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:

Habitat - Pipers Creek Natural Drainage System monitoring for Seattle Public Utilities

1.2. Summary description of the data:

Relatively little scientific research or monitoring has occurred in the Pacific Northwest or elsewhere on the biological effectiveness of restoration efforts in heavily urbanized watersheds. With the overarching goal of improving ecological health of its urban creeks, the City of Seattle is testing innovative approaches to stormwater management. We report here on four years of pre-project monitoring data collected over 2006-2009 for one such technique: Natural Drainage Systems (NDS).

This low-impact development approach is designed to modify the quantity, quality, and timing of stormwater delivery to creeks and other water bodies. Seattle Public Utilities has proposed a large-scale NDS within the Pipers Creek basin of North Seattle that will treat approximately 60% of the Venema Creek sub-basin. The focus of NOAAs research effort has been to develop appropriate monitoring parameters and collect baseline data to evaluate the effectiveness of this major restoration action. Our selection of study parameters was guided by specific project goals and includes measures of physical habitat, contaminant loading, and in-stream biota.

We found that the biological health of Pipers Creek is poor compared to forested streams in the Puget Sound region, but comparable to other urban streams in the City of Seattle. The fish community is dominated by cutthroat trout Oncorhynchus clarki; scores for the benthic index of biological integrity (B-IBI) range from very poor to poor; and

diatom assemblages are composed of a relatively high proportion of species tolerant of high nutrient levels, organic enrichment, and sedimentation.

Despite poor stream health, densities of cutthroat trout in three of our five study reaches were higher than many urban streams and approaching densities of cutthroat found in natural streams. This may be due to the migratory nature of cutthroat trout, as about half these fish were detected migrating from our study area to lower Piper Creek or

Puget Sound.

Results from heavy metal sampling were inconsistent. Zinc concentrations in soil, black fly larvae, and mayfly nymphs collected from Pipers Creek study reaches were significantly higher than for forested streams. We did not detect any differences in copper concentrations between urban and non-urban streams.

We hypothesize that in-stream biological health will improve relative to current baseline conditions following Venema NDS implementation, with treated reaches beginning to more closely resemble forested conditions. Based on statistical power analyses, we recommend that post-project monitoring focus on rate and taxonomic composition metrics rather than simple density measurements. Given the City of Seattles considerable investment of restoration funds towards NDSs, it is critical that post-project data be collected so as to explicitly test these hypotheses.

Habitat typing, channel geometry, substrate, temperature.

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

1.4. Actual or planned temporal coverage of the data:
2006-04-03 to 2010-04-03

1.5. Actual or planned geographic coverage of the data:
W: -122.3727, E: -122.3727, N: 47.7109, S: 47.7109
Pipers Creek: Creek in Northwest Seattle that drains a 1,835 acre watershed into Puget Sound.

1.6. Type(s) of data:
(e.g., digital numeric data, imagery, photographs, video, audio, database, tabular data, etc.)
Document (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:
Metadata Contact

2.2. Title:
Metadata Contact

2.3. Affiliation or facility:

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:
Sarah Morley

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"):
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:
Applied standard survey methods to generate cross section and longitudinal surveys.

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?

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/20565

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:

No

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 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:

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:
14

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.