



PIT Tag Information System Columbia Basin

Newsletter

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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 with your story ideas.

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

Contributors for this issue include:

ALAN BROWER
abrower@psmfc.org

SHARON GRANT
sdgrant@bpa.gov

TRICIA LEDGEWOOD
tledgewood@psmfc.org

KIRSTYN MCKAY
kirstyn.mckay@biomark.com

JENNIFER NIGHBOR
jnighbor@psmfc.org

DEAN PARK
dean.park@biomark.com

NICOLE TANCRETO
ntancreto@psmfc.org

JOHN TENNEY
itenney@psmfc.org

DON WARF
dwarf@psmfc.org



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PIT Tag Steering Committee Member Retirement

JOHN TENNEY (PTAGIS Portland Office)

Ed Buettner, the PIT Tag Steering Committee (PTSC) representative for Idaho Department of Fish and Game, has officially retired as of June 30th. Scott Putnam, whom has been working with Ed for fourteen years and is very familiar with the PTAGIS program, has been named the interim PTSC representative until the agency announces an official replacement. Scott's contact information, as well as that of other PTSC members, can be found here: <http://php.ptagis.org/wiki/index.php/PTSC>.

Ed put in over 32 years of service and was one of the original PTSC members when the program was first created. Most of you know him as the star of the *PIT Tagging Best Practices* video. His expertise, leadership and candor will be missed.

On behalf of the PTSC and the PTAGIS staff, we thank Ed for his service and wish him all the very best. ☺

New PTAGIS Team Member

JOHN TENNEY (PTAGIS Portland Office)

Last February Tricia Ledgewood joined the PTAGIS team in the Portland office as a part-time Administrative Support Specialist. Tricia has worked for PSMFC since 2008. She was originally hired to be part of the "Salmon Disaster Team" reviewing applications and distributing funds in the Klamath, Sacramento, Fraser River and Yukon federal salmon disasters. After which she designed and developed a digital repository for all the salmon disaster records as well as an archive for Commission documents. She has joined the PTAGIS staff to help manage accounts and publish content in addition to supporting the program and development staff. ☺

BPA PIT Tag Solicitation Results

SHARON GRANT (Bonneville Power Administration)

After more than one year in the making, Bonneville Power Administration (BPA) has awarded contracts for 9mm, 12 mm, and 23 mm PIT Tags. Many thanks go out to the researchers at NOAA Fisheries and Pacific States Marine Fisheries Commission, Kennewick, who worked countless hours in the testing phase of this process during this solicitation process.

We will continue to order Destron Fearing 12 mm tags (TX1411SST-1), now labeled under the Biomark name. The 23 mm tags will also come from Biomark, which we will order as needed until those projects using the larger specialty tags have been identified.

The 9 mm contract has been awarded to RFID Solutions. The test results showed a significant improvement over the previous 9 mm tag, outperforming it by 3 to 4 times. Although it is 22% heavier than the previous approved 9 mm tag, it is still 25% lighter than the current 12 mm tag.

We will continue to have the 9 mm and 12 mm tags pre-loaded for those who prefer this method of tagging. 🌀

PIT Tag Codes - Why are the First Three Digits Different From What I'm Used to?

DEAN PARK (Biomark)

A PIT tag is comprised of a 15 digit unique identification number. In the PTAGIS database these unique tag codes are displayed and stored in a hexadecimal format per specifications. PIT tag readers that conform to the ISO (International Standard Organization) format will display these unique codes in either hexadecimal or decimal format. Many PIT tag manufacturing companies as well as the standards organization (ICAR-International Committee on Animal Recording) that delegates and regulates the unique codes use the decimal format in their manufacturing and compliance process.

For a manufacturer to gain approval to produce unique PIT tags they must first submit samples to be tested by ICAR. If the sample is found to be compliant with the ISO standard for animal identification the manufacturer will then be granted the use of a manufacturer code. This is the three digit number that precedes the 12 digit unique ID in the tag telegram. In the Columbia Basin this three digit number has predominately been 3D9 (or in decimal format 985). This is the approved manufacturer code of Destron Fearing Corporation. Because there are a limited amount of manufacturer codes available for use, ICAR will grant the use of shared manufacturer code (384 in hexadecimal or 900 in decimal) to new manufacturers until a time they produce and sell 2 million PIT tags. At this time they may apply for and are generally awarded a permanent manufacturer code.

