

Water Quality Metadata

Last updated: 12/8/2025

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Station Overview

Location: Pier 84, New York, NY ([40.764628 N, 74.003186 W](#))

Data collection period: 12/21/2012-07/15/2025

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

*See below for correction equation

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Station Description

The purpose of the Hudson River Park Pier 84 station is to generate a consistent stream of water quality and atmospheric data to the general public and interested stakeholders. The goal in collecting this data is to ultimately inform Hudson River management policies, restoration efforts, and extreme event planning. This station was selected due to its location near the NYC Harbor and in lower Manhattan, one of the world's most heavily developed and densely populated urban environments.

The Hudson River Park Pier 84 station is located on the southeastern piling at the end of Pier 84's finger pier. The water depth at this location ranges from 4.5 to 6 meters. Sensors are deployed on a YSI EXO2 sonde, approximately 2 meters off the bottom.

Data is recorded every 15 minutes by a CR200 datalogger.

*Depth measurements at this site are not corrected for the influence of atmospheric pressure (see [here](#) for more information). This calculation can be performed manually using the following equation and concurrent barometric pressure measurements from the weather component of this station:

*Corrected depth = measured depth + ((1013 - barometric pressure) * .0102)*

This station was decommissioned on 7/15/2025 due to rising costs. Please consult the data from Pier 25, which is nearby.

Special Remarks

Date	Remark
7/24/2014 – 12/31/2014	All depth data flagged as suspicious due to erratic and jumping values, possibly due to a fouled depth port.
02/01/2015-03/01/2015	Sensors may have been exposed to air at low tide during several instances, possibly causing ice to form on sensors and persist through multiple tidal cycles. Data will be flagged accordingly.
9/8/2015	Both sondes equipped with new C/T sensor
1/26/2017 – 2/16/2017	pH and Conductivity sensors failed. Instrument recalibrated on 4/13/2017.
4/28/2017	pH module replaced
7/24/2017	Conductivity probe failure
9/19/2017	Sonde failure
6/28/2023-7/12/2023	Communication failure. Data gap during this period.
January 2023	Expect data gaps due to inconsistent power supply
August 2024	Station was vandalized and telemetry equipment was stolen. Station continues to collect data, but they are not available in real-time.
7/15/2025	Station decommissioned.

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

Other 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
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.