



erddap2agol

Bridging ERDDAP™ and ArcGIS Online for the Next Generation of Marine Science

IOOS DMAC Annual Meeting
Silver Springs, MD
April 30th, 2025

Jerad King, GIS Manager & Developer



- 1. Introduction to erddap2agol
- 1. New features and improvements
- 1. Use Cases

Introduction to erddap2agol

Introduction to erddap2agol

1. Publish static ERDDAP Data*

1. Create glider track datasets from the Glider DAC ERDDAP

1. Create NRT Hosted Feature Layers

- Update the NRT Datasets

** Currently limited to tabledap, dataset must have lat/lon/time*

Introduction to erddap2agol

Welcome to ERDDAP2AGOL.
GCOOS GIS, 2025.

1. Create ERDDAP Datasets
2. Create Glider DAC Datasets
3. Create NRT Items
4. Find & Update NRT Items
5. Options Menu
6. Exit & Clean Temp

: ↑↓ for history. Search history with

Page 5 of 8 | Cart: 0 datasets

41. CRCP_Coral_Demographic_Survey_USVI
42. CRCP_Fish_Towed_Survey_American_Samoa
43. CRCP_Fish_Towed_Survey_CNMI_Guam
44. CRCP_Fish_Towed_Survey_Hawaii
45. CRCP_Fish_Towed_Survey_PRIAs
46. CRCP_Invertebrates_ESACorals_Florida
47. CRCP_Invertebrates_ESACorals_Flower_Gardens
48. CRCP_Invertebrates_ESACorals_Puerto_Rico
49. CRCP_Invertebrates_ESACorals_USVI
50. CRCP_Reef_Fish_Surveys_American_Samoa

Commands:

'next', 'back', 'addAll', 'addPage', 'done', 'mainMenu', 'exit'
type 'search:keyword1+keyword2' to search datasets.

enter comma-separated indices (e.g. '10,12:15') for single or range selection.

: 44

Adding the following datasets to the next step:

Dataset ID	Dataset Title
CRCP_Fish_Towed_Survey_Hawaii	CRCP_Fish_Towed_Survey_Hawaii

Requesting headers @ https://www.ncei.noaa.gov/erddap//tabledap/CRCP_Fish_Towed_Survey_Hawaii.ncHeader?

Downloading data data for CRCP_Fish_Towed_Survey_Hawaii (Attempt: 1/3)

You are logged on as jerad.king with an administrator role, proceed with caution.

Successfully connected to ArcGIS Online

Adding item for CRCP_Fish_Towed_Survey_Hawaii to ArcGIS Online...

Attempt 1: Trying to add item with title: CRCP_Fish_Towed_Survey_Hawaii and file: CRCP_Fish_Towed_Survey_Hawaii.csv

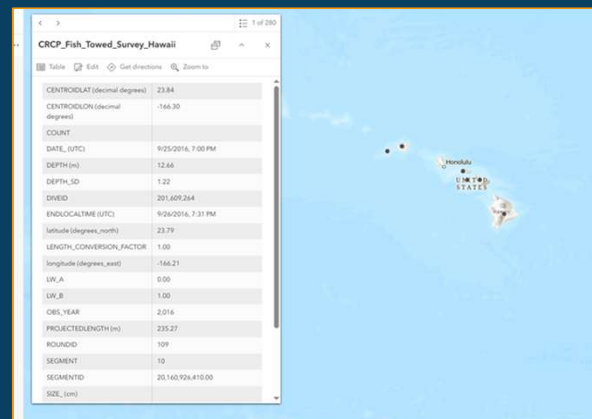
Publishing item for CRCP_Fish_Towed_Survey_Hawaii...

Finished processing dataset CRCP_Fish_Towed_Survey_Hawaii in 20.54 seconds

All done!

Processing completed for 1 datasets

Total processing time: 20.54 seconds



erddap2agol: Process Summary

1. Connect to the ERDDAP server.

1. Select the desired datasets.

1. Convert the list of dataset ids into dataset objects. Get DAS on initialization.

1. Initialize AGOL and inherit the datasets from ERDDAP.

1. Build AGOL metadata and service definition parameters.

ERDDAP -> Datasets -> AGOL

Service -> Data -> Service

```
def add_menu(menu_title:str, glider: bool = False, nrt: bool = False):
    print(f"\nWelcome to {menu_title}")

    # pass user params to erddapSelection
    erddapObj = core.erddapSelection(
        GliderServ=glider,
        nrtAdd=nrt
    )

    # create list of dataset_id str and add to erddapObj
    dataset_list = core.selectDatasetFromList(erddapObj)

    # Transforms list into dataset objects
    erddapObj.addDatasets_list(dataset_list)

    datasetObjlist = (erddapObj.datasets)

    for datasetObj in datasetObjlist:
        datasetObj.generateUrl()
        datasetObj.writeErddapData()

    agolObj = aw.AgolWrangler(erddap_obj=erddapObj)
    agolObj.datasets = erddapObj.datasets
    agolObj.makeItemProperties()

    if glider:
        agolObj.pointTableToGeojsonLine()

    agolObj.postAndPublish()
    print("\nReturning to main menu...")
    erddapObj.reset()
    cui()
```

