

## Water Quality Metadata

Last updated: 12/8/2025

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## Station Overview

Location: West Point Military Academy ([41.3861, -73.9550](#))

Data collection period: 7/14/2016-present

Parameters: pH, dissolved oxygen, specific conductance, salinity, turbidity, water temperature, and water depth above sonde

Previous data collection period: 6/22/2013-9/12/2014

Previous parameters: pH, dissolved oxygen, specific conductance, salinity, turbidity, and water temperature, depth (NAVD88)

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## Station Description

*1<sup>st</sup> installation (6/22/2013 – 9/12/2014):* The sonde was housed in an 18' long aluminum tube mounted to the dock. The bolt supporting the sonde was approximately 10 feet below the level of low tide. Stage (relative to vertical datum NAVD88) was measured every 15 minutes with a nitrogen purge system connected to a Paroscientific PS2 pressure transducer.

*New installation (7/14/20216-present):* The water quality station is located on the right bank at the South Dock at West Point Military Academy. A YSI 6600 water-quality sonde was deployed to collect data every 15 minutes. The sonde is housed in a 10' stainless tube mounted about 2' below the deck surface. The sonde depth sensor sits about 4.5 feet below NGVD29 vertical datum, or roughly 4 feet below mean low tide. Water depth (relative to the instrument) is calculated from the sonde pressure transducer and is corrected for variations in barometric (atmospheric pressure) in real-time by the data logger and a CS106 barometer using the following equation: Corrected Depth = Depth + ((1013- Barometric Pressure) \* .0102).

Sonde was upgraded from a 6600 to a YSI EXO2 sonde on 7/20/2022.

## Special Remarks

| Date      | Remark                                             |
|-----------|----------------------------------------------------|
| 9/12/2014 | Station decommissioned during construction at dock |

|                            |                                                                                                                                      |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
|                            |                                                                                                                                      |
| <b>7/14/2016</b>           | <b>Station re-established</b>                                                                                                        |
| <b>7/20/2022</b>           | <b>6600 sonde replaced with YSI EXO2 sonde</b>                                                                                       |
| <b>August-October 2025</b> | <b>Prolonged drought conditions across New York State led to very high specific conductance and salinity levels at this station.</b> |
| <b>11/10/2025</b>          | <b>Sonde lost during swap. No device at this station until further notice.</b>                                                       |

### Distribution Terms

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### Data Quality Assurance

Data collection and verification have been performed on all parameters since the establishment of this station according to the HRECOS Quality Assurance Project Plan(s), which are available at [www.hrecos.org](http://www.hrecos.org)

### Code Definitions

#### *Parameters*

|        |                                |                   |
|--------|--------------------------------|-------------------|
| WTMP   | Water temperature              | Degrees Celsius   |
| SPCO   | Specific conductance           | uS/cm             |
| SALT   | Salinity                       | See remarks below |
| PH     | pH                             |                   |
| TURB   | Turbidity                      | See remarks below |
| DOPC   | Dissolved oxygen saturation    | Percent (%)       |
| DOCONC | Dissolved oxygen concentration | mg/L              |
| DEPTH  | Depth above instrument         | m                 |
| CHLA   | Chlorophyll                    | RFU               |
| PHYCO  | Phycocyanin                    | RFU               |

#### *Flag code definitions:*

|   |                                       |
|---|---------------------------------------|
| A | Accepted data                         |
| P | Provisional data                      |
| S | Suspect data, consult comment codes   |
| R | Rejected data, consult comment codes  |
| C | Corrected data, consult comment codes |

*Comment code definitions:*

General Errors

|     |                                                          |
|-----|----------------------------------------------------------|
| GIM | Instrument malfunction                                   |
| GIT | Instrument recording error, recovered telemetry data     |
| GMC | No instrument deployed due to maintenance or calibration |
| GPF | Power failure                                            |
| GQR | Rejected due to QAQC checks                              |
| GSM | See metadata                                             |
| GIC | No instrument deployed due to ice                        |
| GNF | Deployment tube clogged / no flow                        |
| GOW | Out of water event                                       |

Sensor Errors

|     |                                                |
|-----|------------------------------------------------|
| SBO | Blocked optic                                  |
| STF | Catastrophic temperature sensor failure        |
| SCF | Conductivity sensor failure                    |
| SDF | Depth port frozen                              |
| SDP | DO membrane puncture                           |
| SDO | DO suspect                                     |
| SIC | Incorrect calibration or contaminated standard |
| SNV | Negative value                                 |
| SPC | Post calibration out of range                  |
| SSD | Sensor drift                                   |
| SSM | Sensor malfunction                             |
| SOW | Sensor out of water                            |
| SSR | Sensor removed for deployment                  |
| STS | Turbidity spike                                |
| SWM | Wiper malfunction or loss                      |

Other comments

|     |                                                         |
|-----|---------------------------------------------------------|
| CAB | Algal bloom                                             |
| CAF | Acceptable calibration/accuracy error of sensor         |
| CAP | Depth sensor in water, affected by atmospheric pressure |
| CBF | Biofouling                                              |
| CCU | Cause unknown                                           |
| CDA | DO hypoxia                                              |
| CDB | Disturbed bottom                                        |
| CDF | Data appear to fit conditions                           |
| CFK | Fish fill                                               |
| CIP | Surface ice present                                     |
| CLT | Low tide                                                |
| CMC | In field cleaning and maintenance                       |
| CMD | Mud in probe guard                                      |
| CND | New deployment                                          |
| CRE | Significant rain event                                  |
| CSM | See metadata                                            |
| CTS | Turbidity spike                                         |
| CVT | Possible vandalism                                      |
| CWD | Data collected at wrong depth                           |

CWE

Significant weather event

### **YSI EXO2 Sensor Specifications**

Consult description and remarks for upgrade dates.

