

New Hydrologic Monitoring Stations for Barnegat Bay Project and other Projects

U.S. Geological Survey
New Jersey Water Science Center
West Trenton, New Jersey

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New Jersey Water Monitoring
Council Meeting
Delaware River Basin Commission
West Trenton, NJ
October 3, 2012

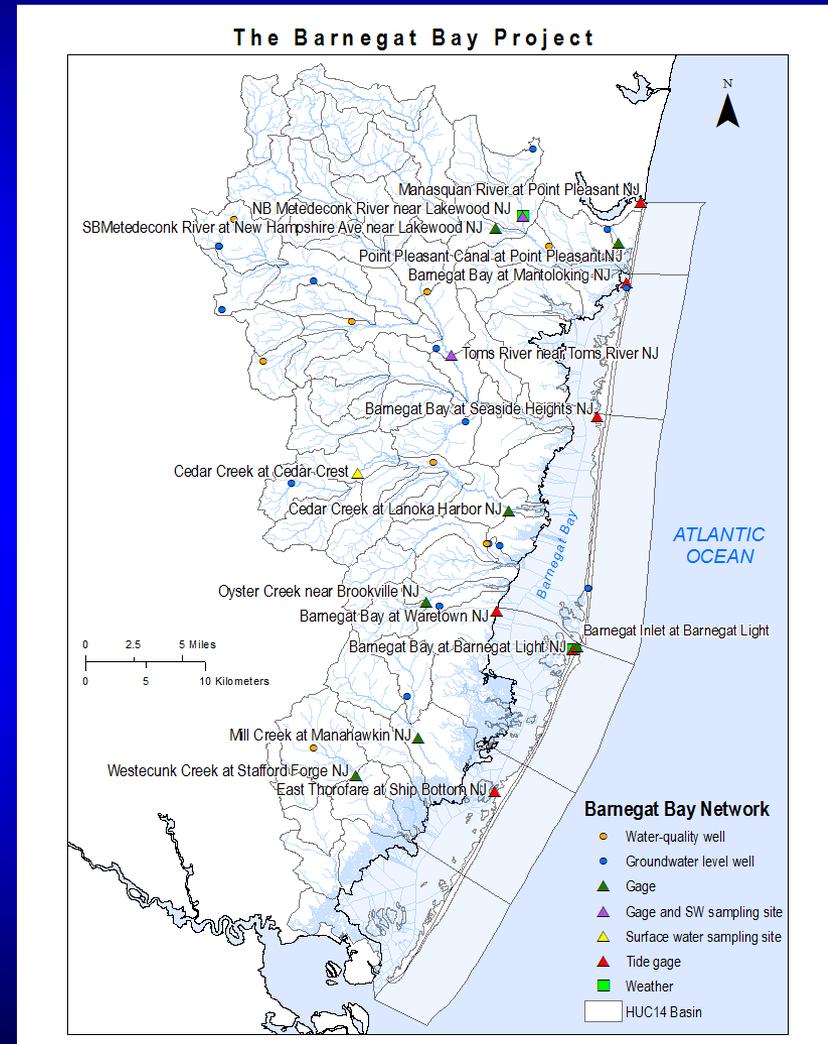


Providing reliable, impartial, and timely data to assess the quantity and quality of our nation's water resources