In 2011/2012 Bonneville Power Administration awarded PIT tag supply contracts to several different manufacturers. The standard 12mm PIT tag, TX1411SST-1 that has been awarded under this contract is supplied by Biomark Inc. and produced under the manufacturer code 384 (900). In late 2012 they will produce the same tag under the permanent manufacturer code 3DD (989). It is likely that projects sponsored by BPA's tag procurement will begin receiving these tags sometime in 2013. It is important to clarify that this tag is the exact same tag that PIT tag projects have been using for years. The only difference is that Biomark (via a business merger) is now the manufacturer and supplier of the PIT tag. Because of the company name change Biomark must now manufacture the TX1411SST-1 tag using its 384 manufacturer code instead of the previously used 3D9 code. There are no performance changes, either physical or electronic, to the tag you have become familiar with and the quality control measures taken by Biomark and PTAGIS/PSMFC will continue. If you have any questions relating to the tag code change please feel free to contact Dean Park at dean.park@biomark.com for additional information. ☺

BIOMARK PRODUCT UPDATE



MULTIPLEXING TRANSCEIVER SYSTEM (IS1001-MTS)

Biomark's Multiplexing Transceiver System (IS1001-MTS) is our newest stationary reader; providing decoding of ISO 11784/11785 compliant FDX-B & HDX PIT tags. The MTS provides improved performance, with respect to detection range and number of antennas, over the current FS1001M stationary reader. The MTS consists of a Master Controller (IS1001-MC) and up to 12 IS1001 reader boards. The IS1001-MC acts as the command and control center for the system, storing tag code and diagnostic information and directing each reader when to activate the antennas. The MTS is scalable. A single IS1001 reader can be used as a stand-alone unit or synchronized with one more IS1001, without the need for an IS1001-MC. The scalable approach of the MTS offers a

	FS1001M "MUX"	IS1001 "ACN"	IS1001-MC
Input Voltage	24V DC	24V DC range 18–30V DC	24V DC range 18–30V DC
Antenna Current	7.0 Ap-p	10.0 Ap-p	10.0 Ap-p
Auto-tuning	12 capacitors, electronically switched	10 capacitors, electronically switched	10 capacitors, electronically switched
Tags Read	134.2 FDX-B	134.2 FDX-B & HDX	134.2 FDX-B & HDX
Virtual Test Tag	Yes, digitally adjustable	Yes, digitally adjustable	Yes, digitally adjustable
Data Storage	1 x 128 KB; 5350 tags; 146 status reports	2 x 128 KB; 8900 tags; 151 status reports	2 x 128 KB; 15,600 tags; 151 status reports
Antenna Connections	6, multiplexed	1	12, multiplexed/synchronized
Communication Ports	1: RS232, DB-9	2 standard USB (Mini-B), CAN Bus. 2 optional Ethernet (RJ45) fibre optic	2 standard USB (Mini-B), CAN Bus. 2 optional Ethernet (RJ45) fibre optic
Synchronization Capability	No	Yes	Yes

cost effective solution for monitoring a single location and the expandability to

sample up to 12 locations and up to 24 when synchronized with another MTS.

This system will replace the FS1001M. Available September 1, 2012. Limited supply of FS1001M available.

BIOMARK HPR plus

Biomark has developed the HPR & HPR-Plus readers from the ground up to incorporate features gleaned from discussions with the fish and wildlife

community and our own Biological Services Department. The reader provides decoding of ISO 11784/11785 FDX-B and HDX PIT tags,



expanded tag storage (~1.6M), simple data retrieval via USB port, large display, water proof (IP67),

and it floats. With the HPR-Plus location information can be appended to tag codes in real time to provide reach level accuracy. The HPR-P model features auto-tuning capability – eliminating the need for a tuning box – making it ideal for small scale monitoring applications. The HPR-P is compatible with all Biomark antennas operated by the FS2001F-ISO reader. Custom antennas also available.

This reader will replace the FS2001. Available September 1, 2012. Limited supply of FS2001 available.

