PTAGIS

PIT Tag Information Systems
Columbia Basin

Newsletter

IN THIS ISSUE

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CORRECTION

Because of an editing error, an article in the November 2005 PTAGIS Newsletter, "Mobile Monitor Wireless Communication Added to PITpack Equipment," appeared without a byline. PTAGIS would like to extend an apology and due credit to the author, Jim Gasvoda.

PTAGIS welcomes comments and suggestions, or complaints about errors that warrant correction. Messages can be e-mailed to kristiana_kroneck@psmfc.org.

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

We welcome input from the PTAGIS community, so email or write us with your story ideas.

If you have questions regarding the contents of this publication, or about the PTAGIS program, please contact Carter Stein, PTAGIS Program Manager.

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A Fisheries Data Project of the Pacific States Marine Fisheries Commission

Introducing the Next Generation
PTAGIS INTERROGATION SOFTWARE

PTAGIS is hard at work creating the next generation interrogation software to replace existing applications, MiniMon and MultiMon. The new interrogation software, code named Mustang, will run on a Windows-based platform and combine the ease-of-use monitoring features of MiniMon with the Separation by Code (SbyC) capabilities of MultiMon.

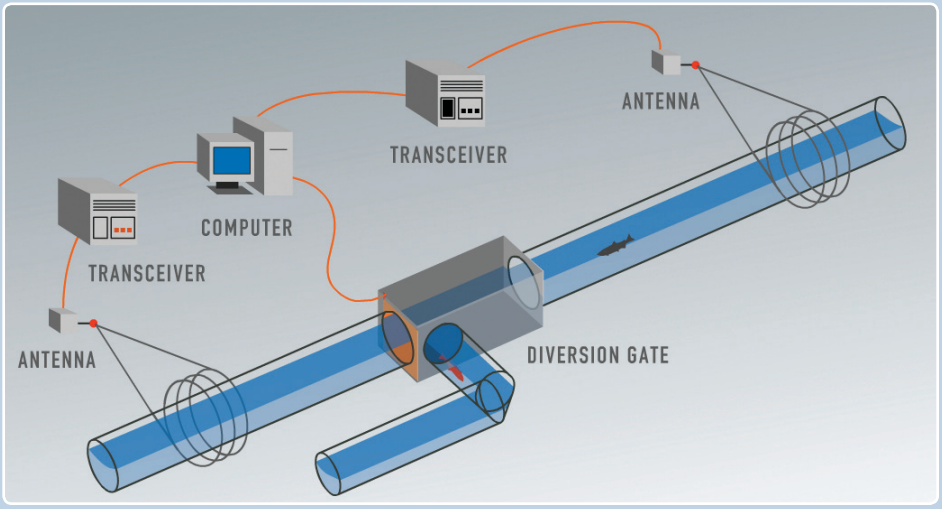
Some reporting and feedback options normally provided by the PTAGIS server will be included in Mustang on the client PC. This feature of Mustang will allow technicians and researchers to detect and resolve site related issues faster.

Developing the SbyC features that make critical decisions in real time to successfully divert target fish within a facility has proven to be a challenge. The SbyC features are currently being developed as prototypes for performance and reliability evaluation. PTAGIS is working in collaboration with Dr. Sandy Downing from NOAA Fisheries. Dr. Downing developed the SbyC system currently in use, and with her help we were able to establish a performance benchmark of the existing system that Mustang must meet or exceed.

Software emulation tools were also developed to simulate a large fish facility with several dozen readers and multiple diversion gates. These emulation tools will be used to perform rigorous regression testing in our lab as the prototypes evolve into a final product. Testing results will be reviewed with the PIT Tag Steering Committee as each milestone is reached in the development and deployment phases of this project.

We will be providing more detail about this project in subsequent newsletters. As always, we welcome feedback from the community.

Mustang at Work



This is an example of a typical Separation by Code site layout that Mustang will be monitoring.

Development of a **PIT TAG CORNER COLLECTOR** for the Corner Collector at Bonneville Dam (Sep. – Nov. 2005 update)

BY SANDRA L. DOWNING (NOAA's National Marine Fisheries Service)

As reported in earlier PTAGIS newsletters, BPA, the Corps, Digital Angel Corporation (DA), NMFS, and PSMFC are working on developing a PIT tag system for the corner collector at Bonneville Dam. The project is currently on schedule for having the system installed in time for the 2006 smolt migration. For this corner-collector PIT tag system to be successful, DA has had to develop a new transceiver, new tag, and a new antenna system.

