# PTAGIS ANNUAL PROGRESS REPORT

# 2002/2003

UPDATE IN PROGRESS

PTAGIS

PIT Tag Information Systems

Columbia Basin | ptagis.org

*PROGRESS REPORT*

*2002/2003 PTAGIS ANNUAL STATUS REPORT*

*Grant # 90FG08221, "Columbia River Basin PIT Tag Information System"*

*BPA Project Number: 1990-080-00*

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This is the annual report for the PTAGIS project. February 28, 2003 marked the end of the 2002/03 PTAGIS fiscal year. All critical project activities progressed on schedule. At this time last year, a number of activities that have been traditionally performed by PTAGIS had been curtailed due to lack of resources. Details of this problem are outlined in the *PTAGIS 2001/2002 PTAGIS Annual Status Report*.

After considerable expense in time and project management resources, this problem was remedied through the Northwest Power Conservation Council / Columbia Basin Fish and Wildlife Authority / BPA within year Budget Modification Process for Ongoing Projects (See NWPCC meeting minutes from September 10-11, 2002 at http://www.nwcouncil.org/library/minutes/2002_0910.htm and November 13-14, 2002 at http://www.nwcouncil.org/news/2002_11/agenda_minutes.htm).

**Objective 1: Operate, Maintain & Enhance the PTAGIS Database System and Data Collection Software**

For the 2002 migration year, 1,795,234 tagging records were processed and 6,827,794 interrogation records representing 586,894 fish were processed from all interrogation sites.

During this fiscal year, 95 different users ran over 1,826 reports generating nearly 5 gigabytes of data used in PIT tag analysis throughout the region. Additionally, the entire PTAGIS tagging and interrogation data set is accessed by University of Washington's

Center for Quantitative Studies Data Access in Real Time via daily updates. This data is available to any web user at ftp://ftp.psmfc.org/pub/pittag/TMT .

Work was concluded on development and deployment of the next generation tagging program, code named P3. See http://www.pittag.org/web/P3Production for details. The latest version of P3 is 1.1.1.

The PTTP Data Uploader that was developed in 2000 was improved and deployed as a robust component of the P3 software. The latest version of PTTP is 1.0.15.

The MiniMon program, that was released in 2000, was upgraded to support the Digital Angel (a.k.a. Destron Fearing) FS1001A, adult transceiver. It was also upgraded to provide bi-directional, remote diagnostic capabilities that allow our operations personnel to troubleshoot a transceiver at Bonneville Dam from their offices in Kennewick, WA. The latest MiniMon version is 1.0.81.

Although initial work was performed to convert the legacy, telnet based PTAGIS3 user interface to one based upon web-based, Internet tools, work was halted due to lack of funding.

Work was concluded on the implementation of software tools to analyze operational efficiency of PIT tag transceivers and detection coils located within the orifices of adult fish ladders. The Adult Detection Efficiency (ADE) processes and user interfaces are available from the web at http://www.pittag.org/web/Adult. PTAGIS has stopped work on establishment of an XML data exchange with of the adult PIT tag data for statistical analysis by computational resources provided by the University of Washington because of lack of funding.

Work was started on development of a system to monitor and report PIT tag separation gate efficiencies and switch gate settings and states at interrogation sites. These report are available at

**Objective 2: Operate and Maintain Separation by Code System (SbyC)**

In the mid-1990's NMFS developed the PIT Tag Separation by Code (SbyC) capability. The SbyC capability allows individual PIT tagged fish to be diverted to various destinations (e.g., to the river, barge or sample collection tank) upon detection at fish collection facilities. Researchers provide PTAGIS a set of parameters for fish diversion. These parameters can include: begin diversion date, end diversion date, ratio of fish to route to a specified final disposition, maximum number of fish to diver per study, etc. These parameters could change on a daily basis. SbyC is a complex system that requires near real time management for optimal performance to achieve researchers objectives.

In 1999, NMFS trained PTOC personnel to operate the SbyC systems. Since then, PTOC has provided all coordination and implementation of research requirements that utilized the SbyC system capability. PTOC continues to utilize the coordination protocol we established in 1999 that facilitates request for PTOC SbyC support (see internet link at the end of this section).

