



GULF OF MEXICO
COASTAL OCEAN
OBSERVING SYSTEM

GCOOS

Establishing a Cooperative Hypoxic Zone Monitoring Program

The Gulf of Mexico Coastal Ocean Observing System Regional Association

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Stennis Space Center, MS
September 12, 2016

The Gulf of Mexico Coastal Ocean Observing System:
10 years of protecting and preserving the Gulf



GULF OF MEXICO
COASTAL OCEAN
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IOOS
Integrated Ocean
Observing System

Outline

- GCOOS Build Out Plan
- GCOOS Data Management and Products
 - GANDALF – glider portal
 - Hypoxia Nutrient Data Portal
 - River discharge data
- Water Quality Projects supported by GCOOS

Data Providers/Owners/Operators – NOT the GCOOS- RA

- Federal
- State
- Academic
- NGO's

GCOOS – RA- Data management into centralized portal
for all to use



The GCOOS Build Out Plan

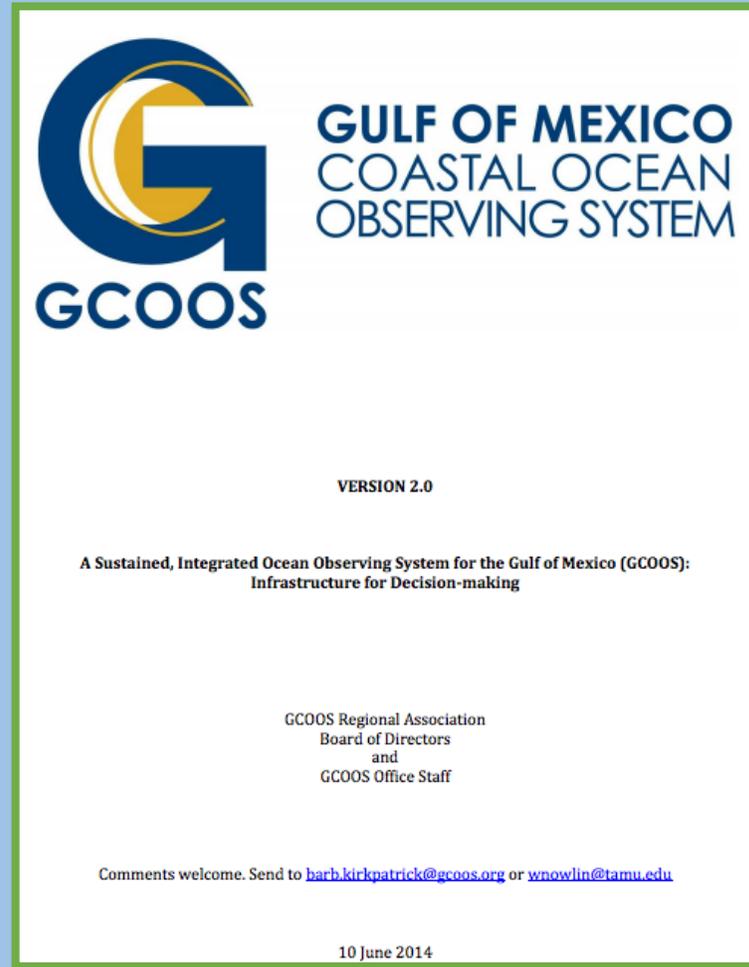


The GCOOS Build-out Plan

631
workshop
contributors

From 297
organizations

90 plans
reviewed



50 additional
contributors

19 elements
in the BOP

13 subject
matter expert
writing teams

Plan includes 19 elements to meet stakeholder needs- with cost estimates

- Surface currents and waves network
- Fixed mooring network
- Autonomous meteorological measurement network,
- Glider and AUV network
- Satellite observations and products
- Aircraft observations
- Bathymetry and topography mapping network
- Water level network
- Enhanced PORTS® network
- Outreach and Education
- Harmful Algal Bloom Integrated Observing System
- Ecosystem monitoring
- Water quality and beach quality monitoring
- Hypoxia monitoring
- Monitoring of river discharge
- Physical modeling
- Ecosystem modeling
- Data management and communications system
- Research – input into new technology development

GCOOS Data Management and Products Portals

- Real time and Historical Data

- Water Quality
- Field Cruises
- Model Forecasts
- MBON
- Sea Surface Height
- Bathymetry
- Satellite Data
- Gliders
- Fish



The screenshot displays the GCOOS website interface. At the top, the header reads "GCOOS Gulf of Mexico Coastal Ocean Observing System" with a logo on the right. Below the header is a navigation menu with dropdown arrows for "Observation", "Forecasts", "Resources", "Bathymetry", "WQ", "Oil", "Bio", and "Outreach". The main content area is a grid of 12 thumbnail images, each with a caption below it:

