

# The National Estuarine Research Reserve System (NERRS) System-Wide Monitoring Program (SMWP): How to Access and Utilize Our Coastal Monitoring Data

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&  
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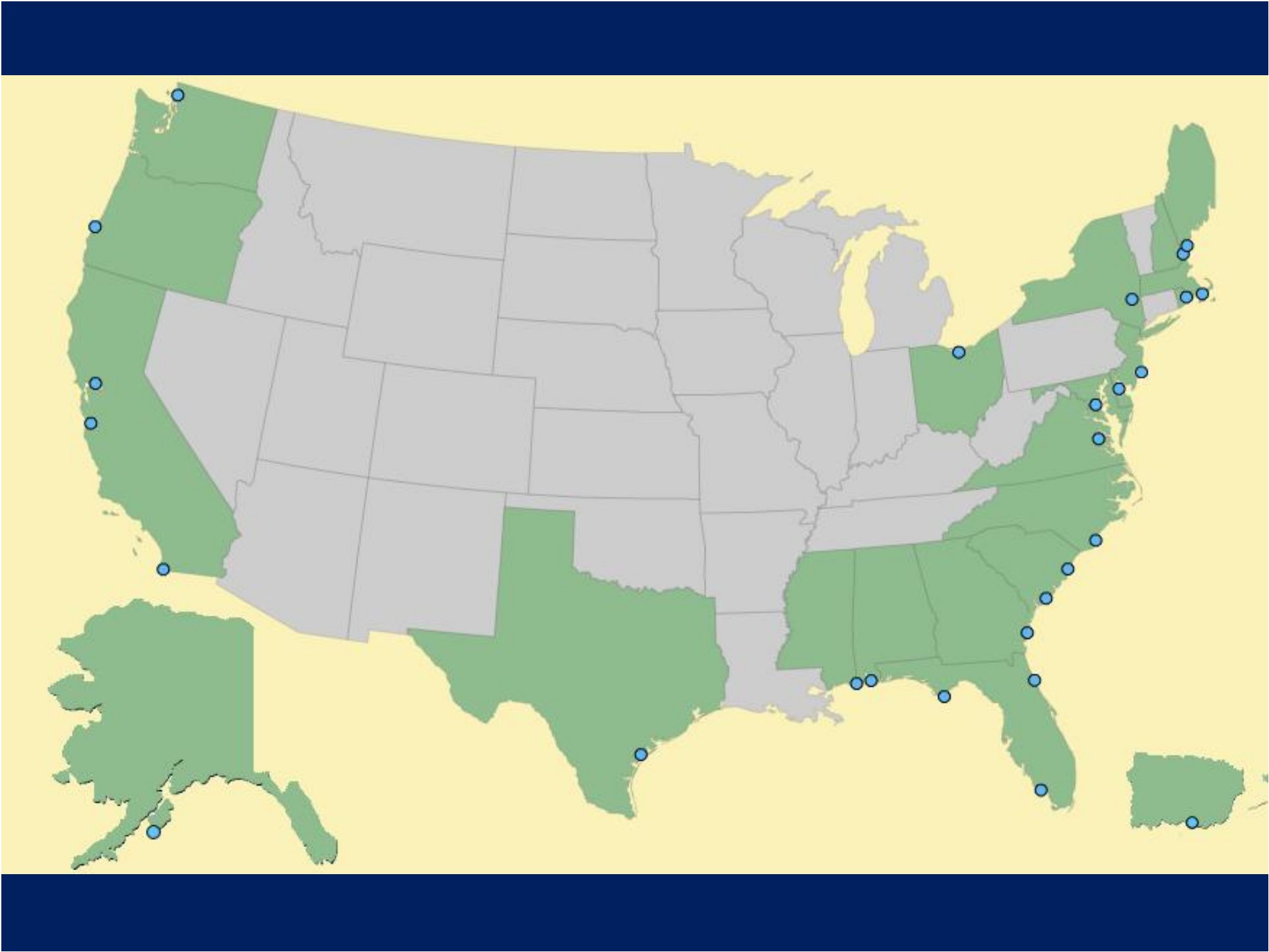
# Three Parts

- SWMP stations
- How to access and download data
- Some examples

# Part 1: SWMP Stations

# Part 1: System-Wide Monitoring Program

- Minimum 4 WQ and 1 MET station per reserve
- Same methods at all 27 Reserves
- Water, Weather, Nutrients



