HRECOS Pier 25 Water Quality Metadata

Last updated: 08/20/2024

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Station Overview
Location: Pier 25, New York, NY (40.720474, -74.016363)

Data collection period: July 2018 – present

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

Previous location: Pier 26, New York, NY (40.721538 , -74.015600)

Previous data collection period: 9/16/2016-July 2018

Previous parameters: pH, dissolved oxygen, specific conductance, turbidity, salinity, water temperature, and water depth above sonde

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Station Description:
The purpose of the Hudson River Park Pier 25 station is to generate a consistent and precise stream of water quality 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 26 station is located on the northwestern piling at the end of Pier 26 (40.721538 N, 74.015600 W). The water depth at this location ranges from 4.0 to 6 meters. Sensors are deployed on a YSI EXO2 sonde, approximately 2 meters off the bottom.

Depth measurements corrected for influence of atmospheric pressure in real-time (see here for more information). This calculation is performed within the data logger using barometric pressure from the co-located weather station, applied to the following equation:

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

When station was moved from Pier 26 to Pier 25 in July of 2018, the same equipment was used to rebuild.

https://waterdata.usgs.gov/monitoring-location/01376520/#parameterCode=00010&period=P7D&showMedian=true

Special Remarks:

Date	Remark
2/1/2017	Noticeable drift in conductivity and pH
4/13/2017	pH and conductivity sensors replaced
4/25/2017	Conductivity measurements suspicious, probe was recalibrated on this date
6/28/2017	Fish found living in sonde probe guard
9/11/2017	Conductivity and DO drift noted
9/20/2017	Data logger failure. Internal sonde memory used as backup
9/26/2017-10/11/2017	Depth not corrected for barometric pressure due to data logger failure
11/28/2017	Transmission issues resolved
July 2018	Station permanently moved from Pier 26 to Pier 25 due to long-term construction project

Distribution Terms:
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Data Quality Assurance:
Data collection and verification have been performed on all parameters (except velocity; see below) since the establishment of this station (January 2011) according to the HRECOS Quality Assurance Project Plan, which is available at www.hrecos.org

Remark on velocity: The level gage and velocity meter have been maintained by the U.S. Geological Survey since their adoption/installation by the agency in September 2016. Water elevation is verified by USGS annually, while velocity is only a working dataset and is primarily purposed for short-term operational use. USGS-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 is subject to revision.

Code Definitions

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/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

YSI EXO2 Sensor Specifications:
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: Conductivity
Units: mS/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

Conductivity:

Historically, specific conductivity data from HRECOS sites was reported in millisiemens/cm. However beginning in 2019, reporting switched to microsiemens/cm. All data files available on hrecos.org have been converted to reflect this change.

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.