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| **Metadata: West Point Water Quality Station**  **Location:** South Dock, West Point Military Academy, NY ([41.3861, -73.9550](https://www.google.com/maps/place/41%C2%B023'10.0%22N+73%C2%B057'18.0%22W/@41.3861,-73.955,17z/data=!3m1!4b1!4m4!3m3!8m2!3d41.3861!4d-73.955?entry=ttu))  **Data collection periods and parameters:**  3rd installation: 7/20/2022-present: Acidity, dissolved oxygen  (% sat. and concentration), specific conductance, salinity, turbidity,  water temperature, and water depth (relative to the sonde)  2nd installation: 7/14/2016 – 7/20/2022:  Acidity, dissolved oxygen (% sat. and concentration), specific conductance,  salinity, turbidity, water temperature, and water depth (relative to the sonde)  1st installation: \*6/22/2013 – 9/12/2014:  Same parameters as above except depth was surveyed to a vertical reference datum.  \*Water temperature, elevation and specific conductance are available since 1991 from USGS. | |
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| **Disclaimer:** HRECOS is a research project. No warranty—either express or implied—is made for any information presented by this program. | |
| **Station details:**  **3rd installation (7/20/2022-present):** YSI 6600 sonde was replaced with YSI EXO2 sonde due to discontinuation of the 6600 product line by the manufacturer.  **2nd installation (7/14/2016 – 7/20/2022)**: 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 measures dissolved oxygen (% sat. and concentration), sonde depth, pH, specific conductance, salinity, turbidity, and water temperature 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)*.  **1st installation (7/17/2013 – 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. | |
| **Special remarks/notes:**  10/21/2013 – A YSI 6920 was installed in place of the EXO2 due to repeat failures of the EXO2 sondes.  9/12/2014 – Station disabled due to dock construction. Multiple delays in construction delayed the station’s re-establishment and funding for station maintenance has lapsed. Efforts to attempt re-establishing the station are underway  7/14/2016 – Station reconstruction completed.  12/29/2017 – Updated logger OS and program to mitigate issue with repeating data values  7/2/2022: YSI EXO2 reinstalled at site**.** | |
| **Distribution terms:**  HRECOS requests that attribution be given whenever HRECOS material is reproduced and re-disseminated and the HRECOS Coordinator be notified prior to publications including any part of the data. Example citation: “Hudson River Environmental Conditions Observing System. 2012. Albany Hydrologic Station data. Accessed April 13th, 2016. <http://www.hrecos.org/>.” | |
| **Data Quality Assurance:**  Data collection and verification have been performed on all parameters (except velocity) since the establishment of this station according to the HRECOS Quality Assurance Project Plan, which is available at [www.hrecos.org](http://www.hrecos.org) | |
| **QAQC Comment Code definitions:**  General Errors  [GIM] instrument malfunction  [GIT] instrument recording error, recovered telemetry data  [GMC] no instrument deployed due to maintenance/calibration  [GPF] power failure/low battery  [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/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 (not deployed)  [STS] turbidity spike  [SWM] wiper malfunction/loss  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 < 28 percent saturation  (CDB) disturbed bottom  (CDF) data appear to fit conditions  (CFK) fish kill  (CIP) surface ice present at sample station  (CLT) low tide  (CMC) in field maintenance/cleaning  (CMD) mud in probe guard  (CND) new deployment begins  (CRE) significant rain event  (CSM) see metadata  (CTS) turbidity spike  (CVT) possible vandalism/tampering  (CWD) data collected at wrong depth  (CWE) significant weather event | |

