

Water Quality Metadata

Last updated: 10/31/2025

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Station Overview

Location: Ilion Marina ([43.019750, -75.028472](#))

Data collection period: 09/23/2015 – present; seasonal due to canal drawdown

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

Previous location: Frankfort, NY ([43.045277, -75.070093](#))

Previous data collection period: 2013: 5/1-6/15, 8/23-11/5; 2014: 5/6-7/17

Previous parameters: pH, dissolved oxygen, specific conductance, turbidity, and water temperature.

Contacts

Brittney Flaten, HRECOS Coordinator

NY State Dept. of Environmental Conservation

Email: [brittney.flaten \[at\] dec.ny.gov](mailto:brittney.flaten@dec.ny.gov)

Station Description

The Mohawk River at Ilion water quality monitoring station contributes to the NY State Department of Environmental Conservation's (NYSDEC) Statewide Water Quality Monitoring Program and will assist in the overall development of water management strategies to protect and improve New York's natural resources. Funding is provided by the NYSDEC Mohawk River Basin Program and the New York State Environmental Protection Fund.

The station is located on the shoreline of the Village of Ilion Marina and RV Park. A YSI EXO2 sonde, which is housed in a perforated aluminum pipe mounted to the concrete bulkhead wall, sits 9.8 feet below the top of the wall. Total water depth at this location is ~11 feet. Measurements are taken at 15-minute intervals. See Sensor Specifications section below for more information. Data are logged to a Campbell Scientific CR800 datalogger.

Water depth (relative to sonde) was measured by the sonde's pressure sensor, which is naturally affected by variations in atmospheric (barometric) pressure. Therefore, station was previously equipped with a CS106 barometer which used to correct for this phenomenon in real-time, using the following equation:

$$\text{Corrected Depth} = \text{Depth} + ((1013 - \text{Barometric Pressure}) * .0102)$$

¹*Frankfort buoy station (discontinued)*: The previous iteration of this monitoring project was a YSI EMM68 buoy anchored ~1000 ft upstream of the Frankfort Marina in Frankfort, NY, which is about 3 miles upriver of the current location on the non-canal section of the Mohawk. The water depth at this location was ~17 ft. Sensors resided 1 m below the water surface. The parameters recorded were the same as those recorded at Ilion, except for water depth. The Frankfort buoy station was discontinued in July 2014 after multiple equipment failures because of damage from major flooding and debris.

Special Remarks

Date	Remark
All	Sonde is pulled every winter when the Mohawk River levels are drawn down.
5/31 – 6/16/2013	Power failure
6/10-6/20/2013	Buoy damaged during major flooding
8/1/2013	Buoy redeployed
8/16/2013	Power failure
8/23/2013	Buoy redeployed
10/14/2013	pH sensor failure; not replaced until 2014
11/5/2013	Buoy pulled for winter
5/6/2014	Buoy redeployed
July 2014	Buoy damaged during major flooding
10/28/2024	Sonde removed for winter
5/20/2025	Sonde deployed for the season
10/28/2025	Sonde removed for winter

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

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
<u>Other comments</u>	
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.