The PIT tag detection system will use a slot antenna design. For this system, BPA is responsible for providing the antenna, and the Corps is responsible for designing the concrete flume structure that will hold the slot antenna. Through a contract with BPA, DA has designed the slot antenna. The slot antenna consists of three separate coils that together form a single antenna for detecting tagged fish transiting the exit flume of the corner collector. DA will also oversee the fabrication of the antenna.

The slot design will enable the corner collector, if necessary, to operate without an antenna installed. The current operation schedule for 2006 has the corner collector operating during the first week of March for the release of fish from Spring Creek Hatchery and then starting on 20 April 2006 for the normal smolt outmigration season. Fine tuning of the antenna may require the flume to be shut down for short periods of time during the migration season.

The following is a brief status report for the main components of the corner-collector PIT tag system.

TRANSCEIVER

DA plans to produce four transceivers for the corner-collector system. They have redesigned the receiver, driver, and filter electronics to handle the high current and voltage required for the large antenna. The transceiver will also utilize Digital Signal Processing (DSP) capabilities to decode the tag messages. DA is currently working on packaging (e.g., enclosures and cabling) and incorporating the necessary diagnostic commands.

CONTINUED ⟶

Slayden Construction Group, Inc. initiated demolition work in November 2005

The demolition work to remove the flume section that is currently in place began in November 2005. The Corps contractors will be building the concrete support structure for the antenna housing using materials that will not interfere with the PIT tag interrogation system.

PIT TAG DETECTION SYSTEM

TAGS

As planned, DA released an interim 12-mm tag (Model TX1400SGL) for the 2005 season. They have now produced limited batches of their next production tag (Model TX1400SST). DA claims the new SST tag will have the same physical parameters (i.e., weight, length, width) of the current ST tag model, but the enhanced performance of the SGL tag model.

In November, DA submitted some SST tags to the PIT Tag Steering Committee and BPA. In December, these tags will be evaluated by PSMFC and NMFS to determine if they satisfy the performance requirements for use in the current network of interrogation systems. The tags cannot be tested in the corner-collector system until it is installed in 2006.

FLUME STRUCTURE

The Corps issued a contract to Slayden Construction Group, Inc from Oregon during October 2005 for the construction of the flume structure. The demolition work to remove the flume section that is currently in place will begin in November. Then, the Corps contractors will build the concrete support structure for the antenna housing using materials that will not interfere with the PIT tag interrogation system. Slayden's preliminary schedule calls for installing the antenna in February.

ANTENNA

Since early summer, DA has been satisfied with the antenna housing design produced by Peterson Structural Engineers, Inc.; however, they have had trouble finding a company that was both capable and willing to fabricate the antenna. DA is currently working with PolyCycle Industrial Products out of Pittsburgh, a world leader in large polypropylene tank and enclosure fabrication, to build the antenna housing. A contract for fabricating the antenna housing is pending the successful test of a weld box that is scheduled to take place during the last week in November.

The plan still is to fabricate sections of the antenna housing (made from a copolymer polypropylene thermoplastic material) at the manufacturer's plant and then assemble the antenna housing onsite at Bonneville Dam where DA will wrap the antenna. As indicated in the last update, the antenna housing needs to be tested first under dry flume conditions and then under wet flume conditions. Therefore, it is currently unknown whether the antenna will be installed before or after the Spring Creek Hatchery release on 2 March 2006.

WINTER FIELD ACTIVITIES

DON WARF AND SCOTT LIVINGSTON

The PTAGIS project is currently coordinating with the Portland and Walla Walla District Offices of the US Army Corps of Engineers to complete the following projects for the 2006 spring migration season. Future PTAGIS newsletters will provide updates in regards to the progress and completion of these projects.

Adult Return PIT Tag Monitors at Lower Granite, Little Goose and Lower Monumental Dam Juvenile Collection Facilities

The adult return monitors at Lower Granite, Little Goose and Lower Monumental dams are currently under construction and slated for completion by the end of December 2005. These adult return monitors will provide PIT tag interrogation data on adult salmonids that are detected at the collection facilities. These adult fish are segregated from juvenile fish at the fish and debris separator. Instead of continuing through the collection facility, fish are released back to the tailrace via an exit flume. The exit flumes will contain the new PIT tag monitors.

As an added note, during the release of the adult fish, or cleaning of debris in the separator, juvenile fish can be inadvertently released back to the river. Juvenile fish that are PIT-tagged will be detected by the new PIT tag monitors. The PIT tag data gathered by these monitors will be integrated into the production data collection platform.

