

IEP Data Management Plan

Basic Information

Year: 2020; PEN:338; Date Updated: 2019-05-29; Start Date: 2019-06-01

Study Title

Physiological and Behavioral Effects of Domestication on Delta Smelt

Principal Investigator

Individual(s) responsible for the project. Include name, agency, e-mail, & phone.

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Brian Schreier (Project Manager), California Department of Water Resources, Brian.Schreier@water.ca.gov, 916-376-9759

Point of Contact

Individuals who data users should contact for access to the data or questions about the data. Include name, agency, e-mail, & phone number or write "same as above."

Same as above.

Data Description

A very brief description of the information to be gathered; the nature and scale of the data that will be generated or collected. Include approximate size (in MB) of the resulting data set.

- 1) Historical hatchery data of Delta Smelt was collected 2014 to 2018 (<5MB). Data includes growth and reproductive metrics such as year, family, age (days post hatch), fork length, spawning time, fecundity, domestication index (DI), percent egg mortality, percent hatch.
- 2) Physiology samples will be collected in 2020 with dates, length, fish identification, and DI. Laboratory analysis of blood and tissues will take place in summer to fall 2020 (<5 MB).
- 3) Behavior data of Delta Smelt will consist of high resolution video recordings of fish individual and group structure behavior. The capture rate at 1080p will be 30 frames per second for repeated daily 15 min periods across 2 months (4-6 TB).

Related Data

Optional. Existing datasets that you incorporate into analysis and reporting for this program element, existing data that are relevant to your study, or data that are collected simultaneously.

None.

Metadata

A description of the metadata to be provided along with the generated data, including the metadata standards used. Provide the file name and information on how users can access the metadata (e.g., a link).

Metadata will be provided as suggested by the IEP's Data Utilization Working Group. The IEP-EDI Metadata template (word document found on IEPs GitHub) will be filled out for this study to generate standardized Ecological Metadata Language (EML; .xml). Metadata information will include an abstract, experimental methodology and measures, quality checks, and statistical tools will be described. In addition, conceptual diagrams of study design, photos, and video recording of Delta Smelt can be shared upon request. Following the completion of the metadata, it can be shared on the IEP data and metadata table on the DWR website or available upon request.

Storage and Backup

A description of the short-term storage methods and backup procedures for the data, including the physical and electronic resources to be used for the short-term storage of the data.

All quantitative data (numeric) will be stored on a DWR agency computer, cloud-based One-Drive, an external hard drive.

Qualitative data (video files) will be temporarily stored on the DVRs during the experiment. After each day's video recordings are completed the day's videos will be backed-up on an external hard drive. At the completion of the behavior experiments likely three 2 TB external hard drives will store behavior video data. All video data (~6 TB) will then be back-up on the DWR server at the downtown headquarters.

Archiving and Preservation

The procedures for long-term archiving and preservation of the data, including succession plans for the data should the expected archiving entity go out of existence.

Historical hatchery data is currently preserved on original paper, scanned digital datasheets and some excel sheets that are stored at FCCL in Byron, CA. Transcribed excel files of the data are electronically stored on the hatchery director's computer hard drive, and DWR's OneDrive cloud.

Generated experimental data (physiology and behavior) will be stored at the DWR office at 3500 Industrial Blvd., West Sacramento, CA 95691. Any paper datasheets and documents will be scanned and stored electronically on DWR's server, OneDrive cloud, and backed-up on external hard drives. Long-term archiving would include publication of the datasets as described in the next section "Access & Sharing".

Access and Sharing

A description of how data will be shared. Include (1) access procedures, (2) embargo periods, (3) technical mechanisms for dissemination (e.g., website addresses, listserv information), (3) whether access will be open or granted only to specific user groups, and (4) a timeframe for data sharing and publishing.

Data sharing will not be available until at least 2021 after which all lab analyses have been conducted and proper quality checks, and analysis have been completed.

DWR and IEP does currently have websites with the capacity to share data online; however, sharing will likely be conducted via the Environmental Data Initiative; which is the suggested OpenScience repository by IEPs DUWG (with assignments of DOIs and versioning), or the California Natural Resources Agency data repository.

An IEP newsletter article of findings will be prepared following completion of analysis and studies.

Format

Formats in which the data will be generated, maintained, and made available. Include BOTH general data type (e.g., spreadsheet, relational database) and file format (extension).

- 1) Historical hatchery data - generated, maintained via Microsoft excel spreadsheets, and available via excel .xlsx or .csv files.
- 2) Physiology data - generated, maintained, and available via Microsoft excel spreadsheets, and available via excel .xlsx or .csv files.
- 3) Behavior data - generated by Digital Video Recordings (DVR) manually controlled by the experimenter in .mp4 format, data trace analysis in .pdf (an EthoVision read-only extension), and exported and available data in .csv.

Quality Assurance

Brief description of procedures for ensuring data quality. Provide links to Quality Assurance Project Plan and/or QA/QC Standard Operating Procedures.

- 1) Historical hatchery data was generated following standard hatchery procedures practices as described in (Lindberg et al. 2013). Specific growth and reproduction datasets have been checked for quality by several of the hatchery staff, director, and now lead PI of this study. There are some questions about comparability of measures

across years. Standardization for synthesis and limitations of the dataset are currently being evaluated.

2) Physiology sampling of blood and tissues, and laboratory analysis will follow similar procedures to Davis et al. (2017, 2019) and Afentoulis (2012) with slight modifications.

3) Behavior video trace analysis (EthoVision) will be acceptable only if less than 1.5% missed sample points (similar to Davis et al. 2019 in revision).

All generated data and quality checks will be assessed by the PI using R-statistical software.

Rights and Requirements

A link to or instructions to locate the agency's rights and requirements for data use.

DWR does not have specific rights and requirements for data use of this study.