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## Plan Overview

*A Data Management Plan created using DMPTool*

**Title:** USGS Hydrologic Instrumentation Facility

**Creator:** Brandy Armstrong - **ORCID:** [0000-0003-3995-0444](https://orcid.org/0000-0003-3995-0444)

**Affiliation:** United States Geological Survey (usgs.gov)

**Funder:** United States Geological Survey (usgs.gov)

**Funding opportunity number:** 27128

**Template:** U.S. Geological Survey DMP Guidance

**Last modified:** 05-19-2017

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# USGS Hydrologic Instrumentation Facility

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## 1. Project and Contact Information

**What is the name of the project?**

**Include any identifiers related to the project (e.g. Project ID, Funding ID etc).**

Instrument Evaluation: Cabled Ultra-Violet (CUV) produced by AML Oceanographic

**What is the name of the USGS Center/Program that oversees the project?**

**Include contact information (email, phone, address).**

U.S. Geological Survey Hydrologic Instrumentation Facility

**Summary description of the project.**

**Include reason why the data is being collected.**

In this experiment, the U.S. Geological Survey (USGS) Hydrologic Instrumentation Facility (HIF) evaluated the CUV, manufactured by AML Oceanographic, for efficacy in controlling biofouling in an estuarine environment.

**What is the project start date?**

**Start date.**

2015-11-12

**What is the project's expected end date?**

**Estimated end date. This field can be updated as needed.**

2016-06-27

**Are there additional information available?**

**Include any web links with more information related to the project, if applicable.**

Question not answered.

**Who is the main point of contact for the project and its data?**

**Also list any alternate points of contact, if any.**

Brandy N.G. Armstrong

barmstrong@usgs.gov

228-688-1508

**Are there collaborating/funding agencies and organizations?**

**Who are they and who are the main points of contact?**

Question not answered.

## 2. Plan and Acquire

**How will the data be acquired?**

**Are they newly collected or using existing datasets?**

The CUV was deployed twice at the US Geological Survey Pearl River site 02492620 at Stennis Space Center, Mississippi. One six week field deployment was during winter conditions (November 12th 2015 to January 5th 2016) and the other during summer conditions (June 8th to July 25th 2016). During each deployment two EXO multiparameter sondes with identical sensors were deployed side by side. Sondes deployed were an EXO2 with the CUV attached and an EXO1 control unit without a CUV. A Third EXO sonde that is maintained by the USGS Hydrologic Instrumentation Facility at the Pearl River site was used as the reference.

**If acquiring existing datasets, include more information.**

**Include the name, format, a persistent identifier, and source citation, if any. Are there any restrictions or agreements such as Memorandum of Understandings (MOUs) for use and storage?**

Provisional data from the Pearl River site 02492620 were downloaded from the National Water Information System (NWIS) web interface and reviewed. Data greater than 3 standard deviations from the mean was considered to be outlying data and removed.

**If collecting new data, include more information.**

**Are there special processes or procedures for collecting the data (e.g. licenses, permissions, equipment, software)?**

An EXO1 and an EXO2 multiparameter sonde were deployed equipped with pH, dissolved oxygen (DO), conductivity/temperature (C/T) and turbidity sensors identical to those on the Pearl River continuous water quality monitoring site sonde, also an EXO2, hereafter referred to as site sonde.

The EXO1 and EXO2 were programmed to measure on the hour and to log internally. The site sonde was programmed to measure every 15 minutes, log internally and upload real time data through satellite telemetry. All three sondes met the USGS-recommended calibration criteria prior to deployment [6]. The site sonde was monitored by satellite telemetry and maintained weekly according to USGS continuous water quality monitoring protocol [6]. All sondes contained backup batteries in case of site power failure. All sondes were suspended in the same 46 cm diameter stilling well.

The EXO1 was deployed without biofouling preventative or a wiper and was not cleaned during the entire length of each field deployment. The EXO1 acted as the control.

The EXO2 was fitted with a mount to maintain the Cabled UV at a distance of 6.15 cm from top of the sensors. The CUV was centered on the opposite side from the four sensors 2.6 cm from the side of the sensor guard. The location of the CUV ensured that the directness of the angle of the ultraviolet light was as close to 90 degrees as practical and that the sensors were all covered by the beam spread.

The EXO1 and EXO2 were deployed twice at the Pearl River site. The winter deployment was 8 weeks long, from November 12th, 2015 to January 5th, 2016. The summer

deployment was six weeks long, from June 8th to July 25th, 2016.

**What is the estimated volume of the data collected, transformed, and/or generated?**

**For example in megabyte (MB), GB, TB, or PB.**

Four CSV files less than 1000 KB

**Will the data be static or frequently updated?**

**If frequent updates, describe how frequent (e.g. Continuously, weekly, annually, irregular etc)**

The data will be static.

**Are the appropriate equipment and staff resources accounted for in the budget?**

**Include estimated time and cost for such data management activities.**

Instrument reviews are included in the HIF budget.