New features and improvements



Update: Options Menu

1. Prior to posting to ArcGIS, erddap2agol will ask the user for a title for the dataset
2. Change the default sharing level
3. Enable/Disable the inclusion of generated tags
4. Change the number of records requested/posted to ArcGIS
5. Change the number of datasets displayed on each page in the CUI
6. Bypass the chunking process
7. Get all attributes

Options Menu:

1. Toggle Custom Title (currently: False)
2. Select Sharing Level (currently: ORG)
3. Toggle Enable Tags (currently: True)
4. Change Download Batch Size (default 100,000)
5. Change the number of datasets displayed
6. Toggle Bypass Chunking (currently: False)
7. Get all attributes (currently: False)
8. Save options and return to main menu

Select an option:



Update: Options Menu

Options Menu:

1. Toggle Custom Title (currently: False)
2. Select Sharing Level (currently: ORG)
3. Toggle Enable Tags (currently: False)
4. Change Download Batch Size (default 100,000)
5. Change the number of datasets displayed
6. Toggle Bypass Chunking (currently: False)
7. Get all attributes (currently: False)
8. Save options and return to main menu

Select an option:

Owner 

 jerad.king

Folder 

 jerad.king

Tags 

erddap2agol, did_ism-secoora-org_cormp_ilm3, air_pressure_at_mean_sea_level, sea_water_temperature, relative_humidity, wind_speed, longitude, latitude, wind_speed_of_gust, wind_from_direction, time, air_pressure, air_temperature, sea_water_practical_salinity, depth_reading, https://erddap.sensors.ioos.us/erddap/tabledap/

Credits (Attribution) 

Southeast Coastal Ocean Observing Regional Association (SECOORA)

URL 

https://services6.arcgis.com



Owner 

 jerad.king

Folder 

 jerad.king

Tags 

This item has no tags.

Credits (Attribution) 

Southeast Coastal Ocean Observing Regional Association (SECOORA)

URL 

https://services6.arcgis.com



Jerad King
2025

GCOOS GIS



Update: Options Menu

Fields with Get All Attributes: FALSE

1 - 14 of 14 Schema updated: Apr 21, 2025, 10:13 AM

☐ Display Name	Field Name	Type
☐ time (UTC)	time__UTC_	Date
☐ air_pressure_at_mean_sea_level (millibars)	air_pressure_at_mean_sea_lev...	String
☐ sea_water_temperature (degree_Celsius)	sea_water_temperature__deg...	Double
☐ relative_humidity (%)	relative_humidity__	Double
☐ wind_speed (m.s-1)	wind_speed__m_s_1_	Double
☐ longitude (degrees_east)	longitude__degrees_east_	Double
☐ latitude (degrees_north)	latitude__degrees_north_	Double
☐ wind_speed_of_gust (m.s-1)	wind_speed_of_gust__m_s_1_	Double
☐ wind_from_direction (degrees)	wind_from_direction__degrees_	Double
☐ air_pressure (millibars)	air_pressure__millibars_	Double
☐ air_temperature (degree_Celsius)	air_temperature__degree_Cel...	Double
☐ sea_water_practical_salinity (1e-3)	sea_water_practical_salinity__1	Double
☐ depth_reading (m)	depth_reading__m_	String
☐ Objectid	Objectid	ObjectID

Fields with Get All Attributes: TRUE

1 - 35 of 35 Schema u

☐ Display Name	Field Name	Type
☐ time (UTC)	time__UTC_	Date
☐ wind_from_direction_qc_agg	wind_from_direction_qc_agg	Integer
☐ wind_from_direction (degrees)	wind_from_direction__degrees_	Double
☐ air_pressure (millibars)	air_pressure__millibars_	Double
☐ depth_reading_qc_agg	depth_reading_qc_agg	Integer
☐ air_temperature (degree_Celsius)	air_temperature__degree_Celsius	Double
☐ air_pressure_qc_agg	air_pressure_qc_agg	Integer
☐ air_pressure_at_mean_sea_level_qc_agg	air_pressure_at_mean_sea_level_	Integer
☐ air_temperature_qc_tests	air_temperature_qc_tests	String
☐ station	station	String
☐ sea_water_practical_salinity_qc_agg	sea_water_practical_salinity_qc	Integer
☐ air_pressure_qc_tests	air_pressure_qc_tests	String
☐ wind_speed_qc_tests	wind_speed_qc_tests	String
☐ depth_reading_qc_tests	depth_reading_qc_tests	String
☐ relative_humidity (%)	relative_humidity__	Double
☐ wind_speed_of_gust (m.s-1)	wind_speed_of_gust__m_s_1_	Double
☐ air_temperature_qc_agg	air_temperature_qc_agg	Integer
☐ wind_from_direction_qc_tests	wind_from_direction_qc_tests	String
☐ wind_speed_of_gust_qc_tests	wind_speed_of_gust_qc_tests	String

