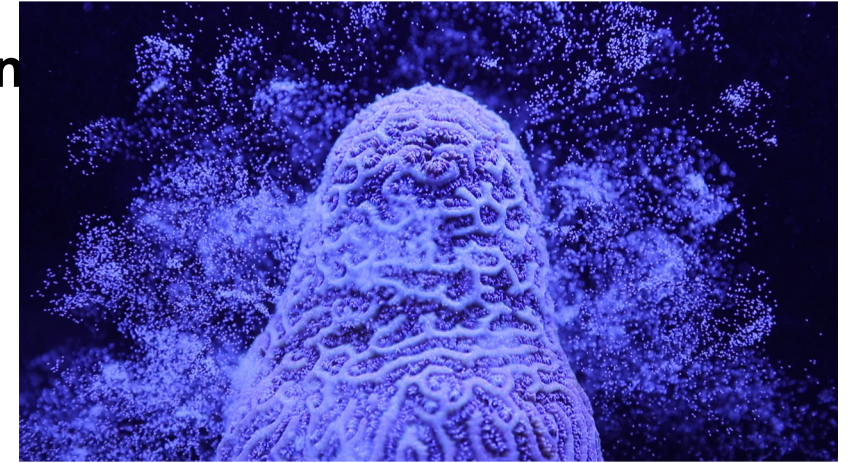


Biological data demo

Lauren Showalter,
Axiom Data Science

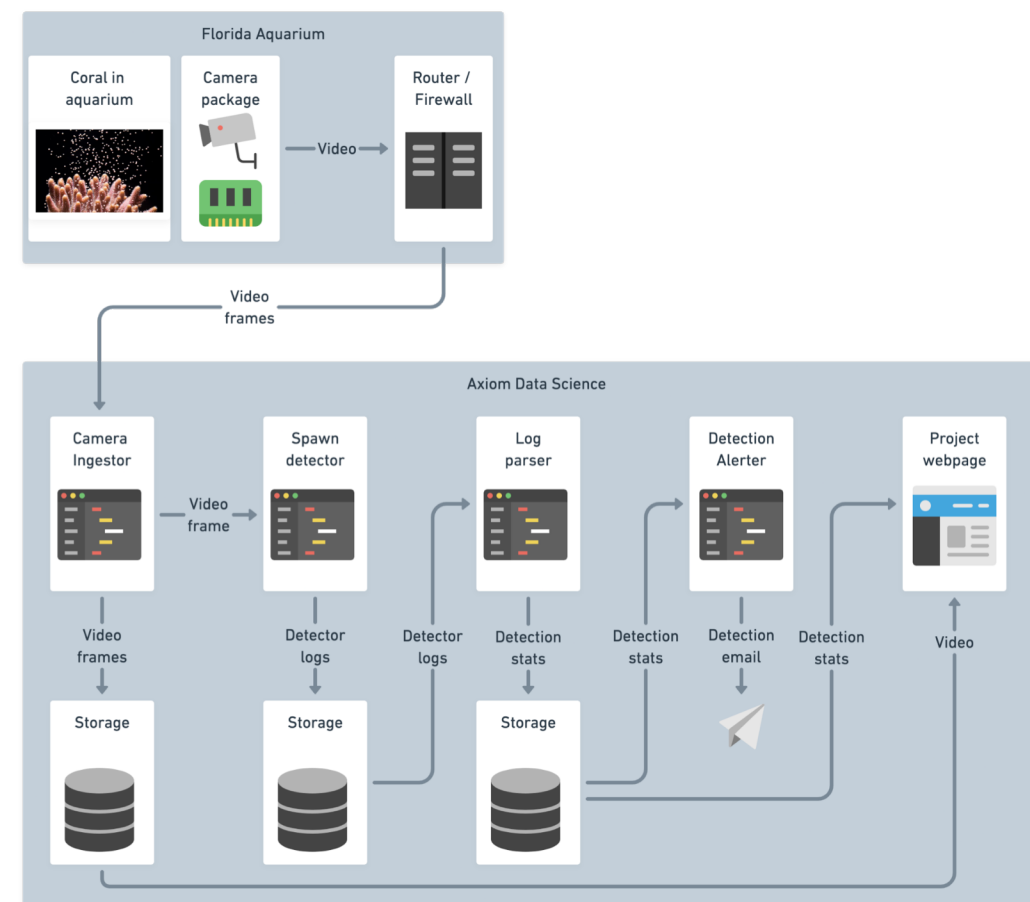
Project Goals - Coral AI

- Better understand timing and duration of spawning events
- Build camera-based coral monitoring system
- Develop method to detect when coral are spawning
- Develop pipeline to alert users of coral spawning



System Overview - Coral AI

- Ingest video over internet
- Send video frames to spawning detector
- Log spawning events
- Send alerts based on data collected from detector
- Results and video on website



Project Website and Code – Coral AI (in progress)

Florida Aquarium Coral Spawning Alert System

Project Methodology

Methodology

Purpose

FWC Coral Spawning Alerts