Hydrologic Monitoring Network

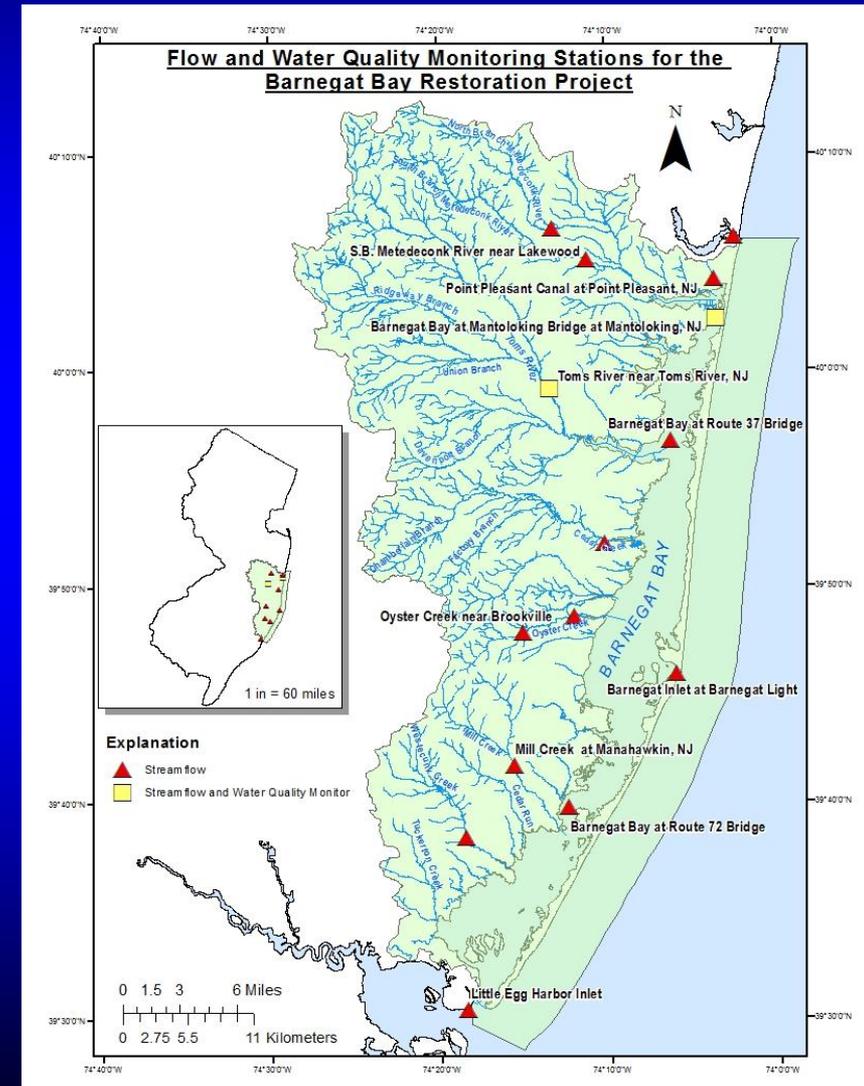
- 15 continuous-record discharge gaging stations
- 13 ground-water level wells
 - 7 hourly, 6 manual
- 7 Groundwater sampling wells
- 6 stage-only tide gages
- 3 stream sampling sites
- 2 QW monitors
- 1 precipitation gage
- 1 weather station

Water temperature at 6 tide gages



New Gaging Stations and Water Quality Monitors for Barnegat Bay Project

- 3 Continuous-record discharge gaging stations on tributaries
- 3 Continuous-record discharge gaging stations on inlets
- 3 Continuous-record discharge gaging stations on the bay
- 2 Continuous-record water quality monitors



Station	Proposed date of completion	Completion date
Site 1 (01408043) Point Pleasant Canal at Point Pleasant, NJ	July 31, 2011	June 22, 2011
Site 2 (01408167) Barnegat Bay at Route 528 Bridge at Mantoloking, NJ (Stage velocity and discharge)	December 31, 2011	January 25, 2012
Site 2 (01408167) Barnegat Bay at Route 528 Bridge at Mantoloking, NJ (Water Quality field parameters & chlorophyll)	December 31, 2011	January 6, 2012
Site 3 (01408205) Barnegat Bay at Route 37 Bridge near Bay Shore, NJ	March 31, 2012	February 23, 2012
Site 4 (01409147) Barnegat Inlet at Barnegat Light, NJ	September 30, 2011	October 28, 2011
Site 5 (01409145) Barnegat Bay at Route 72 Bridge near Ship Bottom, NJ & (01409146) East Thorofare at Ship Bottom	March 31, 2012	March 30 & April 3, 2012
Site 6 (01409334) Little Egg Inlet near Beach Haven Heights, NJ	March 31, 2012	July 22, 2012
Site 7 (01409095) Oyster Creek near Brookville, NJ	June 30, 2011	May 23, 2011
Site 8 (01408150) S.B. Metedeconk River near Lakewood, NJ	July 31, 2011	June 10, 2011
Site 9 (01409210) Mill Creek at Manahawkin, NJ	June 30, 2011	May 24, 2011
Site 10 (01408500) Toms River near Toms River, NJ (Water quality field parameters and nitrate)	November 30, 2011	September 20, 2011