# Monitoring Stations at JCNERR

- Four Water Quality (WQ) stations in Mullica River/Great Bay
- One Meteorological (MET) station at Nacote Creek (Stockton Marine Field Station)
- Nutrient (NUT) sampling occurs at the water stations + USCG Marker 115 in Little Egg Harbor



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# Water Quality Station (WQ)



# Water Quality Station (WQ)

JACNEWQ Sutron box,  
Yaggi antenna & solar panel

JACNEWQ datalogger





# Meteorological Station (MET)



# SWMP Standard Operating Procedures

- Instruments retrieved, downloaded, and recalibrated monthly
  - Downloaded data are uploaded to CDMO
  - Two WQ and one MET station are telemetered and transmit hourly
- “Provisional Plus” datasets are submitted quarterly (or more frequently\*)

Nutrient Sampling (NUT) is a little different...



## SWMP SOP's (continued)

- Authenticated datasets and metadata reports are submitted annually
  - Approximately 3 months after end-date
- Data are available at [nerrsdata.org](http://nerrsdata.org)

# Types of Data Recorded

- **WQ:** Temperature, Specific Conductivity, Salinity, Dissolved Oxygen, Depth, pH, and Turbidity.
- **MET:** Temperature, Humidity, Atmospheric Pressure, Wind Speed, Wind Direction, Precipitation, sunlight intensity (PAR)
- **NUT:** Orthophosphate, Nitrate, Nitrite, Ammonium, Dissolved Inorganic Nitrogen, Chlorophyll

# **Part 2: How to Access SWMP Data**

(open-access for all!)



# www.nerrsdata.org

## 1. Data Export System

- browse, plot, query, and download data station-by-station

## 2. Advanced Query System (AQS)

- merge data from multiple stations within/among reserves

## 3. Real Time Data Application

- bookmarkable webpages for individual stations

# Nerrsdata.org welcome screen



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View / Download Data



View / Download Data

Real Time Monitoring Data

Choose Reserve...  
Elkhorn Slough 11/29/11 12:45 PM



Air Temperature: 13.6 °C (56 °F)  
Water Temperature: null °C (52 °F)  
Wind Speed: 2.9 m/Sec (06 mph)  
Salinity: null PPT

CDMO News

We have launched our new Real Time Application for displaying near real time data. To view real time data, gauges, and graphs [click here](#).

The CDMO's **Advanced Query System** specializes in delivering large amounts of data and complex queries in a single download. To use this new system [click here](#).

**Want to easily export or graph data?** If so, check out our [Data Export System!](#)

# Pick application



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## Data Export System

The DES was developed to provide the majority of users with quick and easy access to SWMP data. The DES utilizes a map-based interface and offers single station exports, yearly authenticated file downloads (these may include non-standard nutrient parameters), charting, and a current conditions display for real-time stations.

[To launch the Data Export System, click here.](#)



## Advanced Query System

The AQS was developed to specifically address the data delivery needs of those end-users looking for large amounts of data exported in a format that can be easily imported and manipulated for data analysis. The AQS offers three different query options allowing for mass downloads of annual files, customized queries for specific parameters and multiple stations in the same file, and an option to merge water quality, meteorological and nutrient datasets.

[To launch the Advanced Query System, click here.](#)



## Real Time Data Application

The Real Time Application allows users to view near real time data, real time gauges, and 24 hour graphs with multiple parameters. You may use a bookmarked link to directly access the station of interest, or browse and select your station. The display will update automatically with the latest information as it comes in.

[To launch the Real Time Data Application, click here.](#)