	FS2001	HPR	HPR Plus
Tags Read	125, 400, 134.2 FDX-B	134.2 FDX-B, HDX	134.2 FDX- B, HDX
Tag Memory Storage	4,400	1.6 million	1.6 million
Bluetooth	No	Yes	Yes
GPS	No	No	Yes
Comm. Port	RS232	USB	USB
Auto Tuning	No	No	Yes
Status Report	No	No	Yes
Noise Report	No	No	Yes
Water Proof	No	Yes	Yes
Display	Monochrome 1.5 x 5.8 CM	24 bit color 5.5 x 9.5 CM	24 bit color 5.5 x 9.5 CM

PTAGIS Field Software Update

JOHN TENNEY (PTAGIS Portland Office)

PTAGIS field software systems have remained stable and no new releases have been published in the last year. New releases of P3, MiniMon and PIFF are scheduled later this year to support the new tags and readers described elsewhere in this newsletter.

Table 1 Available PTAGIS Field Software

Field Software	Type	Latest Release Date	Latest Release Version
P3	Tagging	March 2011	1.4.9
MiniMon	Interrogation	September 2011	1.6.1
PIFF	Utility	July 2011	1.1.0.5

Relaxing the Manufacturer Code Validation Constraint

The next releases of P3 and MiniMon software will no longer reject a PIT tag code if the first 3-digits do not match an entry in an internal list of known manufacturer codes (aka country codes). This modification was at the request of the PIT Tag Steering Committee because the validation constraint implemented over 10 years ago has become difficult to maintain with the recent changes in tag vendors and types. Instead, a proposal was made to implement this constraint to flag any data containing tag codes of dubious origins (and specifications) upon submission to the new PTAGIS database server (PTAGIS-4).

Support for New Transceivers

Please note: the available versions of PTAGIS field software listed in Table 1 *do not* support the new Biomark MTS and HPR models of transceivers announced in this newsletter. We will schedule time and resource to ensure compatibility with all PTAGIS software once the new models are made available.

New Interrogation Software M4

We are pleased to announce that significant milestones have been reached in the past few months in the development of the next-generation interrogation software M4. Staff from both Portland and Kennewick offices performed rigorous lab testing with complex systems simulating large interrogation sites to ensure the necessary high performance and stability standards are met.

Live Fish Test

A live fish test was conducted at Little Goose Dam by NOAA and PTAGIS staff. M4 successfully diverted 2,200 fish marked and released by a crew led by Sandy Downing of NOAA and confirmed the validity of our lab test results. Two Biomark FS-2020 transceivers installed in the full-flow bypass detectors were also evaluated and performed very well.

PTAGIS Field Software Update

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Site Evaluation

Since early June, M4 has been controlling the separation-by-code diversion gates at the Bonneville Dam PH2 Juvenile Bypass and Sampling Facility (B2J) facility and has met our high expectations. The existing MultiMon platform is still in place running as the primary data collection platform. The parallel platforms enabled the use of our standard O&M (operational and maintenance) reports to verify M4 diversion gate efficiency without impacting data collection. Staff engineered a failover scheme with an automatic/manual override switch (Figure 1) allowing MultiMon to resume control of the diversion gates in case of system failure. M4 has been operating as expected and we have needed the switch only to support an unrelated network upgrade at the site.

M4 was also deployed at the Bonneville Dam 2nd Powerhouse Corner Collector Outfall Channel (BCC) site running as the primary controller of the Automated Read Range Tester (ARRT is described in the March 2010 newsletter). The existing MiniMon platform is running in parallel as the primary data collection platform.

The M4 systems deployed at both sites have been uploading data to the new PTAGIS-4 server system (described in this and past newsletters). This redundant data is used to help us fine-tune the server-side data submission process as well as build the next-generation O&M reports used by Kennewick to ensure continuous operation of all interrogation sites maintained by PTAGIS. This in-situ testing has not impacted data continuity in any way.

Deployment

M4 will be deployed into production for the upcoming 2013 season. We will continue to deploy M4 in parallel with the existing (or legacy) platform as shown in Figure 1 at all PTAGIS maintained sites.

