

Please provide the following information, and submit to the NOAA DM Plan Repository.

Reference to Master DM Plan (if applicable)

As stated in Section IV, Requirement 1.3, DM Plans may be hierarchical. If this DM Plan inherits provisions from a higher-level DM Plan already submitted to the Repository, then this more-specific Plan only needs to provide information that differs from what was provided in the Master DM Plan.

URL of higher-level DM Plan (if any) as submitted to DM Plan Repository:

1. General Description of Data to be Managed

1.1. Name of the Data, data collection Project, or data-producing Program:

Behavior Data - The effect of dietary taurine on feed attraction and physiology of carnivorous marine fish

1.2. Summary description of the data:

As the global population continues to rise, so does the demand for sustainable sources of protein. The worldwide harvest of wild fish has remained flat for three decades and is unable to meet demands. Increased supplies of seafood are going to have to come from aquaculture that is both environmentally sustainable and commercially successful. Traditional use of fishmeal as the primary source of protein in aquaculture feeds is partially being replaced by soy and corn. Fishmeal, however, is still one of the most expensive ingredients in aquaculture feeds. Traditionally fishmeal comes from the harvest of forage fish such as herring, sardine, and anchovy. This puts competitive pressure on this limited resource since wild populations of commercially important species such as salmon and tuna depend on these fish for food. Currently, aquaculture feeds formulated without fish protein do not perform as well as those that do. This study seeks to improve performance of diets with all-plant protein by examining several questions using sablefish as an experimental model for carnivorous, coldwater, marine species.

What are some potential additives that may make plant-based feeds more attractive to farmed fish?

Does a taurine deficiency affect response to feed attractants?

Taurine has been identified as a conditionally essential amino acid that is necessary to add to plant-based feeds to improve growth and quality of sablefish. Is there an change in variability in growth between individuals in responses to dietary levels of taurine? Some carnivores are not able to synthesize taurine and must obtain it through their diet. Sablefish appear to have a limited ability to synthesize taurine, though it appears to vary between individuals. This study will characterize the variation in gene expression enzymes active in three possible taurine biosynthesis pathways in fish.

This study will build on and expand cooperative work between NOAA and the National

Fisheries Research & Development Institute (NFRDI), of South Korea, currently underway and funded by the US-Korea, Joint Coordination Panel for Aquaculture Cooperation (JPA). It will address these questions through use of behavioural studies, analysis of amino acid composition in fish tissues and whole bodies, and employ genetic expression of important enzymes to taurine synthesis in the liver. This research will enhance our limited understanding of the role that taurine and other amino acids play in growth and feeding of sablefish. This will help us improve the nutritional content and performance of an all-plant aquaculture diet and may then be used in improving formulations of aquaculture feeds that will be more efficient, less expensive, more environmentally sustainable and improve fish quality.

Observational data from behavior experiments.

1.3. Is this a one-time data collection, or an ongoing series of measurements?

Ongoing series of measurements

1.4. Actual or planned temporal coverage of the data:

2015-10-01 to Present, 2015-10-01 to Present

1.5. Actual or planned geographic coverage of the data:

W: -122.3062, E: -122.3027, N: 47.9491, S: 47.6449

Montlake

W: -122.3062, E: -122.3027, N: 47.9491, S: 47.6449

Mukilteo

1.6. Type(s) of data:

(e.g., digital numeric data, imagery, photographs, video, audio, database, tabular data, etc.)

Table (digital)

1.7. Data collection method(s):

(e.g., satellite, airplane, unmanned aerial system, radar, weather station, moored buoy, research vessel, autonomous underwater vehicle, animal tagging, manual surveys, enforcement activities, numerical model, etc.)

1.8. If data are from a NOAA Observing System of Record, indicate name of system:

1.8.1. If data are from another observing system, please specify:

2. Point of Contact for this Data Management Plan (author or maintainer)

2.1. Name:

Northwest Fisheries Science Center (NWFSC)

2.2. Title:

Metadata Contact

2.3. Affiliation or facility:

Northwest Fisheries Science Center (NWFSC)

2.4. E-mail address:

nmfs.nwfsc.metadata@noaa.gov

2.5. Phone number:

206-860-3200

3. Responsible Party for Data Management

Program Managers, or their designee, shall be responsible for assuring the proper management of the data produced by their Program. Please indicate the responsible party below.

3.1. Name:

Frank Sommers

3.2. Title:

Data Steward

4. Resources

Programs must identify resources within their own budget for managing the data they produce.