Sign up for FWC Coral Spawning Alerts

* Required

Email *

Your email

Name *

Your answer

Cameras of Interest *

☐ FWC Coral Cam 1

☐ Send me a copy of

Submit

Never submit passwords through GoogleForms

This

Florida Aquarium Coral Spawning Alert System

Project Methodology

An AI system for detecting coral spawning events at the Florida Aquarium.

SIGN UP FOR ALERTS MORE INFORMATION

Spawning History

Live Feed

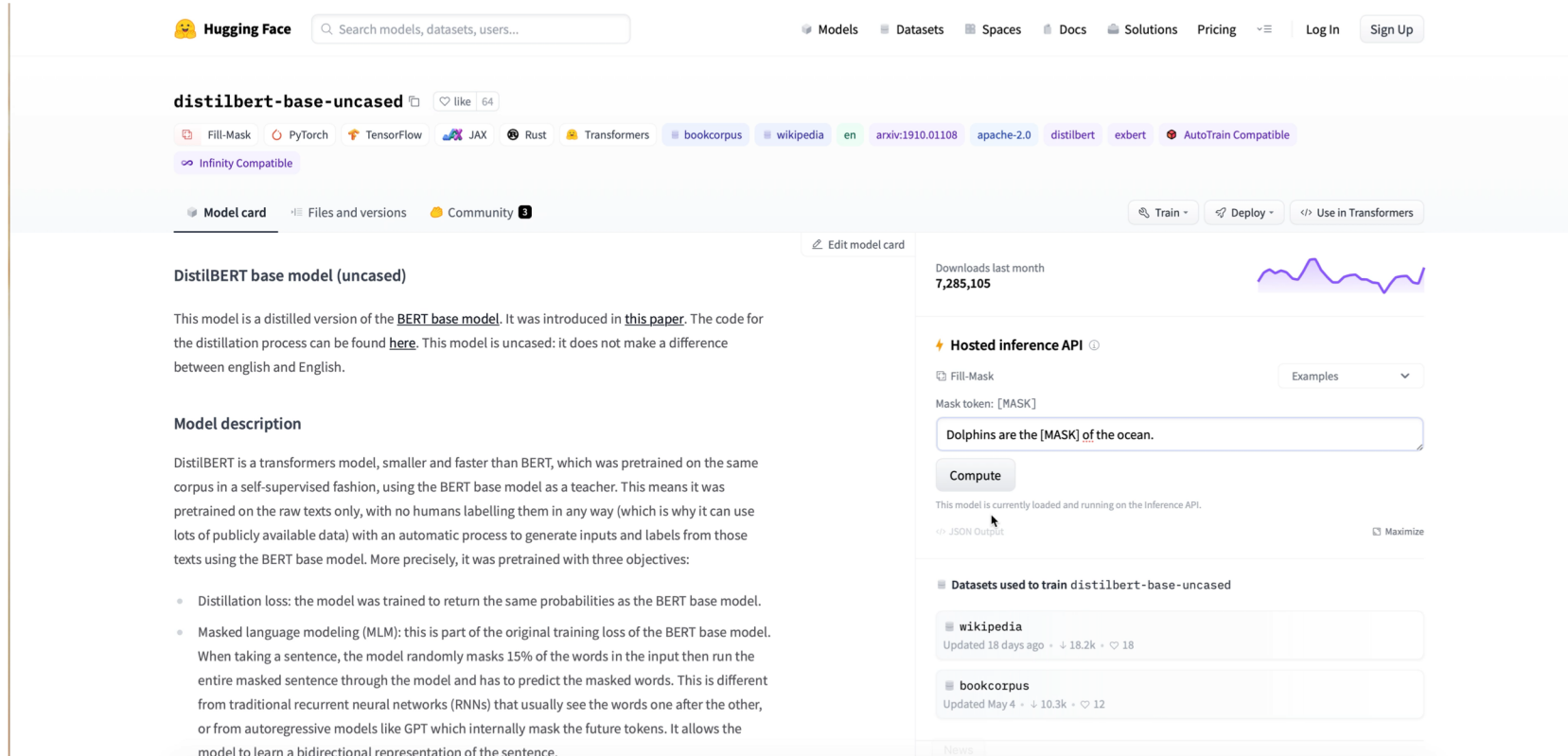
- Access to video feed, spawning history, and sign-up for alerting
- Details about implementation and links to source code
- Issues with firewall at the FL aquarium have made access to the cameras difficult
- When data is flowing
 - coral-spawning.srv.axds.co
- Source: github.com/axiom-data-science/coral-spawning-detector