- Observations: A yellow research vessel on the water.
- Gliders: A yellow and black autonomous underwater vehicle (AUV) glider. This thumbnail is circled in red.
- Model Forecasts: A 3D bathymetric map of the Gulf of Mexico with a color scale from red to blue.
- Model Resources: Four small maps showing different oceanographic data.
- Bathymetry: A 3D map of the Gulf of Mexico seafloor.
- HABs: A satellite image of a red tide bloom.
- Oil and Gas: An aerial view of an offshore oil platform.
- Satellites: A satellite in orbit above the Earth.
- Fish/Mammal: A collection of various marine life species.
- Hypoxia/Nutrients: A map of the Gulf of Mexico showing hypoxic zones in green and yellow. This thumbnail is circled in red.
- River Discharge: A 3D map showing river discharge into the Gulf of Mexico. This thumbnail is circled in red.
- SeaLevel/Shoreline: A map showing sea level rise and shoreline changes.

GCOOS Data Management projects

- GANDALF: Gulf AUV Network and Data Archive Long-term Storage Facility
 - AUV plots, trajectories and feature collections
 - Binary AUV data files, text log files, encoded ARGOS messages
 - 34B sensor records for an 80 day mission
 - Will continue to support through IOOS grant

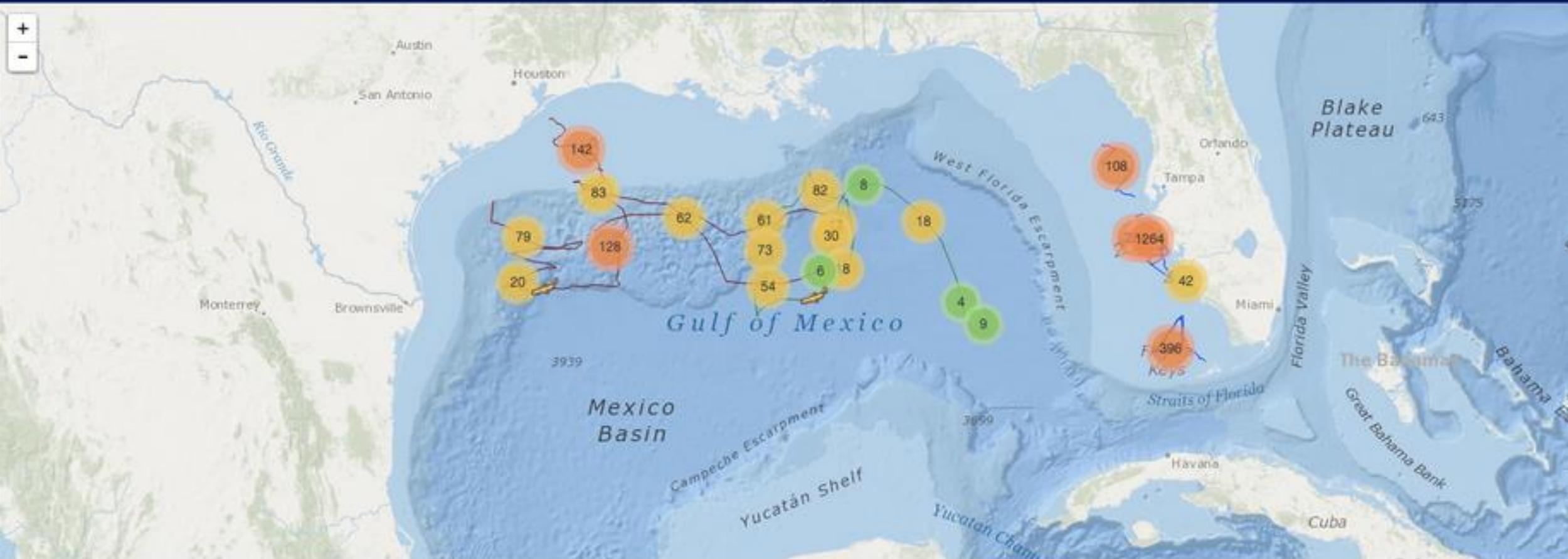
Gulf Of Mexico Coastal Ocean Observing System

Gulf AUV Network and Data Archive Long-term storage Facility (GANDALF)

[Home](#) [Summaries](#) [Deployed](#) [Help](#)

[Sign In](#)

Archived AUV Trajectories



The GCOOS-RA developed the Gulf AUV Network and Data Archive Long-term storage Facility (GANDALF) to provide data management and glider mapping/tracking assistance to glider operators in the Gulf.

