

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:

2004 Klamath Tribes Lidar DEM: Sprague River, OR

### 1.2. Summary description of the data:

No metadata record for this data set was provided to the NOAA Office for Coastal Management (OCM). This record was created with information from the data report. A link to the data report is provided in the URL section of this metadata record.

Watershed Sciences, Inc. (WS) collected Light Detection and Ranging (LiDAR) data for the Klamath Tribes over a seven day span in November, 2004. Conditions included leaf off and a normal fall low flow condition. The survey area encompassed the Sprague River, the lower Sycan River, and the lower reaches of the North and South Forks of the Sprague River. The study area was buffered by 500 meters to ensure complete coverage of important areas.

A total of 1,469,351,015 laser points were collected over the study area using an Optech ALTM 3100 LiDAR system set to acquire points at average spacing of less than 0.68 meters (greater than 2 points per square meter). The system also recorded individual return intensities (per laser return) that are used to create combined elevation models that display both elevation and surface reflectivity. These data were used to create this Digital Elevation Model (DEM) at 1m grid spacing, in UTM Zone 10, NAVD88 using Geoid03.

### 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:

2004-11

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

W: -121.88735, E: -120.93979, N: 42.63519, S: 42.33066

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

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

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?**

Yes

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

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):*

Lineage Statement:

Watershed Sciences, LLC collected Light Detection and Ranging (LIDAR) data in the Union Baker project area for DOGAMI. NOAA OCM received the data and ingested it into the Digital Coast Data Access Viewer for distribution.

Process Steps:

- 2012-01-01 00:00:00 - Lidar Collection: The LiDAR system was mounted in the belly of a Cessna Caravan 208. Quality control (QC) flights were performed based on manufacturer's specifications prior to the survey. The QC flight was conducted at the Ashland Airport using known surveyed control points. The positional accuracy of the LiDAR (x, y, z) returns were checked against these known locations to verify the calibration and to report base accuracy. The Optech 3100 system was set to a 50kHz laser repetition rate and flown at 1,000 meters AGL, capturing a 36 o scan width (18 o from NADIR). These settings yielded points with an average spacing of less than 0.68 meters (greater than 2 points per square meter). The entire area was surveyed with opposing flight line overlap of 30% to reduce laser shadowing and increase surface laser painting. While the system allows up to four range measurements per pulse, only the first and last returns were processed in the output. The data stream from the IMU was stored independently during the flight, and was differentially corrected and integrated with LiDAR pulse data during post processing. Throughout the survey, two dual frequency DGPS Trimble 5700 base stations recorded fast static (1 Hz) data. Two stations were located at National Geodetic Survey (NGS) monuments in Chiloquin and Bly to minimize kinematic solution baselines and increase GPS data accuracy. Data Processing: Laser point return coordinates were computed using the REALM software suite based on independent data from the LiDAR system (pulse time, scan angle), IMU (aircraft attitude), and aircraft position (differentially corrected and optimized using the multiple DGPS base stations data). The inertial measurement data were used to calculate the kinematic corrections for the aircraft trajectories using PosPAC v4.1. Flight lines and LiDAR data were reviewed to ensure complete coverage of the study area and positional accuracy of the laser points. TerraScan Processing: To facilitate laser point processing, the first step is to create bins (polygons) that divide the data set into manageable sizes. The entire buffered study area was divided into 465 individual bins with a maximum size of 2.25 km<sup>2</sup>, capturing all 111 flight lines ( see Project Report). Laser point returns (first and last) are assigned an associated (x, y, z) coordinate, along with unique intensity values. The raw LiDAR points were filtered for noise, pits and birds by screening for absolute elevation limits, isolated points and height above ground. These data have passed initial screening and are

deemed accurate; however, ground modeling processing has not been completed on these laser points. The TerraScan software suite is designed specifically for developing a standard bare earth model to remove buildings, vegetation, and other features. The initial bare earth model retains bridges and overpasses, and these artifacts are removed manually. The high point density and multiple returns result in uncomplicated identification of vegetated and obscured areas using first and last returns. The processing sequence begins by removing all points that are not near the earth based on evaluation of the multi-return layers. The resulting bare earth (ground) model is visually inspected and additional ground modeling is performed in site specific areas (over a 50 meter radius) to improve ground detail. This was only done in areas with known ground modeling deficiencies, such as: bedrock outcrops, cliffs, deeply incised stream banks, and dense vegetation.

- 2022-06-08 00:00:00 - The NOAA Office for Coastal Management (OCM) received 19 bare earth DEM files in ArcGRID format from DOGAMI. The data were in UTM 10N (NAD 83 HARN), meters coordinates and NAVD88 (Geoid03) elevations in meters. The grid spacing was 1m. OCM performed the following processing for Digital Coast storage and provisioning purposes: 1. Data were converted to GeoTiff format using GDAL 2.4.0 to comply with the open data policy (Citation: processed lidar 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):**

## 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
- 5.2. Quality control procedures employed
- 7.1.1. If data are not available or has limitations, has a Waiver been filed?
- 7.4. Approximate delay between data collection and dissemination
- 8.3. Approximate delay between data collection and submission to an archive facility

**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/67360>

**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?**

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:**

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=9513/details/9513>

[https://noaa-nos-coastal-lidar-pds.s3.us-east-1.amazonaws.com/dem/OR\\_SpragueRiver\\_DEM\\_2004\\_95](https://noaa-nos-coastal-lidar-pds.s3.us-east-1.amazonaws.com/dem/OR_SpragueRiver_DEM_2004_95)

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

Data is available online for bulk and custom downloads.

**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)*

NCEI\_CO

#### **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*

Data is backed up to tape and to cloud storage.

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

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