In 2001, we implemented SbyC requirements for nine projects, funded through either the Northwest Power Planning Council's Fish and Wildlife Program, or the U.S. Army Corps of Engineers Anadromous Fish Evaluation Program. This is a 50% increase from the six projects that PTOC supported in 2000. I expect demand for this capability to increase further in the near future. **Due to the growth of this project component, I recommend that the PTAGIS project hire a full time resource to manage SbyC projects.**

SbyC Projects supported were:

The Fish Passage Advisory Committee's "Comparative Survival Study" (NWPPC Program Project Number 198712702). This project required regular data updates at the Lower Granite Dam (GRJ), Little Goose Dam (GOJ), and Lower Monumental Dam (LMJ) juvenile PIT tag facilities (including daily updates at GOJ and LMJ), and regular updates at the Lower Granite Dam adult (GRA) PIT tag-actuated fish trap.

The University of Idaho's (U of I) Adult Passage Telemetry Studies conducted by Chris Peery and funded through the U.S. Army Corps of Engineers Anadromous Fish Evaluation Program (AFEP). This project required regular data updates at GRA, and the Bonneville Dam Adult Fish Facility PIT tag operations center (B2A).

U of I's project to Evaluate Comparative Survival of In-river Passage and Multiple Bypassed Salmon. Jim Congleton is principle investigator for this AFEP funded project. This project required regular data updates at GRJ and the Bonneville Dam juvenile PIT tag facility (B2J).

A collaborative Yakama Indian Nation (YIN) and National Marine Fisheries Service (NMFS) project, Physiological assessment of wild and hatchery juvenile salmonids. This project required regular data updates at the John Day Dam juvenile PIT tag facility (JDJ).

A NMFS Subyearling Fall Chinook Transportation Evaluation at Lower Granite, funded through the AFEP. This required occasional updates to the juvenile PIT tag facilities at GRJ, GOJ, LMJ and McNary Dam (MCJ).

A collaborative COE/NMFS project, an Orifice Passage Evaluation at the Bonneville Dam 2nd Powerhouse, also funded through the AFEP. This required occasional data updates at B2J.

The mid-Columbia Transportation Evaluation, funded by the COE and implemented through NMFS, required bi-weekly updates to the MCJ PIT tag facility during the month of May.

NMFS requested SbyC at GOJ to collect small numbers of wild Chinook from a dozen groups marked in Idaho. Once, implemented, this study required no updates from PTOC.

The US Fish & Wildlife Service (USFWS) requested SbyC support at GRA in conjunction with an established radio-telemetry study. This SbyC installation required only occasional updates.

See the "Separation by Code" links at www.ptagis.org/Ptoc_OM for more details.

**Objective 3: Install, Operate & Maintain Interrogation Systems in Field Locations**

**Key Accomplishments:**

1. Started up and maintained all juvenile and adult sites.
2. Continued on-going maintenance of all adult and juvenile sites.
3. Completed the installation of the two adult interrogation systems at Bonneville Bradford and Cascade Islands.
4. Completed the installation of the two adult interrogation systems at McNary Oregon and Washington Shores.
5. Completed the remodel of the Little Goose Pittag diversion system.
6. Completed the installation of the Wells Dam adult interrogation system.
7. Provided feedback to the COE regarding specs and design information for Ice Harbor and Lower Granite adult installations.
8. Constructed and installed RF noise listening stations for Ice Harbor and Lower Granite.
9. Completed combination of B2A and BWL into the new BO3.
10. Attended meetings and helped USFWS lay ground work for the installation of two in-stream monitoring sites on the south fork of the Walla Walla river.
11. Completed installation of the WW1 and WW2.
12. Assisted NMFS in setting up two in-stream monitoring sites at Stanley Idaho.
13. Completed and installed high speed interface panels and computer platforms for Rock Island and Priest Rapids.
14. Conducted interviews and hired two new employees.
15. Inspected all adult ladders during water down periods at McNary and Bonneville.
16. Completed the combination of MCJ with MCX and the NMFS SbyC monitors including PLC upgrades at MCJ.
17. Completed the upgrade at BVX to a production system (now called B1J).
18. Completed the combination of B2A and BWL creating BO3.
19. Prepared a new Adult Coil Efficiency report tool outline for the O&M web pages.
20. Assisted Digital Angel with the installation of new counting window coils at McNary.
21. Purchased spectrum analyzer and attended training for RF noise monitoring at sites.

22. Tested and deployed Multimon 8.01 and Minimon 1.0.8
23. Modified all PLC programs at all sites to accept .001% sample inputs.
24. Expanded the Kennewick office and lab.
25. Implemented fix to prevent transceiver over heating problems at MC1; BO1, BO2 and BWL. *(Sunshades at Bonneville and some type of refrigerated units at McNary.)*
26. Designed controls for the new NMFS slide gates at Mcnary juvenile.

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Operations and maintenance of interrogation systems at PTOC supported interrogation sites proceeded as planned during the 2001/2002 fiscal year. See "Facility Event Logs" at www.ptagis.org/Ptoc_OM for operational details.