Summary - Coral AI

- Spawning detector model created and served using BentoML
- Camera ingestion system created that saves video and requests for spawning to be detected
- System to collect spawning events, determine duration of events, and provide for alerting
- Project website with video feed, history of detection events, methodology, links to source code, and ability to sign up for email alerts created
- System built on open source software to facilitate reuse
- This will be a use case for the ongoing AI portal project

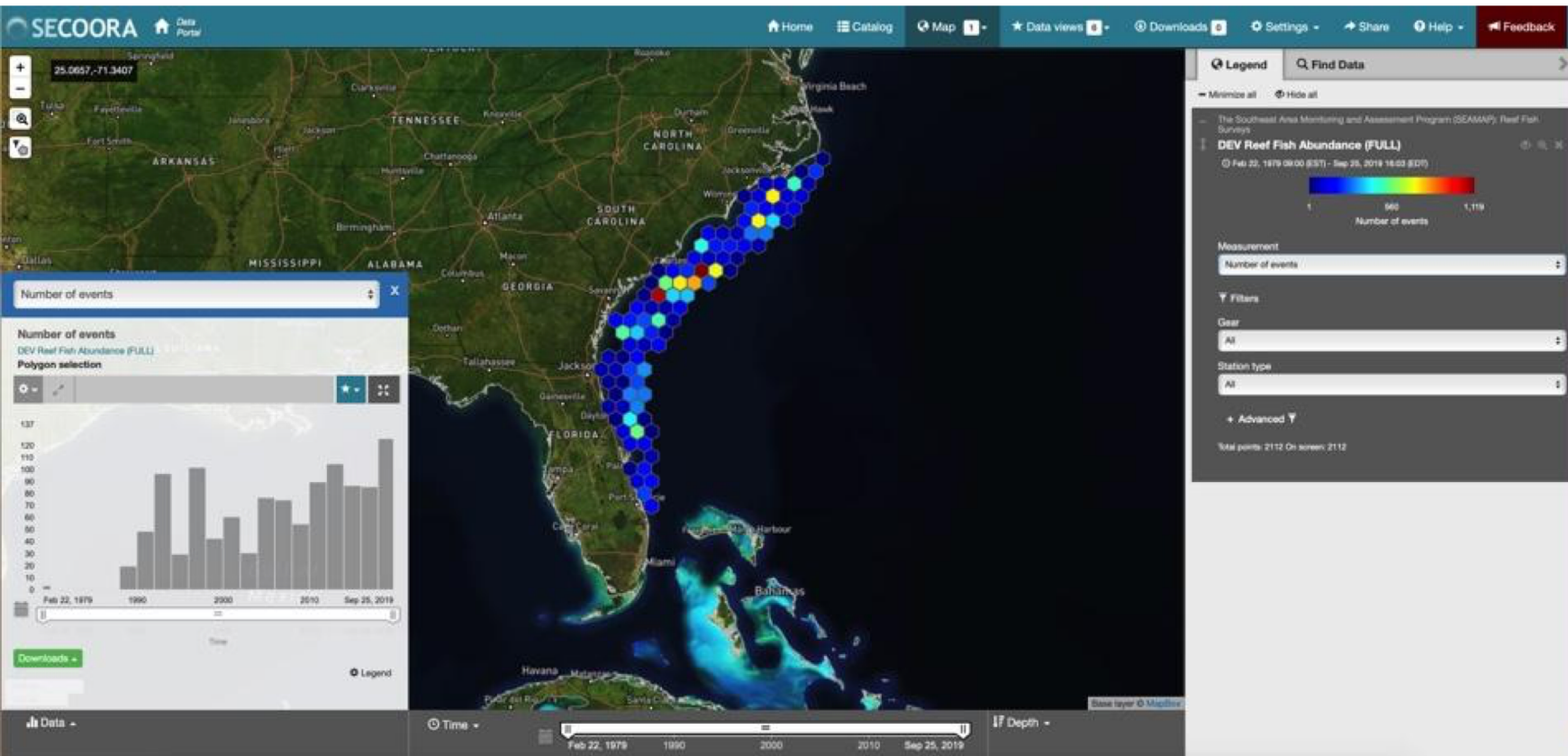
Grouper Detector

- Work with Jim Locascio on using acoustic data to feed an AI detector to detect grouper calls
- Currently have a working detector for dominate grouper calls from the initial data provided
- In Progress: organizing and incorporating more data and hoping to detect a greater variety of grouper sounds



The screenshot shows the Hugging Face interface for the **distilbert-base-uncased** model. The header includes the Hugging Face logo, a search bar, and navigation links for Models, Datasets, Spaces, Docs, Solutions, Pricing, Log In, and Sign Up. The model card for **distilbert-base-uncased** is displayed, showing it has 64 likes. Below the model name are tags for Fill-Mask, PyTorch, TensorFlow, JAX, Rust, Transformers, bookcorpus, wikipedia, en, arxiv:1910.01108, apache-2.0, distilbert, exbert, and AutoTrain Compatible. The card also indicates it is Infinity Compatible. Navigation tabs for Model card, Files and