

BioTrack: Data Management

IOOS DMAC Meeting

June 16, 2021

ATN is: A long-term, multi-agency cooperative network that seeks to provide unity, sustainability and continuity to the U.S. marine animal telemetry community

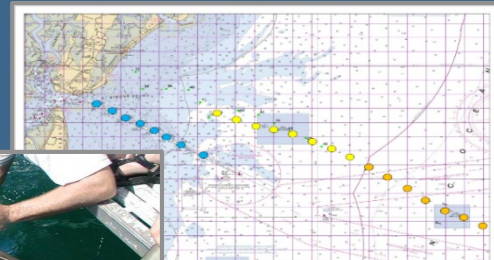
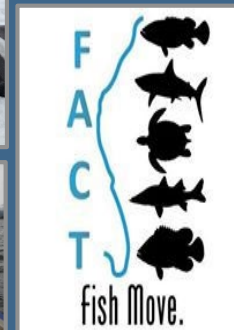
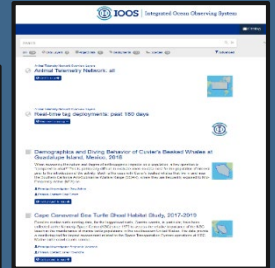


UNIFIED MARINE LIFE PROGRAM

ATN + MBON: Integrate biological and animal-borne sensor data and data products into our existing ocean observing system capabilities to monitor and assess ecosystem interactions and change