# Pick application



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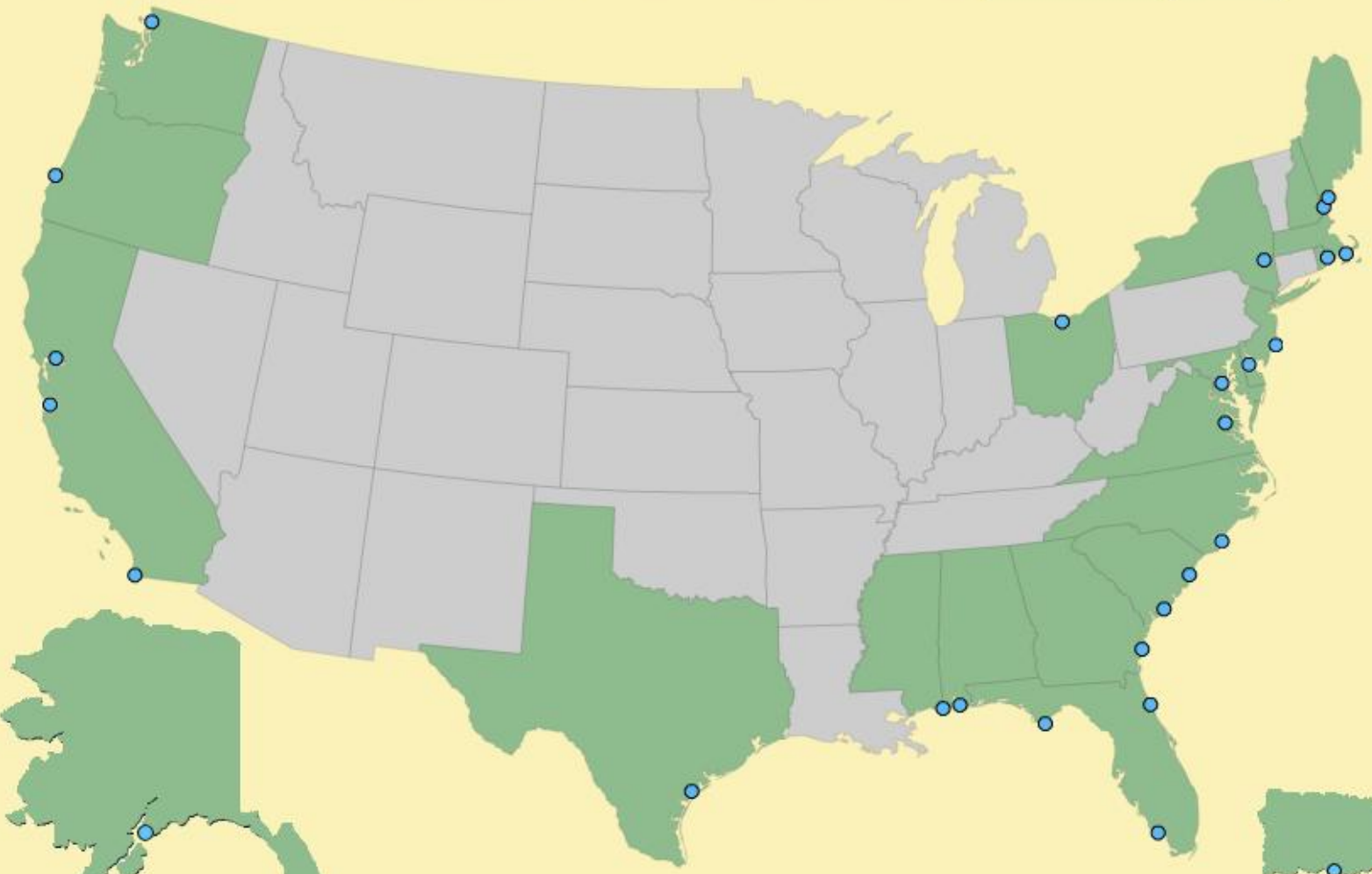
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***[To launch the Real Time Data Application, click here.](#)***

# Choose reserve

**Choose Reserve** | Choose Sampling Station | View or Download Data | Submit Info | Complete!

**Please select a Reserve from the map below:**  
*If you already know the station code, enter it here. If not, choose a Reserve from the map below.*



The map shows the United States with states colored in green or grey. Green states include Washington, Oregon, California, Alaska, Texas, Florida, Georgia, South Carolina, North Carolina, Virginia, West Virginia, Kentucky, Tennessee, Mississippi, Alabama, Louisiana, Arkansas, Missouri, Illinois, Indiana, Michigan, Ohio, Pennsylvania, New York, Vermont, New Hampshire, and Maine. Grey states include Idaho, Montana, Wyoming, Colorado, Utah, Arizona, Nevada, New Mexico, Oklahoma, Kansas, Nebraska, South Dakota, North Dakota, Minnesota, Iowa, Wisconsin, Indiana, Michigan, Ohio, Pennsylvania, Maryland, Delaware, New Jersey, Connecticut, Rhode Island, Massachusetts, and Hawaii. Blue dots are placed on the following states: Washington, Oregon, California, Alaska, Texas, Florida, Georgia, South Carolina, North Carolina, Virginia, West Virginia, Kentucky, Tennessee, Mississippi, Alabama, Louisiana, Arkansas, Missouri, Illinois, Indiana, Michigan, Ohio, Pennsylvania, New York, Vermont, New Hampshire, and Maine.

# Choose sampling station

Choose Reserve   **Choose Sampling Station**   View or Download Data   Submit Info   Complete!

