

Hypoxia-Water Column Monitoring Update



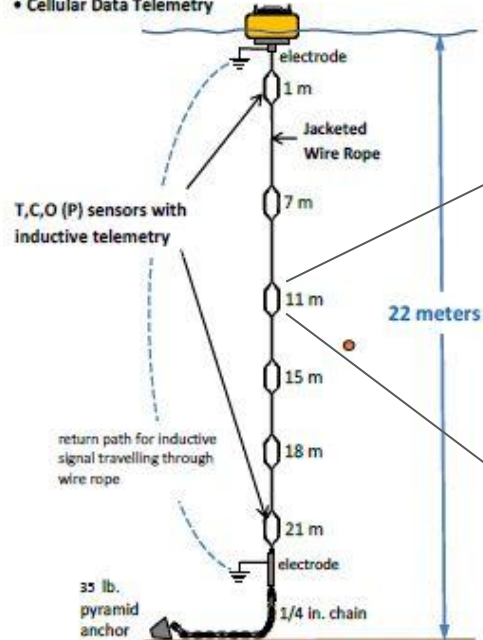
Presented to the CBP Hypoxia Collaborative

10/16/2024

Water Column Monitoring System

Soundline Ultibuoy with:

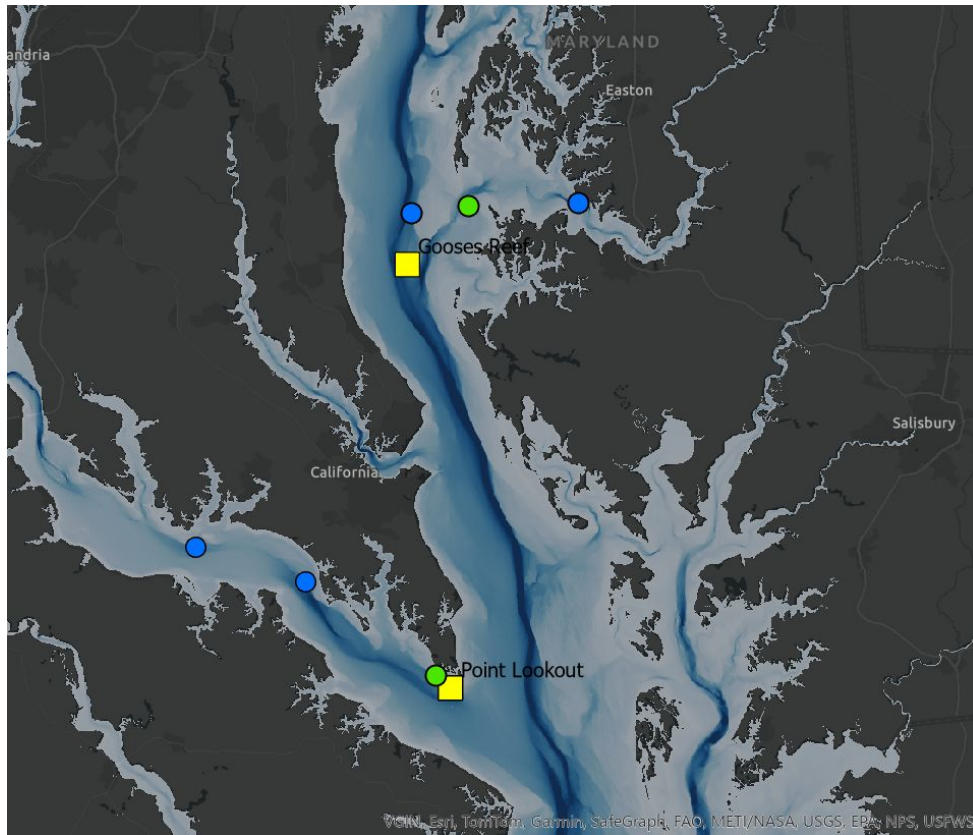
- Inductive Underwater Telemetry
- GPS
- Cellular Data Telemetry



System Components

- Buoy with Controller
 - Solar panels
 - Cellular Modem
 - GPS
- Inductive wire & ground tackle
 - Sensor flexibility
- CTP-DO Sensors
 - Low power solution
 - ~3m vertical resolution