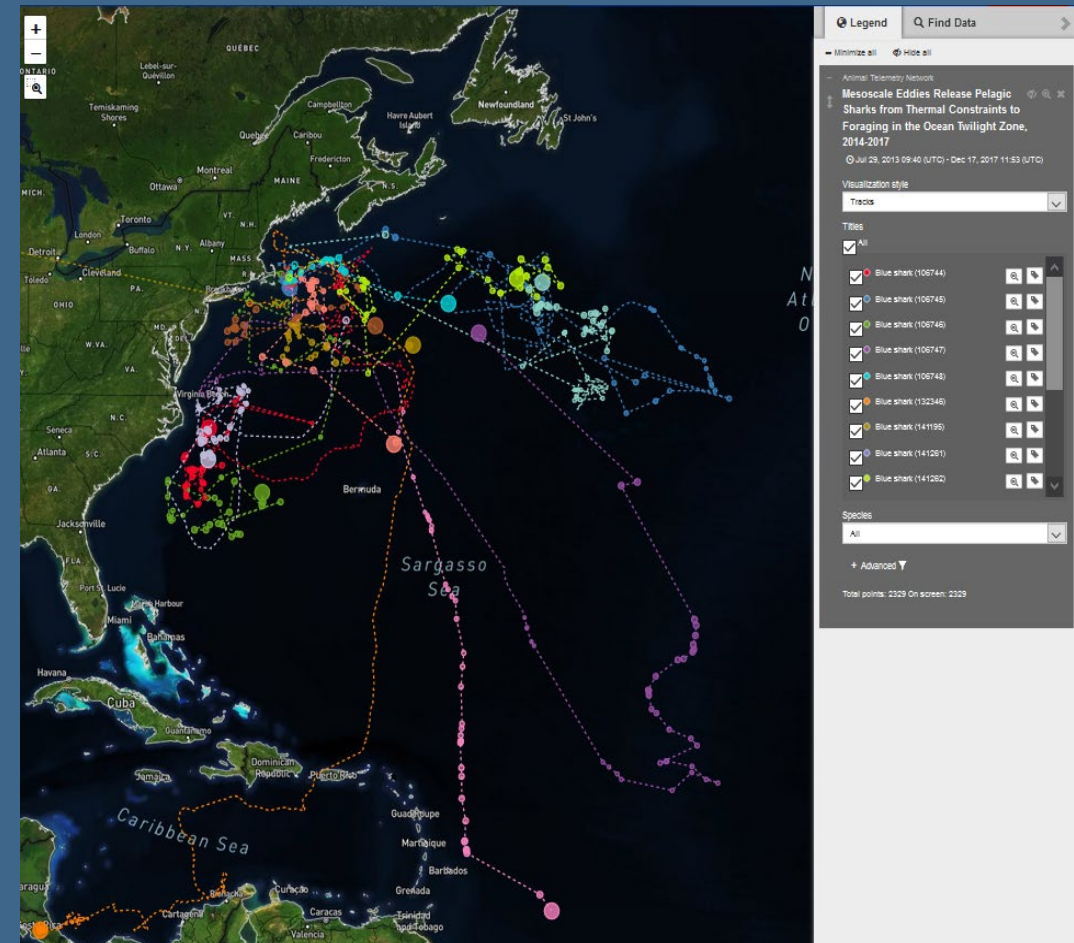
THREE ATN COMPONENTS

- ✓ BUILD ALLIANCES & COLLABORATIONS
- ✓ PROVIDE TELEMETRY DATA MANAGEMENT & DELIVERY
- ✓ SUPPORT BASELINE ANIMAL TELEMETRY OBSERVATIONS



ATN DATA ASSEMBLY CENTER

- Community resource
- Receives data from multiple sources
- Enables/promotes data availability and sharing among global community partners
- Maximizes access to telemetry data
- Enhances and expands electronic tag data products
- Enables permanent archiving at NCEI, DataONE; DOI minting



BIOTRACK

Collaborative, multi-species synthesis project that seeks to assess and monitor hotspots of marine megafauna biodiversity by linking satellite telemetry data with remotely sensed environmental data on multiple EOVs and geographic "seascapes".

- Led by Dr. Neil Hammerschlag & PhD student Chelsea Black, Uni. Miami-RSMAS
- Western North Atlantic, Gulf of Mexico and Caribbean Sea
- So far...26 confirmed collaborators from 17 organizations
- Data from...24 projects, 608 deployments and 23 species
- [BioTrack - IOOS MBON Project Site \(marinebon.org\)](http://marinebon.org)



BIOTRACK DATA CHALLENGES

- Large number of participating PIs/Projects
- Combo of active and historic dataset
- Combo of embargoed/protected and publically-available datasets
- Data from multiple sources and manufacturers
- Data from multiple tag types (R/T Argos, delayed mode, Fastloc GPS)
- Robust metadata requirements (project, deployment, data)
- Community still getting on board with applying recognized standards and use of netCDFs

Metadata
in
Reg app



Data **feeds**
from
tag vendor



DATA PORTAL



Metadata
in
Workspace



Data **files**
in
Workspace



ATN DAC Registration/Project Submission

Submit project-level metadata (e.g., title, abstract, contact information) and tag deployment records (e.g., PTT ID, species, deployment dates).

Email:

Password:

[Lost password?](#)

OR

 [Sign in with Google](#)

New here? You can create an account with your email or sign in with Google to create an account.

RESEARCH WORKSPACE

Request more information 

Login 

The Research Workspace is a web-based platform for collaboratively managing science projects through the entire data lifecycle. Whether you are a research scientist, data manager, or program manager you can benefit from using the Research Workspace. Coordinate information transfer, create and execute reproducible numerical workflows, generate metadata and publish finalized data products to national archives all through a single application.



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Research Workspace manages data

<https://researchworkspace.com>



Animal Telemetry Network Data Portal

 EXPLORE MAP

 PROJECTS



All Tag Deployments



Real-time Tag Deployments:
Past 30 Days



Satellite Telemetry Project
Inventory



Acoustic Telemetry Asset
Inventory



1-10 of 3,526 results



All 3,526

📊 Data Layers 4

📁 Project data 109

🚢 Moving platforms 3,428

More

🔼 Advanced

 Satellite Tracking of Migratory Shark Species in the Atlantic, 2010-2021

We are currently using satellite tags **to** track the movements of shark species in the Atlantic **to** study the movement ecology of highly **migratory** ... **sharks to** determine the biophysical drivers, ecosystem impacts and conservation implications of their movements exposed **to** anthropogenic threats, such as ... urbanization, overfishing and climate change. By characterizing and identifying such movement patterns, we can help supply policy makers with data **to**

