

2010 PTSC Meeting

2010 PIT Tag Steering Committee Meeting

The Columbia Basin PIT Tag Steering Committee (PTSC) Annual Meeting was held at PSMFC in Sellwood on February 2, 2010.

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Participants

PTSC members: Doug Marsh (NOAA), Charles Morrill (WDFW), Ed Buettner (IDFG), Steve Pastor (USFWS), Pat Keniry (ODFW), Jeff Fryer (CRITFC), Jack Tuomikoski (FPC)

PSMFC: Randy Fisher, Dave Marvin, John Tenney, Don Warf, Craig White, Darren Chase, Scott Livingston

Destron Fearing: Zeke Mejia and Roger Anderson (both on phone conference line)

Biomark, Inc: Dean Park, Kirstyn McKay, Scott Gary

BPA: Sharon Grant, Scott Bettin, Cecilia Brown

Others: Sandy Downing (NOAA Fisheries, on phone conference line), Steve Rentmeester (ISEMP), Kurt Steinke (USFWS)

Meeting Agenda

Time	Item	Person
09:00 - 09:15	Discussion of PTSC Charter	Charles Morrill
09:15 - 10:00	2009 PTAGIS Program Review	John Tenney / Dave Marvin
10:00 - 10:45	M4 development status	John
10:45 - 11:00	Break	
11:00 - 11:45	PTAGIS server upgrade status	Craig White
11:45 - 12:00	PSMFC Distribution of Biomark SUIs	Don Warf
12:00 - 13:00	Working Lunch	

13:00 - 13:30	2020 Transceiver Update	Don
13:30 - 14:00	Mux Transceiver Update	Roger Anderson
14:00 - 14:45	Decide whether or not to incorporate HDX tags into PTAGIS	Dave
14:45 - 15:00	Break	
15:00 - 15:20	O&M update	Don
15:20 - 15:40	RSW/TSW PIT tag detection update	Sandy Downing
15:40 - 16:00	Single Use Injector update	Dean Park
16:00 - 16:10	Plans for PIT Tag Workshop in 2011	Dave
16:10 - 16:20	PIT tag recoveries in the lower river fisheries	Dave
16:20 - 16:40	Data usage and publishing ethics and issues	Ed Buettner
16:40 - 16:45	Wrap-up and adjourn	

PIT Tag Steering Committee Annual Meeting

9:00-5:00, February 2, 2010

PSMFC Sellwood Office, Portland, Oregon

Attendees:

PTSC members: Doug Marsh (NOAA Fisheries), Charles Morrill (WDFW), Ed Buettner (IDFG), Steve Pastor (USFWS), Pat Keniry (ODFW), Jeff Fryer (CRITFC), Jack Tuomikoski (FPC)

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1. Discussion of PTSC Charter

There was a general discussion of the PIT Tag Steering Committee Charter. The document is 17 years old, and while the Committee's essential functions remain unchanged, the relationship of the PTSC with CBFWA, FPAC, and PSMFC needs to be updated. Charles Morrill said he would take this issue before FPAC on February 16 for clarification.

2. PTAGIS program status overview

John Tenney briefed the PTSC on the important program activities from the last year. This included the submission of the FS2009 program budget and statement of work (SOW) to BPA, the completion and submission of the 2007 and 2008 PTAGIS annual reports, the submission of quarterly status reports through 2009, and the submission of the FY2010 budget and SOW. Don Warf described the enhancements that were made to the new Tag Procurement and Distribution System (TPA/TDS) during 2009, and mentioned that additional enhancements are scheduled during 2010. John briefly mentioned the continued development of the M4 data collection application, the release of MiniMon version 1.5.3, and the release of the new PTAGIS Interrogation File Formatter (PIFF) utility. John described the progress made on the development of a replacement for the current PTAGIS server system and introduced Craig White, who has taken the lead on the Server Upgrade Project.

Dave Marvin spoke for Ryan Day, absent due to illness, regarding the key developments to the PTAGIS Web interface and database during 2009. These improvements included additional features and functionality requested by the PTSC to increase the scope and scale of Web Portal data query result sets, and a new set of enhanced validation criteria to identify errors in 3rd-party interrogation data files and prevent the processing of those dirty data into the PTAGIS database.

Dave noted that 75 new tag/release/recovery locations had been added to the PTAGIS meta-data dictionary during the year ending Feb. 1, representing a 10%+ increase in these location definitions. All of these new locations are explicitly geo-referenced, and are cross-referenced with existing stream and dam definitions in the StreamNet GIS database. Nineteen new interrogation site definitions were added to the meta-data dictionary during 2009, increasing by 15% the total number of sites (to 142), and representing 20% of the 100 sites that reported detection data to PTAGIS during the year ending Feb. 1.