versions, and Community are visible. On the right, there are buttons for Train, Deploy, and Use in Transformers. The main content area describes the model as a distilled version of the BERT base model, introduced in a paper, and notes that it is uncased. A 'Model description' section explains that DistilBERT is a transformers model, smaller and faster than BERT, pretrained on the same corpus in a self-supervised fashion. A bulleted list details the training objectives: Distillation loss (returning the same probabilities as the BERT base model) and Masked language modeling (MLM), which involves randomly masking 15% of words in the input for prediction. On the right sidebar, a 'Hosted inference API' section shows a 'Fill-Mask' example with the input 'Dolphins are the [MASK] of the ocean.' and a 'Compute' button. Below this, a section titled 'Datasets used to train distilbert-base-uncased' lists 'wikipedia' (updated 18 days ago, 18.2k likes) and 'bookcorpus' (updated May 4, 10.3k likes).

SEAMAP



1. Support the final integration of long-term living marine resources survey data types from SEAMAP-SA into the SECOORA data portal,
2. Support the development of new data access, data exploration, and data analysis or visualization tools within the SECOORA data portal,
3. Support expansion of long-term living marine resource survey data availability in the SECOORA data portal, and
4. Assess methods for inclusion of SECOORA oceanographic data into stock assessment data inputs for managed fisheries species.