👤 **Principal Investigator:** Neil Hammerschlag

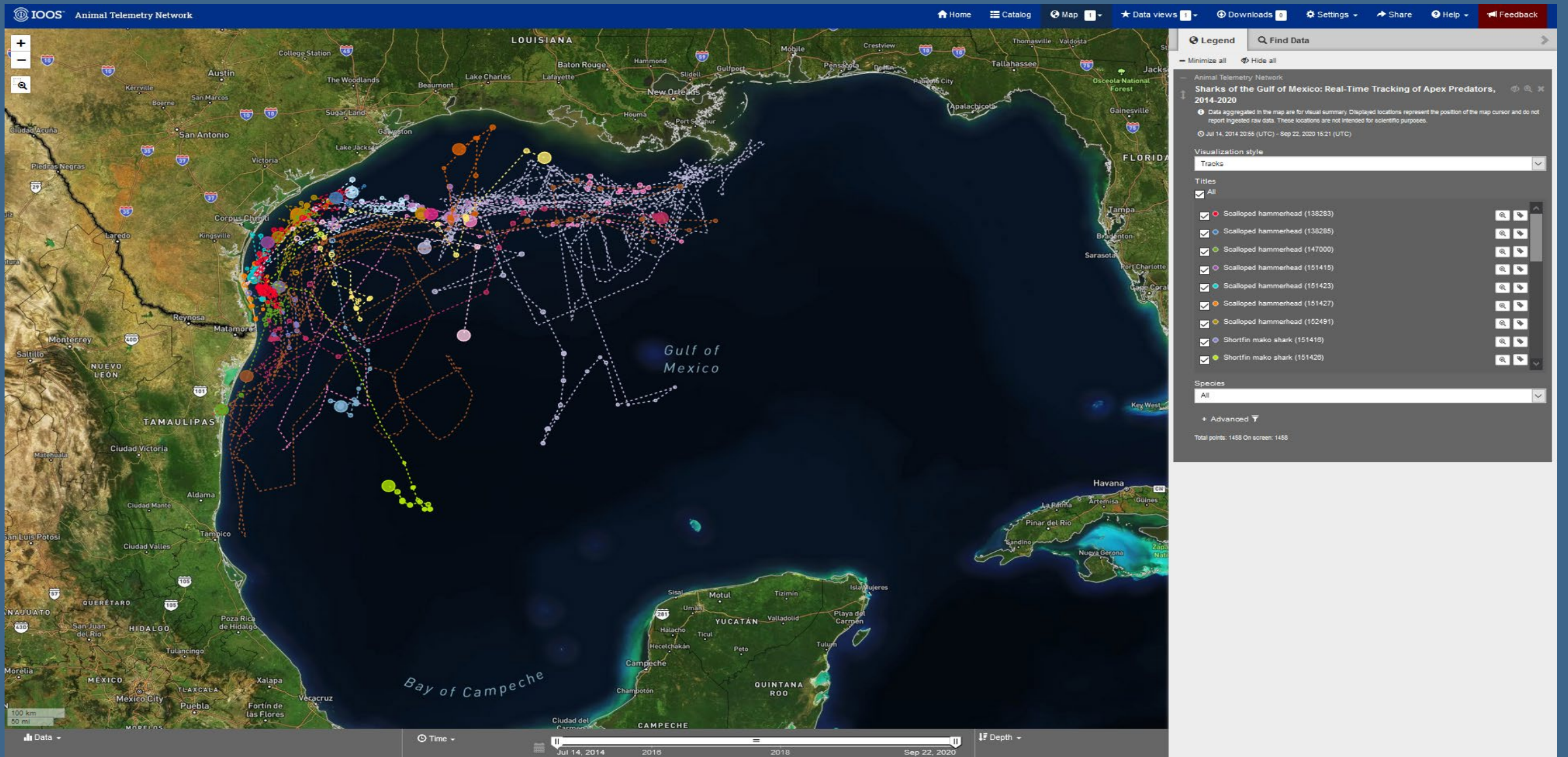
📍 Add project to map +

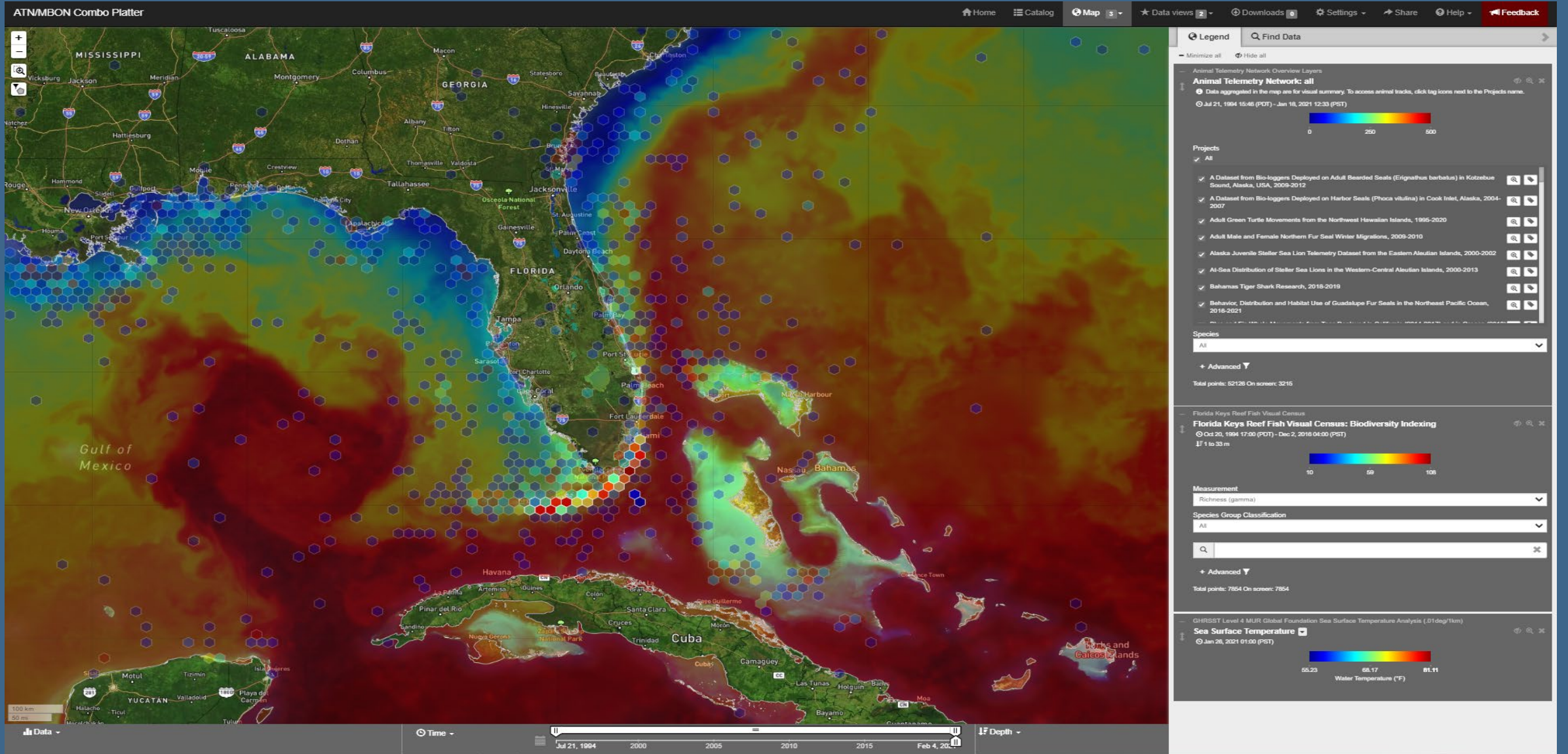
 Mesoscale Eddies Release Pelagic Sharks from Thermal Constraints to Foraging in the Ocean Twilight Zone, 2014-2017