Bonneville Bradford Vertical Slot Antenna Installation

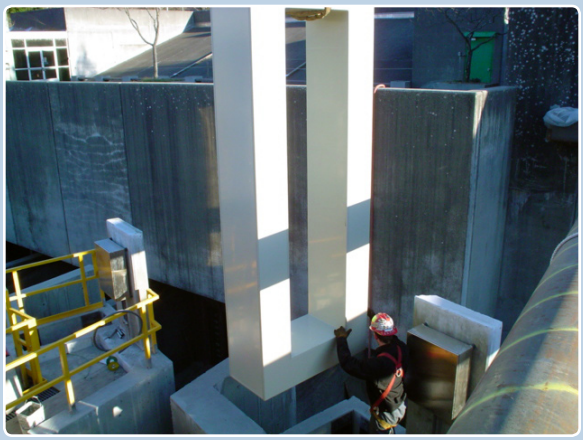
Beginning in January 2006, PIT tag interrogation antennas are scheduled to be installed at the exit of the fish ladder at Bonneville Dam Bradford Island Fish Ladder. Four antennas will be installed in the vertical slot section of the fish ladder located adjacent to the Oregon Shore Visitor Center weirs. In early 2005, the same type of installation was completed in the Washington Shore Fish Ladder adjacent to the Visitor Center.

The Bradford Island Ladder sub-system will be integrated into the existing PIT tag system (BO1). Completion of the installation is scheduled for 1 March 2006.

Bonneville Dam Second Powerhouse Juvenile Bypass System Full-Flow Antenna Installation

PIT tag interrogation antennas are scheduled to be installed on the Juvenile Bypass System (JBS) transport pipe directly upstream of the Juvenile Bypass and Sampling Facility. Installation is scheduled to begin 1 January 2006. The configuration and installation at the JBS will be the same as other full-flow systems currently in operation at McNary and Ice Harbor Dams. The new full-flow monitor will provide redundant PIT tag interrogation data while the Juvenile Fish Facility is in operation. PIT tag data will also be provided when the facility is not in operation, or when the main switch gate is in bypass mode. The project completion date is scheduled for 1 March 2006.

Installation of Vertical Slot Antenna



The PIT tag interrogation antennas scheduled to be installed at Bonneville Bradford Island Fish Ladder will be similar to the installation of the vertical slot antennas installed at the Bonneville Dam Washington Shore Ladder.

PTAGIS TEN YEARS AGO

October 1995 marked the release of the inaugural issue of the PTAGIS Newsletter. To commemorate ten years of progress and readership PTAGIS would like to introduce a new series, "PTAGIS Ten Years Ago." The new series will revisit PTAGIS milestones discussed in archived issues of the PTAGIS Newsletter.

Some highlights from the October 1995 issue include:

A NEW DATABASE SERVER

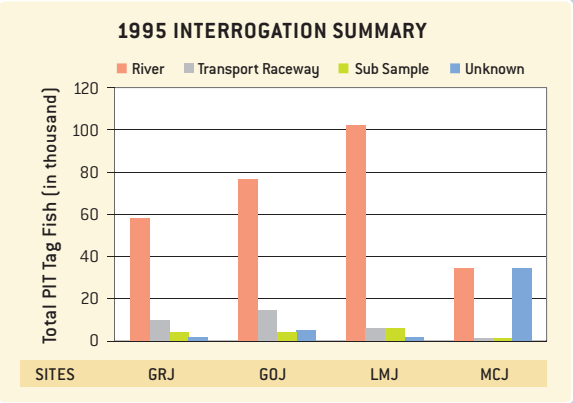
After close to a year of planning, procurement, design, development, and testing, a new database server, Sun Sparc 1000, was deployed on 20 March 1995. The PIT Tag Operations Center collected a record amount of interrogation data following deployment. Separation gates were operated at efficiencies unmatched in prior years as well. (*Figure 1*).

DEVELOPMENT MILESTONES

Numerous development milestones were made at the Gladstone office in 1995. Modifications made to the PITTAG.EXE program were delivered in early March 1995. A second revision of PIT-VAL was also completed. Implementation of new release file and interrogation file loading processes came to completion. Enhancements were made to the PTAGIS3 application, which allowed for better visibility of uploaded file status. And, a new interrogation data loader was designed, built, tested and implemented for use during 1995.

The October 1995 issue of the PTAGIS Newsletter can be accessed via the link (October 1995: Volume 1, Issue 1), or by visiting the Newsletter portion of the Library section at www.ptagis.org.