**Table 1. YSI EXO2 sensor specifications. Applies to data from 6/22/2013 – 9/12/2014 and 7/20/2022-present.**

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| Parameter | Units | Sensor type | Model | Range | Accuracy | Resolution |
| **Acidity** | Hydrogen ion concentration (pH) | Glass combination electrode | 599702 | 0 – 14 units | ±0.1 pH units within ±10°C  of calibration temperature;  ±0.2 pH units for entire temp range | 0.01 units |
| **Conductivity**  (combined w/ water temp) | microSiemens per cm (µS/cm) | 4-electrode nickel | 599870-01 | 0 – 200 µS/cm | 0-100 µS/cm: ±0.5% of  reading or 0.001 µS/cm,  whichever is greater;  100-200 µS/cm: ±1% of  reading | 0.0001 to 0.01 µS/cm  range-dependent |
| **Dissolved oxygen** | Air saturation (%)  ¾¾¾¾  mg/L | Optical, luminescence lifetime ¾¾¾¾  Calculated | 599100-01 (YSI EXO2 sonde) | 0 – 500%  ¾¾¾¾  0 – 50 mg/L | 0 – 200%: ±1%  200 – 500%: ±5%  ¾¾¾¾  0 – 20 mg/L: ±0.1 mg/L or 1% (whichever is greater);  20 – 50 mg/L: ±-5% | 0.1%  ¾¾¾¾  0.01 mg/L |
| **Turbidity** | Formazin Nephelometric Units (FNU) | Optical, 90° scatter | 599101-01 | 0 – 4000 FNU | 0-999 FNU: 0.3 FNU or  ±2% of reading, whichever is greater; 1000-4000 FNU: ±5% of reading | 0-999 FNU: 0.01 FNU  1000-4000 FNU: 0.1 FNU |
| **Salinity** | Practical salinity units (PSU) | Calculated from conductivity and temperature | 599870-01 |  |  |  |
| **Water temperature** | Celsius (°C) | Thermistor | 599870-01 | -5 to +50°C | -5 to 35°C: ±0.01°C  35 to 50°C: ±0.05°C | 0.001°C |
| **Water level** | Lbs. per square inch (psig), converted to level | Pressure transducer | Paroscientific PS2 | 0 – 15 psig to 0—200 psig | 0.02% | 0.0001% |

**Table 2. YSI 6600-series sonde sensor specifications. 7/14/2016 – 7/20/2022.**

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| Parameter | Units | Sensor type | Model | Range | Accuracy | Resolution |
| **Acidity** | Hydrogen ion concentration (pH) | Glass combination electrode | YSI 6589 Fast-response pH Sensor | 0 – 14 units | ±0.2 units | 0.01 units |
| **Conductivity** | Microsiemens per cm (µS/cm) | Nickel electrode | YSI 6560 | 0 – 100 µS/cm | ±-0.5% + 0.001 µS/cm | 0.001 – 0.1 µS/cm (range dependent) |
| **Dissolved oxygen** | Air saturation (%)  ¾¾¾¾  mg/L | Optical  ¾¾¾¾  Calculated | YSI 6150 ROX | 0 – 500%  ¾¾¾¾  0 – 50 mg/L | 0 – 200%: ±1%  200 – 500%: ±15%  ¾¾¾¾  0 – 20 mg/L: ±-0.1 mg/L or 1% (whichever is greater);  20 – 50 mg/L: ±-15% | 0.1%  ¾¾¾¾  0.01 mg/L |
| **Turbidity** | Nephelometric Turbidity Units (NTU) | Optical | YSI 6136 | 0 – 1000 NTU | ±2% or 0.3 NTU (whichever is greater) | 0.1 NTU |
| **Salinity** | parts per thousand (ppt) | Calculated from conductivity and temperature | | 0 to 70 ppt | +/- 1.0% of reading or 0.1 ppt, whichever is greater | 0.01 ppt |
| **Water temperature** | Celsius (°C) | Thermistor | YSI 6560 | -5 – 45 °C | ±0.15 °C | 0.01 °C |
| **Water level** (up to 9/12/14) | Lbs. per square inch (psig), converted to level | Pressure transducer | Paroscientific PS2 | 0 – 15 psig to 0—200 psig | 0.02% | 0.0001% |
| **Water level** | Meters (m) | Stainless steel strain gauge | YSI 6600 sonde (integrated) | 0 to 30 ft (9.1 m) | 0-10 ft: +/- 0.01 ft (0.003 m); 10-30 ft: +/- 0.06 ft (0.018 m) | 0.001 ft (0.001 m) |