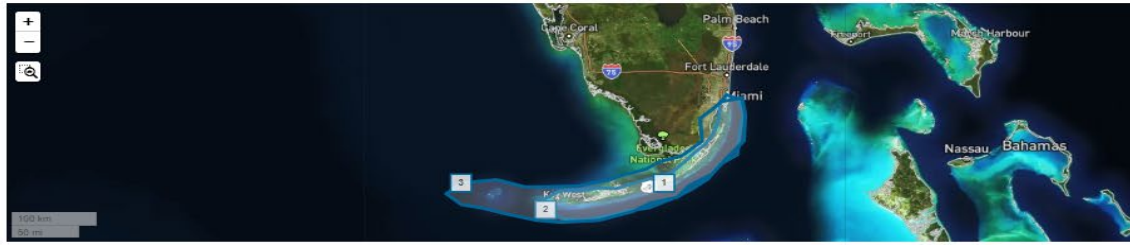
to thousands of kilometers. Debate regarding how and why predators use fronts and eddies, for example as a **migratory** cue, enhanced forage ... thank donors **to** the ProjectWHOI crowdfunding campaign: The Secret Lives of **Sharks**. Computational support was provided by the AWS Cloud Credits for Research program ... time series measurements collected by 15 instrumented individuals, we show that blue **sharks** seek out the interiors of anticyclonic eddies where they

👤 **Principal Investigator:** Camrin Braun

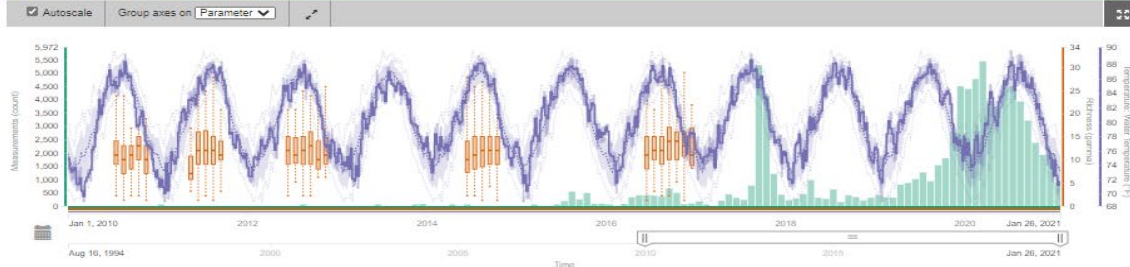
📍 Add project to map +







Comparison chart



Measurements (count)

Animal Telemetry Network: all
Feature selection

Time bin: Months

Richness (gamma)

Florida Keys Reef Fish Visual Census: Biodiversity Indexing
Feature selection Depth: 1 to 33

Time bin: Months

Temperature: Water Temperature (°F)

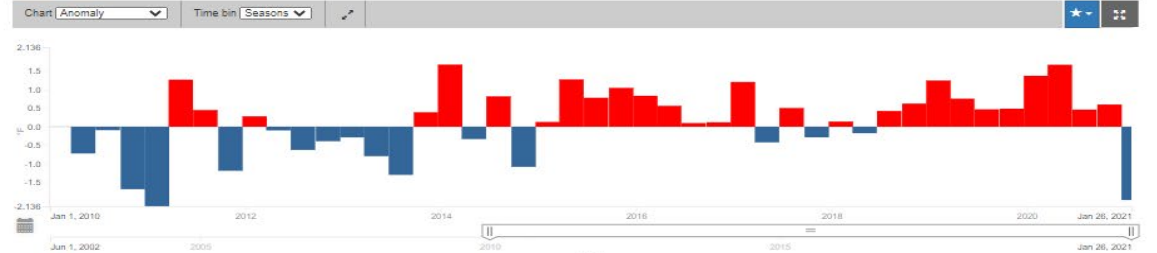
GHRST Level 4 MUR Global Foundation Sea Surface Temperature Analysis (.01deg/1km)
24.7748, -80.8704

