

An integrated system for real-time site monitoring, data management and data analysis system for automated PIT antenna array sites.

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Autonomous PIT tag interrogation sites have become a standard monitoring tool in the Columbia Basin to assess the movement, survival, and abundance of juvenile and adult anadromous salmonids. In order to ensure data continuity in the face of possible equipment failure, and data accuracy given the influence of environmental conditions on detection efficiencies, autonomous PIT tag interrogation sites need to deliver real-time equipment and environmental information to site managers. The Integrated Status and Effectiveness Project (ISEMP) has developed a PIT tag interrogation site data management system that incorporates real-time monitoring of PIT tag array site equipment, both instream and atmospheric environmental conditions, and PIT tag antenna characteristics that allow scientists to store information relevant to the operation and subsequent analysis of collected PIT observations. Specifically, the ISEMP system builds on the current capabilities of the PIT Tag Information System (PTAGIS) by using NOAA's Status and Effectiveness Monitoring (STEM) databank to query, capture and store additional data generated by the PIT tag array infrastructure. Additionally, the ISEMP system provides scientists with real-time site operations monitoring using internet-based applications and email generated alarms to ensure sites are functioning properly. Because ISEMP's data storage and retrieval tools store data simultaneously in PTAGIS and the STEM databank, scientists have access to seamlessly integrated operational, environmental, and tag information. By allowing real-time detection of equipment issues, and through the integration of multiple data streams, the ISTEMP system provides consistency and standardization among agencies when generating adult and juvenile abundance and survival estimates from PIT tag array data.