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| **Metadata: Mohawk River Lock 8 Water Quality Station**  **Location**: Lock 8, Mohawk River ([42.8281 N, 73.9904 W](https://maps.google.com/maps?q=42.8281%2BN%2B%2C73.9904%2BW&hl=en&ll=42.827591%2C-73.989658&spn=0.005964%2C0.009645&sll=42.828028%2C-73.990238&sspn=0.004217%2C0.004823&t=h&z=17))  **Data collection period**: 01/04/2012– present  **Parameters**: acidity, dissolved oxygen, specific conductance, turbidity, water elevation\*, and water temperature  \*Water elevation is measured by USGS using a co-located OTT Compact Bubbler System. |
| **Disclaimer:** HRECOS is a research project. No warranty—either express or implied—is made for any information presented by this program. |
| **Contacts:**  Brittney Flaten, HRECOS Coordinator and Station Manager  NY State Dept. of Environmental Conservation 256 Norrie Point Way, Staatsburg NY 12580 Phone: 845-889-4745  Email: brittney.flaten [at] dec.ny.gov |
| **Station details:**  The hydrologic station for Mohawk Lock 8 is at the downstream end of the sheet piling below Lock 8 on the Mohawk River/Erie Canal. Sensors are approximately 5 ft. above the riverbed.  Water quality parameters are measured using a YSI 6600V2 sonde. The sonde reports the following parameters every 15 minutes: acidity, dissolved oxygen (% saturation and mg/L), specific conductance, turbidity, and water temperature (see the section titled “Sensor Specifications” for more information). Data is logged to a Campbell Scientific CR1000 datalogger, and is transmitted hourly to the HRECOS database via FTP.  \*Water elevation is measured by USGS using a co-located OTT Compact Bubbler System. Water level is converted from NGVD29 to NAVD88 relative to sea level (USGS gage height + 200 ft. – 0.538 ft.). Only 15-minute data is retained for HRECOS, but the gage records at 5-minute intervals. Original USGS data can be accessed at the following URL: <http://waterdata.usgs.gov/usa/nwis/uv?01354330>. |
| **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. Lock 8 Hydrologic Station data. Accessed April 13th, 2016. <http://www.hrecos.org/>.” |
| **Data Quality Assurance:**  Data collection and verification have been performed since the establishment of this station (January 2012) according to the HRECOS Quality Assurance Project Plan, which is available at [www.hrecos.org](http://www.hrecos.org/) See relevant section on following pages for QAQC flag and comment code definitions.  \*The level gage is maintained by the U.S. Geological Survey. Data QAQC for this parameter occurs on a different |



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| schedule than the sonde parameters (~annually, as opposed to quarterly). Verified data may have been corrected based on field measurements, sensor calibrations, sensor cleanings, and other observations using standard USGS methodology. Unverified data is [provisional and subject to revision](http://waterdata.usgs.gov/ny/nwis/?provisional). |
| **Special notes:**   * 1/22/14 07:00 – 2/27/14 07:45: OTT bubbler orifice was frozen. YSI depth sensor (with atmospheric pressure correction applied) was activated and OTT data stream was replaced for this time period. * 12/4/13 16:00 to 4/24/14 11:15: Sonde deployed on 12/4/13 appears to have a consistent temperature offset of ~-0.75 deg C for the entirety of the deployment. A correction of +0.75 deg C was applied to water temperature. As a result of temperature dependence by DO and pH measurements, this offset introduces a small amount of error to concurrent records of these parameters. * (Same period as above): Significant, but gradual pH drift occurred. All pH records in the period are marked as suspicious. * 12/10/14 – Sonde deployed had negative temperature offset similarly to last year (albeit different sonde was deployed). Data was corrected with a +0.67 deg C offset and probe replaced after deployment. |
| **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 |

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| (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 |

Last updated: 12/15/23

**Table 1. YSI 6600-series sensor specifications.**

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| --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | Units | Sensor type | Model | Range | Accuracy | Resolution | Other |
| **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) | NA |
| **Dissolved oxygen** | Air saturation (%)    mg/L | Optical    Calculated | YSI 6150 ROX | 0 – 500%    0 – 50 mg/L | 0 – 200%: 1%  200 – 500%: 15%    0 – 20 mg/L: -0.1 mg/L or 1% (whichever is greater);  20 – 50 mg/L: -15% | 0.1%    0.01 mg/L | NA |
| **Water**  **temperature** | Celsius (C) | Thermistor | YSI 6560 | -5 – 45 C | 0.15 C | 0.01 C | NA |
| **Acidity** | Hydrogen ion concentration  (pH) | Glass combination  electrode | YSI 6589 Fast-  response pH  Sensor | 0 – 14 units | 0.2 units | 0.01 units | NA |
| **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/Feet | Nitrogen bubbler | OTT Bubbler Sensor | 0 – 50 ft  (15.24 m) | 0 – 15 ft: 0.01 ft (0.003 m);  15 – 35 ft: 0.065%;  35 – 50 ft (0.006 m) | Max. traceable rate of change: 3 ft/minute | Vented to atmosphere |
| **Water level (sonde;**  **backup)** | Meters (m) | Strain gauge pressure  transducer | YSI 6600V2 | 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) | Corrected for atm.  pressure |

**Characterizing cross-channel variability at the Mohawk Lock 8 HRECOS site.**

**Prepared by:**

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**July 2015**

In June of 2012 and April 2014 we characterized the variability of water quality variables adjacent to the Mohawk Lock 8 HRECOS installation. The two dates were sampled to capture conditions below the lock at a time the water control logs were in place (June) versus removed (April). We followed the established procedures to determine the representativeness of near shore sites in the HRECOS network, towing a sonde across the channel adjacent to the fixed sonde location. At three sites (See Fig. 1) we sampled near surface (~ 1 m) and at depth (2-3 m) to examine any vertical variability.

**Fig. 1: Map of Lock 8 transect and sampling locations.**



None of the solutes or dissolved oxygen showed significant variability across the channel or with depth. This is evident in a box-plot showing dissolved oxygen for the two dates broken out by shallow/deep samples (Fig. 2). There is clearly a seasonal difference, with April concentrations much higher due to cooler temperatures. Turbidity is typically the variable with the greatest variability both horizontally and vertically in prior HRECOS cross-channel sampling. At this Mohawk site there is very small variability on a given date although (as expected) there are much higher levels in April than June (Fig. 3)

**Fig. 2: Box plot comparing dissolved oxygen for two dates at two depths (shallow (s) and deep (d)). Error bars are 1 Std Error.**

12.8

12.6

12.4

12.2

12.0

11.8

11.6

11.4

11.2

11.0

10.8

10.6

10.4

10.2

10.0

9.8

9.6

June 2012

April 2014

s d s d

LOGS: IN

LOGS: OUT

Mean Mean±SE

Mean±1.96\*SE

ODO mg/L

**Fig. 3: Box plot of vertical variation in turbidity (NTU) for two dates at the Mohawk Lock 8 site.**

80

70

60

50

40

30

June 2012

April 2014

20

10

0

s

d

s

d

LOGS: IN

LOGS: OUT

Mean Mean±SE Mean±1.96\*SE

NTU

Overall, this site on the Mohawk is well-mixed undoubtedly because it is immediately below the spill way and the shore-mounted sonde will adequately characterize the channel at this point.