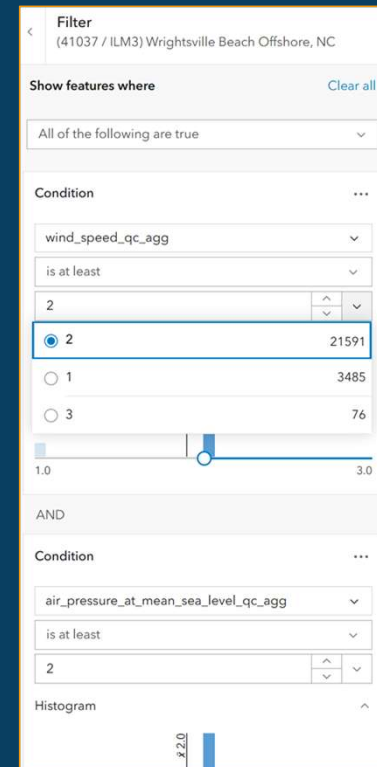


Setting Views by QARTOD

With all attributes enabled, create view layers with QARTOD attributes.

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☐ Display Name	Field Name	Type
☐ time (UTC)	time__UTC_	Date
☐ wind_from_direction_qc_agg	wind_from_direction_qc_agg	Integer
☐ wind_from_direction (degrees)	wind_from_direction__degrees_	Double
☐ air_pressure (millibars)	air_pressure__millibars_	Double
☐ depth_reading_qc_agg	depth_reading_qc_agg	Integer
☐ air_temperature (degree_Celsius)	air_temperature__degree_Celsius	Double
☐ air_pressure_qc_agg	air_pressure_qc_agg	Integer
☐ air_pressure_at_mean_sea_level_qc_agg	air_pressure_at_mean_sea_level_	Integer
☐ air_temperature_qc_tests	air_temperature_qc_tests	String
☐ station	station	String
☐ sea_water_practical_salinity_qc_agg	sea_water_practical_salinity_qc	Integer
☐ air_pressure_qc_tests	air_pressure_qc_tests	String
☐ wind_speed_qc_tests	wind_speed_qc_tests	String
☐ depth_reading_qc_tests	depth_reading_qc_tests	String
☐ relative_humidity (%)	relative_humidity__	Double
☐ wind_speed_of_gust (m.s-1)	wind_speed_of_gust__m_s_1_	Double
☐ air_temperature_qc_agg	air_temperature_qc_agg	Integer
☐ wind_from_direction_qc_tests	wind_from_direction_qc_tests	String
☐ wind_speed_of_gust_qc_tests	wind_speed_of_gust_qc_tests	String





Current WIP: griddap!

```
Welcome to ERDDAP2AGOL.  
GCOOS GIS, 2025.
```

1. Create ERDDAP Datasets
2. Create Glider DAC Datasets
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4. Find & Update NRT Items
5. Options Menu
6. Exit & Clean Temp

```
: 1  
Select Protocol:  
1.) tabledap  
2.) griddap  
: █
```

```
45. HYCOM Region 1 2D  
46. HYCOM Region 1 3D  
47. HYCOM Region 17 2D  
48. HYCOM Region 17 3D  
49. HYCOM Region 6 2D  
50. HYCOM Region 6 3D
```