Acoustics at Barnegat Bay

Gages

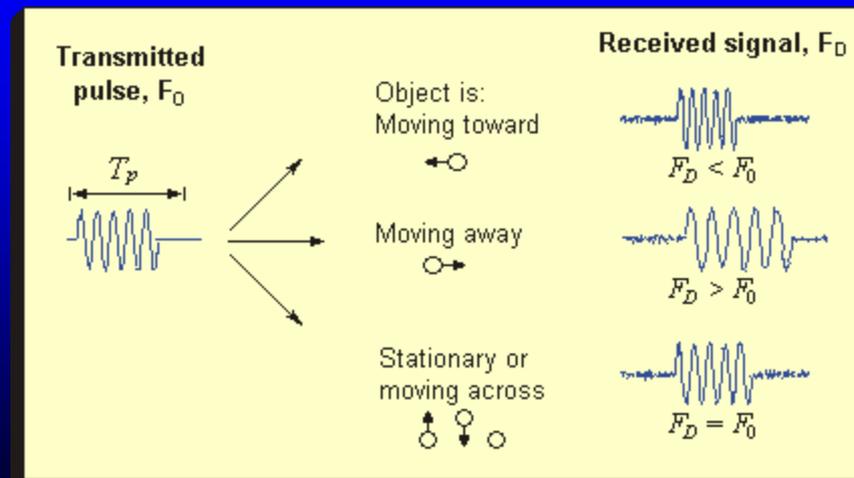
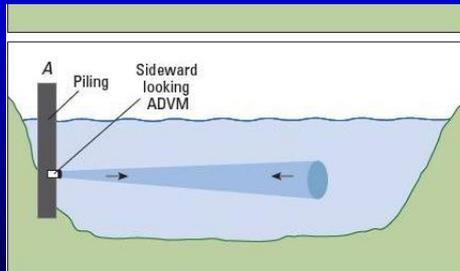
- Acoustic Doppler Velocity Meters
 - Installed at 3 Barnegat Bay gages and 3 gages on Inlets to the bay
- Velocity
 - Range: ± 20 ft/s
 - Resolution: 0.003 ft/s
 - Accuracy: ± 0.015 ft/s
- 2 horizontal Beam transducer
 - Beam range: 1.6 – 400 ft
- 1.5 MHz signal
- Multi-cell current profiling



Acoustic Doppler Velocity Meter (ADVM)

