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| **Metadata: Castle Point Pier Station (inactive)**  **Location:** Stevens Institute, Hoboken, NJ ([40.741969, -74.024056](https://www.google.com/maps/place/40%C2%B044'31.1%22N+74%C2%B001'26.6%22W/@40.7419521,-74.0244908,246m/data=!3m1!1e3!4m5!3m4!1s0x0:0x0!8m2!3d40.741969!4d-74.024056) )  **Data collection periods:** 6/13/16 to 9/29/16  **Parameters:** Water depth, acidity, dissolved oxygen, salinity,  turbidity, and water temperature | |
| *Disclaimer: HRECOS is a research project. No warranty—either express or implied—is made for any information presented by this program.*  Researchers interested in accessing this station to co-locate monitoring equipment should contact the station manager (see contact info below). | |
| **Contacts**:  Brittney Flaten, HRECOS Coordinator  NY State Dept. of Environmental Conservation  256 Norrie Point Way, Staatsburg, NY 12580  Phone: 845-889-4745  Email: brittney.flaten [at] dec.ny.gov |  |
| **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. Castle Point Pier Station data. Accessed April 13th, 2036. <http://www.hrecos.org/>.” | |
| **Data Quality Assurance:**  Data collection and verification have been performed since the establishment of this station (June 2016) according to the HRECOS Quality Assurance Project Plan, which is available at [www.hrecos.org](http://www.hrecos.org) (“About HRECOS” -> “Supporting Documents”). See relevant section on following pages for QAQC flag and comment code definitions. | |
| **Location and equipment:**  The Castle Point Pier bottom station is located off the western shore of the Hudson River off the Stevens Institute campus in Hoboken, NJ. It is in approximately 9-14’ of water (with low/high tide variability) and is 200’ from the shoreline. The probes are approximately 1.3 feet above the riverbed. The instrument is a YSI 6600 sonde (water depth\*, acidity, dissolved oxygen, salinity, turbidity, and water temperature). The Castle Point buoy station’s near-surface measurements include the same sensors (except depth) and are a few hundred feet to the northeast, and together these two stations give a top-to-bottom estimate of estuarine gradients such as salinity and density stratification.  \*Water pressure above the instrument is measured by the sonde via pressure transducer, then converted to a depth, therefore this measurement is influenced by atmospheric pressure variations. The error caused by the phenomenon is equal to approximately 1.03 cm for every 1 millibar change in atmospheric pressure. Some HRECOS stations correct for this in real-time, however this station does not support this real-time correction. The correction can be applied manually using concurrent barometric pressure data from a nearby weather station (*i.e.,* Pier 84) and the following equation:  *Corrected Depth = Depth + ((1013- Barometric Pressure) \* .0102)* | |
| **Special remarks / notes:**   * 6/9/2016 – initial deployment * 8/2/2016 – some sensors not functioning, likely due to known problem that the instrument slowly flooded with seawater (old, stripped canister threading) * 11/3/2016 – generally good data until biofouling occurred (we could not recover it sooner, so we let it foul). For most sensors there were good data for August and into early-to-mid September 2016 | |
| **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.** Sensor specifications

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| Parameter | Units | Sensor type | Model | Range | Accuracy | Resolution | Notes |
| **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 | T63<3 sec |
| **Salinity (calculated)** | Parts per thousand (ppt) | Calculated from cond. and temp. | N/A | 0 – 70 ppt | +/‐ 1.0% of reading or 0.1ppt | 0.01 ppt | NA |
| **Specific Conductance** | 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) | NA |
| **Dissolved oxygen** | Air saturation (%)  ¾¾¾¾  mg/L | Optical, luminescence lifetime ¾¾¾¾  Calculated | 599100-01 | 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 | T63<5 sec |
| **Turbidity** | Nephelometric Turbidity Units (NTU) | Optical | YSI 6136 | 0 – 1000 NTU | ±2% or 0.3 NTU (whichever is greater) | 0.1 NTU | NA |
| **Water level** | Meters (m) | Pressure transducer | YSI 6600 (sonde) | 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) | Not vented to atmosphere |
| **Water temperature** | Celsius (°C) | Thermistor | 599870-01 | -5 to +45°C | -5 to 35°C: ±0.01°C  35 to 50°C: ±0.05°C | 0.001°C | T63<1 sec |