISO tag that could be turned off with a special signal if needed.

I5 software – several members (Gabe, Ryan, Derrek) said that they could use something like that right now and Derrek offered to be a beta tester

Site Configuration

PTAGIS is considering adding enhancements to slowly changing metadata like:

- General site operational period – year round, seasons
- Additional site contacts – primary contact, data manager, site technician, interested party
- Power supply type
- Data submission frequency
- Communication types
- Antenna type
- Antenna size

Ben suggested that it would be helpful to have a drawing tool for site configuration diagrams. Nicole suggested that instead of building a new drawing tool when there are a lot of tools already available for that sort of thing, the Subcommittee could come up with some recommended standards so that all diagrams have the same basic information on them. Currently PTAGIS asks for a representation of the water way, water flow, antenna locations with IDs.

Operational Period – Nicole asked if there might be a better way to determine operational period than with event logs

Several ideas were discussed: using antenna current, virtual timer tags and other automated metadata to determine if all or part of a site is operational. Could also use noise and/or antenna current alarms.

Sometimes operational period is more nuanced, in that the equipment is operating, but there is no water so no opportunity to detect fish. This is harder to automate.

It was also suggested that improving event logs so that it is easier to submit standardized events and a more visual way to represent those events could be a simpler way to do it than trying to automate it.

Others suggested that PTAGIS could just provide access to the automated metadata so that data users could view and use the data to determine the answer themselves.

Some data users might want that, but some probably just want a Site Up / Site Down determination. Does it matter if all antennas were functioning, or if there was high noise?

Chris said that Biomark is beta testing real-time read range per antenna, and are also trying to use some automated metadata to report operational health for sites they O&M.

The essential information about operational period: Was the site operating during the time period of interest? OR was the site operating consistently during the time period of interest? OR was the site operating in such a way that will bias my analysis?

Zack remarked that some sites were designed and are operated to provide efficiencies for other sites on the same stream – they might have a different level of effort and maintenance. Would be helpful to have some categorization around that.

Ben asked if automated device metadata is coming to PTAGIS, and when that could be expected. PTAGIS would like to work with the Subcommittee to determine what should be accepted and how to provide access to it.

Other metadata that could be useful:

- Other values from status report such as Unique Mode
- Who is funding the site? Different than who is operating the site
- Indication on map that a site is decommissioned

In summary, there are a lot of ideas and PTAGIS would like to work with Subcommittee to determine what is most useful and to standardize values and ways to represent those values.

First steps:

1. Review new metadata design for the new website
2. Work on Site Configuration information and diagram standards.
   a. Determine if antenna type, antenna size, and other equipment are useful
   b. Come up with standard values
   c. Develop some diagram standards

PTAGIS will be in touch with the Subcommittee when ready to dive into these topics. Will use these to try out collaboration tools like Basecamp and develop a good method for working remotely on these topic areas.

Election of Chairpersons

Gabriel Brooks and Ben Truscott both volunteered to be chairpersons of the Subcommittee. By coin flip, Gabe is Chair and Ben is co-chair.