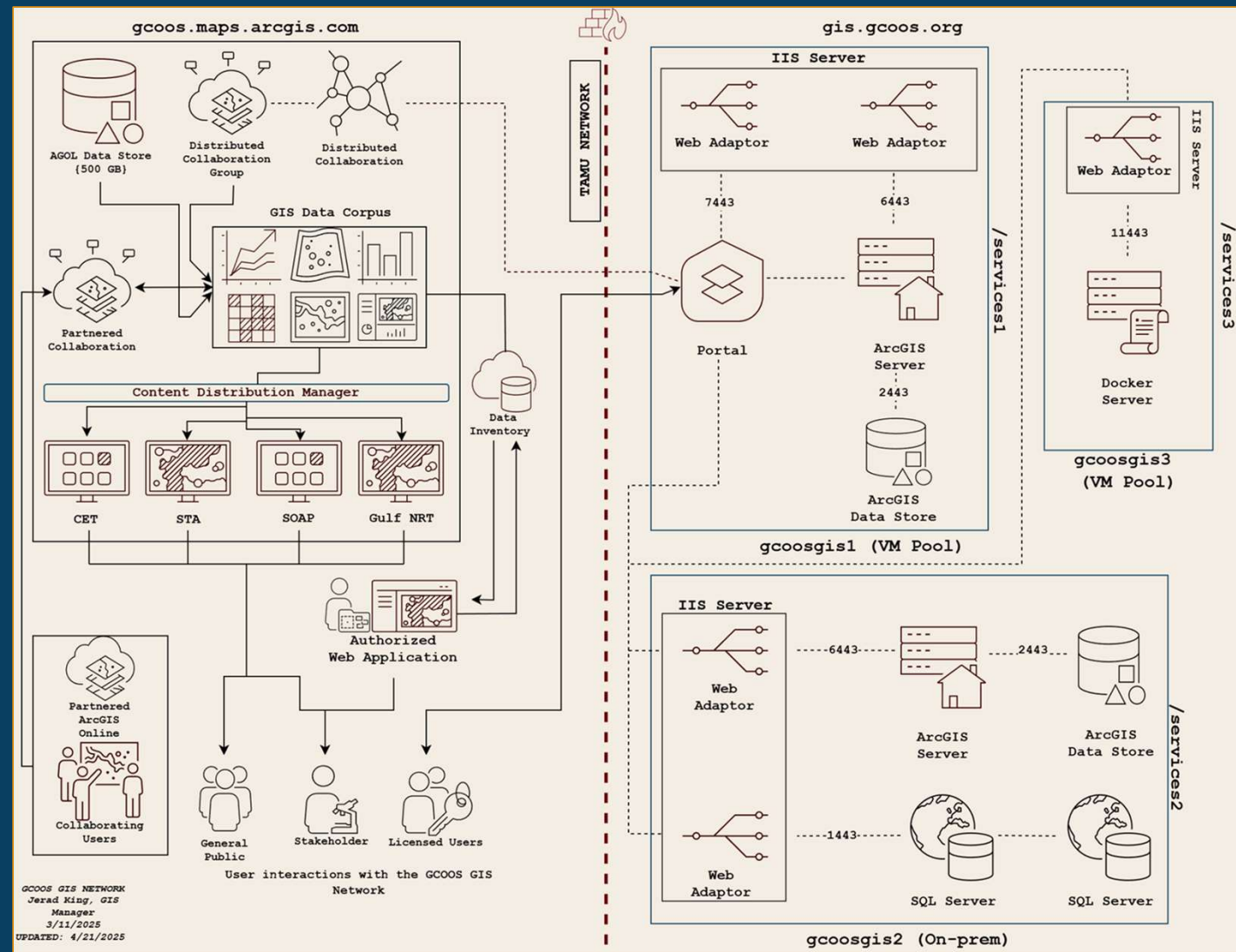
Commands:

```
'next', 'back', 'addAll', 'addPage', 'done', 'mainMenu', 'exit'  
type 'search:keyword1+keyword2' to search datasets.  
enter comma-separated indices (e.g. '10,12:15') for single or range selection.  
Specify date range with --start-date dd/mm/yyyy --end-date dd/mm/yyyy  
: 45 --start-date recent █
```

Use Cases and Regional Collaboration

- **ArcGIS Enterprise**
- **Asset Inventories**
- **Data Visualization**

- ArcGIS Enterprise is the self-deployed version of ArcGIS Online
- Comparatively, Enterprise is a more cost effective solution to expanding your GIS, the base datastore for ArcGIS Online is only 500 GB, upgrading to an M2 datastore (Faster, 2 TB)



Updates to GCOOS GIS

Page 1 of 1 | Cart: 0 datasets

1. CAGES Texas Study
2. CIGoM-CICESE Cetacean sightings
3. CREMP Dry Tortugas Yearly Revisited Stony Coral Percent Coverage
4. CREMP Florida Keys Yearly Revisited Stony Coral Percent Coverage
5. East Flower Garden Banks Benthic_Covage Monitoring 1989-2017 - DATA
6. East Flower Garden Banks Fish Monitoring 2009-2017 - DATA
7. East Flower Garden Banks Physical Monitoring 1990-2019
8. Juvenile Sportfish Monitoring in Florida Bay, Everglades National Park, DATA 2004
9. Juvenile Sportfish Monitoring in Florida Bay, Everglades National Park, DATA 2005
10. Juvenile Sportfish Monitoring in Florida Bay, Everglades National Park, DATA 2006
11. Juvenile Sportfish Monitoring in Florida Bay, Everglades National Park, DATA 2007
12. Juvenile Sportfish Monitoring in Florida Bay, Everglades National Park, DATA 2008
13. Juvenile Sportfish Monitoring in Florida Bay, Everglades National Park, DATA 2009
14. Juvenile Sportfish Monitoring in Florida Bay, Everglades National Park, DATA 2010
15. Juvenile Sportfish Monitoring in Florida Bay, Everglades National Park, DATA 2011
16. Juvenile Sportfish Monitoring in Florida Bay, Everglades National Park, DATA 2012
17. Juvenile Sportfish Monitoring in Florida Bay, Everglades National Park, DATA 2013
18. Juvenile Sportfish Monitoring in Florida Bay, Everglades National Park, DATA 2014
19. Juvenile Sportfish Monitoring in Florida Bay, Everglades National Park, DATA 2015
20. Juvenile Sportfish Monitoring in Florida Bay, Everglades National Park, DATA 2016
21. LA MBON Benthic Core Samples 2023
22. Pacific Life Cetacean (2019-2024)
23. Phytoplankton Concentration by Class - Surfside, TX
24. Stetson Flower Garden Banks Benthic_Covage Monitoring 1993-2018 - DATA
25. Stetson Flower Garden Banks Fish Monitoring 2010-2013 - DATA
26. Stetson Flower Garden Banks Physical Monitoring 1993-2018
27. West Flower Garden Banks Benthic_Covage Monitoring 1989-2017 - DATA
28. West Flower Garden Banks Fish Monitoring 2009-2017 - DATA
29. West Flower Garden Banks Physical Monitoring 1990-2018