We deployed a new, Microsoft Windows 98 interrogation platform at all PTOC supported sites during the winter of 2000/01, for use for the 2001 migration year. This new platform provided the same level of reliability and better functionality than the older, unix based platforms that had been deployed since 1995.

In February 2001, NMFS released version 7.04 of MULTIMON. In February of 2002, NMFS release version 8 of MULTIMON. **I recommend that the PTAGIS project hire a full time Hardware / Software Engineer immediately**, in order to assume the operational responsibility of the SbyC software functions.

2001 marked the first year the PTOC operated and maintained the in PIT tag interrogation systems at the Yakama Indian Nation acclimation ponds at Clark Flat, Jack Creek and Easton.

During the summer of 2001, the PTAGIS project provided labor for the design, construction and implementation of a full stream PIT tag detection system at Abernathy Creek for the U.S. Fish and Wildlife Service. This system was funded by Bonneville Power Administration in support of the Northwest Power Planning Council's Innovative Project number 22033. USFWS advises that they anticipate further deployment of systems similar to this in the near future. In addition, NMFS has requested similar support for FWP project 199102800 during 2002.

We installed "dual-mode" PIT tag data detection systems at the Bonneville II Adult Fish Facility (AFF) and a the Lower Granite adult fish ladder. The "dual-mode" capability detects fish that are marked with either a 400kHz FDX-A PIT tag or the new ISO based, FDX-B PIT tag.

During the Spring and Summer of 2001, the PTAGIS project installed, operated and maintained interrogation data collection capability for the Adult Prototype PIT Tag Interrogation system that was deployed in the Washington shore fish ladder at Bonneville Dam.

During the Fall, PTAGIS resources assisted problem solving required to produce water proof antennas for installation in the Production PIT tag systems at Bonneville and McNary dams. During the winter and spring of 2001/02, PTAGIS installed an additional 88 PIT tag interrogation coils and established five new interrogation sites to support adult PIT tag interrogation systems in the Columbia basin.

During January and February 2002, the PTAGIS project provided labor and consulting services to install PIT tag detection systems at Bonneville and McNary dam fish ladders.

In 2001, the PTAGIS project assumed support for the PIT tag interrogation system at Rapid River Hatchery acclimation pond.

NMFS has requested that PTAGIS assume operations and maintenance responsibility for the flat plate PIT tag detector at Bonneville Powerhouse I. Funds are not available for PTAGIS to assume this responsibility.

Due to the increased number of detection systems and potential for further system expansion, **I recommend that the PTAGIS project hire an additional, full time Field Systems Engineer immediately**.

**Objective 4: Administration, Management and Coordination**

PTAGIS Newsletters were published and distributed in March and July.

We continue to support various innovative research programs including the Avian Predation studies, the PIT Tag Estuary Trawl, volitional releases at hatcheries and acclimation ponds (Rapid River, Jack Creek, Clark Flat and Easton). In addition, we provide technical support to ODFW in their work detecting PIT tags at the Sullivan Dam on the Willamette River, and Chelan Co. PUD at ~~Rocky Reach~~ Dam.

The PTAGIS project ~~has~~ encouraged Douglas County PUD to participate in cost sharing for PTAGIS data submission services from the PIT tag detection system installed at Wells ~~Dam~~ in 2002.

We provided ad-hoc telephone support for user calls on a daily basis.

We updated, published and distributed the "2000 PIT Tag Specifications Document", and the "PIT Tag Marking and Procedures Manual". See www.ptagis.org/Software_and_Documentation for HTML and PDF versions of these documents.

We prepared a new work statement and budget for PTAGIS for the 2002-03 fiscal year that met the budget guidelines imposed by the Northwest Power Planning Council and Columbia Basin Fish and Wildlife Authority.

We produced this annual report.

**Objective 5: Additional Support Actions**

Our project coordinated and managed PIT tag forecasts, procurement and distribution to F&WP projects in conjunction with project 90-080-01. **I recommend that an internet or web based application be developed to automate the tag forecast and tag distribution process.**

Our project has provided project management support, labor and technical expertise to evaluate and select PIT tag interrogation transceiver systems for deployment in adult fish ladders in support of the Adult PIT Tag Oversight Committee (APTOC).

Our project facilitated many U.S. Army Corps of Engineers funded research projects that utilize the PIT tag technology. Project specific support was provided for the Corps Transportation Studies, The Dalles Turbine studies, Lamprey studies and more.

I recommend that BPA work with the Corps to provide better management and planning for incorporating and supporting Corps funded research through the FWP funded PIT Tag infrastructure.