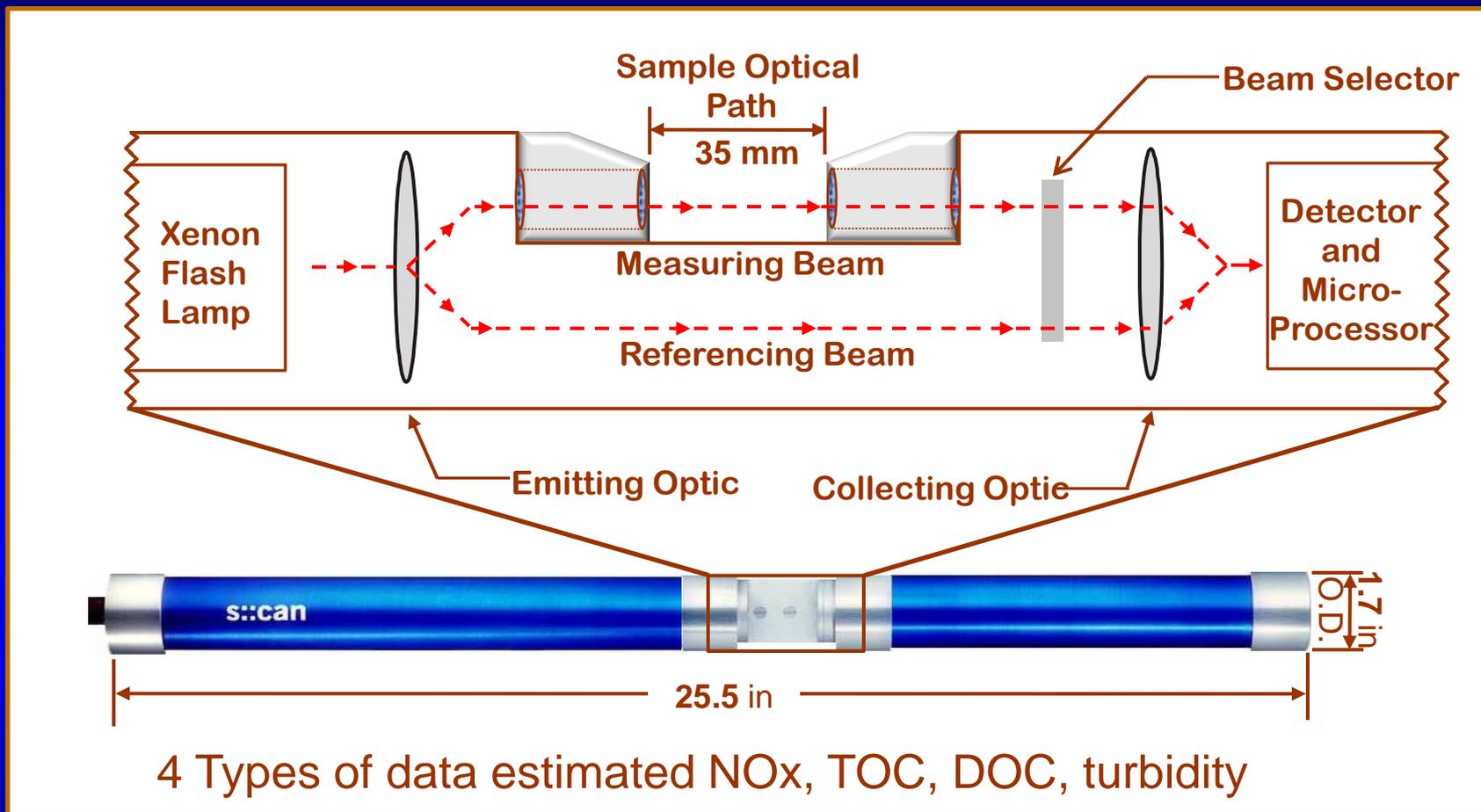


Argonaut SL



The Spectrometric Process Analyser

How does it work?