The redundant platforms provide two central benefits: the first is ability to compare data and O&M reports from both server systems for efficiency and validity. The second is the legacy platform can be used for failover in the very remote case we encounter serious failure on a M4 platform. To support this failover scheme as well as to relax the M4 migration schedule for non-PTAGIS sites, the new PTAGIS-4 database server will be provisioned to accept legacy field datasets as primary data with the same robust validation as the current PTAGIS-3 database.

The tradeoff for deploying a redundant platform is that it requires additional equipment in already confined space and staff must now maintain two platforms. We feel the benefits outweigh the costs and we are procuring the additional equipment and will be wiring up each site as shown in Figure 1.

PTAGIS Field Software Update

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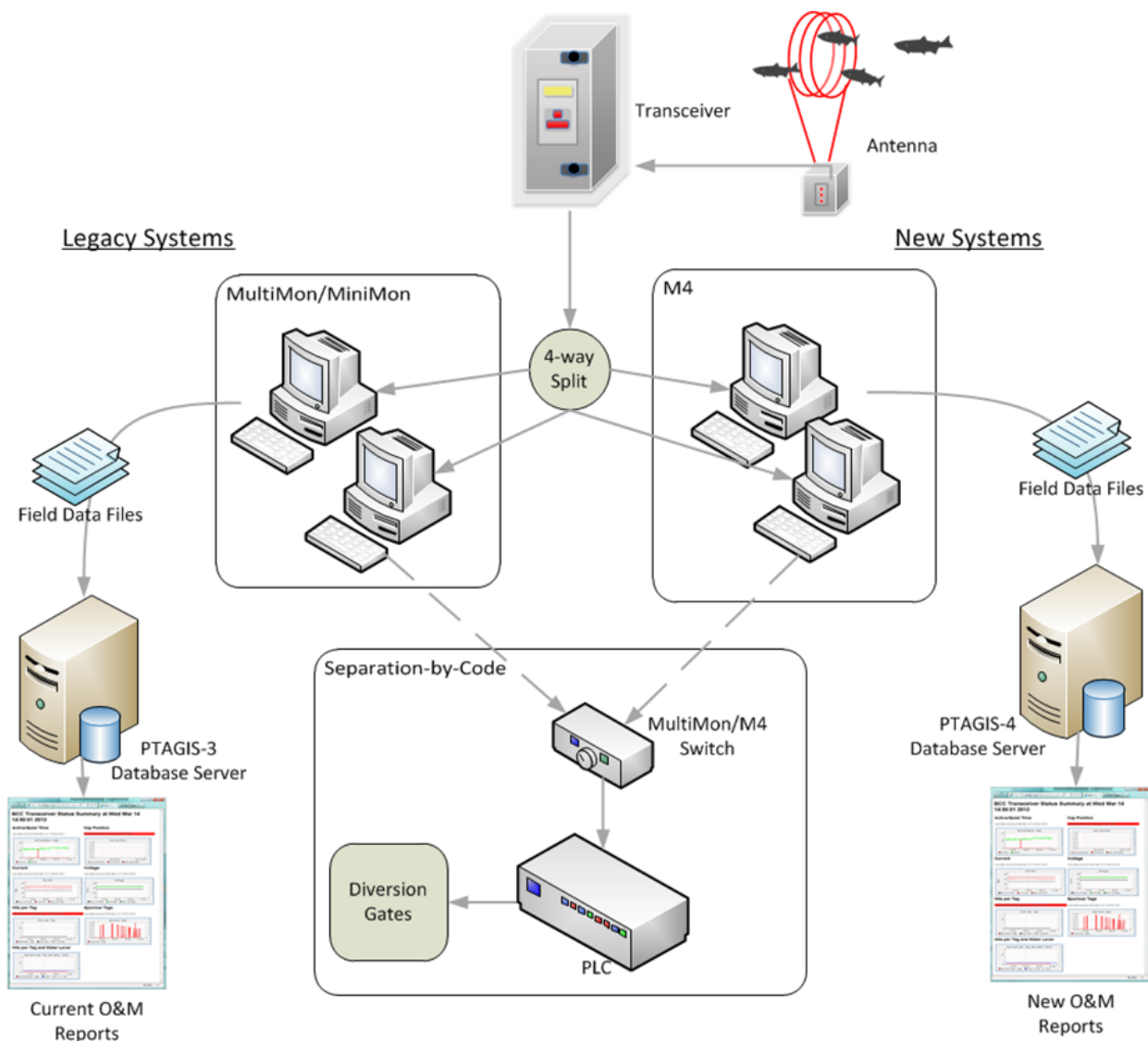


