

Plan Overview

A Data Management Plan created using DMPTool

DMP ID: <https://doi.org/10.48321/D1SK9C>

Title: DMP for "NSF Convergence Accelerator Track M: Advancing Sensor Attachment for Long-Term Telemetry of Critically Endangered Marine Organisms"

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Template: NSF-BIO: Biological Sciences

Project abstract:

This DMP outlines a comprehensive approach to handling diverse data types, including 3D model data, force transducer data, and digital high-speed imagery. Data formats such as STL, Matlab, Excel, AVI, MOV, JPG, and TIFF will be utilized. The plan emphasizes retaining data for at least five years post-award or public release, with storage on mirrored external hard drives and additional server backups. Public access and archiving will be facilitated through platforms like Open Science Framework and SketchFab, with metadata and interactive content made widely available. A proactive stance on data sharing and dissemination will involve publishing in multidisciplinary and specialized journals and engagement at professional meetings and through various social media channels. Emphasis on open-access online journals will ensure a broader reach, complementing the rigorous local storage and archiving strategy. Post-award monitoring will be carried out through standard NSF reporting procedures, reflecting a thorough and transparent approach to data management.

Start date: 01-01-2024

End date: 12-31-2024

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DMP for "NSF Convergence Accelerator Track M: Advancing Sensor Attachment for Long-Term Telemetry of Critically Endangered Marine Organisms"

Data and Materials Produced

Describe the types of data, physical samples or collections, software, curriculum materials, and other materials to be produced in the course of the project. (For collaborative proposals, the DMP must cover all the various data types being collected by each collaborator.)

1. 3D model data. 3D models of components will be exported as stereolithography (STL) files. These files will then be prepared for printing and stored as form files.
2. Force data. Data from force transducers is collected as datasheet files in matlab or excel and will be stored as such.
3. Particle image velocimetry. Digital high-speed video is recorded in AVI (light) raw format and maintained for storage or converted to MOV for public access. Photographic images are captured and stored in JPG and TIFF file formats.

Standards, Formats and Metadata

Describe the standards to be used for all the data types anticipated, including data or file format and metadata. [Note: Where existing standards are absent or deemed inadequate, this should be documented along with any proposed solutions or remedies.]

Standards & Formats: While there are no recognized standards for the field, we have adhered to the most commonly accepted formats for data archival.

Metadata, Dublin Core: A basic, domain-agnostic standard that can be easily understood and implemented, and as such, is one of the best-known and most widely used metadata standards. Sponsored by the Dublin Core Metadata Initiative, Dublin Core was published as ISO Standard 15836 in February 2009. <http://dublincore.org>

Roles and Responsibilities

Describe the roles and responsibilities of all parties with respect to the management of the data (including contingency plans for the departure of key personnel from the project).

The Data Management Plan (DMP) for the project "NSF Convergence Accelerator Track M: Advancing Sensor Attachment for Long-Term Telemetry of Critically Endangered Marine Organisms" aims to facilitate convergence collaboration among a national group of collaborators. The DMP outlines the roles and responsibilities of different

collaborators in the data management process. The principal investigators will oversee the allocation of resources, coordinate activities, conduct research, and perform evaluation and assessment tasks. The project administrator will coordinate the curation of the data, serving as a central point of contact and ensuring the smooth flow of information among collaborators. The data managers will be responsible for cleaning and organizing the data and assisting in its codification. In addition, they will ensure that the data is properly structured and formatted for analysis and further use.

If a collaborator changes institutions, appropriate steps will be taken to transfer their access and responsibilities to the new institution. Depending on the specific circumstances, this may involve transitioning from a principal investigator (PI) role to a co-PI or key person role. It is important to note that no costs are associated with the DMP, indicating that the project will leverage open access and creative commons resources without incurring additional expenses. All participants will be responsible for following the DMP guidelines and managing their activities inside the repository. If organizations require a consortium agreement or contract to be signed, we will consider it individually.

Roles:

Dr. Brooke Flammang (PI) will implement the DMP, management activities, and responsibilities.

Cristo Leon, B.A., M.B.A., Ph.D. candidate (Other) is assisting with compliance with NJIT policies and federal regulations.