Real-time correction for color and turbidity

Nitrate and Chlorophyll-a Sensors



Nitrate Sensor at
Toms River near Toms River



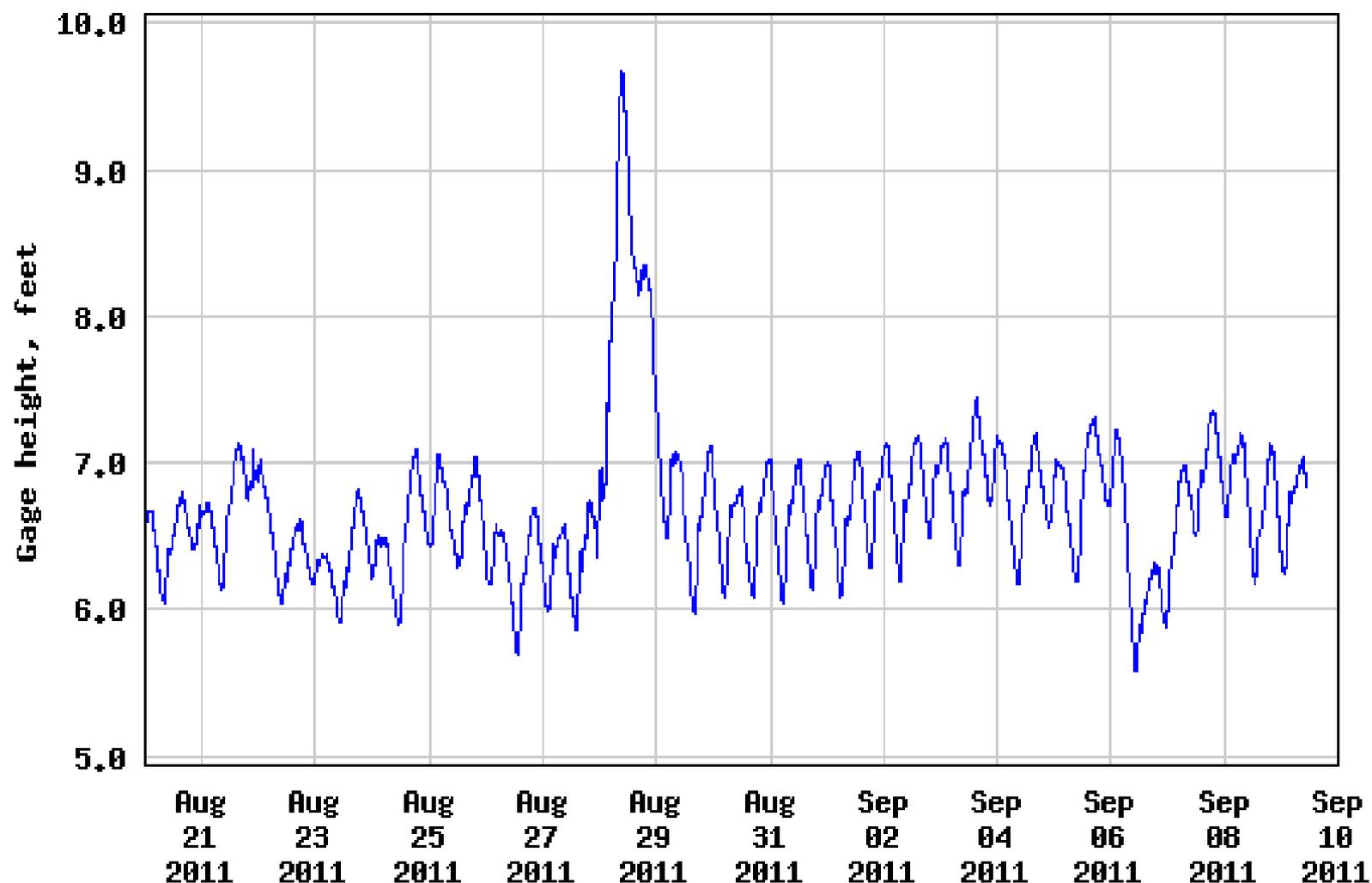
Chlorophyll Sensor at
Barnegat Bay at Route
528 Bridge at
Mantoloking

01408043 Point Pleasant Canal at Point Pleasant, NJ

- Canal connects Manasquan River to Barnegat Bay
- Stage, velocity collected every 15 minutes
- Discharge computed in cubic feet per second