SEAMAP - work in progress

1. Expand the data tables and code tables currently in the system to add a Tagging table, additional life history data, and a Turtle table.
2. Based on user feedback, develop tools or create training for users for pre-existing tools as appropriate.
3. Create a multispecies data access product to produce the zero records for more than one species at a time.
4. Develop a reporting system on top of EAV database (developed in previous years of the project) to support user metrics, user report queries/requests and exporting or querying of data for inclusion in the visualization system.
5. Produce reports for inclusion into the SECOORA data system and change current visualization to use the new data source of the data.



Soundscapes page

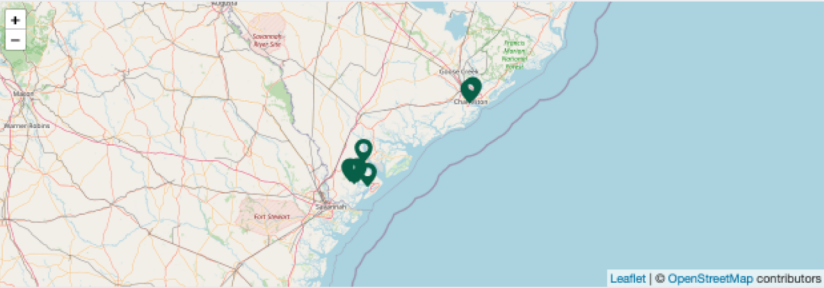
- Educational page where users can listen to estuarine sounds and get more information about various soundscape projects
- Initial build is complete, we are now incorporating feedback from the team to improve the site and add more data
- <https://sound.secoora.org>

Explore Estuarine Soundscapes

We utilize passive acoustic recorders that allow continuous and long-term sampling of the underwater soundscape. These recordings provide information on the behavior of marine life and noise levels associated with human activity.