During this presentation, Sandy Downing asked if PTOC staff could create, or provide support for the creation of, a wiki page for new 3rd-party interrogation sites. Don suggested that a wiki template for these sites could be fashioned from the template used to create the pages created for interrogation sites maintained by PTOC. The PTOC staff tentatively agreed to provide support for the creation of these new wiki pages, as staff resources allow.

3. M4 development review

John gave a detailed PowerPoint presentation on the continued development of M4, the replacement for the existing MultiMon and MiniMon interrogation data collection applications. During the last year, John discovered and corrected some performance and threading issues; these improvements reduced processing time from 15.1 ms to 1.1 ms per tag. A revision to M4's SxC architecture bypasses the InTime Subsystem component, resulting in direct communications between the M4 Monitoring Service and the PLC devices that control the PIT tag diversion gates. The original intent was to provide a single M4 application to satisfy the interrogation data acquisition needs of all PTAGIS constituents, but such a comprehensive application is not practical. The original application has been split into two; the **M4** application will provide traditional real-time data acquisition and SxC functionality, while the **M4 Data Manager** utility will target the needs of users with remote, "unplugged" sites that lack Internet connectivity or even a Windows computer. John hopes to release a beta version of the primary **M4** application, with SxC support this fall, and a production release early in 2011.

Both M4 applications provide enhanced support for "trigger info" provided by programmable logic controls or other input devices. Steve Rentmeester asked if as-yet undefined trigger info such as salinity, temperature, dissolved oxygen, etc. could be reported through M4 and managed by PTAGIS; John said it could. M4 also provides extensive "change management" functionality for modifications to a site's logical device configuration, and can also track changes in the location of one or all of the site's components. Doug Marsh asked if every change in geo-location would require a change in the site's configuration. John said the user could determine for themselves if the relocation represented a configuration change.

4. PTAGIS server upgrade project

Craig White joined the PTAGIS program in November, 2009, and is the lead on the PTAGIS server upgrade project. The new server is being developed independent from, and in parallel with, the existing PTAGIS database, file, and web portal servers. The goals of this project include: no impact to the current server systems during development; performance equal to or exceeding the existing systems, contractor-independence for day to day operations, and a total cost of ownership not to exceed the costs of the current systems. Craig plans to use the 'agile' (instead of the previous 'waterfall') development methodology to implement this upgrade. He is

confident he will have a functional process to demonstrate at the 2011 PTAGIS workshop (see below).

Craig outlined five phases for this upgrade project. Phase #1 focuses on developing a new process for uploading field (interrogation) data to PTAGIS. Phase #2 focuses on using new tools to enhance existing PTOC Operation and Maintenance reports and developing new reports. Phase #3 will focus on migrating M4 data into the current PTAGIS database, and provide functionality to automate site configuration updates. Phase #4 will focus on developing a new Reporting Server to provide improved access to PTAGIS data using Business Intelligence (BI) technologies. Phase #5 will provide enhancements to the PTAGIS Web Portal using the BI tools developed in Phase #4, and will include developing additional community forums.

5. Development of the DF-2020 Transceiver

Don led the discussion of the new 2020 transceiver, which is being developed by Destron Fearing (DF) as the replacement for the various models of 1001 transceiver now deployed at the mainstem dams and other locations. The PSMFC-PTOC Kennewick staff extensively tested a prototype of the 2020 during 2009. Don reported that they were generally impressed with the 2020, noting that it worked well in very noisy environments, had autotuning capabilities (similar to the 1001M MUX transceiver) and provided Ethernet connectivity. However, the Kennewick staff also noted some deficiencies in the 2020 prototype, such as the inability to access and implement all transceiver functions via the Ethernet connection, and that the transceiver was unable to detect tags during its regular (and long) autotuning cycles. Don and his staff compiled a "hard requirements" document that detailed the minimum functionality required of the 2020 transceiver for use at the interrogation facilities operated and maintained by PSMFC-PTOC. This document was sent to Zeke Mejia, Roger Anderson, and others at DF on December 17, 2009. Zeke replied that the requirements identified by Don and his staff constituted "a major and significant re-design to the existing model 2020 reader and not mostly S/W {software} changes as it was envisioned at the initial proposal for the transceiver." DF wants to be compensated for this architectural re-design. As a cost-saving measure, DF proposed to add a daughterboard to the existing 2020 motherboard to provide the additional required features and functionality identified by the PTOC staff.

The consensus of the PTSC was that the development of the 2020 needed to move forward, and that additional funding for that development was warranted. Don asked Zeke if DF could provide cost and timeline estimates for both a revision to the motherboard as well as adding the daughterboard. Zeke said DF would respond with those estimates by February 16.

6. DF-1001M MUX firmware version 2.0

Version 2.0 of the MUX firmware needs additional work to implemented changes requested by PTOC, NOAA Fisheries, and others. DF needs between \$5k and \$10k (20-40 hours) to assess (at 20 hours) and either complete (at 40 hours) those revisions or identify outstanding issues and estimate the remaining remedial effort. The PTSC gave PSMFC approval to provide the funding for the initial assessment.