Commands:

```
'next', 'back', 'addAll', 'addPage', 'done', 'mainMenu', 'exit'
type 'search:keyword1+keyword2' to search datasets.
enter comma-separated indices (e.g. '10,12:15') for single or range selection.
```

:



CETACEAN

Sea Turtle Atlas

GCOOS News

GCOOS GIS: Online

GCOOS ERDDAP: Biological and Socioeconomics

Feature Layer CAGES Texas Study	Feature Layer CREMP Dry Tortugas Yearly Revis...	Feature Layer CREMP Florida Keys Yearly Revisi...	Feature Layer East Flower Garden Banks Benth...
Feature Layer East Flower Garden Banks Fish M...	Feature Layer East Flower Garden Banks Physic...	Feature Layer Juvenile Sportfish Monitoring in F...	Feature Layer Juvenile Sportfish Monitoring in F...
Feature Layer Juvenile Sportfish Monitoring in F...	Feature Layer Juvenile Sportfish Monitoring in F...	Feature Layer Juvenile Sportfish Monitoring in F...	Feature Layer Juvenile Sportfish Monitoring in F...
Feature Layer Juvenile Sportfish Monitoring in F...	Feature Layer Juvenile Sportfish Monitoring in F...	Feature Layer Juvenile Sportfish Monitoring in F...	Feature Layer Juvenile Sportfish Monitoring in F...

View gallery

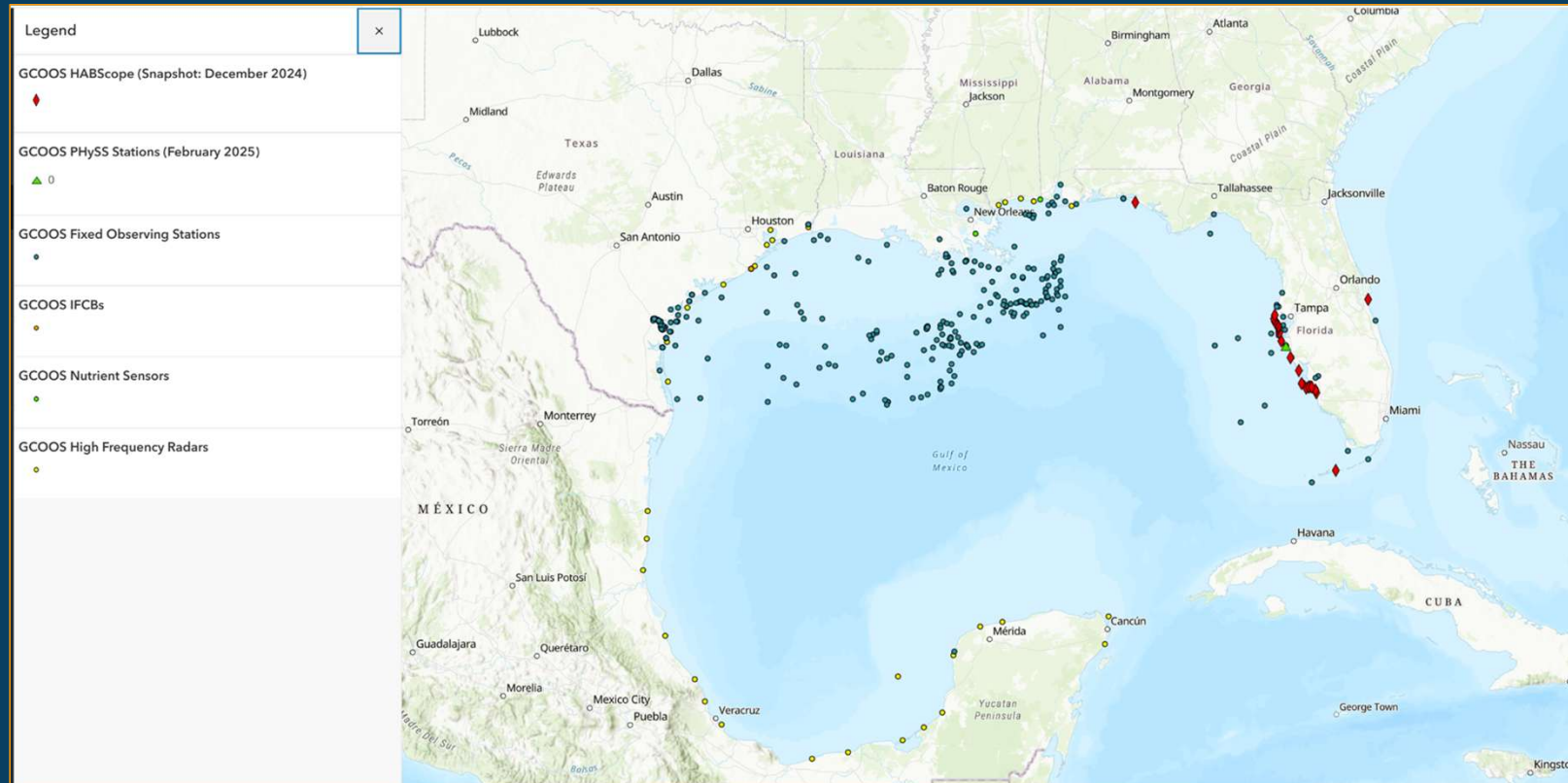
Data available on gis.gcoos.org.