Time bin: Weeks

Saved charts

Sea Surface Temperature

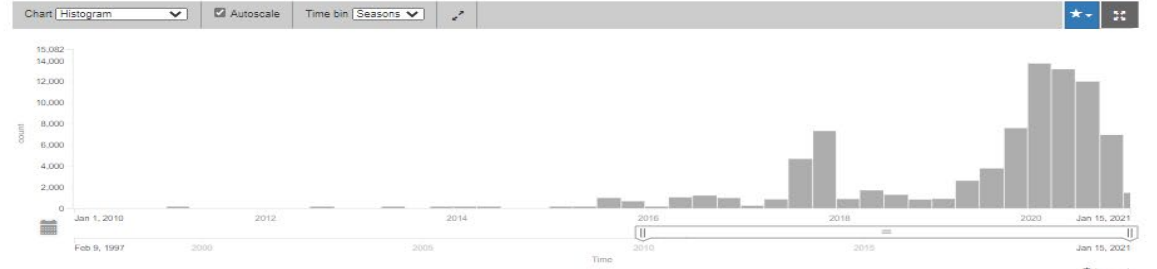
GHRST Level 4 MUR Global Foundation Sea Surface Temperature Analysis (.01deg/1km)
24.7748, -80.8704



Downloads Bookmark

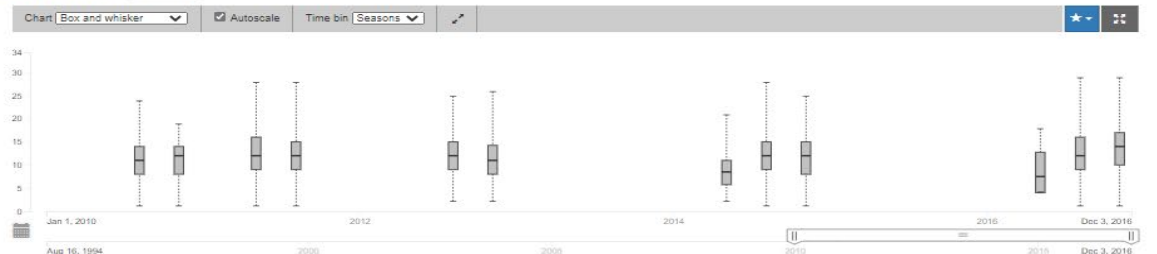
Measurements

Animal Telemetry Network: all
Feature selection



Richness (gamma)

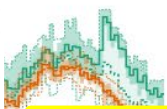
Florida Keys Reef Fish Visual Census: Biodiversity Indexing
Feature selection Depth: 1 to 33



FL Keys reef fish visual census:
species richness, sea surface
temperature & ATN All layer

