

*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:**

2011 Puget Sound LiDAR Consortium (PSLC) Topographic LiDAR: Rattlesnake

### **1.2. Summary description of the data:**

Watershed Sciences, Inc. (WSI) collected Light Detection and Ranging (LiDAR) data on six days

between September 15th and November 5th, and from November 6th - 13th, 2010 for the Puget

Sound LiDAR Consortium. This report documents the data acquisition, processing methods,

accuracy assessment, and deliverables for the Rattlesnake area of interest in Benton County, WA. The requested areas were expanded to include a 100m buffer to ensure complete coverage and adequate point densities around survey area boundaries.

The total acreage of the Rattlesnake AOI is 184,359 acres.

The average first-return density of the delivered dataset is 8.3 points per square meter for the Rattlesnake study area. The initial datasets, acquired to be =8 points per square meter, were filtered as described previously to remove spurious or inaccurate points.

Additionally, some types of surfaces (i.e., dense vegetation, breaks in terrain, water, steep slopes) may return fewer pulses (delivered density) than the laser originally emitted (native density).

### **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:**

2010-09-15, 2010-11-05, 2010-11-06, 2010-11-07, 2010-11-08, 2010-11-09, 2010-11-10, 2010-11-11, 2010-11-12, 2010-11-13

**1.5. Actual or planned geographic coverage of the data:**

W: -119.8917772, E: -119.4011374, N: 46.64934815, S: 46.32284593

**1.6. Type(s) of data:**

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

**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:**

NOAA Office for Coastal Management (NOAA/OCM)

**2.2. Title:**

Metadata Contact

**2.3. Affiliation or facility:**

NOAA Office for Coastal Management (NOAA/OCM)

**2.4. E-mail address:**

coastal.info@noaa.gov

**2.5. Phone number:**

(843) 740-1202

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

**Process Steps:**

- 2011-02-07 00:00:00 - 1. Resolved kinematic corrections for aircraft position data using kinematic aircraft GPS and static ground GPS data. Software used - Waypoint GPS v.8.10, Trimble Geomatics Office v.1.62 2. Developed a smoothed best estimate of trajectory (SBET) file that blends postprocessed aircraft position with attitude data. Sensor head position and attitude were calculated throughout the survey. The SBET data were used extensively for laser point processing. Software used - IPAS v. 1.35 3. Calculated laser point position by associating SBET position to each laser point return time, scan angle, intensity, etc. Created raw laser point cloud data for the entire survey in \*.las (ASPRS v. 1.2) format. Software used - ALS Post Processing Software v.2.70 4. Imported raw laser points into manageable blocks (less than 500 MB) to perform manual relative accuracy calibration and filter for pits/birds. Ground points were then classified for individual flight lines (to be used for relative accuracy testing and calibration). Software used - TerraScan v.10.009 5. Using ground classified points per each flight line, the relative accuracy was tested. Automated line-to-line calibrations were then performed for system attitude parameters (pitch, roll, heading), mirror flex (scale) and GPS/IMU drift. Calibrations were performed on ground classified points from paired flight lines. Every flight line was used for relative accuracy calibration. Software used - TerraMatch v.10.006 6. Position and attitude data were imported. Resulting data were classified as ground and non-ground points. Statistical absolute accuracy was assessed via direct comparisons of ground classified points to ground RTK survey data. Data were then converted to orthometric elevations (NAVD88) by applying a Geoid03 correction. Software used - TerraScan v.10.009, TerraModeler v.10.004 7. Bare Earth models were created as a triangulated surface and exported as ArcInfo ASCII grids at a 3-foot pixel resolution. Highest Hit models were created for any class at 3-foot grid spacing and exported as ArcInfo ASCII grids. Software used - TerraScan v.10.009, ArcMap v. 9.3.1, TerraModeler v.10.004 Report compiled 20110207

- 2013-11-23 00:00:00 - The NOAA Office for Coastal Management (OCM) downloaded topographic files in text format from PSLC's website. The files contained lidar easting, northing, elevation, intensity, return number, class, scan angle and GPS

time measurements. The data were received in Washington State Plane South Zone 4602, NAD83 coordinates and were vertically referenced to NAVD88 using the Geoid03 model. The vertical units of the data were feet. OCM performed the following processing for data storage and Digital Coast provisioning purposes: 1. The All-Return ASCII files were converted from txt format to las format using LASTools' txt2las retaining the classified points, 1 (unclassified) and 2 (ground). 2. The las files were converted from orthometric (NAVD88) heights to ellipsoidal heights using Geoid03. 3. The las files' vertical units were converted from feet to meters, removing bad elevations. 4. The las files were converted from a Projected Coordinate System (WA SP South) to a Geographic Coordinate system (NAD83) 5. The las files' horizontal units were converted from feet to decimal degrees and converted to laz format.

**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):**

## 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)
- 3.1. Responsible Party for Data Management
- 4.1. Have resources for management of these data been identified?
- 4.2. Approximate percentage of the budget for these data devoted to data management
- 5.2. Quality control procedures employed
- 7.1. Do these data comply with the Data Access directive?
- 7.1.1. If data are not available or has limitations, has a Waiver been filed?
- 7.1.2. If there are limitations to data access, describe how data are protected
- 7.4. Approximate delay between data collection and dissemination
- 8.1. Actual or planned long-term data archive location
- 8.3. Approximate delay between data collection and submission to an archive facility
- 8.4. How will the data be protected from accidental or malicious modification or deletion prior to receipt by the archive?

**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/50164>

**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](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?**

**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:**

NOAA Office for Coastal Management (NOAA/OCM)

**7.2.1. If data hosting service is needed, please indicate:****7.2.2. URL of data access service, if known:**

<https://coast.noaa.gov/dataviewer/#/lidar/search/where:ID=2587>

<https://noaa-nos-coastal-lidar-pds.s3.amazonaws.com/laz/geoid18/2587/index.html>

**7.3. Data access methods or services offered:**

This data can be obtained on-line at the following URL:

<https://coast.noaa.gov/dataviewer/#/lidar/search/where:ID=2587>

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#### **7.4. Approximate delay between data collection and dissemination:**

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

### **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)*

##### **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):**

Office for Coastal Management - Charleston, SC

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

#### **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*

### **9. Additional Line Office or Staff Office Questions**

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