

## Plan Overview

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*A Data Management Plan created using DMPTool-Stage*

**Title:** Use of telemetry and the Acoustic Wave Glider to study southern flounder migrations

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## Use of telemetry and the Acoustic Wave Glider to study southern flounder migrations

The Acoustic Wave Glider will collect significant amounts of new digital data (audio files, acoustic recordings, detection of acoustical tags placed on animals, detections of vocalizing animals and measurements of physical parameters in the water column where it is deployed) from instrumentation and sampling during glider missions, and will integrate existing data sets from US IOOS ATN (Acoustic Telemetry Network of tagged fishes) and other agencies. There will be text records (latitude, longitude, detection location and ID numbers for tags, species identification information, air and water temperature, salinity, dissolved oxygen, wave height, bearing, speed, the wind, current readings, and fluorometer readings) taken at various intervals. Some data will be telemetry data sent via satellite or cell phone (text records that are KB in size) to a land-based server, other data (larger data sets GB in size) will be archived and downloaded upon recovery of the wave glider.

The southern flounder offshore migration telemetry project implemented by Joseph J Luczkovich, Rebecca Asch, Patrick Harris, and Tyler Peacock will generate environmental data and information, including geo-referenced acoustic tag detection data and associated environmental data. Datasets will provide the location of tagged southern flounder. Data will be collected by the investigators listed above according to the procedures described in the next sections, and stored at East Carolina University of the NC Coastal Atlas. The data will be available to interested scientists and other users with a valid reason after 2 years upon request starting on 1 Feb 2022, through the next decade 1 Feb 2032. Contact Joseph Luczkovich (or one of the other co-PIs listed above) at 252-328-9402 or luczkovichj@ecu.edu for more information or to make a data request. In the past, we have shared similar data by posting files on a web server such as dropbox.com or Dataone.org. All future sub-awardees not identified in this plan will have as a condition of their contract acceptance of this data sharing plan. Any additional data sharing stipulations for future sub-awardees may be outlined at that time and described in their contract.

Metadata will include a readme.txt ASCII text file to explain the variables in the archives. Geographic data will use metadata standard ISO 19115-2 and ISO 19139, which is an XML schema. Acoustic and other digital data will be stored as time- and date- stamped files. Passive acoustic data will be stored as Wav audio files. Fluorometer, meteorological and CTD data will be stored as ASCII text files along with time and date records. These audio and physical parameter records can be matched with the geographic data records.

We will submit for publication all findings from work conducted under this NSF MRI equipment grant. We will permit and encourage such publication by those actually using the AWG to collect data unless one of the PI's or Co-PIs intends to publish or disseminate such findings itself. We will maintain a one-year embargo on data to organize and archive it, performing quality assurance checks prior to making it publically available on one of the data sharing sites. Some species detected may be listed as endangered (Atlantic sturgeon, right whales) and these locations may not be publically listed until management agencies have been notified and can protect the species involved. Intellectual property rights will reside with the persons identifying the species detected in passive acoustic data using data classification algorithms or by listening to the sounds. Identified species will have sample sound recordings deposited in the Macaulay Library of Natural Sounds (<http://macaulaylibrary.org/>). Geographic data of tracks of the AWG will be made publically available as part of the ECU Coastal Atlas (<http://www.ecu.edu/renci/Focus/NCCoastalAtlas.html>). Acoustic tag Telemetry data detections will be archived in the Atlantic Telemetry Network (ACT <http://www.theactnetwork.com/>). Fluorometer data (Turner C3) are typically from a data stream taken at 1 to 2 Hz that is combined with CTD data as separate voltage channels into one file. Files will comprise a line of text for every second measurement, so if complexed with CTD data over long periods of time, they may reach GB size. We will submit our data to DataOne (<https://www.dataone.org/>).

Users of the data should have a valid scientific interest in analyzing the data from the AWG. Data obtained from these ECU-maintained and other public AWG archives and repositories listed above should not be re-distributed or re-published without permission of Co-PIs, the intellectual property holders, and the data distributors where the data were made public. Educational use of the data will be granted with a free license. Commercial users will be charged a licensing fee for use of archived data, with a fee structure subject to negotiation. Mission-specific data acquisition charges are described in the operations and maintenance (O&M) letter filed with the NSF with this proposal. Users besides scientists may be the general public, commercial consultants, educators, and government agencies.

The ACT, BCO-DMO, and Maccaulay Library of Natural Sounds are committed to maintaining databases of their records for the long-term and are supported by public institutions. ECU will archive the Coastal Atlas database at the Joyner Library. Data and metadata will be made available to users by links within the ECU Coastal Atlas to the external data archives listed.

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