MATOS: The Mid-Atlantic Acoustic Tag Observing System

Recent years have seen expansions in the number of fish and marine animals marked with acoustic tracking tags, in the methods available to collect tag reception data, and in the scope and resolution of ocean and coastal observing systems collecting information about the animal's environment. MATOS aspires to bring together the GOOS and IOOS principles of integrated ocean data collection and management and the MARACOOS commitment to supporting regional ocean and coastal science, management, and economic activities to add value to the efforts of individuals and organizations within the region working in this field.

The Objectives of MATOS are to support:

- Broader and more efficient use of acoustic tag tracking information collected in the Mid-Atlantic and adjacent regions;
- The integration of regional tag tracking information with the IOOS, GOOS, and other observational networks, for the benefit of all parties;
- Scientists, Managers, Fishermen, Conservationists, and other users and potential users of acoustic tag tracking information.

MATOS will be implemented following these principles:

- MATOS is committed to supporting regional acoustic tagging activities by working with taggers and receiver operators to rapidly and easily connect tag identification and metadata to reception data and exposing the results only as specified by the tag operator.
- MATOS will have data security and distribution limits determined by the data providers.
- MATOS is committed to working with existing tagging investigators, networks, suppliers, and systems to add value, efficiency, and streamlining to their ongoing operations.
- MATOS will partner with MARACOOS, IOOS, GOOS, and OTN in attempting to establish and utilize community data and metadata standards and data access capabilities.
- MATOS covers the MARACOOS, SECOOS, NERACOOS, and adjacent regions, and will work with investigators, observing systems, and managers in those regions.
- MATOS will support real-time receiver data, including buoys and mobile receivers (fish, AUVs, gliders)
- MATOS will support delayed mode receiver data input in VEMCO other formats supporting ease of submission (drag and drop, direct IP transfer)
- The resulting MATOS database will be available for data queries, visualization, display, product development

Concept of Operations

MATOS will consist of the following basic components:

- An online, searchable, full metadata TAG database
- An online, searchable, full metadata RECEIVER database
- Both based on OTN & other community technical and metadata standards,
- With data access and distribution controls
- Automated INPUT of real-time RECEPTION data and delayed mode RECEIVER FILES
- Machine level matchups of RECEPTION information with TAG ID information, resulting in a continuously updated TAG / TIME / POSITION / ANCILLARY DATA / DISTRIBUTION LIMITS ('HITS') database
- Login-enabled graphical user interfaces to facilitate access, input, manipulation, and viewing of all databases
- Map-based visualization tools for each database
- Web services to facilitate data exchanges, integration, and downloading

Access and Data Protection

Access to the MATOS site will be by password-protected login. Users submitting tag or receiver data will set up preferences for sharing of that data – either public or private, with private limiting access to the individual or a project group designated by the individual. Public data will be available through the MARACOOS data system web interfaces and services.

Data Input

MATOS will accept tag and reception data in almost any format.

Tags: Online templates associated with a user will be available for efficient tag and metadata input. Release forms are available to be filed with VEMCO to allow VEMCO to forward purchased tag metadata directly to MATOS. ACT collaborators may allow ACT data to be shared with MATOS, subject to individual privacy settings.

Receptions: MATOS will accept .vrl files or .csv files created by VUE. There is an FTP site for uploading; we are working with VEMCO so that future versions of VUE will allow direct uploading to MATOS, with including ancillary data for services like false detection analysis and site evaluations. MATOS will have an email address for accepting Iridium and other real time and near-real time data messages. MATOS will develop standard data exchange protocols with individual platforms (buoys, gliders, etc.) collecting real-time reception data, including other concurrent environmental measurements taken by the platform.

Data Integration

MATOS will support IOOS DMAC compliant and other standard Web Services. MATOS will be integrated into the MARACOOS data management system, with public data accessible via the MARACOOS asset viewer, and protected data available to investigators and projects via MyMARACOOS. Data services will be incorporated into MATOS to support activities conducted by ACT, other projects, and individual contributors.