Figure 1 - Redundant Interrogation Platform for 2013

Each platform, M4 and MultiMon, are fully redundant in themselves to maintain high uptime requirements. Each platform consists of the two computers collecting the same data. One computer is designated as the primary machine and the second as a backup. The primary machine submits data to PTAGIS and controls the diversion gates. If a failure occurs on the primary computer, the backup machine takes control of the diversion gates and data is patched from the backup for continuity. With redundant platforms shown in Figure 1, three computers from both platforms are designated as backup and one as the primary (M4). Standard operating procedures and system validation are in place to protect against duplicate data submissions. This deployment will be completely transparent to researchers querying data from the PTAGIS database. ☺

Check Your Catch for PIT Tags!

TRICIA LEDGEWOOD (PTAGIS Portland Office)

PIT Tag Recovery Program

Program Overview

Sport, commercial and tribal fishers occasionally recover PIT tags from adult salmon and steelhead caught in the Pacific Ocean or the Columbia River Basin (CRB). This recovery data is valuable to researchers monitoring the migration and life histories of anadromous fish marked with PIT tags.



In 2006 we implemented a comprehensive PIT tag recovery program. The program rewards fishers who find and turn in PIT tags with a letter containing the tag history of the host fish marked with the tag, a keychain that has an active PIT tag imbedded in it, and a pocket fish scale and tape measure.

The fall 2011 and spring 2012 runs have already yielded 37 tags.

Submitting Recovered PIT Tags

The majority of PIT tag recoveries are submitted to PTAGIS via mail. Many of the recovered PIT tags are mailed to PTAGIS by an agency on behalf of a fisher. We also receive submission via email. Follow these steps when submitting a recovered PIT Tag:

If you are mailing in the tag please pad the tag so it will arrive intact.

If you have a reader, please read the tag and send us the tag code.

Include as much information about the fish as possible:

Species

Location of catch

Date of catch

Length (note if it is total or fork length)

Weight (note if it is dressed or round weight)

Include the fisher's contact information:

Name

Mail Address

e-mail Address and phone number if available

If it's a commercial boat, the skipper can optional provide us with the boat's name.

Check Your Catch for PIT Tags!

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Designate if the fisher would like information on the fish

Electronic submissions can be emailed to: NTancreo@ptagis.org

Mailed submissions can be sent to:

PSMFC


205 SE Spokane St. Suite 100

Portland, OR 97202,

PIT Tag Recoveries

- 2006 - There were 11 PIT tag recoveries reported to PTAGIS in 2006, from sport anglers in the Columbia River and from commercial trollers. Two of the tags were recovered by one troller; this was the first time that a single individual reported two PIT tag recoveries in a single year. This same individual recovered a PIT tag in a previous year.
- 2007 - There were eight PIT tag recoveries reported to PTAGIS in 2007, from sport anglers in the Columbia River and from commercial trollers. Two of the tags were recovered by a father and son sport fishing in the Columbia River. A troller who had previously reported three recoveries (including two in 2006) reported his fourth recovery in 2007.
- 2008 - There were three PIT tag recoveries reported to PTAGIS in 2008, all from fish recovered in the Columbia River. Two of the tags were recovered by sport fishers. The third tag was recovered from a sockeye tagged in the Adult Fish Facility lab at Bonneville Dam and sold by a tribal fisher at Cascade Locks. The consumer discovered the tag while eating the fish.
- 2009 - There were 17 PIT tag recoveries reported to PTAGIS in 2009. Thirteen tags were returned from sport fisheries in the Columbia River below Bonneville Dam, and one tag were taken in the sport fisheries on the Klickitat River. Three tags were harvested in the Zone 6 tribal gillnet fishery above Bonneville Dam, and two of those three tags were reported by consumers who purchased the fish.
- 2010 - There were 20 PIT tag recoveries reported to PTAGIS in 2010. Eight tags were returned from sport fisheries in the Columbia River below Bonneville Dam, and another six tags were taken in sport fisheries on tributaries to the mainstem Columbia and Snake Rivers. Five tags were returned from commercial salmon ocean trollers in Oregon and Washington. One tag was returned from a fish harvested in the Zone 6 tribal gillnet fishery above Bonneville Dam.

