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## NCEI PASSIVE ACOUSTIC DATA WORKSHOP

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*A two day workshop was held at NCEI in Boulder, CO on May 10-11, 2016 for NCEI, NOAA Fisheries Science Centers, Office of Science & Technology, Bureau of Ocean Energy Management, OBIS-USA, Pacific Marine Environmental Laboratory, San Diego State University, and Navy scientists. The workshop brought attendees together to outline the next steps for expanding the 2014-2015 pilot project into a long-term archive.*

The main topics discussed during the workshop are outlined below.

Cost estimates are a widely shared concern. The NCEI Data Stewardship Division provided a mostly finalized total to archive 75 TB of data. Based on a conservative compression rate of 50%, this would account for 150 TB of uncompressed passive acoustic data.

### Data Storage

- \$33,445 for 75 TB
- If 75 TB of data are archived every year for 10 years, the cost would be \$334,450 over those 10 years

### Additional costs

- \$7,500 every five years for media refresh. This value corresponds to a volume of 325 TB (75 TB x 5 years)
- Bays for NCEI to access data submitted on internal drives
- Software development to facilitate archival and delivery of passive acoustic data, and improvements to the web-based map viewer
  - This is the most costly and unknown factor
  - Anticipated work to finalize the process to ingest the data and metadata into NCEI is estimated to take 2 to 3 weeks of software development time, costing \$21,416 to \$32,124. However, additional software development work will be needed in addition to GIS support.

Acoustic data are compressed using FLAC and gzip before being stored at NCEI. Final compression rates may be greater than 50% thereby allowing more data to be archived at the same price. Issues with applying FLAC to .wav files containing over 7 channels were identified during the pilot project. We will look into whether the FLAC code can be changed to accommodate a greater number of channels. *The rate at which NCEI can archive large volumes of data will likely be a limiting factor. One TB per day is a reasonable rate of ingest for our systems to manage.* Thus, 75 TB would take at least 75 days to archive upon receipt at NCEI.

## Submitting Data

Deployment information exported from Tethys was the original intended mechanism for data providers to assimilate metadata. However, this is not an essential method. *To accommodate data providers who do not use or have not fully implemented Tethys yet, a standalone user interface will be developed.* This interface will be based on the data packaging software Chuck created for water column sonar data submissions.

- This software will facilitate the transfer of acoustic files from a lab's drive to the drive that will be submitted to NCEI
- Metadata fields will mirror the Tethys deployment schema, including instrument version info
- The software will be able to populate metadata fields with a Tethys export, when available
- There is a potential issue with file naming conflicts. The file name convention will be included as a text field in the software interface
- Sample rate will be extracted for each file from the wav header information

## Accessing Data

A web-based map viewer to discover, query and access archived data is desired in the coming months. Filtering criteria were discussed. Changes to last year's list of filtering parameters involved separating "organization" and "funding source", and adding min and max water depth. The latter will be calculated using the GEBCO 30-sec arc bathymetric grid available at NCEI.

The desire to extract as much information as possible on future data users, namely their intention with the data, was expressed. *The five questions that we are allowed to ask the public are provided on page 3.* Although we are allowed to ask these questions, answering is voluntary. However, it is a start and will hopefully give data providers a greater understanding of how their data may be re-used. Information gathered from data requests will be hosted on the project's Google Site (e.g., % of requests by sub-affiliations).

*Development of long-term spectrograms will be tested to enable users to easily understand the general quality and content of the archived acoustic data.*

## Funding

To ensure the near and long-term success of a passive acoustic archive, funding is needed. We will work to deliver the desired intermediary milestones to show where money is being allocated and why it's important to continue investing in the archive. *The first draft of the map viewer will be provided by early July.* A [BEDI proposal](#) was submitted on 5/16 to further develop the map viewer.

*The need for a document that outlines what the archive is, its benefit to the PI and the public, the point(s) of contact, and the responsibilities of the PI was identified.* This will be developed in the coming months.

Additional information on short- and long-term plans are detailed [here](#).

### Intended Use of the World Magnetic Model

We are interested in your intended use of the World Magnetic Model. By filling out the following form, you will help us improve service and strengthen future models.

All responses and information that you provide are voluntary. The information you provide is used only by NOAA's National Geophysical Data Center to support the World Magnetic Model. By clicking the "Submit" button you grant consent to the use of the voluntarily provided information.

Please enter your email address.

Do you want to be notified of updates or changes to the model?

Yes  No

What is your affiliation?

US  Other

What is your sub-affiliation?

Military  Military Contractor  Oil Industry  
 NOAA  Other Government  Business/Industry  
 FAA  Research  Other:

What will be the primary use of this data?

Navigation  Surveying  Legal  
 Military (other)  Education  Personal  
 Scientific research  Directional drilling  Other:

We are interested in your intended use of the model and software.

Please email comments and questions requiring a response to [geomag.models@noaa.gov](mailto:geomag.models@noaa.gov)

Downloading: Coefficient File



Lunchtime hike towards the Flatirons. Photos courtesy of Andy Lau.



2016 Passive Acoustic Data Stewardship Workshop participants.