EXPLORE SOUNDS

LEARN MORE



Search by name or AphialID

Sounds of Estuaries

Any

Family

Any

Behavior

Any

Season

Any

Time of Day

Any

American Alligator
Alligator mississippiensis

Snapping Shrimp
Genus Alpheus and Synalpheus

Right Whale
Eubalaena glacialis

Oyster Toadfish
Opsanus tau

Bottlenose Dolphin
Tursiops truncatus

Atlantic Croaker
Micropogonias undulatus

Black Drum
Pogonias cromis

Red Drum
Sciaenops ocellatus

Silver Perch
Bairdiella chrysoura

Spotted Seatrout
Cynoscion nebulosus

Weakfish
Cynoscion regalis

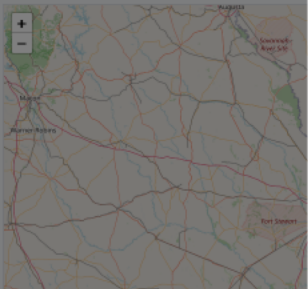


Oyster Toadfish
Opsanus tau

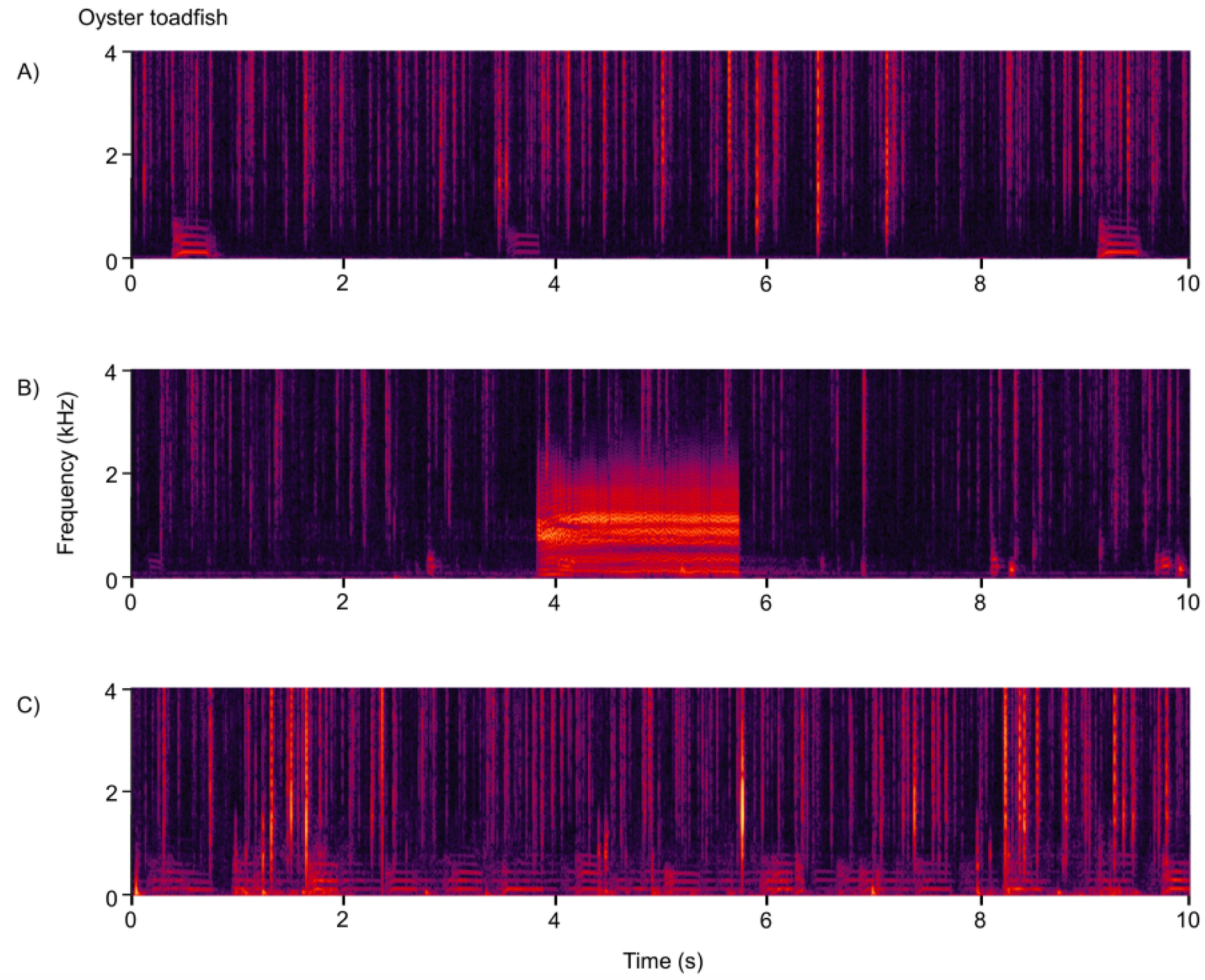
3/21/2013, 1:40:00 AM
Location: May River, South Carolina
Behavior: Calling

10/9/2018, 9:00:00 PM
Location: May River, South Carolina
Behavior: Grunt

4/2/2013, 11:00:00 AM
Location: May River, South Carolina
Behavior: Chorusing



Recording
This file is oyster toadfish calling at station 14M in the May River, SC. Recorded on March 21, 2013 at 1:40 EST.



About

Oyster Toadfish
Opsanus tau

Red Drum
Sciaenops ocellatus

CETACEAN

- The goal of this project is to develop a Gulf of Mexico platform (Compilation of Environmental, Threats, and Animal Data for Cetacean Population Health Analyses: CETACEAN) that provides user-friendly access to datasets that would assist the Trustees, restoration planners, responders, and conservation managers to assess the health of cetacean stocks and the stressors that threaten them over time and space.
- Collaboration with GCOOS, and NOAA NRDA
- First round of data ingest and visualization was to support a use case based on the needs of a restoration planner
 - Work included:
 - Marine Mammal survey data in the Gulf of Mexico
 - Marine Mammal stranding data in the Gulf of Mexico
 - various environmental layers as defined by the CETACEAN executive team and steering committee