**Please select a sampling station from Jacques Cousteau, NJ:**

*\*\*Filter Sampling Stations By Data Type:* All Stations

Station Name	Real Time	Status	Data Type	Station Code
Buoy 126	Yes	Active	water quality	B6
Chestnut Neck	Yes	Active	water quality	NE
Nacote Creek	Yes	Active	meteorological	NC
Buoy 126	No	Active	nutrient	B6
Buoy 126	No	Active	nutrient	B6

Map   **Satellite**   Hybrid   Terrain

POWERED BY Google

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Your Station Selection: **Buoy 126**

**Proceed With This Station >>**



# View or download data (defaults to current conditions)

Choose Reserve

Choose Sampling Station

View or Download Data

Submit Info

Complete!

## Select how to view or download the data below:

**Yearly Files (1995-2006) --**

Yearly Files are files that have been authenticated by the CDMO and do not include [provisional or provisional plus data](#).

**Export Data (1995-Present) --**

Select this option to export data from a custom date range to include [authenticated, provisional, and/or provisional plus data](#).

**Graph Data --**

Choose this option to graph a parameter from any date range.

**Current Conditions --**

Choose this option to view current conditions for your selected station and Reserve.

## Current Conditions



### Buoy 126 Current Conditions

Latest Timestamp: 12/06/2010 10:30 (LST)

Water Temperature: 4.7 °C (40°F)