Parameter: Temperature

Units: Celsius (C)

Sensor Type: Thermistor

Model#: 599870-01

Range: -5 to 50 C

Accuracy: -5 to 35: +/- 0.01, 35 to 50: +/- .005

Resolution: 0.01 C

Parameter: Specific conductance

Units: mS/cm or uS/cm

Sensor Type: 4-electrode cell with autoranging

Model#: 599870-01

Range: 0-200 mS/cm

Accuracy: 0 to 100: +/- 0.5% of reading or 0.001 mS/cm; 100 to 200: +/- 1% of reading

Resolution: 0.001 mS/cm to 0.1 mS/cm

Parameter: Salinity

Units: practical salinity units (psu)/parts per thousand (ppt)

Sensor Type: Calculated from conductivity and temperature

Range: 0 to 70 psu

Accuracy: +/- 1.0% of reading or 0.1 ppt, whichever is greater

Resolution: 0.01 psu

Parameter: Dissolved Oxygen % saturation

Sensor Type: Optical probe w/ mechanical cleaning

Model#: 599100-01

Range: 0 to 500% air saturation

Accuracy: 0-200% air saturation: +/- 1% of the reading or 1% air saturation, whichever is greater

200-500% air saturation: +/- 5% of reading

Resolution: 0.1% air saturation

Parameter: Dissolved Oxygen mg/L (Calculated from % air saturation, temperature, and salinity)

Units: milligrams/Liter (mg/L)

Sensor Type: Optical probe w/ mechanical cleaning

Model#: 599100-01

Range: 0 to 50 mg/L

Accuracy: 0-20 mg/L: +/-0.1 mg/L or 1% of the reading, whichever is greater

20 to 50 mg/L: +/- 5% of the reading

Resolution: 0.01 mg/L

Parameter: pH

Units: pH units

Sensor Type: Glass combination electrode

Model#: 599701 (guarded) or 599702 (wiped)

Range: 0 to 14 units

Accuracy: +/- 0.01 units within +/- 10° of calibration temperature, +/- 0.02 units for entire temperature range

Resolution: 0.01 units

Parameter: Turbidity

Units: formazin nephelometric units (FNU)

Sensor Type: Optical, 90-degree scatter

Model#: 599101-01

Range: 0 to 4000 FNU

Accuracy: 0 to 999 FNU: 0.3 FNU or +/-2% of reading (whichever is greater); 1000 to 4000 FNU +/- 5% of reading

Resolution: 0 to 999 FNU: 0.01 FNU, 1000 to 4000 FNU: 0.1 FNU

Parameter: Chlorophyll

Units: micrograms/Liter, RFU

Sensor Type: Optical probe

Model#: 599102-01

Range: 0 to 400 ug/Liter; 0 to 100 RFU

Accuracy: Dependent on methodology

Resolution: 0.1 ug/L chl a, 0.1% RFU

Parameter: Phycocyanin

Units: micrograms/Liter, RFU

Sensor Type: Optical probe

Model#: 599102-01

Range: 0 to 100 ug/Liter; 0 to 100 RFU

Accuracy: Dependent on methodology

Resolution: 0.1 ug/L PC, 0.1% RFU

### **Remarks on Sensor Specifications and Units**

Consult description and remarks for upgrade dates.

#### *Specific conductance:*

Historically, specific conductance data from HRECOS sites was reported in millisiemens/cm (mS/cm). However, beginning in 2019, reporting switched to microsiemens/cm (uS/cm). All data files available on hrecos.org have been converted to reflect this change.

*Salinity:*

The 6600 series sondes report salinity in parts per thousand (ppt) units, the EXO sondes report practical salinity units (psu).

*Turbidity:*

The 6600 series sondes report turbidity in nephelometric turbidity units (NTU), the EXO sondes use formazin nephelometric units (FNU).

*Chlorophyll and Phycocyanin Disclaimer:*

YSI chlorophyll sensors (6025 or 599102-01) are designed to serve as a proxy for chlorophyll concentrations in the field for monitoring applications and complement traditional lab extraction methods; therefore, there are accuracy limitations associated with the data that are detailed in the YSI manual.

**Remarks on Data Correction**

From May 2019 to March 2026, data were collected and reviewed by the United States Geological Survey, according to their standard operating procedure which is outlined in the following document:

Wagner, R.J., Boulger, R.W., Jr., Oblinger, C.J., and Smith, B.A., 2006, Guidelines and standard procedures for continuous water-quality monitors—Station operation, record computation, and data reporting: U.S. Geological Survey Techniques and Methods 1–D3, 51 p.  
<https://pubs.usgs.gov/publication/tm1D3>

Part of data review includes correcting for sensor drift if it occurred during deployment. Per USGS protocol, provisional data are flagged as P and once reviewed they are flagged as A, even if data correction occurred.