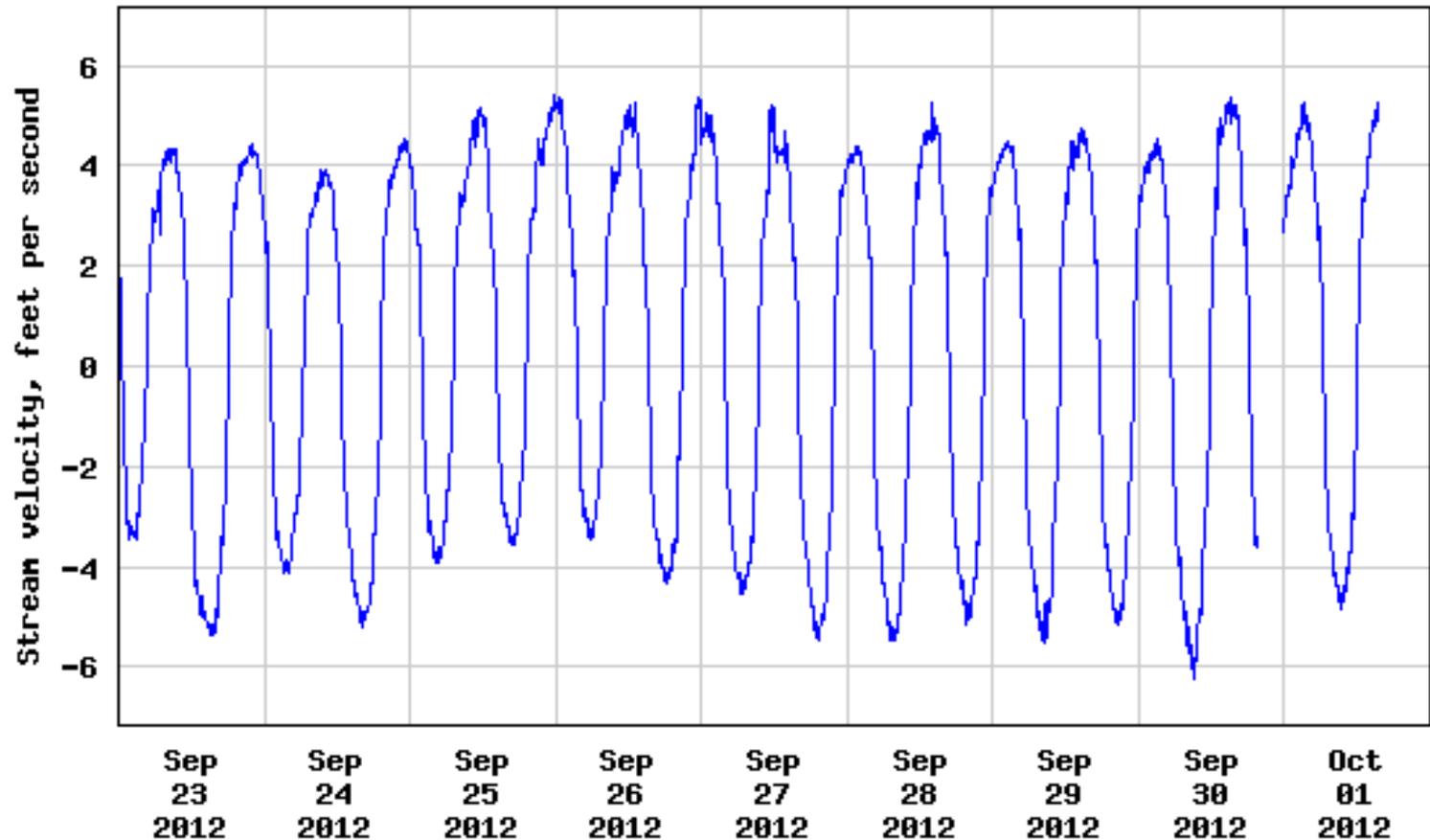
USGS 01408043 Point Pleasant Canal at Point Pleasant NJ



