

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:

Otolith output - Project to study alternative life history types of fall Chinook based on otoliths

1.2. Summary description of the data:

The life-history complexity of Snake River fall Chinook salmon has hindered efforts to manage the ESU. In particular, the existence of an overwintering behavior in a portion of the population has complicated our ability to estimate survival through the hydropower system and to assess the benefit of transportation. Many of the yearling migrants move downstream after PIT-tag detection systems are disabled in the fall/winter, and consequently we have limited information on migratory patterns of these fish, which comprise a substantial proportion of returning adults. Further, because of this uncertainty in migratory behavior, major modeling efforts (such as COMPASS modeling and life-cycle modeling of the Interior Columbia Technical Recovery Team) were not able to model the population dynamics of Snake River fall Chinook, and there is a strong desire with the region to rectify this problem. Until we have a better understanding of these life-history patterns, particularly the habitat usage of overwintering juveniles, it will be difficult to efficiently manage the entire ESU. Effective management of reservoir-type fish will require an understanding of the details of their life-history, including the proportion of juveniles that exhibit the strategy, where they over-winter, when they initiate downstream migration in the spring, and estuarine residence time.

We propose to continue our ongoing research by conducting micro-chemical and micro-structural analyses of otoliths, sampled from both juveniles and adults. The geochemical analysis of fish otoliths (inner ear balance organs) allows for the reconstruction of important migrational behaviors because the tissue preserves a record of chemical experience of individual fish. By analyzing these chemical signatures, it is possible to identify the location and duration of juvenile Chinook residences during rearing in their natal site, downstream migration from their rearing areas, migration through the hydrosystem, migration through and residence in the estuary and plume, and into the ocean. In addition, the width of daily increments is related to fish growth, and growth trajectories can be back-calculated from daily growth increments. Combining these

approaches, we can use the otoliths of returning adult Fall Chinook to quantify seasonal and spatially explicit patterns of habitat usage and growth. We already have made considerable progress in establishing the validity and limitations of this approach for Snake River fall Chinook salmon.

In this proposal, we propose to utilize these established methods to describe variability within the population. We also propose to refine current methodology and to devise new methods. As part of our preliminary work, we have access to archived otoliths sampled from juveniles in the 1990s; we collected otoliths from wild returning adults in 2006-2010; and we collected otoliths from PIT-tagged juveniles in 2007-2011. Thus, we are well situated to conduct the research proposed here in a timely manner.

Images, increment measurements, and microchemistry trajectories.

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:

2010-10-01 to Present

1.5. Actual or planned geographic coverage of the data:

W: -118.2283, E: -118.2283, N: 46.5963, S: 46.5963

Lyons Ferry Hatchery: Lyons Ferry Hatchery

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.)

Instrument: Instrument Not Applicable

Platform: Platform Not Applicable

Physical Collection / Fishing Gear: Not Applicable

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:

Metadata Contact

2.2. Title:

Metadata Contact

2.3. Affiliation or facility:

Northwest Fisheries Science Center

2.4. E-mail address:

nmfs.nwfsc.metadata@noaa.gov

2.5. Phone number:

(206) 860-3433

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:

Paul Chittaro

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?

No

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

5%

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:

Excel macro

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 projects Principal Investigator. Contact the

dataset Data Manager in section 3 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?

Yes

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

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://inport.nmfs.noaa.gov/inport/item/18138>

6.4. Process for producing and maintaining metadata

(describe or provide URL of description):

Metadata produced and maintained in accordance with the NMFS Data Documentation Procedural Directive: <https://inport.nmfs.noaa.gov/inport/downloads/data-documentation-procedural-directive.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?

No

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?

No

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

NA

7.2. Name of organization of facility providing data access:

Northwest Fisheries Science Center

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

Yes

7.2.2. URL of data access service, if known:

<http://www.ncei.noaa.gov>

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 non-sensitive 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:

365 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 days

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.