Open-Source Resources for the Sacramento-San Joaquin Delta Telemetry Research Community

Study Period
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DELTA STEWARDSHIP COUNCIL

About this Project

In the past fifteen years, a large amount of telemetry data (ex., acoustic, PIT, and radio data) have been collected in the Sacramento-San Joaquin Delta. This collection of data continues to grow. Several semi-centralized databases have been established to manage this data. These databases vary in development stages, activity, and participation and each serve different purposes for the researchers and studies involved. Significant contributions have been made to these centralized telemetry database efforts by groups like Collaborative Veterinary Epidemiology and Animal Telemetry (CVEAT), Integrated Tracking of Aquatic Animals in the Gulf of Mexico (iTAG), The Biotelemetry Project Work Team, and individual researchers.

This project was not meant to replace these existing efforts but to leverage and coordinate them, supporting shared data priorities within the entire telemetry research community in the region. The goal of this initiative was to establish a collection of open-source, accessible resources to support a reproducible and transparent telemetry data workflow. This collaborative will align telemetry data users more closely with centralized, coordinated data workflows successfully implemented in other regions.

Lead Investigators

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Project Objectives

- Complete the writing, testing, and distribution of the telemetry package for the R programming environment
- Publish a peer-reviewed manuscript demonstrating the utility of the software and workflow for telemetry research in the Delta
- Design a ready-to-deploy central, shared database for telemetry data from the region
- Convene a workshop for outreach and hands-on training in utilizing the database and telemetry package, as well as best practices in telemetry data workflows

Why this Research Matters

The proposed workflow and resources did not aim to create new procedures but to enhance and standardize the existing ones used by the telemetry research community. This collaborative effort and the work of researchers who currently QA/QC large amounts of telemetry data without support would benefit the centralization and standardization of data workflows in telemetry research. You can find the telemetry package for the R programming environment at https://fishsciences.github.io/telemetry/index.html. They hosted a workshop in May 2024 for hands-on training in utilizing the database. Materials and resources from the workshop can be found on their Science Tracker page.

Connections to the 2017-2021 Science Action Agenda

1: Invest in Assessing the Human Dimensions of Natural Resource Management

2: Capitalize on Existing Data Through Increasing Science Synthesis

3: Develop Tools and Methods to Support and Evaluate Habitat Restoration

4: Improve Understandings of Interactions Between Stressors, Managed Species, and Communities

5: Modernize Monitoring, Data Management and Modeling

Results/ Next Steps

Telemetry package for R is available:

[Telemetry helper functions • telemetry (fishsciences.github.io)](https://fishsciences.github.io)