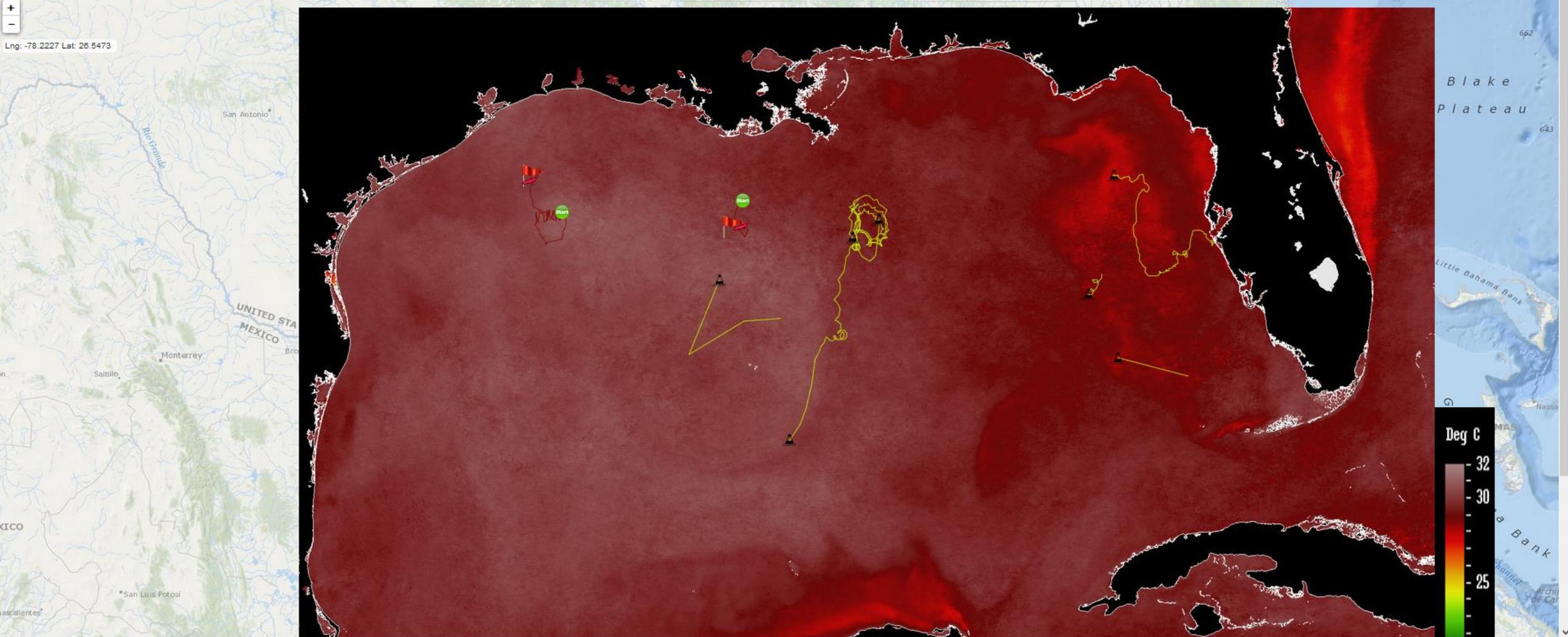
Gulf Of Mexico Coastal Ocean Observing System

GANDALF: Gulf AUV Network and Data Archiving Long-term Storage Facility

- GCOOS
- Historical Tracks
- Deployment Summaries
- Layers

Active Deployments

PI	Vehicle Name	Type	Operator	Project	Deployed	Days Wet	WP Range (m)	WP Bearing (deg)	Last Report (UTC)	Plots	KMZ
DiMarco	Howdy	Slocum G2	TAMU	GERG	2016-09-02	8	11883	269	2016-09-09 20:18:00		
DiMarco	Stommel	Slocum G2	TAMU	GERG	2016-08-05	36	10187	29	2016-09-10 12:36:18		