2024 Stations



System Locations

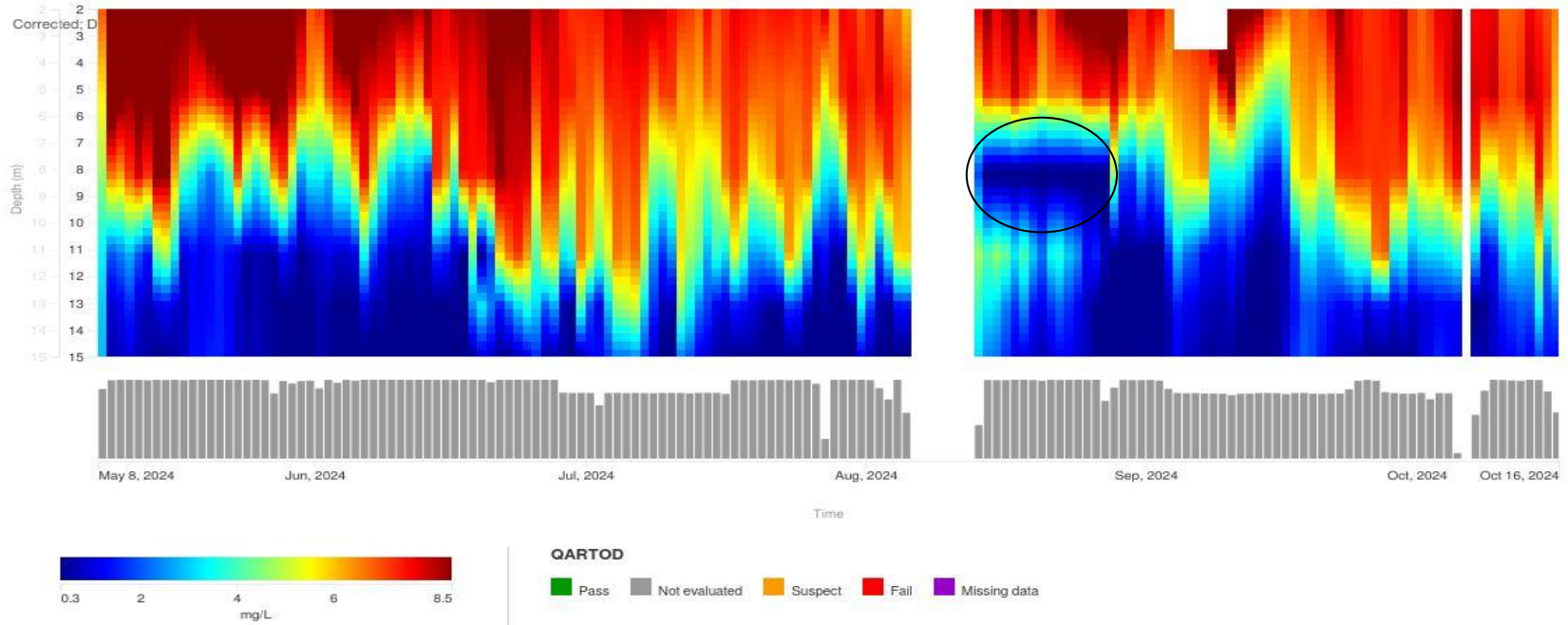
- Choptank
 - 3 distinct segments
 - 3-6 sensors per station
 - 2nd year at Lower Choptank (green dot)
- Potomac
 - 1 segment
 - 4-5 sensors per station
 - 2nd year at Lower Potomac (green dot)
 - Herring Creek (middle station) is down as of last Friday
- CBIBS (yellow)