**Disable subsetting when adding data to an ArcGIS Portal*

GIS Collaboration with Regional Associations

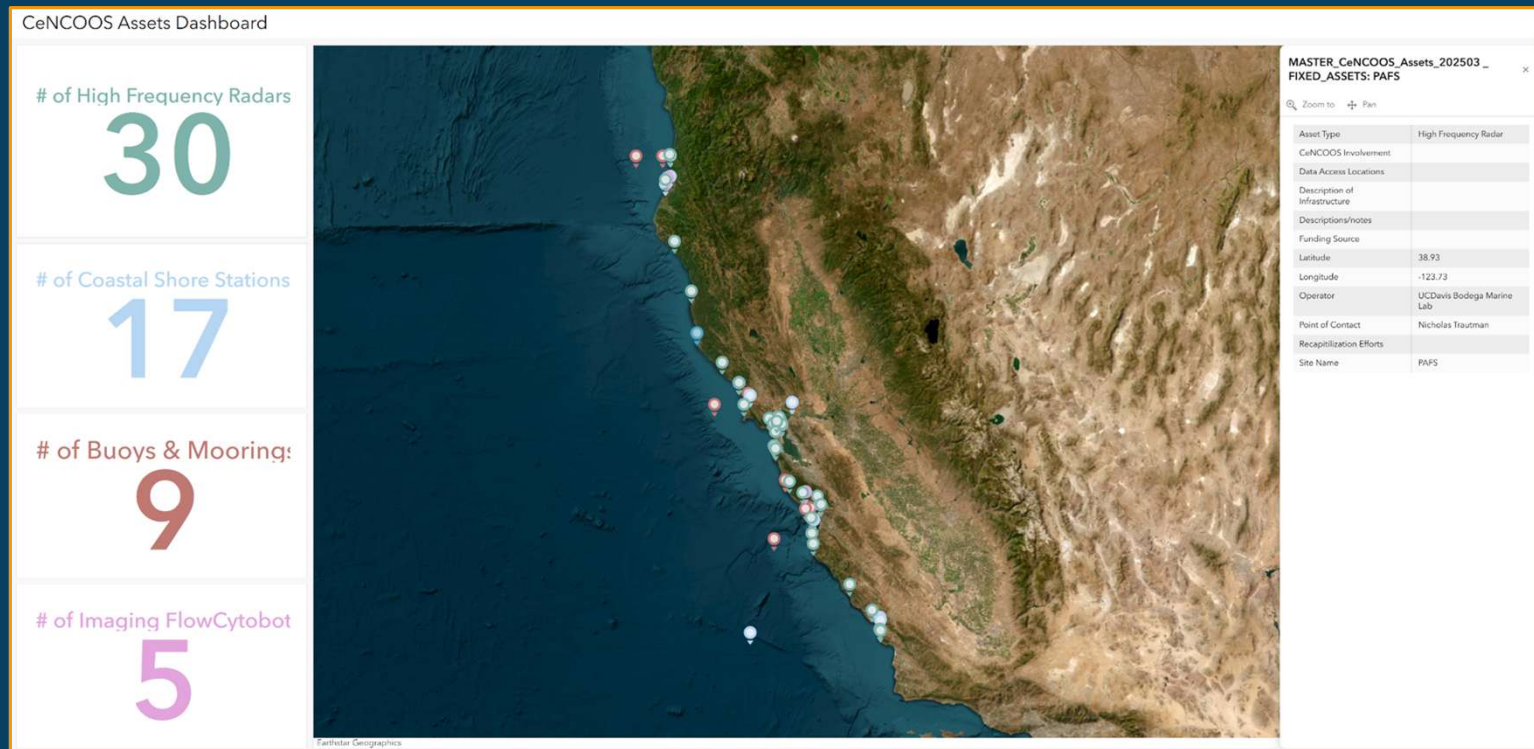
With Examples from Marine Lebrez, CeNCOOS