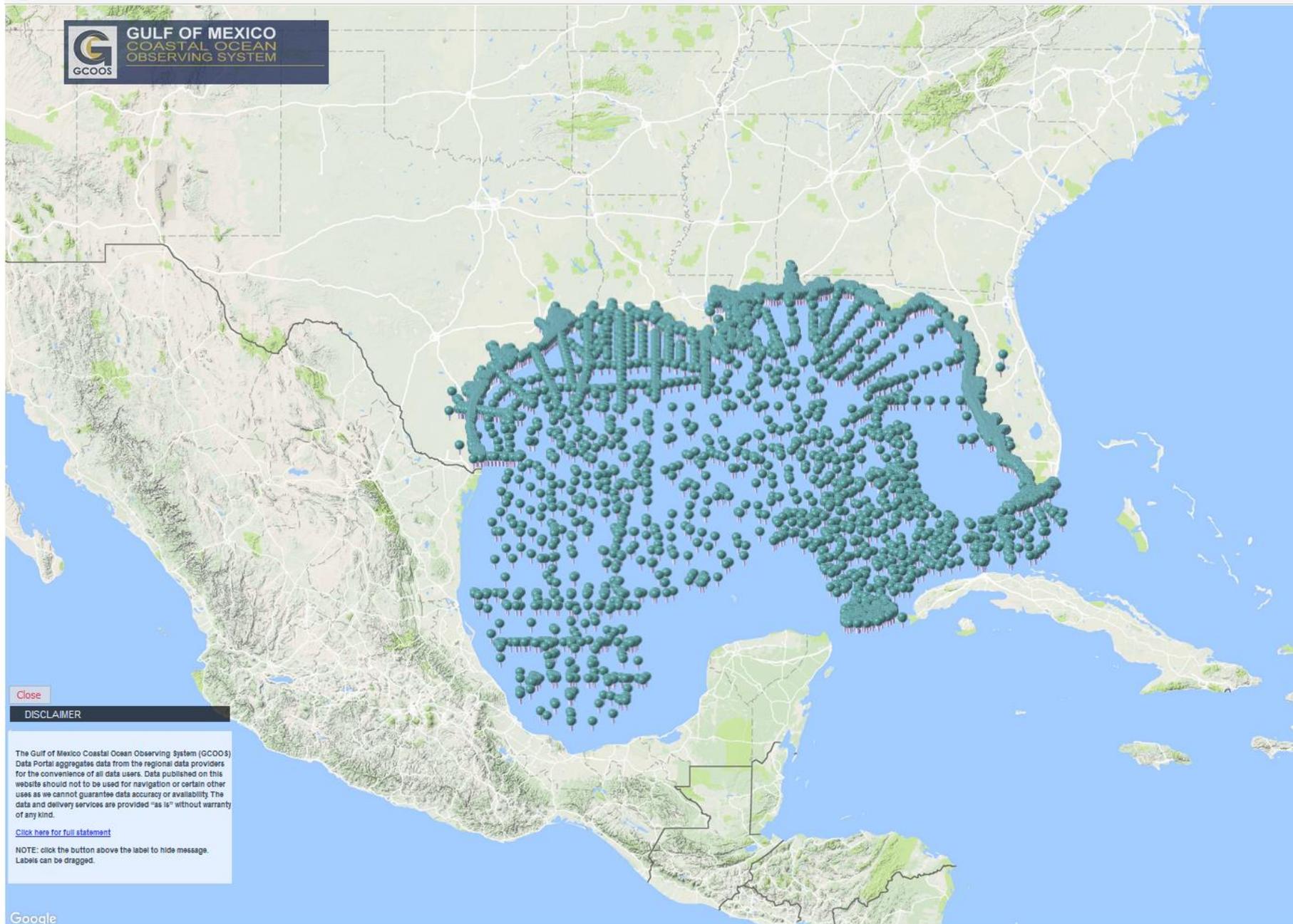


GCOOS Data Management projects

- HN-DSS: Hypoxia Nutrient Decision Support System
 - 71 organizations all with different data recording practices
 - 9 measured variables
 - 7.5M records
 - Thanks to GOMA for funding this project!
 - Will continue to support through IOOS grant



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Close

DISCLAIMER

The Gulf of Mexico Coastal Ocean Observing System (GCOOS) Data Portal aggregates data from the regional data providers for the convenience of all data users. Data published on this website should not to be used for navigation or certain other uses as we cannot guarantee data accuracy or availability. The data and delivery services are provided "as is" without warranty of any kind.

[Click here for full statement](#)