Spreading the Word

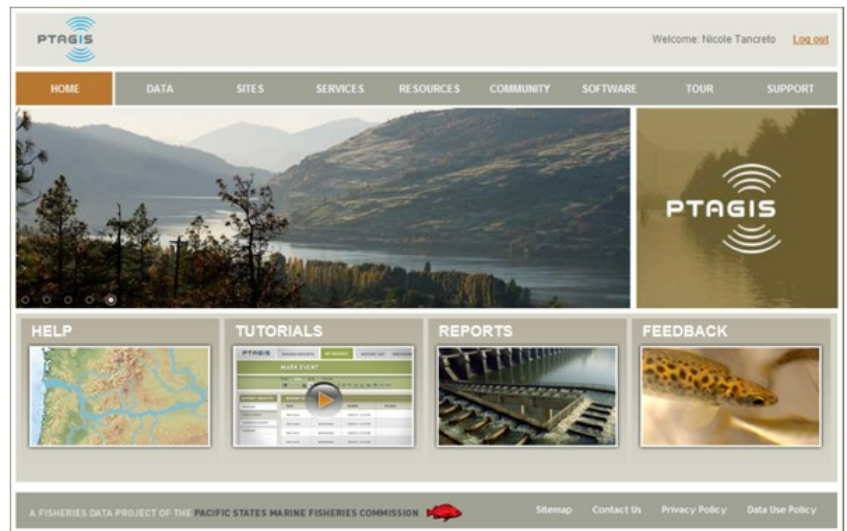
Currently, the PIT Tag Recovery Program relies on word of mouth advertising so spread the word. 

Beta Web Site and Reporting

NICOLE TANCRETO (PTAGIS Portland Office)

A new version of the beta website and reporting environment was released to our focus group early in the 2nd quarter of 2012. This new version of the website was completely rebuilt using a content management system (CMS), and the reporting system was synchronized with the production database. These upgrades provided the foundation for the following features:

- Standard reports providing quick access to particular slices of the PTAGIS dataset without logging in
- Advanced reporting providing complete access to PTAGIS dataset with all fields decoded and the ability to both build a query and browse the data
- Interactive maps of mark/release/recovery and interrogation sites
- Organized and tagged content (documents and videos)
- Community forum
- An updated interpretive center
- A streamlined Separation by Code project request process



Twenty-six people created an account on the beta website and tested the new functionality. We received positive feedback and good suggestions. We will release a second version of the beta later this year to the wider PIT tag community. This version will include some of the following enhancements:

- Updated and responsive design that will resize automatically for different devices
- More content, and better ways to find it
- More standard reports and better documentation on using the advanced reporting
- Searchable data dictionary
- Improvements and bug fixes for the SbyC Project Request form
- A form to request new Tag Data Coordinator IDs

Keep an eye out this fall for your email invitation to try out the next version of the beta website and reporting system. We want and need feedback from the entire PIT tag community to make it as useful and robust as possible. If you have any specific data needs or ideas, please contact me. ☺

Separation by Code Project Request Process

NICOLE TANCRETO (PTAGIS Portland Office)

As I mentioned in the Beta Web Site and Reporting article, a new process (Figure 1) to request a Separation by Code (SbyC) project was implemented in the beta PTAGIS website. This new process was developed at the request of the [Fish Passage Advisory Committee](#) (FPAC) to streamline the review and coordination process, and to make the process more transparent.

Figure 1. Separation by Code Project Request summary page.