Dissemination Methods

Describe the dissemination methods that will be used to make data and metadata available to others during the period of the award, and any modifications or additional technical information regarding data access after the grant ends.

Public access and archiving. All meta data will be made available to the public via the Open Science Framework Flammang Lab data repository (<https://osf.io/fh3kg/>). Scans will be downloadable and each will be assigned a DOI for citation purposes. Interactive 3D models will be made available at SketchFab (<https://sketchfab.com/flammanglab>). Supplemental video clip files will be made available on the PIs website at the time of publication. Any additional data will be archived at the Dryad Digital Repository (datadryad.org).

Policies for Data Sharing and Public Access

Describe the PI's policies for data sharing, public access and re-use, including re-distribution by others and the production of derivatives. Where appropriate, include provisions for protection of privacy, confidentiality, security, intellectual property rights and other rights.

Data sharing: Public release of data will be at the earliest reasonable time, typically immediately after timely publication, so as not to compromise the efforts of this funded project. We will consider requests for collaborative sharing of data pre-publication if the combined result of our synergistic research programs is likely to be greater for the contribution.

Data dissemination: Data will be disseminated through the normal means of peer-reviewed publication. Target journals include widely distributed, multidisciplinary journals (Nature, Science, and PNAS). Still, emphasis will also be placed on publishing in open-access online journals (e.g., Integrative Organismal Biology, Nature Communications, Scientific Reports) that can reach a broader audience and better accommodate 3D color content. We will also submit to more specialized journals like the Journal of Experimental Biology and Morphology. We will present scientific results across a broad spectrum of public and professional meetings including, but not limited to, the North American Right Whale Consortium, Marine Mammal Society, Society for Integrative and Comparative Biology, and Science Cafés in the Newark, New Brunswick, and Princeton areas. Research activities, major findings, and publication and data links will be shared through our respective webpages and social media on the Flammang Lab BlueSky, Threads, Twitter, Instagram, and/or YouTube accounts.

Post-award monitoring: Data management will be reported to NSF primarily through the normal Annual and Final Report process and through the evaluation of subsequent proposals. The PI will report Data management in subsequent proposals under “Results of prior NSF support”.

Archiving, Storage and Preservation

Where relevant, describe plans for archiving data, samples, software, and other research products, and for on-going access to these products through their lifecycle of usefulness to research and education. Consider which data (or research products) will be deposited for long-term access and where. (What physical and/or cyber resources and facilities (including third party resources) will be used to store and preserve the data after the grant ends?)

Period of data retention: Data will be retained, according to university best practices, for a minimum of five years after the conclusion of the award or five years after public release, whichever is later. The PI will generally retain raw data, metadata, and key secondary data types as long as possible (preferably in perpetuity) but within reasonable constraints.

Data storage and access preservation: Trainees will work with each PI to ensure and coordinate data storage and access. The PI's are, and will remain, cognizant and attentive to movements and trends in the scientific community with regard to archiving, migration, and dissemination of large-volume digital data.

Local storage and archiving: Model and video graphics data will be stored on mirrored external hard drives maintained by trainees and each PI for data analysis. Analysis output and products towards publication (e.g., figures, tables, statistics, text) will be stored on the mirrored drives as they are generated. An additional backup of all raw and processed data will be kept on the server in each PI's office.

Planned Research Outputs

Dataset - "Meta Data"

All meta data will be made available to the public via the Open Science Framework Flammang Lab data repository (<https://osf.io/fh3kg/>)

Model representation - " Interactive 3D model"

Interactive 3D models will be made available at SketchFab (<https://sketchfab.com/flammanglab>)

Dataset - "Additional data"

Any additional data will be archived at the Dryad Digital Repository (datadryad.org).

Planned research output details

Title	Type	Anticipated release date	Initial access level	Intended repository(ies)	Anticipated file size	License	Metadata standard(s)	May contain sensitive data?	May contain PII?
Meta Data	Dataset	2024-12-30	Restricted	Open Science Framework		None specified	Dublin Core	No	No
Interactive 3D model	Model representation	Unspecified	Open	SketchFab		None specified	Dublin Core	No	No
Additional data	Dataset	2024-12-30	Open	Dryad Digital Repository		None specified	Dublin Core	No	No