Salinity: 30.2 PPT

Turbidity: 20 NTU

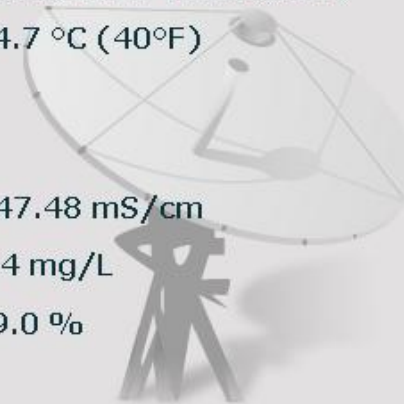
Specific Conductivity: 47.48 mS/cm

Dissolved Oxygen: 10.4 mg/L

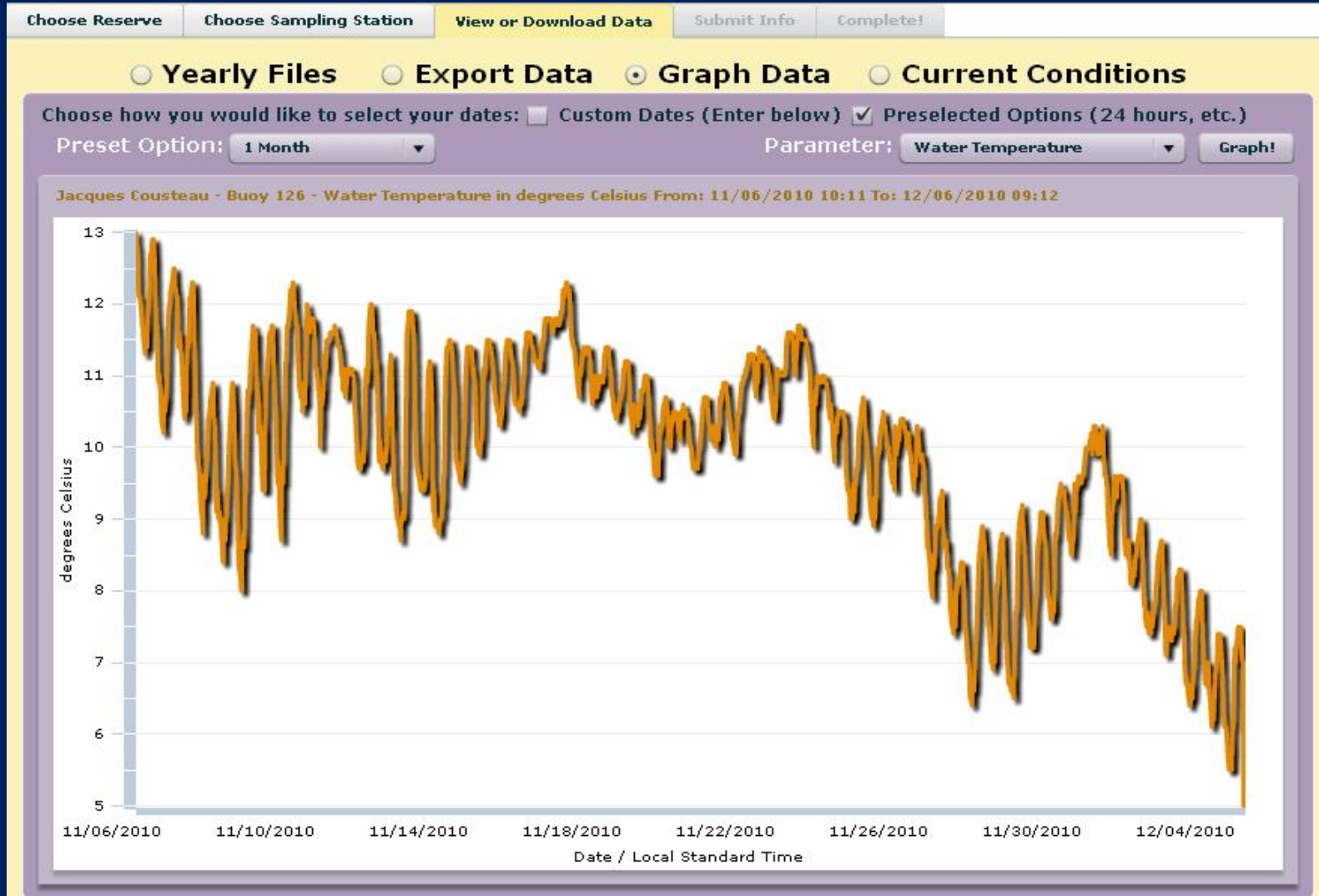
Percent Saturation: 99.0 %

pH: 7.9 Units

Depth: 2.47 m (8.1 ft.)



# View or download data (graph data selected)





# View or download data (query and export)

Choose Reserve

Choose Sampling Station

View or Download Data

Submit Info

Complete!

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**Current Conditions --**

Choose this option to view current conditions for your selected station and Reserve.

*Please note that you can navigate to any tab to get more information, to change your sampling station or Reserve, or change the download type if you would like to see data graphed or download yearly files instead.*

## Select the export date range below:

*Choose how you would like to select your dates.*

**Custom Dates:**

From:   To:  

**Preset Option:**  

## Select Your Dataset Type

**Best Available Dataset**  **All Inclusive Dataset**

*(This type does not include data that are outside sensor limits or that have been rejected)* *(By choosing this option you will receive data that were rejected due to QAQC procedures)*

## Sampling Station Info

Reserve: Jacques Cousteau

Chosen Station: Buoy 126

Data Type: water quality

Station Code: JACB6WQ

Active Dates: Aug 1996-Present


Real Time: Yes

# Pick application



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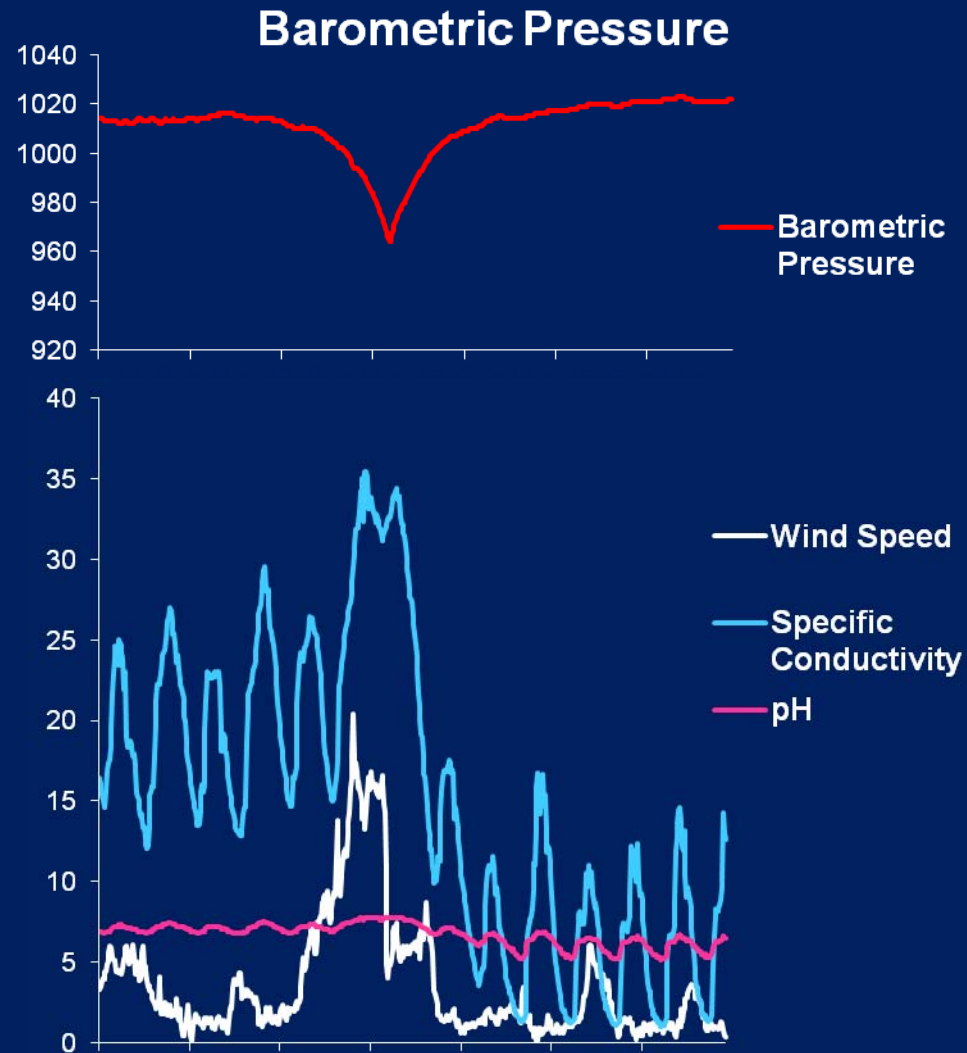


