Water Quality Metadata

Last updated: 12/8/2025

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Station Overview

Location: Yonkers, NY (40.9362778, -73.9043056)

Data collection period: 06/12/2014- present; seasonal due to ice hazards

Parameters: pH, dissolved oxygen, specific conductance, salinity, turbidity, water temperature

Note: There may be weather data available for this station upon request.

Contacts

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Station Description

The station is located on the Science Barge which is located just south of the Center for the Urban River at Beczak (CURB). The Science Barge is located directly north of where the Saw Mill River outflows into the Hudson River, and ~500' south (downstream) of a sewage outfall. The river bottom is characterized by thick mud and rocks.

A sonde is deployed in a perforated PVSC pipe strapped to the floating Science Barge. A YSI 6-series sonde was in place from the first deployment through 2017, after which a YSI EXO sonde was installed om 7/12/2018.

CURB initiated this station to support their education and research goals. CURB educates over 5,000 youth annually on the Hudson River and urban watershed issues, and in 2013 launched a research and monitoring program utilizing Sarah Lawrence College students and faculty. The Groundwork Hudson Valley Science Barge joined the partnership as a host site for the station. CURB and the Science Barge are open to the public during operational hours, which vary seasonally.

Special Remarks

Date	Remark
All	**Sonde is removed in the winter and redeployed in the spring to avoid ice damage. Specific dates can be found below.**

July 2016	**PVC deployment tube is replaced with a stainless-steel pipe**
October 2017	**Station temporarily decommissioned for barge maintenance**
7/12/2018	**Station rebuilt with a new YSI EXO2 sonde, logger, and telemetry system. The stainless pipe was replaced back to a PVC pipe due to concerns about corrosion to the barge**
11/1/2018	**Sonde pulled for winter**
5/10/2019	**Sonde redeployed**
12/4/2019	**Sonde pulled for winter**
12/11/2023	**Sonde pulled for winter**
4/11/2024	**Sonde redeployed**
6/7/2024-6/11/2024	**Sonde pulled for maintenance**
9/23/2024	**Sonde pulled for maintenance**
12/9/2024	**Sonde pulled for winter**
4/1/2025	**Sonde redeployed**
12/1/2025	**Sonde pulled 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:

<u>General Errors</u>	
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
<u>Sensor Errors</u>	
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 pr 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% or 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.