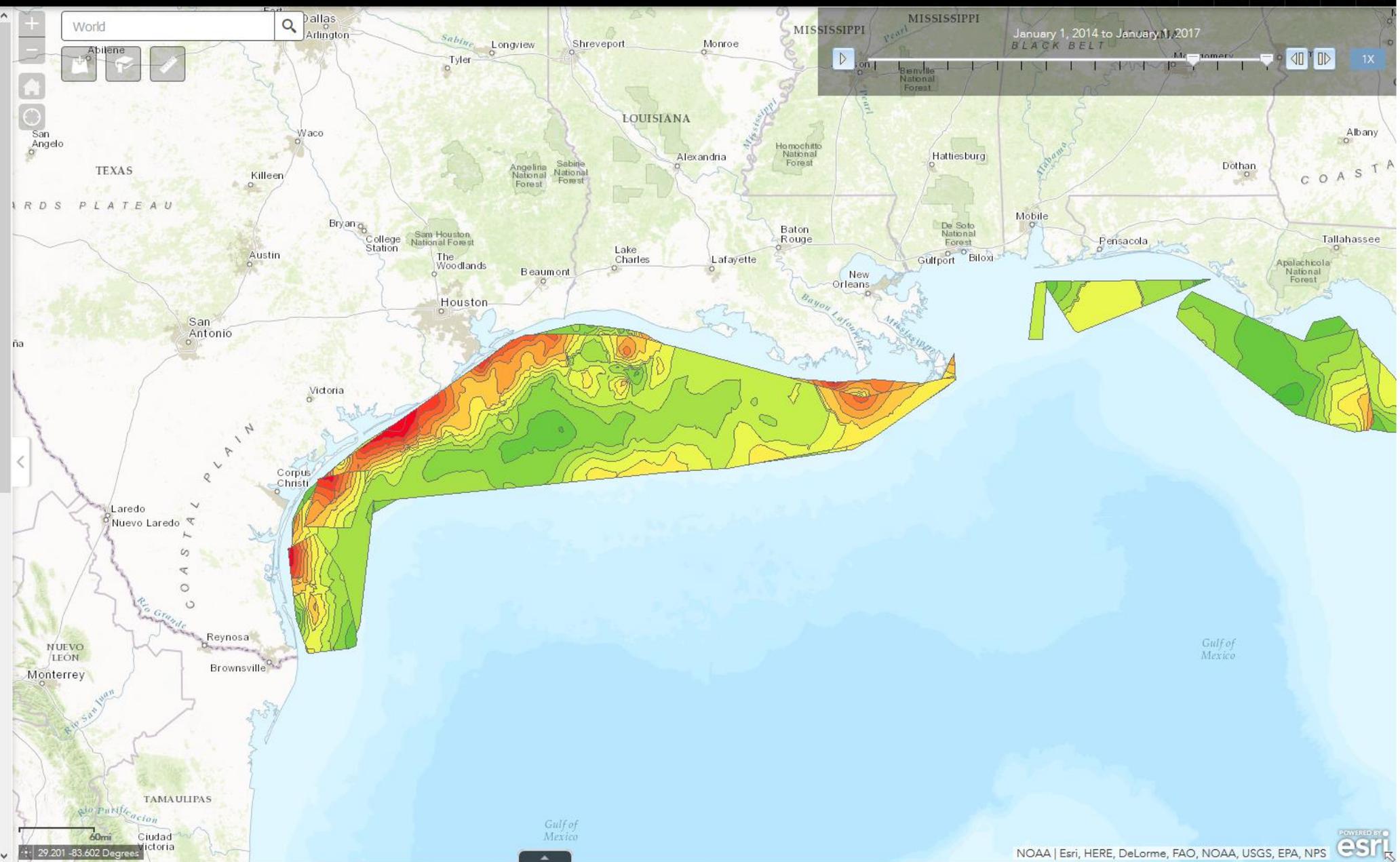
NOTE: click the button above the label to hide message. Labels can be dragged.