Sharps Island Station- 2024

NOAA Chesapeake Bay Interpretive Buoy System

Sharps Island

Oxygen: Dissolved Oxygen Concentration

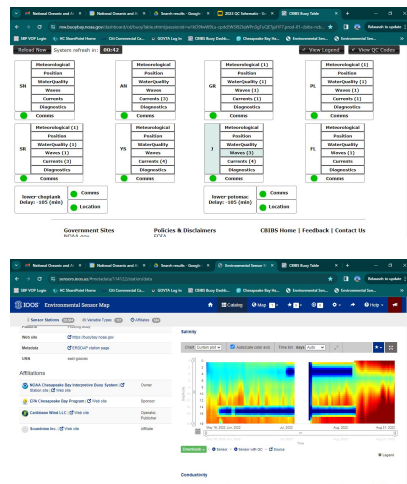


2024-2025 Fall/Winter Plan

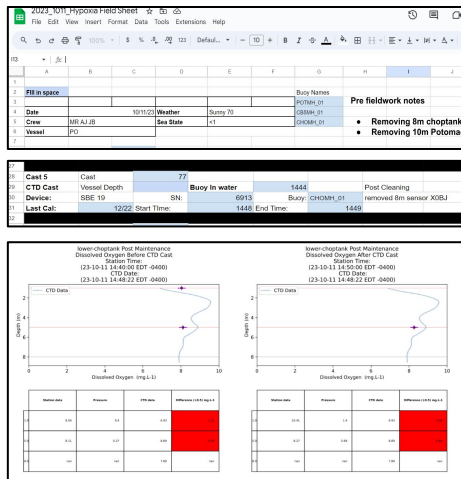


- Removing Potomac buoys in mid-November (post hypoxic conditions)
- Removing 2 of the Choptank buoys in mid-November; keep one in
- Evaluating the actual sensor requirements for a 6 station-26 sensor configuration (by December)
- Create the 2024 EOY Quality Control Report (CY reporting period)
- Prepare for 2025 (existing stations)

Daily Dashboard Inspection



Bi-Weekly Maintenance Visit



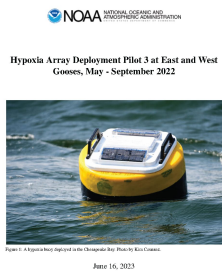
Monthly Overview of Visits

09/20/2023	Mid-Bay	Lower Choptank	Potomac
Depth	5 9 13 17	1 5 8	3 7 10
Temperature	0 X 0 0	Y Y Y	0 X 0
Dissolved O2	0 X 0 0	0 0 0	0 X 0
Conductivity	X X X X	Y X Y	X X X
Salinity	X X X X	Y Y 0	X X X

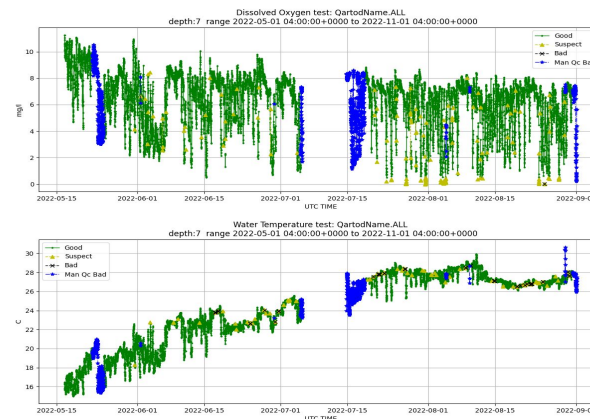
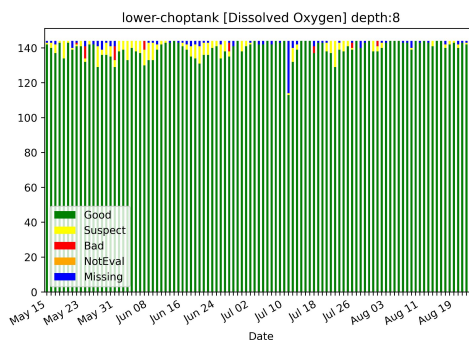
10/11/2023	Mid-Bay	Lower Choptank	Potomac
Depth	5 9 13 17	1 5 8	3 7 10
Temperature	0 X 0 0	0 0 X	0 X X
Dissolved O2	0 X Y 0	Y Y X	0 X X
Conductivity	X X X X	X X X	0 X X
Salinity	X X X X	X X X	Y X X

Seasonal Measurements (QC Flagging plots)