7. ACN transceiver development

Sandy provided a brief update on NOAA Fisheries' efforts to develop the antenna control node (ACN) multi-antenna transceiver system for use at instream locations. As reported to the PTSC previously, the ACN will address limitations of the 1001M MUX reader (e.g., a maximum of six antennas; 100 ft maximum cable length; antennas require a surrounding air gap). NOAA

Fisheries expects to see the ACN used at new interrogation sites in the Willamette Basin to detect FDX (and possibly HDX) tags. Sandy would like to see the ACN available at a lower cost and capable of driving larger daisy-chained antennas over a longer distance.

8. HDX tag events in the PTAGIS database

After years of discussion and deferment, the issue of whether or not to incorporate half-duplex (HDX) PIT tag event data into PTAGIS was finally addressed and resolved. The impetus for this decision was the deployment, by NOAA Fisheries and ODFW, of an AllFlex transceiver system in the canal diversion and bypass flume at Leaburg Dam capable of detecting both HDX and FDX tags. The PTSC approved the incorporation of HDX PIT tag tag/release/recovery and interrogation data into the PTAGIS database.

Dave introduced two issues for discussion and resolution by the PTSC. The first issue was how to represent HDX tag code masks in the PTAGIS database. Currently, different transceiver models (even those from the same vendor) display and record the HDX tag codes differently. All of the HDX tags currently used to mark fish in the Columbia Basin are of a common model manufactured only by Texas Instruments (TI). If the transceiver reports the three digit country/manufacturer prefix for these ('industrial') TI tags, it is always represented as "000". Based on his experience with this TI tag model, Dave proposed that PTAGIS implement a standard HDX tag mask of "HDX.FFFFFFFFFF" that provided an "HDX" prefix and a 10-digit hexadecimal representation of the tag code (zero-padded from the left, as necessary). Dave argued that this mask would explicitly identify and segregate HDX tags from FDX tags reported to PTAGIS, and would circumvent any identification conflicts for HDX tags recorded as 10-digit values with identical 400- or 125-kHz tags already in the database. Adoption of this mask for HDX tags would require modifications to both the P3 and MiniMon data collection applications. The PTSC saw no need to use the "HDX" prefix to implicitly discriminate between HDX and FDX tags. Furthermore, the ISO standard requires the full code mask (including a non-zero country/manufacturer prefix) when identifying an 'animal' HDX tag, just as with an 'animal' (vs. 'industrial') FDX tag. Therefore, the PTSC decided (and Dave readily agreed) to standardize on the same '3.10' code mask for HDX tags as currently required for FDX tags, with a default country/manufacturer prefix of "000" and the tag code represented as a 10-digit hexadecimal value. This solution requires no modification to any PTAGIS software or database applications. The second issue raised by Dave (and Don) was if and how the PTSC wanted PTOC to incorporate HDX detection capabilities into the existing interrogation platforms at Bonneville Dam and other mainstem locations. After a short discussion, the PTSC decided to maintain the status quo at these sites for at least the next year, and allow NOAA Fisheries and the University of Idaho to continue to operate and maintain their HDX systems independently of the FDX systems at those sites. Don and the Kennewick PTOC staff will continue to coordinate with those researchers (and others) to identify and resolve any interference issues stemming from the deployment of these separate systems.

Dave will coordinate with Chris Caudill (U of I) and Mary Moser (NOAA Fisheries) to acquire and incorporate their historic HDX event data from BON, TDA, JDA, MCN, ICH, and PRD into PTAGIS, and define the methods and processes necessary to capture and report these data directly in the future. Similar actions are anticipated for the HDX data collected to date by ODFW in the Willamette Basin, and possibly for other entities (e.g., USFWS, PGE, CTWSR) using HDX tags within the Columbia Basin.