FIGURE 1 • Data Collection Results



This graph shows the final disposition of PIT-tagged fish at the four mainstream juvenile fish facilities during the 1995 out-migration as of September 15, 1995.

Development of
PTAGIS ONLINE HELP

PTAGIS is currently in the process of developing the online help tool for the PTAGIS website. Online help development will take place incrementally throughout 2006. Detailed information pertaining to online help will appear in future PTAGIS newsletters.

The goal of online help and related newsletter articles is to generate awareness and accessibility for PTAGIS users. Online help will eventually provide comprehensive explanations, suggestions, and instructions exclusive to the intricacies of each section of the PTAGIS database. PTAGIS intends to assist users in the full utilization of all features of the PTAGIS website.

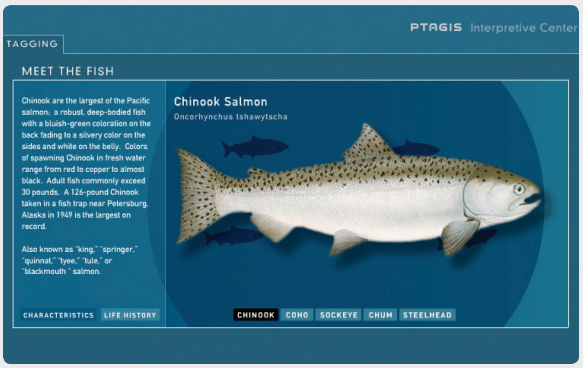
Since the development of our online help tool is currently in progress we invite you to visit our Interpretive Center. The interactive tour found in the Interpretive Center provides a comprehensive overview of PTAGIS and the data collection process.

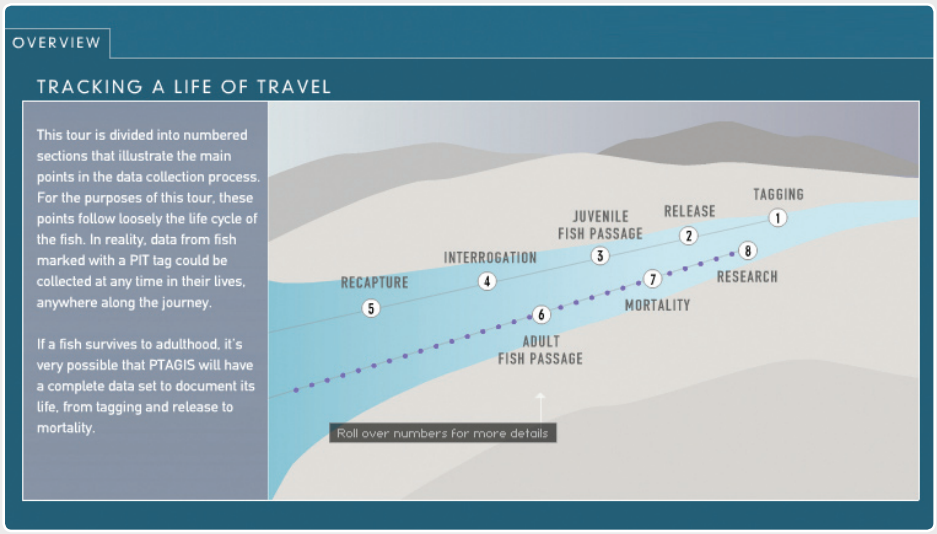
Navigation of the tour is guided and follows the life cycle of anadromous fish to tell the story of PTAGIS. The tour begins with an overview and continues by providing detailed information about tagging, juvenile fish passage, interrogation, recapture, adult fish passage, mortality, and research. The interactive tour will take users approximately one hour to complete. Completion of the interactive tour will be beneficial and informative for all PTAGIS users – from novice to expert.

Once you have conducted the interactive tour, PTAGIS also has two informative videos available for viewing. The first is a 27-minute video documenting how fish are PIT-tagged. The second is a 12-minute video describing how PIT-tagged fish are detected at large hydroelectric dams. Links to the videos are located at the end of the interactive tour in the "Links" section.

PTAGIS appreciates your patience and feedback as the development of the online help tool proceeds. For more information about PTAGIS online help tune in to future issues of the PTAGIS Newsletter. Any questions, comments, or concerns regarding the PTAGIS website can be directed to ptagis_support@ptagis.org.

Ptagis Intepretive Center





The Interpretive Center provides an interactive tour for learning about the PTAGIS program. Fieldtrip, a Portland based communication design firm, created an appealing visual representation of the PTAGIS project that can be navigated intuitively. Take the tour to experience the incredible journey of anadromous fish and PTAGIS.