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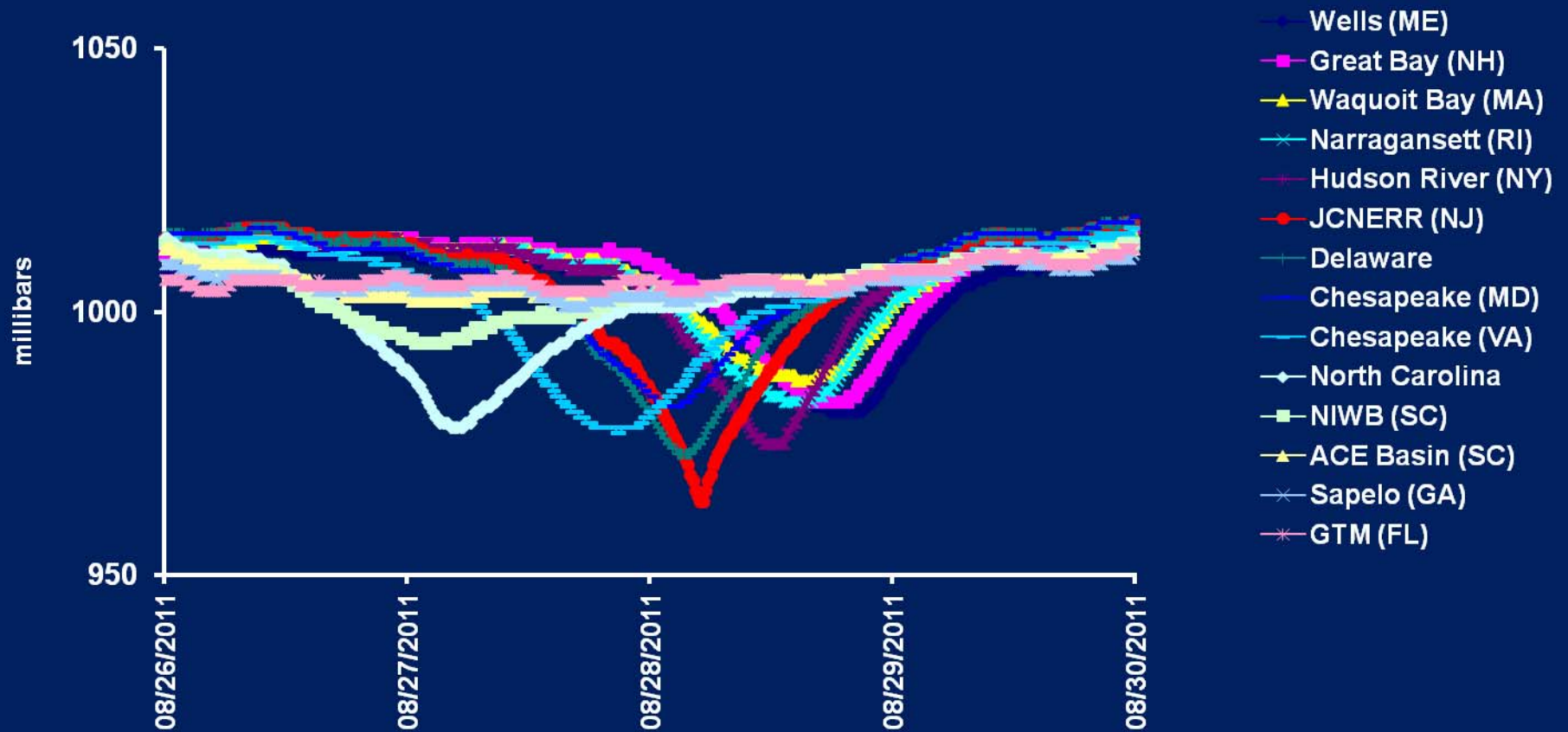
***[To launch the Real Time Data Application, click here.](#)***