Oversight

MATOS will be operated and maintained under the guidance of MARACOOS and an advisory group composed of active users and contributors.

Long Term Funding and support

MARACOOS will seek funding to support MATOS from interested agencies and other interests, in consultation with the MATOS Advisory Group.

Example page view for tag A69-9001-xxxxx (withheld pending permission). 14 Hits from 12/26/2012 to 01/05/2013. MATOS automatically displays all hits, receivers, and trackline. In this case the fish was seen just off Cape Henry at the southern edge of the map, then in the mouth of the James R, then up to Cape Charles, and back across the entrance to Cape Henry and into the Chesapeake Bay.

MATOS
Mid-Atlantic Acoustic Telemetry Observation System

Logout | Edit account | Help

EXPLORE SEARCH REWARD

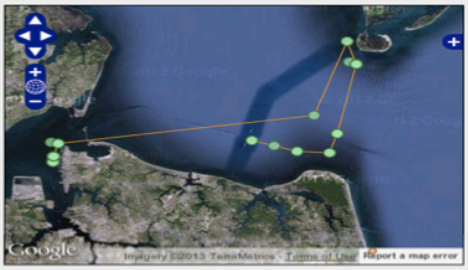
A69-9001[redacted]

2011-11-09

Tag	Link
Model	v16-6h
Serial	
Manufacturer	

Total Hits	85
Receivers with Hits	14
Report	

Study that deployed tag	ACT
Tagger	
Common name	atlantic sturgeon
Scientific name	acipenser oxyrinchus oxyrinchus
Capture location	
Capture geo	
Capture date	
Capture depth	
Wild or hatchery	
Stock	
Length	
Weight	
Age	
Sex	
Dna sample taken	
Treatment type	
Temperature change	
Holding temperature	
Surgery location	
Surgery geo	
Surgery date	
Sedative	
Sedative concentration	
Anaesthetic	
Buffer	
Anaesthetic concentration	
Buffer concentration in anaesthetic	
Anesthetic concentration in recirculation	
Buffer concentration in recirculation	
Do	
Description	
Release group	
Release location	NY/NJ Coast
Release geo	
Release date	2011-11-09 00:00:00 UTC
External codes	
Length type	
Implant type	internal
Reward	
Sensor codes	
Lifespan	
Expiration date	2018-03-28 00:00:00 UTC



Hit	Time	Lat	Lon	Receiver
1	2012-12-26T07:45:11Z	36.83067	-75.96231	DOD -RR2
2	2012-12-26T07:46:53Z	36.83067	-75.96231	DOD -RR2
3	2012-12-27T12:03:39Z	36.96698	-76.33364	DOD -ER5new
4	2012-12-27T12:05:33Z	36.96864	-76.34184	DOD -NN2
5	2012-12-27T12:09:47Z	36.96698	-76.33364	DOD -ER5new
6	2012-12-27T12:11:32Z	36.96698	-76.33364	DOD -ER5new
7	2012-12-27T12:46:34Z	36.95066	-76.33902	DOD -NH8
8	2012-12-27T12:48:21Z	36.95066	-76.33902	DOD -NH8
9	2012-12-27T12:52:43Z	36.95066	-76.33902	DOD -NH8
10	2012-12-27T12:54:15Z	36.95066	-76.33902	DOD -NH8
11	2012-12-27T12:56:03Z	36.95066	-76.33902	DOD -NH8
12	2012-12-27T12:58:23Z	36.95066	-76.33902	DOD -NH8
13	2012-12-27T13:02:05Z	36.95066	-76.33902	DOD -NH8
14	2012-12-27T13:04:03Z	36.95066	-76.33902	DOD -NH8
15	2012-12-27T13:05:23Z	36.95066	-76.33902	DOD -NH8
16	2012-12-27T13:06:48Z	36.95066	-76.33902	DOD -NH8