Hypoxia Observations 2001-2016

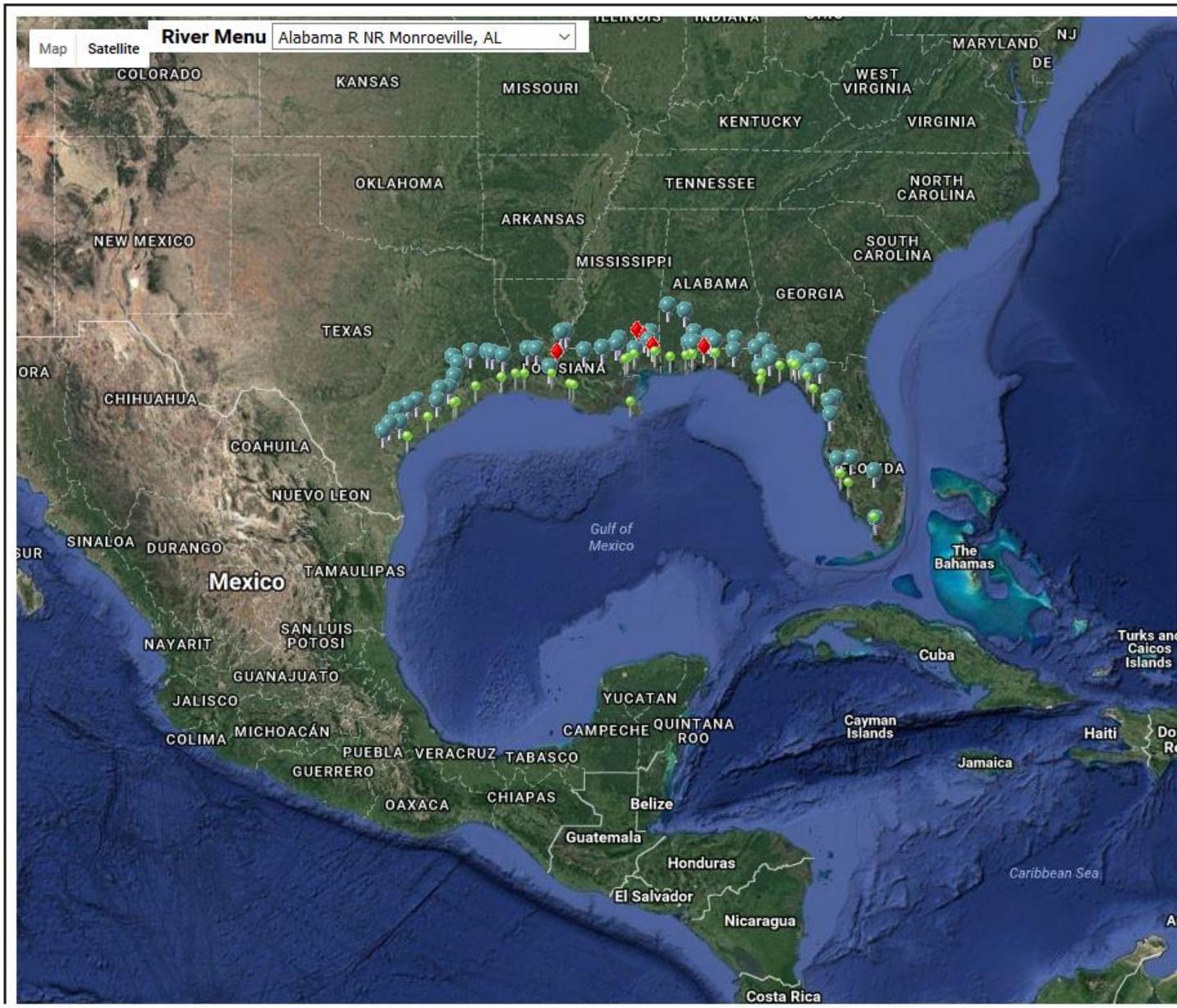
Operational Layers

- Hypoxia_Dataset
 - HypoxiaStations
 - HypoxiaContours
 - HypoxiaContours2016
- | |
|-----------|
| 0.0-0.50 |
| 0.51-1.00 |
| 1.01-1.50 |
| 1.51-2.00 |
| 2.01-2.50 |
| 2.51-3.00 |
| 3.01-3.50 |
| 3.51-4.00 |
| 4.01-4.50 |
| 4.51-5.00 |
| 5.01-5.50 |
| 5.51-6.00 |
| 6.01-6.50 |
| 6.51-7.00 |
| 7.01-7.50 |
| 7.51-8.00 |

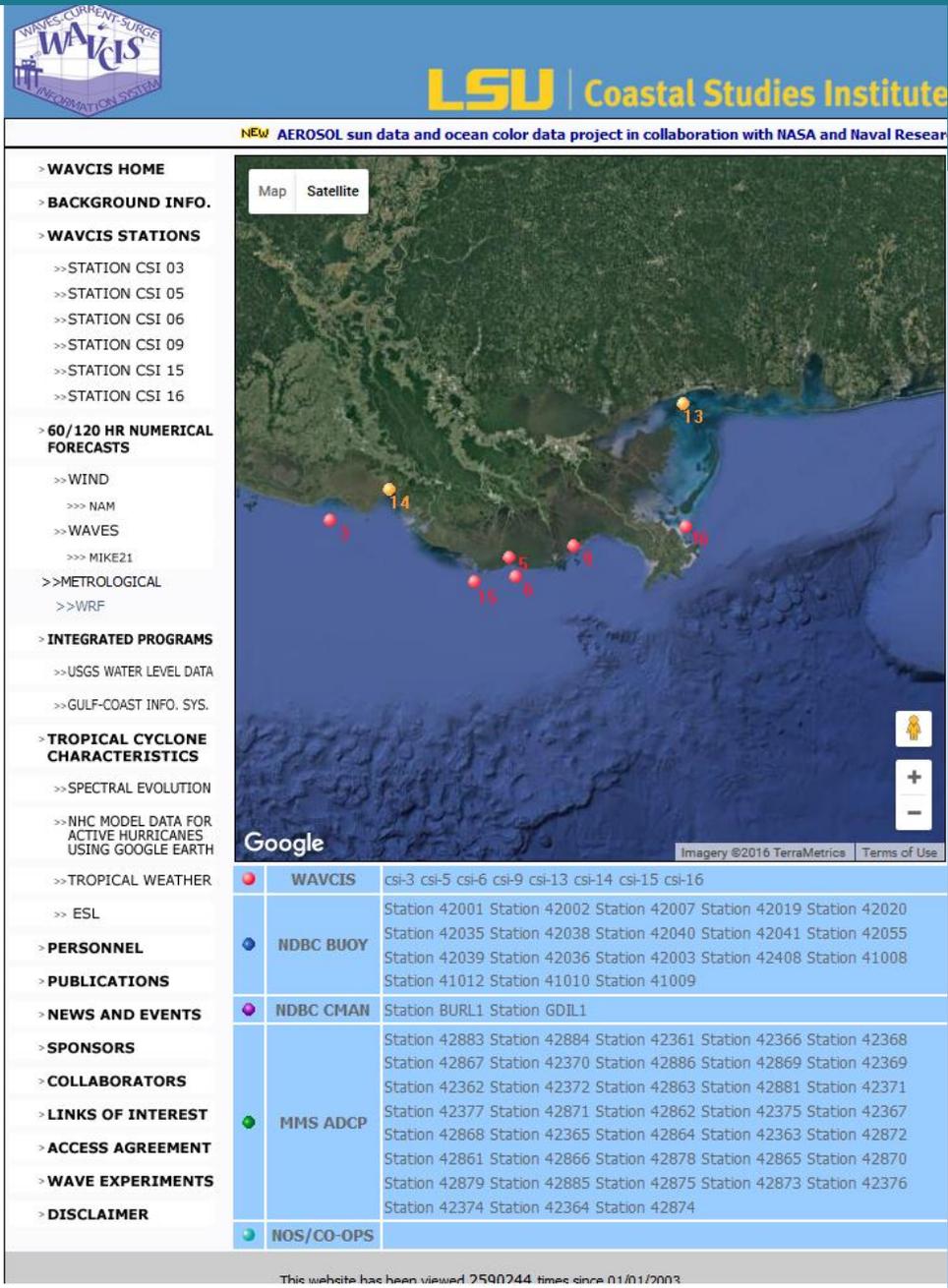
- HypoxiaContours2015
- | |
|-----------|
| 0.0-0.50 |
| 0.51-1.00 |
| 1.01-1.50 |
| 1.51-2.00 |
| 2.01-2.50 |
| 2.51-3.00 |
| 3.01-3.50 |
| 3.51-4.00 |
| 4.01-4.50 |
| 4.51-5.00 |
| 5.01-5.50 |
| 5.51-6.00 |