GCOOS: Asset Visualization



Visualization of GCOOS Assets via erddap2agol.

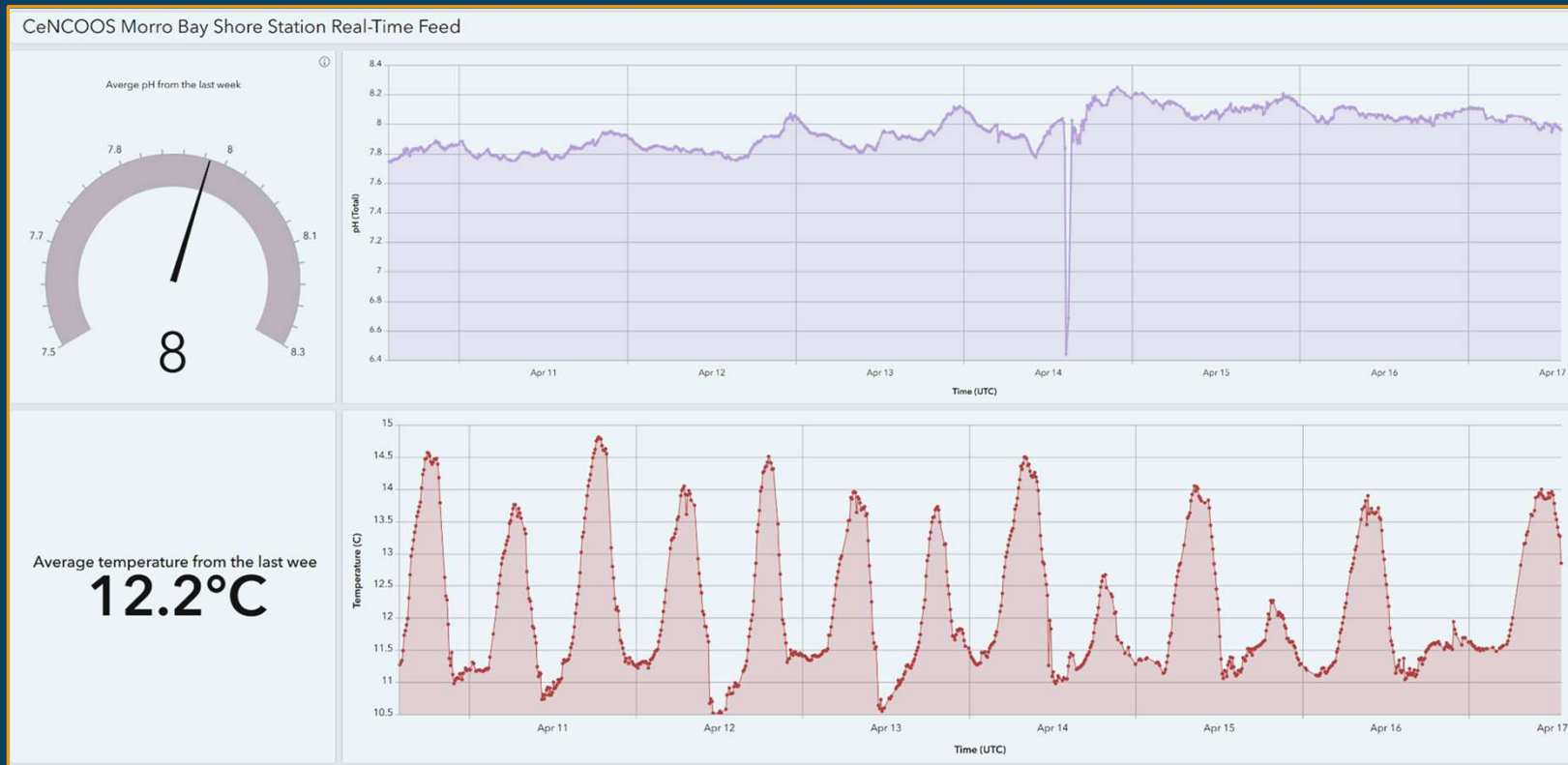
CeNCOOS: Asset Visualization



Visualization of CeNCOOS Assets.

