

IEP Data Management Plan

Project Element Number:

062

Year:

2024

Date Updated:

5-24-23

Start Date:

1-1-2024

Study Title

Quantitative Analysis of Stomach Contents and Body Weight for Pelagic Fishes (“Diet and Condition Study”)

Principal Investigator

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Point of Contact

Same as above

Data Description

Data Collected: length and weight of fish; frequency of empty stomachs; weight of stomachs, number, size, type, and total weight of prey consumed. From this information, we can generate biological vital rates such as condition factors, stomach fullness indices, and prey selection indices. We link all of this information to the sampling location and environmental data provided by the project that collected each fish.

Three Access databases are currently maintained for Diet and Condition study data, one for formalin preserved fishes (POD study initiated), one for flash frozen and ethanol preserved fishes (FLaSH study initiated), and one for fishes as part of the Directed Outflow Project (DOP study initiated): POD Diet and Condition_19May2023_MWJ.mdb -- 14.1 MB; FLaSH Diet Study Data_15Dec2022_TLB-- 7.6MB; DOP Diet Study_09Feb2023_TLB --3.0 MB. One database is maintained for an inventory of fish samples, processed and unprocessed: FishSampleInventory 18May2023_MWB— 13.9MB

Related Data

Fish catch and environmental data is from surveys collecting fish samples: Summer Towntnet Survey, Fall Midwater Trawl, 20-mm, Smelt Larva Survey, Bay Study, Spring Kodiak Trawl, USFWS Enhanced Delta Smelt Monitoring Survey. Surveys collect

samples used for Diet and Condition as well as environmental data, and count and length data on other fishes.

Zooplankton density data from Summer Townet Survey, Fall Midwater Trawl, and 20-mm Survey, collected roughly simultaneous with fish, and the IEP Zooplankton Study are used to provide prey type and density information to compare with what was eaten by fishes.

Metadata

The Diet and Condition Study Access databases (POD) data includes survey, date, station, tow, tow times, standard length (0.1 mm), fork length (0.1 mm), and total body weight (0.0001g). Generally, Pelagic Organism Decline (POD) samples were whole fish preserved in formalin and dissected by CDFW staff to remove and process stomach contents. Fish preserved in formalin have been added to this database following conclusion of the POD studies. In some juvenile and adult fishes, the total prey mass was weighed wet (0.0001 g) and volume by visual estimates of proportion were conducted for prey weights. The file with detailed metadata is called: "POD Diet and Condition Study Project History.docx" and is located at: U:\LTM\POD_Lab\POD Diet and Condition Study\POD Protocols\

Fall Low Salinity Habitat (FLASH) study fish were mostly preserved in liquid nitrogen and processed by UC Davis who provided stomachs in ethanol to CDFW to examine for stomach contents. FLASH diet data includes prey items removed from the entire digestive tract in larval fish or esophagus and stomach only in juvenile fish, identified to the lowest practical taxon, and counted. We have continued to add samples preserved in ethanol to the FLASH database. Fish collected as part of the Directed Outflow Project (DOP) studies have been added to a unique database. The FLaSH Diet Study and DOP Diet Study Access database data includes collection information (project, year, serial number, station) and contents of stomachs (prey type, count of prey types, and prey lengths) in addition to fish data (body weight, length, sex, stage). The file with detailed metadata is called: "FLaSH Diet Study Project History.doc" and can be found at: U:\LTM\POD_Lab\FLaSH Diet Study

Storage and Backup

There is electronic backup of the computer-entered Access data (gut content data) on an off-site, limited-share U-drive in the POD lab and POD Diet and Condition Study directories. The POD database can be found at: U:\LTM\POD_Lab\POD Diet and Condition Study\POD Database. The FLaSH database can be found at: U:\LTM\POD_Lab\FLaSH Diet Study. The DOP database can be found at U:\LTM\POD_Lab\DOP\DOP Database. Original data sheets are kept in the laboratory for several weeks and then in the project lead's cubicle at the CDFW office in Stockton. Data sets are scanned in and electronically stored on the U drive in the POD_Lab folder. Identified stomach contents are stored in vials in 10% Formalin at the CDFW

Stockton Archived Storage Room. Fish carcasses are stored either in ethanol or formalin in the DFW Stockton Chemical or Archived Storage Rooms.