# AQS merging & export of all data types






# Hurricane Irene Barometric Pressure East Coast NERRs



# Pick application




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# Real-time data application

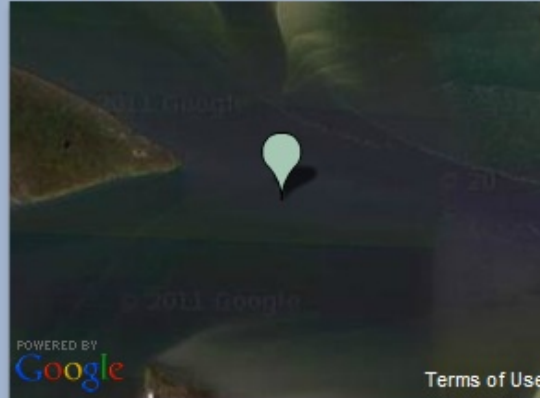
JACB6WQ - Jacques Cousteau, NJ

[Click here for a bookmark link](#)

Latest observations from JACB6WQ

DateTimeStamp: 11/29/2011 16:30 (LST)  
Temperature: 12.9 (Celsius) [24 hour chart](#)  
Specific Cond.: 43.60 (mS/cm) [24 hour chart](#)  
Salinity: 28.1 (ppt) [24 hour chart](#)  
Dissolved Oxygen %: 100.7 [24 hour chart](#)  
Dissolved Oxygen mg/L: 8.9 [24 hour chart](#)  
Depth: 2.50 (m) [24 hour chart](#)  
pH: 8.0 (standard units) [24 hour chart](#)  
Turbidity: 14 (NTU) [24 hour chart](#)

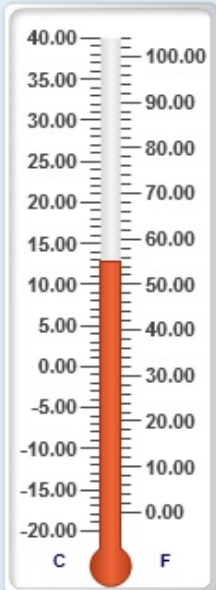
Google interactive map (39.5079,-74.3385):



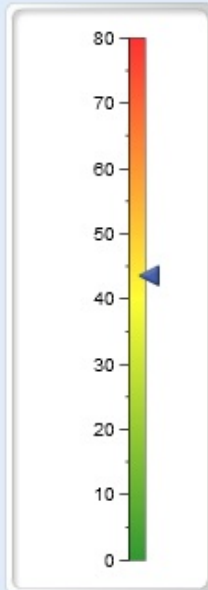
Real Time Station Photo:



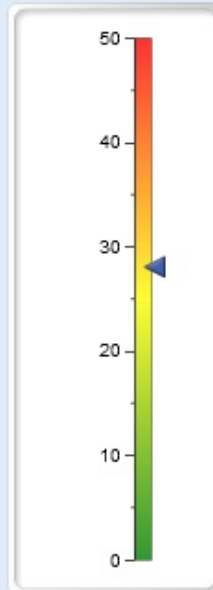
Temperature



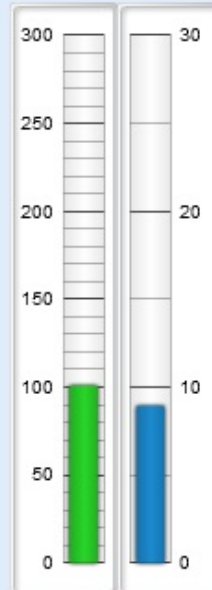
Specific Cond.