4.1. Have resources for management of these data been identified?

Yes

4.2. Approximate percentage of the budget for these data devoted to data management (specify percentage or "unknown"):

10

5. Data Lineage and Quality

NOAA has issued Information Quality Guidelines for ensuring and maximizing the quality, objectivity, utility, and integrity of information which it disseminates.

5.1. Processing workflow of the data from collection or acquisition to making it publicly accessible

(describe or provide URL of description):

Lineage Statement:

Results derived from observational data.

5.1.1. If data at different stages of the workflow, or products derived from these data, are subject to a separate data management plan, provide reference to other plan:**5.2. Quality control procedures employed (describe or provide URL of description):**

These data were collected and processed in accordance with established protocols and best practices under the direction of the project's Principal Investigator. Contact the

dataset Data Manager for full QA/QC methodology.

6. Data Documentation

The EDMC Data Documentation Procedural Directive requires that NOAA data be well documented, specifies the use of ISO 19115 and related standards for documentation of new data, and provides links to resources and tools for metadata creation and validation.

6.1. Does metadata comply with EDMC Data Documentation directive?

No

6.1.1. If metadata are non-existent or non-compliant, please explain:

Missing/invalid information:

- 1.7. Data collection method(s)

6.2. Name of organization or facility providing metadata hosting:

NMFS Office of Science and Technology

6.2.1. If service is needed for metadata hosting, please indicate:

6.3. URL of metadata folder or data catalog, if known:

<https://www.fisheries.noaa.gov/inport/item/30889>

6.4. Process for producing and maintaining metadata

(describe or provide URL of description):

Metadata produced and maintained in accordance with the NOAA Data Documentation Procedural Directive: https://nosc.noaa.gov/EDMC/DAARWG/docs/EDMC_PD-Data_Documentation_v1.pdf

7. Data Access

NAO 212-15 states that access to environmental data may only be restricted when distribution is explicitly limited by law, regulation, policy (such as those applicable to personally identifiable information or protected critical infrastructure information or proprietary trade information) or by security requirements. The EDMC Data Access Procedural Directive contains specific guidance, recommends the use of open-standard, interoperable, non-proprietary web services, provides information about resources and tools to enable data access, and includes a Waiver to be submitted to justify any approach other than full, unrestricted public access.

7.1. Do these data comply with the Data Access directive?

Yes

7.1.1. If the data are not to be made available to the public at all, or with limitations, has a Waiver (Appendix A of Data Access directive) been filed?

7.1.2. If there are limitations to public data access, describe how data are protected from unauthorized access or disclosure:

7.2. Name of organization of facility providing data access:

Northwest Fisheries Science Center (NWFSC)

7.2.1. If data hosting service is needed, please indicate:

Yes

7.2.2. URL of data access service, if known:**7.3. Data access methods or services offered:**

At this time, contact the Data Manager for information on obtaining access to this data set. In the near future, the NWFSC will strive to provide all data resources as a web service in order to meet the NOAA Data Access Policy Directive (<https://nosc.noaa.gov/EDMC/PD.DA.php>).

7.4. Approximate delay between data collection and dissemination:

0 days

7.4.1. If delay is longer than latency of automated processing, indicate under what authority data access is delayed:

No Delay

8. Data Preservation and Protection

The NOAA Procedure for Scientific Records Appraisal and Archive Approval describes how to identify, appraise and decide what scientific records are to be preserved in a NOAA archive.

8.1. Actual or planned long-term data archive location:

(Specify NCEI-MD, NCEI-CO, NCEI-NC, NCEI-MS, World Data Center (WDC) facility, Other, To Be Determined, Unable to Archive, or No Archiving Intended)

NCEI_MD

8.1.1. If World Data Center or Other, specify:**8.1.2. If To Be Determined, Unable to Archive or No Archiving Intended, explain:****8.2. Data storage facility prior to being sent to an archive facility (if any):**

Northwest Fisheries Science Center - Seattle, WA

8.3. Approximate delay between data collection and submission to an archive facility:

365

8.4. How will the data be protected from accidental or malicious modification or deletion prior to receipt by the archive?

Discuss data back-up, disaster recovery/contingency planning, and off-site data storage relevant to the data collection

The Northwest Fisheries Science Center facilitates backup and recovery of all data and IT components which are managed by IT Operations through the capture of static (point-

in-time) backup data to physical media. Once data is captured to physical media (every 1-3 days), a duplicate is made and routinely (weekly) transported to an offsite archive facility where it is maintained throughout the data's applicable life-cycle.

9. Additional Line Office or Staff Office Questions

Line and Staff Offices may extend this template by inserting additional questions in this section.