### 3. Describe/Metadata and Manage Quality

**How many new datasets will be created?**

**List the anticipated title of each dataset.**

One new data set will be created.

**What are the data types and formats, in which the data will be maintained?**

**Open data formats such as csv, tiff, mp3, are required.**

Data will be maintained as comma separated value text files.

**Briefly describe the data processing steps or provide the scientific workflow.**

**Also identify any software or technology needs where applicable.**

Data were downloaded and converted to csv using proprietary KorEXO software. Data were not filtered and outliers were not removed. The data is in a raw format.

**How will the metadata for each dataset be created?**

**Who will be responsible for the metadata creation and update? Include their contact information.**

Metadata will be created using the USGS Core Science Analytics, Synthesis, and Libraries (CSAS&L) - Online Metadata Editor (OME) available at <https://www1.usgs.gov/csas/ome/editor.htm>.

**Which metadata standard will be used to describe each dataset?**

**For USGS, FGDC-CSDGM or ISO 19115 series are required.**

The OME creates metadata that are compliant with the FGDC Content Standard for Digital Geospatial Metadata (CSDGM). Currently the OME can produce records that follow either the original ('core') CSDGM, or the Biological Data Profile of the CSDGM. Data for this project do not include species information, so 'core' CSDGM will be used to produce the metadata.

**What procedures will be used for ensuring data quality (QA/QC)?**

**If using a known standard or protocol, include the citation source.**

All sondes met the USGS-recommended calibration criteria prior to deployment following the Guidelines and standard procedures for continuous water-quality monitors; Station operation, record computation, and data reporting. The site sonde was monitored by satellite telemetry and maintained weekly according to USGS continuous water quality monitoring protocol. All sondes contained backup batteries in case of site power failure. All sondes were suspended in the same 46 cm diameter stilling well.

### 4. Backup/Secure and Preserve

**Where will the data be stored in the short-term?**

**Is it properly secured, backed up, and environmentally controlled?**

On the government owned computer of the lead scientist, Brandy Armstrong at the Hydrologic Instrumentation facility. A copy is also on the government owned external hard drive of the lead scientist.

**What will be the approach for routine backup of the data?**

**Include the frequency, duration, software, and media information. Will the data be stored in multiple places and on different media types (recommended minimum of 3 copies with 1 stored in an offsite location)?**

Data on Hydrologic Instrumentation Facility computers are backed up routinely. A second copy is maintained on an external hard drive.

**Describe any potential access restrictions.**

**For example if the data contain Personally Identifiable Information (PII). Please include any practices to ensure access will be restricted.**

There are no access restrictions.

**What will be the final format of the data product?**

**Will there be any software needs? Will the data format be appropriate for long-term preservation? Open data formats such as csv, tiff, mp3, are required.**

The final data will be in an open data format, comma separated values (CSV) text.

**Where will the data and metadata be preserved in the long-term?**

**And which funding Program if in collaboration, will be responsible for the preservation of the data? Who will be the point of contact?**  
Data will be stored and available to the public through ScienceBase.

**If costs are associated with long-term storage, how will they be provided for?  
Are there agreements made for the preservation of the data and metadata?**  
The data is being stored in ScienceBase. The cost of storage will be paid by the USGS.

## 5. Publish and Share

**How will the data be shared and made available to the public?  
For example a web page, system or application, data portal, repository, USGS Data Series, etc. Are there data release policies that need to be followed?**  
Data will be entered into the USGS Science Data Catalog, which provides seamless public access to USGS research and monitoring data.

**Will there be access or use restrictions on the data?  
For example for sensitive data, restricted data, privacy, software with license restrictions, etc. Provide justification for the restriction citing any policies or legal reasons.**  
There will be no access or use restrictions on the data.

**How can someone overcome any access restrictions?  
For example are the following required? Fees, non-disclosure statements, special authorization, data embargo or hold, MOUs/MOAs.**  
The files will be in comma separated value text format. Anyone will be able to access the data if they have internet access and a text editor.

**Identify any anticipated publications or electronic outlets resulting from the data.  
For example, peer-reviewed articles, information/fact sheets, web pages. If a USGS publication, indicate type (e.g. Open File Report, Provisional Release etc).**  
At least one publication will result from this data.  
Brandy NG Armstrong, Teri T Snazelle (2017) Field Testing of AML Oceanographic Cabled UltraViolet Anti-biofouling System in an Estuarine Setting. IEEE OCEANS 17 Aberdeen Conference Proceedings.

**Where will metadata be stored to enable data discovery by the public?  
USGS requires that your metadata must be available for harvest by the USGS Science Data Catalog. Contact [sciencedatacatalog@usgs.gov](mailto:sciencedatacatalog@usgs.gov) for more information.**  
Metadata and data will be entered into the USGS Science Data Catalog, which provides seamless public access to USGS research and monitoring data.

**How and where will you obtain a digital object identifier (DOI) for the data?  
USGS provides a Digital Object Identifier Creation Tool available at <https://www1.usgs.gov/csas/doi/>**  
A digital Object identifier will be created during the USGS ScienceBase Data Release creation.