<https://mbari.maps.arcgis.com/apps/dashboards/98ba4eace04f4048b722fa2cbccbf78>

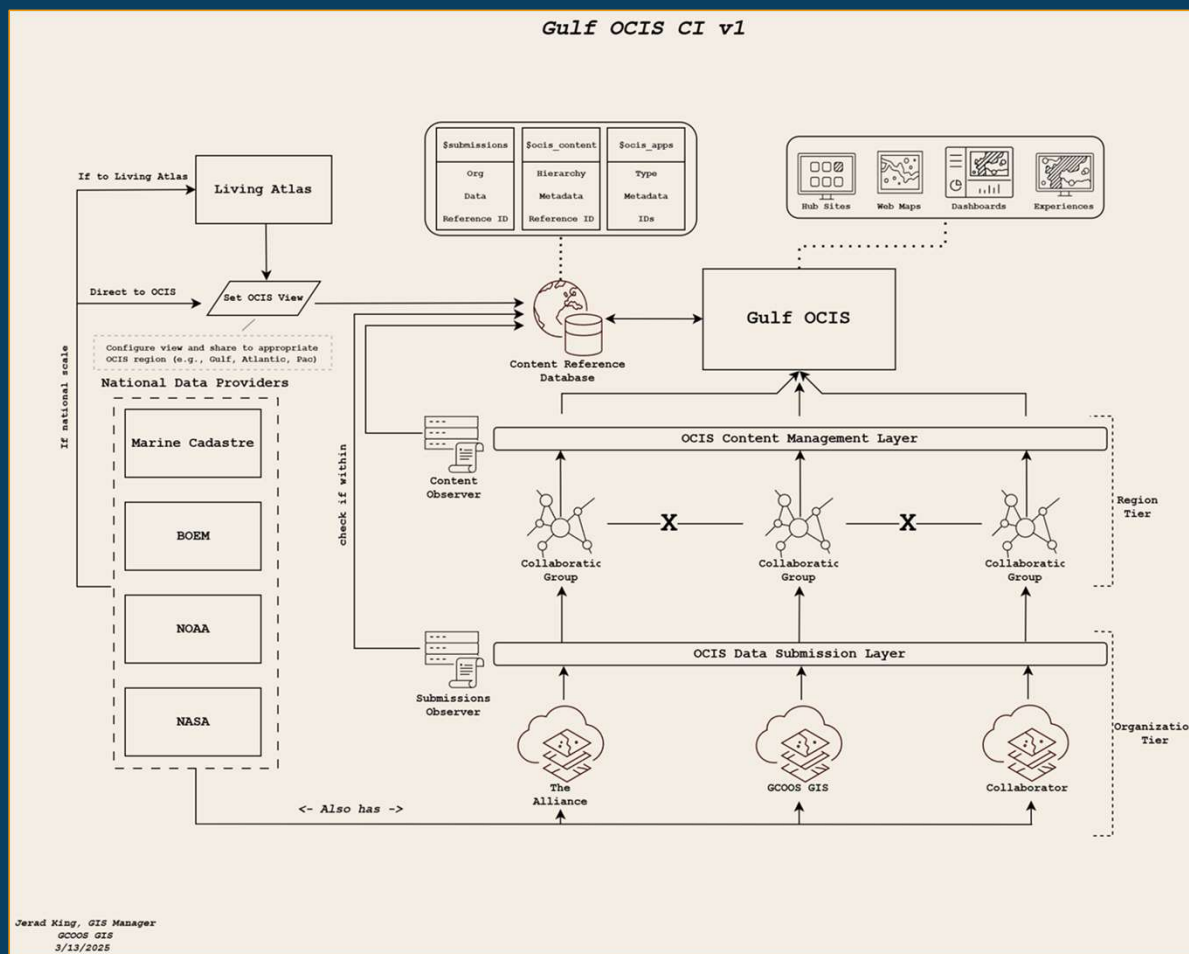
CeNCOOS: erddap2agol Powered Data Feed



Weekly update of water quality station data: mobile accessible!

<https://doos.maps.arcgis.com/apps/dashboards/b9dcf3436cc24a77b9180ac4bbd38848>

Big Picture: Connecting Everything with the OCIS



- A WIP collaborative framework for sharing data across organizations to serve from a central point.
- Distributed management of content.
- The more organizations participate and contribute to the OCIS, the more resilient our data holdings are.
- Tools like erddap2agol will work in concert with "observers" to track and distribute content.

Contact Information and Resources



Contact Information

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<https://www.linkedin.com/in/jeradkinggeo>

Access GCOOS Resources

Homepage: gcoos.org

GCOOS GIS: gis.gcoos.org

Data Portal: data.gcoos.org

CETACEAN: cetacean.gcoos.org

GCOOS AGOL: gcoos.maps.arcgis.com

erddap2agol: github.com/GCOOS/erddap2agol