★ Great hammerhead shark (200866) + IOOS sensors -- Water Temp

Bouy Station	Date Time UTC	Sea Water Temp °Celsius	Depth m	Bouy Station	Date Time UTC	Sea Water Temp °Celsius	Depth m
FWYF1	2020-05-01T00:00:00Z	26.4	0	GKYF1	2020-05-01T00:00:00Z	28.17	0
FWYF1	2020-05-01T01:00:00Z	26.4	0	GKYF1	2020-05-01T01:00:00Z	28.11	0
FWYF1	2020-05-01T02:00:00Z	26.3	0	GKYF1	2020-05-01T02:00:00Z	27.85	0
FWYF1	2020-05-01T03:00:00Z	26.3	0	GKYF1	2020-05-01T03:00:00Z	27.83	0
FWYF1	2020-05-01T04:00:00Z	26.4	0	GKYF1	2020-05-01T04:00:00Z	27.77	0
FWYF1	2020-05-01T05:00:00Z	26.3	0	GKYF1	2020-05-01T05:00:00Z	27.58	0
FWYF1	2020-05-01T06:00:00Z	26.3	0	GKYF1	2020-05-01T06:00:00Z	27.56	0
FWYF1	2020-05-01T07:00:00Z	26.2	0	GKYF1	2020-05-01T07:00:00Z	27.38	0
FWYF1	2020-05-01T08:00:00Z	26.2	0	GKYF1	2020-05-01T08:00:00Z	27.2	0
FWYF1	2020-05-01T09:00:00Z	26.1	0	GKYF1	2020-05-01T09:00:00Z	27.17	0
FWYF1	2020-05-01T10:00:00Z	26	0	GKYF1	2020-05-01T10:00:00Z	26.91	0
FWYF1	2020-05-01T11:00:00Z	25.9	0	GKYF1	2020-05-01T11:00:00Z	27.09	0
FWYF1	2020-05-01T12:00:00Z	25.8	0	GKYF1	2020-05-01T12:00:00Z	26.93	0
FWYF1	2020-05-01T13:00:00Z	25.8	0	GKYF1	2020-05-01T13:00:00Z	27.1	0
FWYF1	2020-05-01T14:00:00Z	25.8	0	GKYF1	2020-05-01T14:00:00Z	27.18	0
FWYF1	2020-05-01T15:00:00Z	26	0	GKYF1	2020-05-01T15:00:00Z	27.25	0
FWYF1	2020-05-01T16:00:00Z	26.1	0	GKYF1	2020-05-01T16:00:00Z	27.35	0
FWYF1	2020-05-01T17:00:00Z	26.2	0	GKYF1	2020-05-01T17:00:00Z	27.39	0
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FWYF1	2020-05-01T19:00:00Z	26.3	0	GKYF1	2020-05-01T19:00:00Z	27.82	0
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FWYF1	2020-05-01T21:00:00Z	26.6	0	GKYF1	2020-05-01T21:00:00Z	28.11	0
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FWYF1	2020-05-02T06:00:00Z	26.2	0	GKYF1	2020-05-02T07:00:00Z	27.1	0
FWYF1	2020-05-02T07:00:00Z	26.1	0	GKYF1	2020-05-02T08:00:00Z	26.97	0
FWYF1	2020-05-02T08:00:00Z	26.1	0	GKYF1	2020-05-02T09:00:00Z	26.89	0
FWYF1	2020-05-02T09:00:00Z	26.1	0	GKYF1	2020-05-02T10:00:00Z	26.93	0
FWYF1	2020-05-02T10:00:00Z	26	0	GKYF1	2020-05-02T11:00:00Z	27.04	0
FWYF1	2020-05-02T11:00:00Z	26	0	GKYF1	2020-05-02T12:00:00Z	26.94	0
FWYF1	2020-05-02T12:00:00Z	26	0	GKYF1	2020-05-02T13:00:00Z	27.02	0
FWYF1	2020-05-02T13:00:00Z	26	0	GKYF1	2020-05-02T14:00:00Z	27.05	0
FWYF1	2020-05-02T14:00:00Z	26	0	GKYF1	2020-05-02T15:00:00Z	27.16	0
FWYF1	2020-05-02T15:00:00Z	26.2	0	GKYF1	2020-05-02T16:00:00Z	27.35	0
FWYF1	2020-05-02T16:00:00Z	26.3	0	GKYF1	2020-05-02T17:00:00Z	27.35	0