River Discharge Data



GCOOS Supported Water Quality Monitoring



WAVCIS WAVCIS INFORMATION SYSTEM

LSU Coastal Studies Institute

NEW AEROSOL sun data and ocean color data project in collaboration with NASA and Naval Research

- > WAVCIS HOME
- > BACKGROUND INFO.
- > WAVCIS STATIONS
 - >> STATION CSI 03
 - >> STATION CSI 05
 - >> STATION CSI 06
 - >> STATION CSI 09
 - >> STATION CSI 15
 - >> STATION CSI 16
- > 60/120 HR NUMERICAL FORECASTS
 - >> WIND
 - >>> NAM
 - >>> WAVES
 - >>> MIKE21
 - >> METROLOGICAL
 - >>> WRF
- > INTEGRATED PROGRAMS
 - >> USGS WATER LEVEL DATA
 - >> GULF-COAST INFO. SYS.
- > TROPICAL CYCLONE CHARACTERISTICS
 - >> SPECTRAL EVOLUTION
 - >> NHC MODEL DATA FOR ACTIVE HURRICANES USING GOOGLE EARTH
- >> TROPICAL WEATHER
 - >> ESL
- > PERSONNEL
- > PUBLICATIONS
- > NEWS AND EVENTS
- > SPONSORS
- > COLLABORATORS
- > LINKS OF INTEREST
- > ACCESS AGREEMENT
- > WAVE EXPERIMENTS
- > DISCLAIMER

● WAVCIS	csi-3 csi-5 csi-6 csi-9 csi-13 csi-14 csi-15 csi-16
● NDBC BUOY	Station 42001 Station 42002 Station 42007 Station 42019 Station 42020 Station 42035 Station 42038 Station 42040 Station 42041 Station 42055 Station 42039 Station 42036 Station 42003 Station 42408 Station 41008 Station 41012 Station 41010 Station 41009
● NDBC CMAN	Station BURL1 Station GDIL1
● MMS ADCP	Station 42883 Station 42884 Station 42361 Station 42366 Station 42368 Station 42867 Station 42370 Station 42886 Station 42869 Station 42369 Station 42362 Station 42372 Station 42863 Station 42881 Station 42371 Station 42377 Station 42871 Station 42862 Station 42375 Station 42367 Station 42868 Station 42365 Station 42864 Station 42363 Station 42872 Station 42861 Station 42866 Station 42878 Station 42865 Station 42870 Station 42879 Station 42885 Station 42875 Station 42873 Station 42376 Station 42374 Station 42364 Station 42874
● NOS/CO-OPS	

This website has been viewed 2590244 times since 01/01/2003

- WAVCIS – LSU
- Support from IOOS Grant 2016-2021



GCOOS Supported Water Quality Monitoring



Mobile Bay National Estuary Program

Environmental Monitoring



- Environmental Monitoring
 - Bon Secour
 - Cedar Point
 - Dauphin Island
 - Grand Bay
 - Katrina Cut
 - Meaher Park
 - Middle Bay Light
 - Perdido Pass
 - Weeks Bay
- Metadata
- Download Data
- Station Information
 - Air Monitoring Program
 - Beach Monitoring
 - GCOOS
 - Intellicast (Radar)
 - Marine Forecast
 - National Data Buoy Center
 - National Hurricane Center
 - National Weather Service
 - Rip Currents
 - Tides
 - USGS Water Data
 - Water Characterization
- MBNEP Home
 - DISL Home
 - Disclaimer
 - Contact Us

MY MOBILE BAY - LOCAL ENVIRONMENTAL CONDITIONS

Visit the Data Visualization Page

Please Click on a location to get current environmental conditions.