Annual Report



Seasonal Performance Review



Data Access/Data Quality

IOOS Page

- ERDDAP
- CSV
- NetCDF

Current (2024) Data Status

- No significant changes from 2023 QC routines
- Basic QARTOD tests applied
- Final QC routines not applied
- Mid Feb timeline for final 2024 data
- March timeline for IOOS site final data availability

The image shows a browser window displaying the IOOS Environmental Sensor Map and the ERDDAP Data Access Form. The top part of the browser shows the IOOS website with a search bar and navigation links. Below the map, the ERDDAP Data Access Form is visible, showing the dataset title 'Lower Choptank (2023)' and the institution 'NOAA Chesapeake Bay Interpretive Buoy System'. The form includes a table for selecting variables and constraints, with columns for 'Variable', 'Optional Constraint #1', 'Optional Constraint #2', 'Minimum', and 'Maximum'. The table lists various variables such as 'time (UTC)', 'latitude (degrees_north)', 'longitude (degrees_east)', 'z (Altitude, m)', and 'mass_concentration_of_oxygen_in_sea_water_corrected'. The 'time (UTC)' variable is selected, and the constraints are set to '2024-02-02T14:50:00Z' and '2024-02-12T14:50:00Z'. The minimum and maximum values are '2023-04-26T15:00:00Z' and '2024-02-12T15:20:00Z' respectively. The table also shows the minimum and maximum values for each variable, such as '38.629' and '38.629' for latitude, and '-8.0' and '-1.0' for z (Altitude, m).

ERDDAP > tabledap > Data Access Form

Dataset Title: **Lower Choptank (2023)** [BBS](#)
Institution: NOAA Chesapeake Bay Interpretive Buoy System (Dataset ID: 2zq_sd2023-2023)
Information: [Summary](#) | [License](#) | [FGDC](#) | [ISO 19115](#) | [Metadata](#) | [Background](#) | [Make a graph](#)

Variable	Optional Constraint #1	Optional Constraint #2	Minimum	Maximum
<input checked="" type="checkbox"/> time (UTC)	>= 2024-02-02T14:50:00Z	<= 2024-02-12T14:50:00Z	2023-04-26T15:00:00Z	2024-02-12T15:20:00Z
<input type="checkbox"/> latitude (degrees_north)	>=	<=	38.629	38.629
<input type="checkbox"/> longitude (degrees_east)	>=	<=	-76.319	-76.319
<input checked="" type="checkbox"/> z (Altitude, m)	>= -8	<= -1	-8.0	-1.0
<input type="checkbox"/> sea_water_electrical_conductivity (mS.cm-1)	>=	<=	0.0	100.0
<input type="checkbox"/> sea_water_electrical_conductivity_qc_agg	>=	<=	1	9
<input type="checkbox"/> sea_water_electrical_conductivity_qc_tests	>=	<=		
<input checked="" type="checkbox"/> mass_concentration_of_oxygen_in_sea_water_corrected (mg.L-1)	>=	<=	7.92	14.263
<input checked="" type="checkbox"/> mass_concentration_of_oxygen_in_sea_water_corrected_qc_agg	>=	<=	1	9
<input type="checkbox"/> mass_concentration_of_oxygen_in_sea_water_corrected_qc_tests	>=	<=		
<input checked="" type="checkbox"/> mass_concentration_of_oxygen_in_sea_water (mg.L-1)	>=	<=	0.0	13.0095988623
<input checked="" type="checkbox"/> mass_concentration_of_oxygen_in_sea_water_qc_agg	>=	<=	1	3
<input type="checkbox"/> mass_concentration_of_oxygen_in_sea_water_qc_tests	>=	<=		
<input checked="" type="checkbox"/> mass_concentration_of_oxygen_in_sea_water_raw (mg.L-1)	>=	<=	10.492	15.385
<input checked="" type="checkbox"/> mass_concentration_of_oxygen_in_sea_water_raw_qc_agg	>=	<=	2	2
<input type="checkbox"/> mass_concentration_of_oxygen_in_sea_water_raw_qc_tests	>=	<=		

Data Access URL

https://sensors.ioos.us/?new_session=true#metadata/156/sensor_source