	Title	Email	SbyC Implement	Request Status	Requester	Request Date
<input type="checkbox"/>	Performance Evaluation of PIT tagged subyearling Chinook released at Lyons Ferry Hatchery	deborah.milks@dfw.wa.	<input checked="" type="checkbox"/>	Accepted	dmilks	5/31/2012
<input type="checkbox"/>	Sample SbyC Project	nicole.tancreto@gmail.c	<input type="checkbox"/>	Request not submitted	ntancreto	5/18/2012
<input type="checkbox"/>	Performance Evaluation of Externally JSATS-Tagged Subyearling Chinook Salmon	katrina.cook@pnnl.gov	<input checked="" type="checkbox"/>	Accepted	External Tag	5/16/2012

Instead of sending separate memos to both FPAC and PTAGIS, a researcher now just needs to log into the new website and complete a web form with the necessary information and click a button to submit the request. Once it is submitted, an email notification is sent to the co-chairs of FPAC and to the PTAGIS SbyC coordinator for review; the researcher also receives an email confirming that his/her request was successfully submitted. After FPAC reviews the request, they use the same web application to approve the project; they can also request more information from the researcher. Once the project has been approved by FPAC, the PTAGIS SbyC coordinator will review the project request to ensure that all information necessary for implementation is included. After the project has been implemented at the appropriate sites, the PTAGIS SbyC Coordinator marks it as implemented. Email notifications are sent to the researcher throughout the process, and they can also check the status of their project on the website.

In addition to streamlining the review and coordination of this process, it will also provide a repository of information about SbyC projects in the Columbia Basin. Any registered user can view the details of projects that have been approved by FPAC, right down to the tag codes that were submitted by the original researcher.

It is important to note that this new process does not provide coordination with the US Army Corps of Engineers or Smolt Monitoring Program; the researcher is responsible for contacting and coordinating with the appropriate personnel from each of these programs, as well as any other researchers or trap operators.

Two researchers have successfully used the SbyC application to request new projects. This process will be required for the 2013 season. We ask that any additional projects for this year be submitted through the new application, which can be found online at <http://beta.ptagis.org/services/sbyc>. Please contact me if you have any questions. ☺

PTAGIS Field Operations & Maintenance Midyear Summary for 2012

DON WARF AND ALAN BROWER (PTAGIS Kennewick Office)



As in previous years, the juvenile fish bypass facilities on the Snake and Columbia Rivers began operating around April 1st. Prior to these operations, the PTAGIS Kennewick staff performed all the necessary pre-season tuning and maintenance to ensure peak performance of the juvenile fish detection and diversion equipment. Detection efficiency rates for 2012 are being kept at very high levels as listed in this report:

http://php.ptagis.org/wiki/index.php/CEA_YTD_Efficiency_Tallies

The efficiency of the diversion gates at the Separation by Code interrogation sites were improved by PTAGIS upgrades to the Programmable Logic Controller (PLC) programs that control the gates. The addition of remote monitoring capabilities included the addition of automated email notifications of potential gate problems. Another benefit of the PLC improvements is the very low number of mechanical gate failures causing unscheduled site visits. Mechanical longevity of the gates has greatly increased due to these efforts. Diversion efficiency rates for 2011 were outstanding as listed in this report:

http://php.ptagis.org/wiki/index.php/DGE_Gate_Efficiency_YTD_Summary

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PTAGIS Field Operations & Maintenance Midyear Summary for 2012

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Other PTAGIS Field Office projects in 2011 that continued into 2012 include the following:

- Testing will continue on Biomark FS2020 transceivers that have been deployed in test locations throughout the basin. Initial results are positive.
- In house testing of M4 interrogation software continues. Infrastructure for the new M4 interrogation software is being installed throughout the basin. Testing has progressed to the point that M4 is now being deployed in parallel with the production MultiMon interrogation software.
- PTAGIS Field O&M Staff are consulting for new PIT tags installations in the fish ladders at The Dalles and John Day dams, providing technical details, drawings etc. The use of 3D modeling software has sped up response times to the design team.
- New Yakama Nation interrogation sites at Lyle Falls and Castile Falls are nearing completion. On July 18, 2012, the first tag, 3D9.1C2C9B92AB was detected at the new Castile Falls Fishway.
- PTAGIS continues to provide QA for new and production PIT tags for all BPA projects.
- PTAGIS continues to repair all failed transceivers in our Kennewick lab.
- PTAGIS continues to refine facility controls for all COE main-stem juvenile fish facilities.
- PTAGIS continues to provide researchers with Separation by Code capabilities.
- PTAGIS continues to receive, house, inventory and ship PIT tags to all BPA funded projects.
- PTAGIS continues on the design team with NOAA and the COE for the Lower Granite Ogee PIT Tag Project. ☺