Archiving and Preservation

Copies of all data are stored electronically on the CDFW server as both excel files and as databases. The POD database can be found at: U:\LTM\POD_Lab\POD Diet and Condition Study\POD Database. The FLaSH database can be found at: U:\LTM\POD_Lab\FLaSH Diet Study. The DOP database can be found at U:\LTM\POD_Lab\DOP\DOP Database. The hard copies of the data sheets are stored in the Environmental Scientist's cubicle or the laboratory. Electronic copies of the scanned datasheets are located in the folders for each study on the U drive. The protocol for storing samples are called "POD Storage and Processing Protocol.doc" and "POD Diet and Condition Study Project History.docx" and can be found at U:\LTM\POD_Lab\POD Diet and Condition Study\POD Protocols. The protocol for storing samples for FLaSH is "FLaSH Diet Study Protocol 26April2021.docx" and is found at U:\LTM\POD_Lab\FLaSH Diet Study. These files also document any changes that have occurred to the projects over time.

Format

Data are recorded on paper data sheets and then entered into an Access database. All data sheets are stored in binders with recent data sheets residing in the lab and older data sheets in the lead investigator's cubicle. All datasheets are scanned and stored electronically on the U drive. We have three databases ("POD Diet and Condition.mdb" "FLASH Diet Study Data.mdb" and "DOP Diet Study.mdb"). The FLaSH database can be found at: U:\LTM\POD_Lab\FLaSH Diet Study\ . The POD database can be found at: U:\LTM\POD_Lab\POD Diet and Condition Study\POD Database. The DOP database can be found at U:\LTM\POD_Lab\DOP\DOP Database. Data are also kept in excel spreadsheets (.xls) and specific Access databases with queries (.mdb).

Quality Assurance

Every 10th fish processed by each staff member is quality checked by another qualified staff member. We conduct line-by-line checks of the newly entered database data and the written data sheets. Once in the database, the data are again checked by the Environmental Scientist. The QA/QC procedures for POD database "POD Diet and Condition Study Project History.docx", "Subsampling Protocol.docx", and "POD Condition and Diet Study Lab Protocol 26April2021.docx" (all located at: U:\LTM\POD_Lab\POD Diet and Condition Study\POD Protocols). The data corrections are kept in "PODDatabaseChangeRecord23June2021.xls" (located at: U:\LTM\POD_Lab\POD Diet and Condition Study). The data entry protocol is called "POD data entry protocol 02Aug2016.docx". The QA/QC procedures for the FLaSH and DOP databases are the same and titled "FLaSH Diet Study Protocol 26April2021.docx" and "FLaSH Diet Study Project History.doc". Data corrections for the FLaSH study are kept in "FLaSH Data Correction Record 03May2022_CEB.xlsx" (all located at: U:\LTM\POD_Lab\FLaSH Diet Study). DOP data corrections are in

U:\LTM\POD_Lab\DOP\DOP Database\DOP Data Correction Record
09Nov2021_CEB.xlsx The data entry protocol is called “FLaSH Data Entry Protocol
30Oct2019_AMM.docx” and located at “U:\LTM\POD_Lab\FLaSH Diet Study\In
Progress\Data Entry Protocol”.

Access and Sharing

Data are not directly accessible by the public. We provide data by request only, in the form of an excel file (not the database). Typically, new data are available within 1 to 3 months after completion of lab processing and data entry, depending on the magnitude of the new data. In general, we do not provide raw data (data requests are usually for calculations performed on the data: stomach fullness, percent by weight, diet composition by number, etc.). In addition, we require a description of the potential study before providing data, so that only the specific data needed are sent. We also stipulate that CDFW and IEP are acknowledged in all materials produced from the data.

By the end of the 2023 workplan year we anticipate Delta Smelt diet data from 2011 to present to be posted to EDI and on the [CDFW new ftp site](https://filelib.wildlife.ca.gov/FileLib/IEP_Special_Studies/Diet_and_Condition_Study/). URL location: https://filelib.wildlife.ca.gov/FileLib/IEP_Special_Studies/Diet_and_Condition_Study/. This data includes Delta Smelt diet data in an excel file with fish collection information (e.g. station, date, project, environmental variables), stomach fullness values, diet contents including number of prey type, and fish fork lengths. Additional files to be posted include: Macrozooplankton prey lengths and weights, Macrozooplankton length-weight equations, Station coordinates, and Description of prey categories with definitions and weight values to allow the user to calculate diet by weight.

Rights and Requirements

The scientific data collected or created by Department staff (including volunteers), specifically through state-funded efforts, are the property of the Department at all stages of the data collection effort, and not the property of the scientists and volunteers who collect them. Additionally, all scientific data collected or created under contract with the Department (including grantees and their subcontractors), including their use for publication, must become the property and right of the Department and not of the contractor.