9. PTOC Kennewick Status Report

Scott Livingston provided an extensive summary of the PTOC Kennewick staff activities during the past year. As noted previously, PSMFC has been working closely with DF to develop the FS-2020 transceiver as a replacement for the various models of 1001 transceiver currently deployed at the mainstem dams. Until then, PTOC will continue to repair or replace failed FS-1001x transceivers. PTOC will also continue to repair failed computers deployed at the SbyC sites; these computers must support the DOS MultiMon application in a Windows 98 environment, and can't be replaced by newer machines. PTAGIS has three B2CC transceivers (specific to the BCC site) available and in good working order for the 2010 operational season. PTOC-Kennewick designed and developed an "Automated Read Range Tester" (ARRT) to provide remote diagnostics and evaluation capabilities for the BCC interrogation system, and extensively tested this system in place during 2009. The Kennewick staff continued to improve PTOC's transceiver "uptime" performance by installing uninterrupted power supply (UPS) systems to individual transceivers in critical detection paths at juvenile and adult fishways. During 2009 the Kennewick staff supervised and completed the installation of the new transceivers and antennas in the full-flow flume of the juvenile fish bypass at Little Goose Dam, and worked with the Yakama Nation and Bureau of Reclamation to address persistent flooding threats at Prosser Dam by relocating the PIT tag transceivers and other equipment. The Kennewick staff continues to work closely with the Yakama Nation to develop new PIT tag detection deployments at the Castile Falls and Lyle Falls sampling facilities, both of which are located on the Klickitat River. PTOC Kennewick staff is also directly involved in the new Ice Harbor Dam spillway ogee PIT tag interrogation project; the project kickoff meeting was held on Jan. 28, 2010 and construction is scheduled to start in late 2010 with completion in early 2011 prior to spillway operations. As part of the Willamette Basin BiOp, NOAA Fisheries is instigating the deployment of PIT tag detection systems in critical areas; NOAA Fisheries anticipates that these systems will ultimately be turned over to PTOC for O&M. BPA will likely issue a Request for Proposals (RFP) from PIT tag manufacturers later this Spring, resulting in evaluations of candidate tags later this Summer or Fall. Those evaluations will rely on a rigorous suite of tests conducted by PTOC Kennewick staff.

The description of the PTOC O&M activities at BCC sparked a discussion of the detection efficiencies (DE) required at this site. Scott Bettin stated that if the agencies and tribes determined that a second detector was needed at BCC, either to directly measure the per-detector and cumulative DE or to increase the cumulative DE, then this recommendation needed to be prioritized within the Fish and Wildlife Program.

10. Spillway and RSW/TSW PIT tag detection update

Sandy described the ongoing activities during the last year to develop detection capabilities at various spillway locations. Roger Anderson has been testing various antenna configurations attached to a leaf gate at Bonneville Dam and shielded with ferrite tiles. These tests yielded positive results, but the bottom line is that the Corps of Engineers doesn't want attachments on existing spillway gates. There are a couple of alternatives; antennas could be integrated into new gates, or antennas could be embedded into the spillway ogee. Sandy has adopted a wait-and-see attitude, based on the planned deployment of detectors next year in the spillbay ogee under the spillway weir at Ice Harbor Dam.

11. Single Use Injector update

Dean Park provided a brief update of the Single Use Injector (SUI) systems now available from Biomark. Most of the Snake River fall Chinook marked last year were tagged with SUIs. Don and other staff from Kennewick toured Biomark's facilities and were satisfied with Biomark's ability to maintain the integrity of shipments ordered through BPA's tag procurement process. Dean expressed complete confidence in Biomark's ability to distribute SUIs purchased through the BPA procurement process, and with the utility and reliability of the SUIs compared to traditional re-usable PIT tag injectors. There will be a marking technique evaluation at Hagerman NFH, with IDFG staff marking with reusable injectors, and the Biomark tagging crew using SUIs.

12. Upcoming PIT tag workshops

Dave noted that he was convening a PIT tag workshop at the Oregon Chapter AFS meeting later in February. While the workshop topics were developed to be of general interest to various research projects throughout Oregon, the majority of attendees and all of the presenters were active within the Columbia Basin. Of direct interest to the PTSC was Dave's announcement that PSMFC would host a PTAGIS workshop at Skamania Lodge on January 25-28, 2011. PSMFC will work with the PTSC to develop the workshop agenda. As in 2004, the PTSC will hold a meeting at Skamania Lodge immediately following the workshop.

13. PIT tag recoveries in lower river fisheries

Dave provided the PTSC with general information on a new initiative by WDFW to include PIT tag detection capabilities along with wire tag detection in their creel sampling activities in the mainstem Columbia below Bonneville Dam. ODFW will add this activity in 2011 to their lower river creel sampling program.

Scott Bettin requested that PTAGIS accommodate the upper Columbia River sturgeon PIT tag data. The PTSC approved this request. Dave clarified with the PTSC that PTAGIS could also incorporate the IDFG Kootenai River sturgeon data and the ODFW lower Columbia River sturgeon data, the WDFW Lewis River bull trout data, and other data from closed populations of resident or adfluvial fish.

14. Data usage and publishing ethics and issues

Ed Buettner contacted Dave prior to this meeting to remind Dave that the PTSC had previously directed PTOC to add a directive to the Web Portal to remind data users of their responsibilities in the use and publication of data acquired from the PTAGIS database. Dave will distribute similar directives from other public or shared databases, and solicit suggestions and approval from the PTSC for the final verbiage to be displayed when accessing PTAGIS data.

15. Wrap up and adjournment

Steve Pastor agreed to a second term as PTSC chair. Charles Morrill agreed to a second term as co-chair.