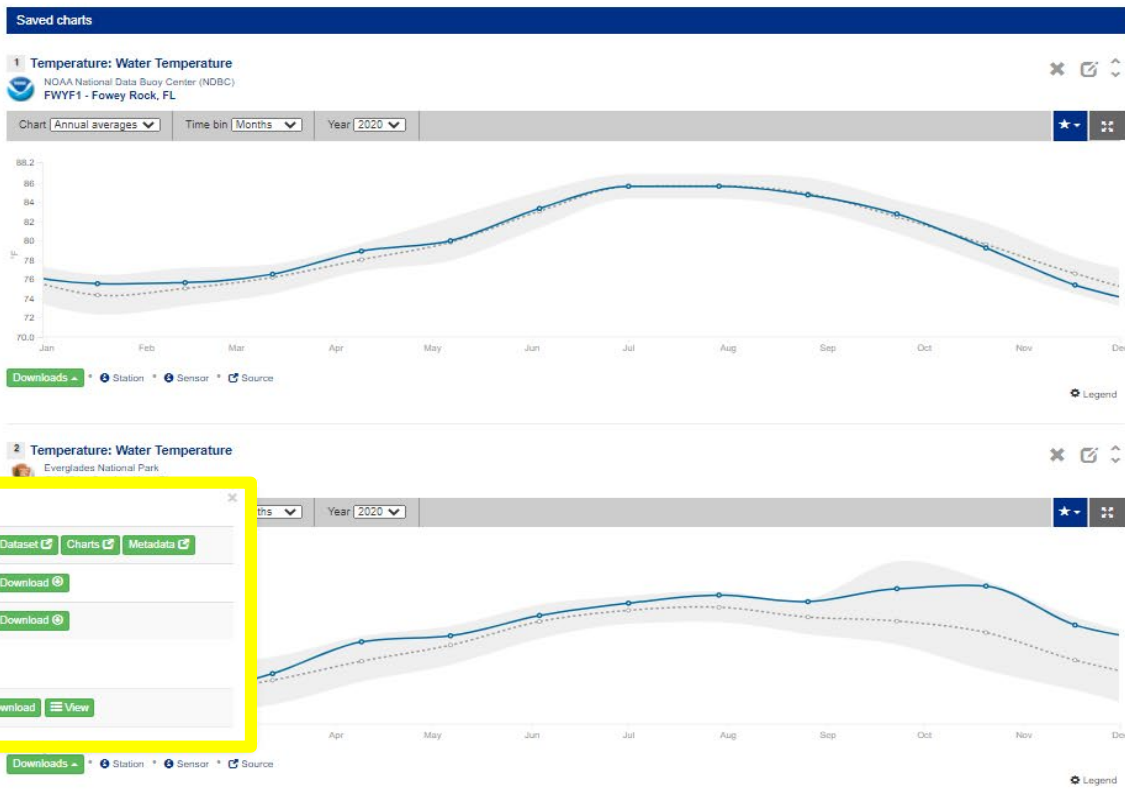
ERDDAP [Dataset](#) [Charts](#) [Metadata](#)

CSV [Download](#)

NetCDF [Download](#)

Calculated data

Binned months [Download](#) [View](#)



Direct access to data downloads

All 3,595 Data Layers 12 Project data 118 Moving platforms 3,428 Species 58

Mesoscale Eddies Release Pelagic Sharks from Thermal Constraints to Foraging in the Ocean Twilight Zone, 2014-2017

Project Overview

Deployments

Project Data (19)

Add project to map

Data files 19 files Archives 1

cut_dates_atn.csv (1.1 kB)
Braun_atn_tag_deployment_metadata.csv (7.7 kB)
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160424_2016_165928pnas_atn.csv (14.1 kB)



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Also, access to data & archive

<https://portal.atn.ioos.us>



Want more info? Interested in joining?

- BioTrack – IOOS MBON Project Site (marinebon.org)
- Neil Hammerschlag nhammerschlag@miami.edu
- Chelsea Black chelsea.black@rsmas.miami.edu



Have questions, get in touch

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Resources

portal.atn.ioos.us/help/
researchworkspace.com/help/

 Feedback

 Feedback

Feedback buttons for technical issues

****ATN SEAL OF APPROVAL****

THANK YOU !



Photo: Dan Costa