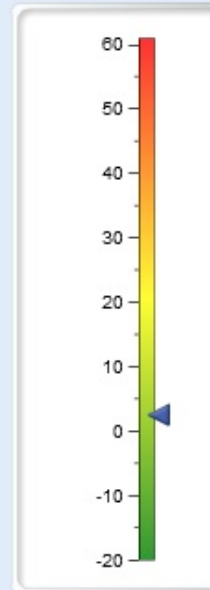
Salinity



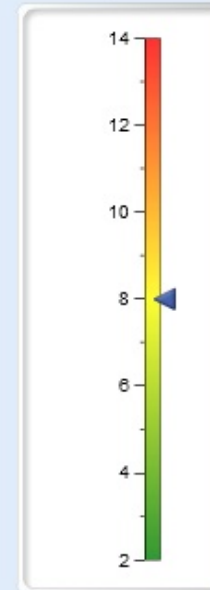
DO % and DO mg/L



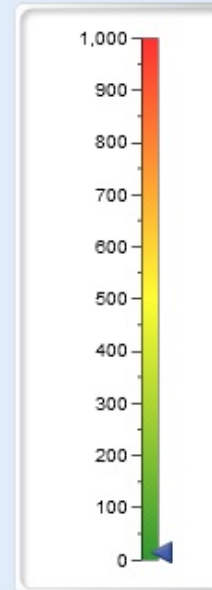
Depth



pH

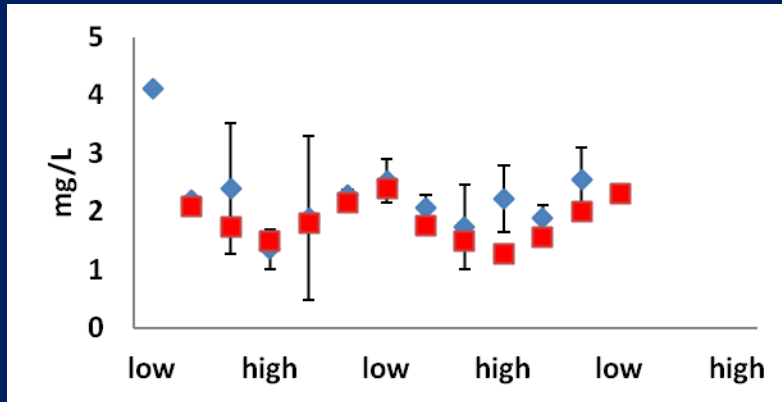


Turbidity

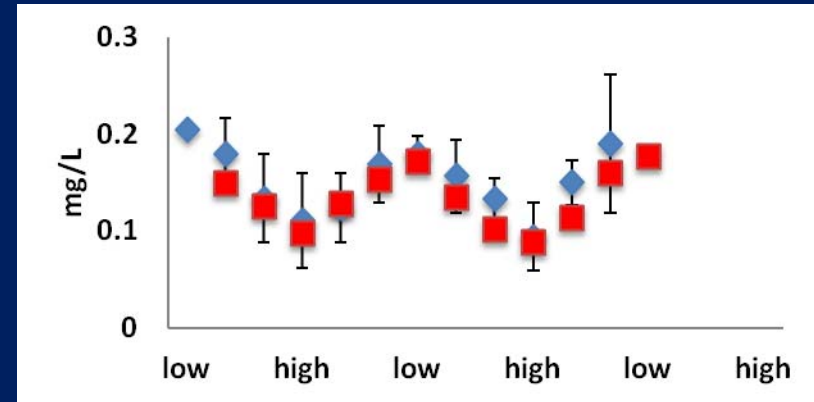


# Don't forget we have lots of nutrient data!

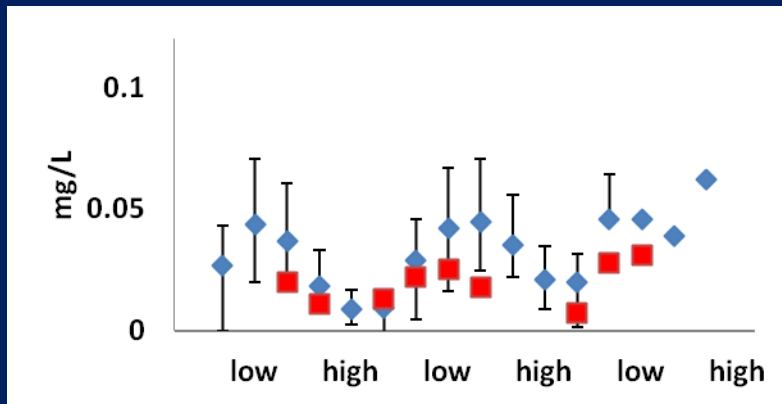
## Carbon



## Nitrogen



## Ammonium



Post-Warren Grove  
Gunnery fire (May 2007)  
nutrient values plotted  
against historical means