This website is funded in part with outer continental shelf oil and gas revenues by the Coastal Impact Assistance Program, Fish and Wildlife Service, U.S. Department of the Interior.

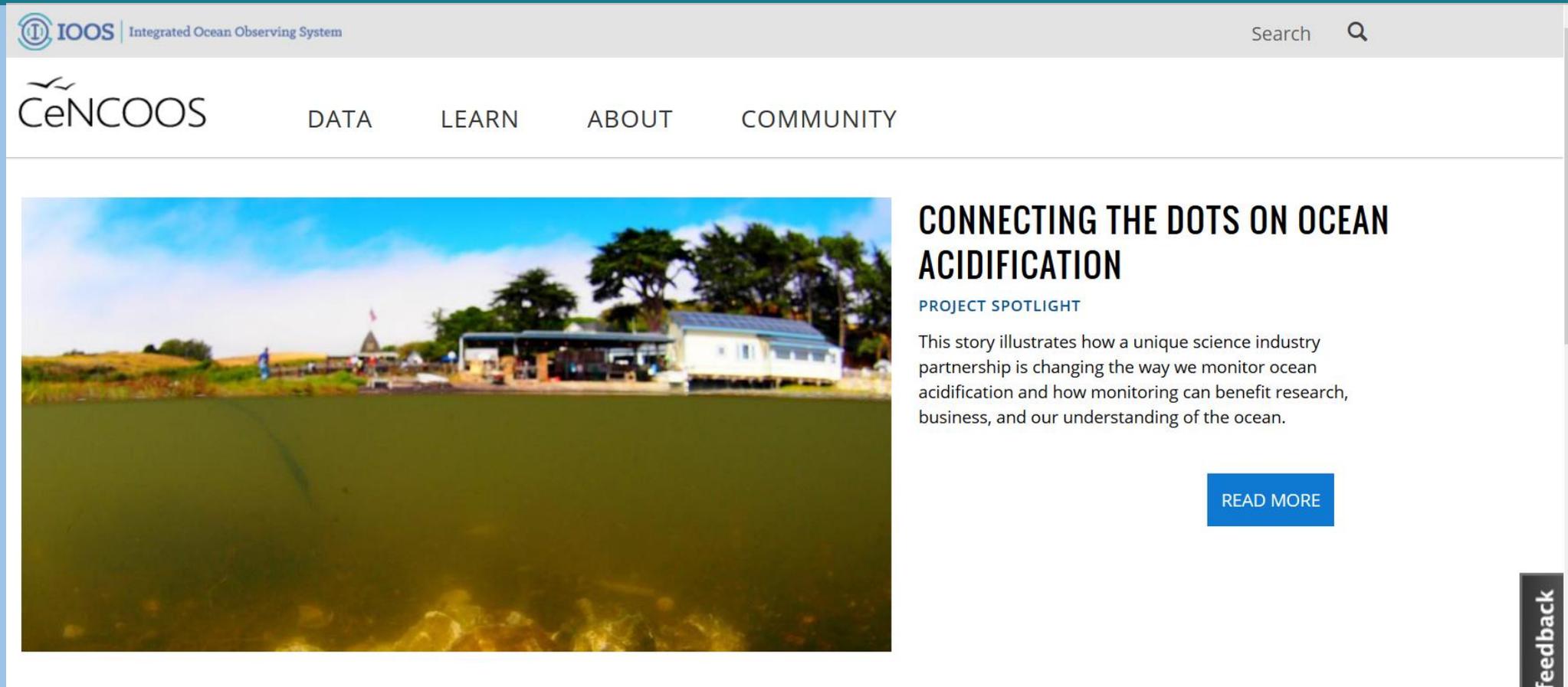
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- Support from IOOS Grant 2016-2021



GCOOS Supported Water Quality Monitoring



The screenshot shows the CeNCOOS website header with the IOOS logo and navigation links: DATA, LEARN, ABOUT, and COMMUNITY. A search bar is located in the top right. The main content area features a large photograph of a coastal facility with a white building and solar panels, situated near a body of water. To the right of the image is the article title "CONNECTING THE DOTS ON OCEAN ACIDIFICATION" and a "PROJECT SPOTLIGHT" sub-header. The article text describes a science industry partnership for ocean acidification monitoring. A "READ MORE" button is positioned below the text. A vertical "feedback" button is on the right edge of the page.

IOOS | Integrated Ocean Observing System

Search

CeNCOOS

DATA LEARN ABOUT COMMUNITY

CONNECTING THE DOTS ON OCEAN ACIDIFICATION

PROJECT SPOTLIGHT

This story illustrates how a unique science industry partnership is changing the way we monitor ocean acidification and how monitoring can benefit research, business, and our understanding of the ocean.

READ MORE

feedback

- OA Buoy- Howden
- Support from NOAA OA program

Thanks!



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