**HRECOS Newark Bay at Passaic Valley Sewerage Commission Metadata**

**Last updated: 08/21/2024**

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Station Overview

Location: Passaic Valley Sewerage Commission, Newark Bay, NJ ([40.713239, -74.123086](https://www.google.com/maps/place/40%C2%B042'47.7%22N+74%C2%B007'23.1%22W/@40.713239,-74.123086,2803m/data=!3m2!1e3!4b1!4m2!3m1!1s0x0:0x0))

Data collection period: 03/13/2014 – present

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

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Station Description:

This project was funded by an agreement awarded by the Environmental Protection Agency to the New England Interstate Water Pollution Control Commission (NEIWPCC) in partnership with the New York-New Jersey Harbor & Estuary Program.

The hydrologic station is located at the north end of the PVSC dock on the Kearny Point Reach of the Passaic River, adjacent to USGS Tide Gage 01392650. A YSI EXO2 water quality sonde measures every 15 minutes. The sonde is housed in a locked 4” diameter PVSC pipe which is bolted to the concrete sea wall. The sonde sits on a bolt set across the bottom of the pipe, which is set approximately 1 meter above the bottom of the river. The bottom 2 feet of the pipe is perforated with numerous holes to allow free water flow past the sensors. Data is recorded by a CR200 datalogger and transmitted online every hour.

Special Remarks:

|  |  |
| --- | --- |
| **Date** | **Remark** |
| **12/13/2023** | Data transmission to the web stops due to lapse in contract with USGS. Data are still available after this date, but were not subject USGS QAQC. |

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. Albany Hydrologic Station data. Accessed April 13th, 2016. <http://www.hrecos.org/>.”

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](https://nysemail-my.sharepoint.com/personal/brittney_flaten_dec_ny_gov/Documents/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:

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: 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.