---- Provisional Data Subject to Revision ----

01408043 Point Pleasant Canal at Point Pleasant

USGS 01408043 Point Pleasant Canal at Point Pleasant NJ



---- Provisional Data Subject to Revision ----

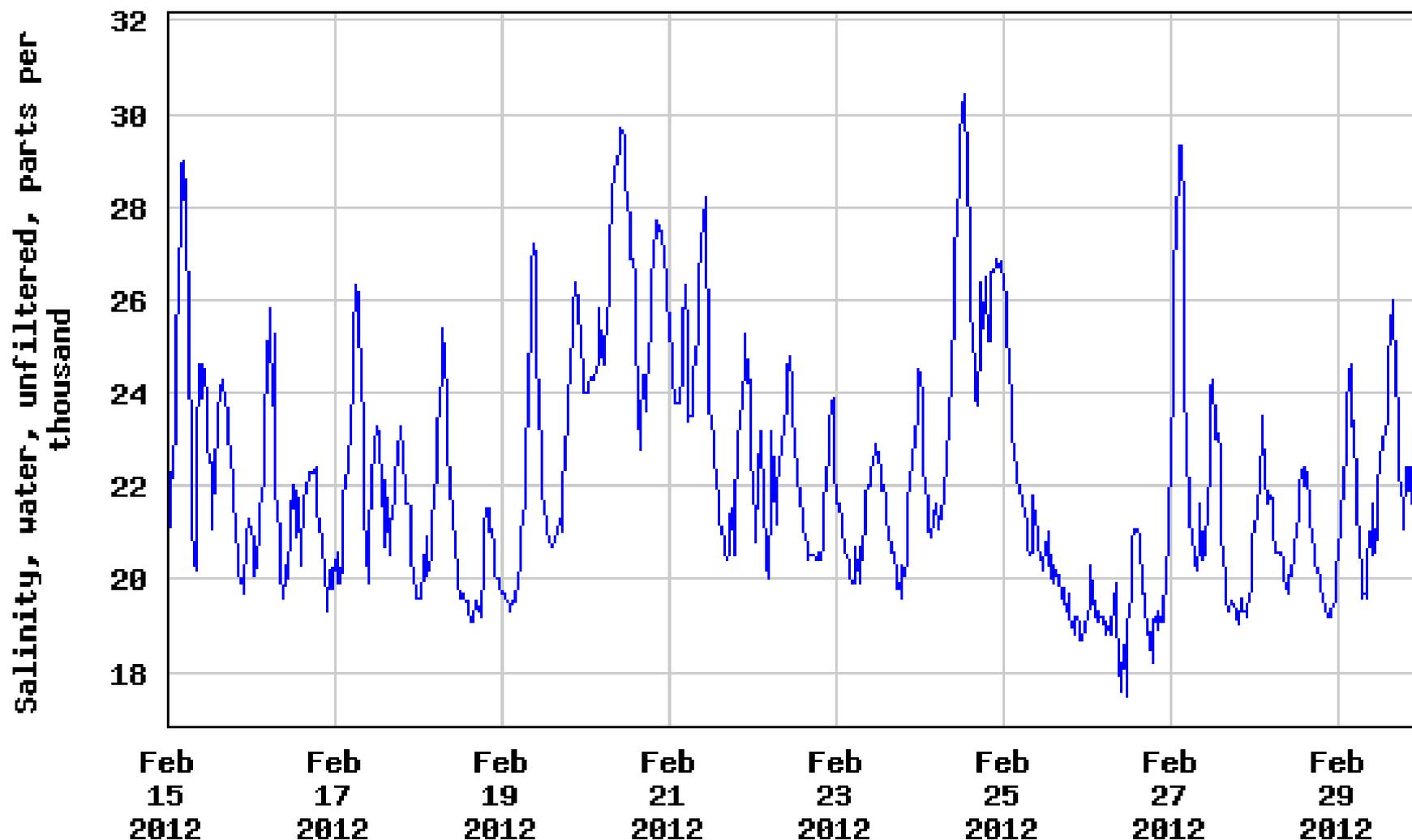
Graph courtesy of the U.S. Geological Survey

01408167 Barnegat Bay at Route 528 Bridge at Mantoloking, NJ

- Stage, velocity collected every 15 minutes
- Discharge computed in cubic feet per second
- Water temp., SC, pH, DO, turbidity, salinity, total chlorophyll, 4 species of chlorophyll, CDOM, collected every 30 min.



USGS 01408167 Barnegat Bay at Route 528 bridge at Mantoloking NJ



---- Provisional Data Subject to Revision ----

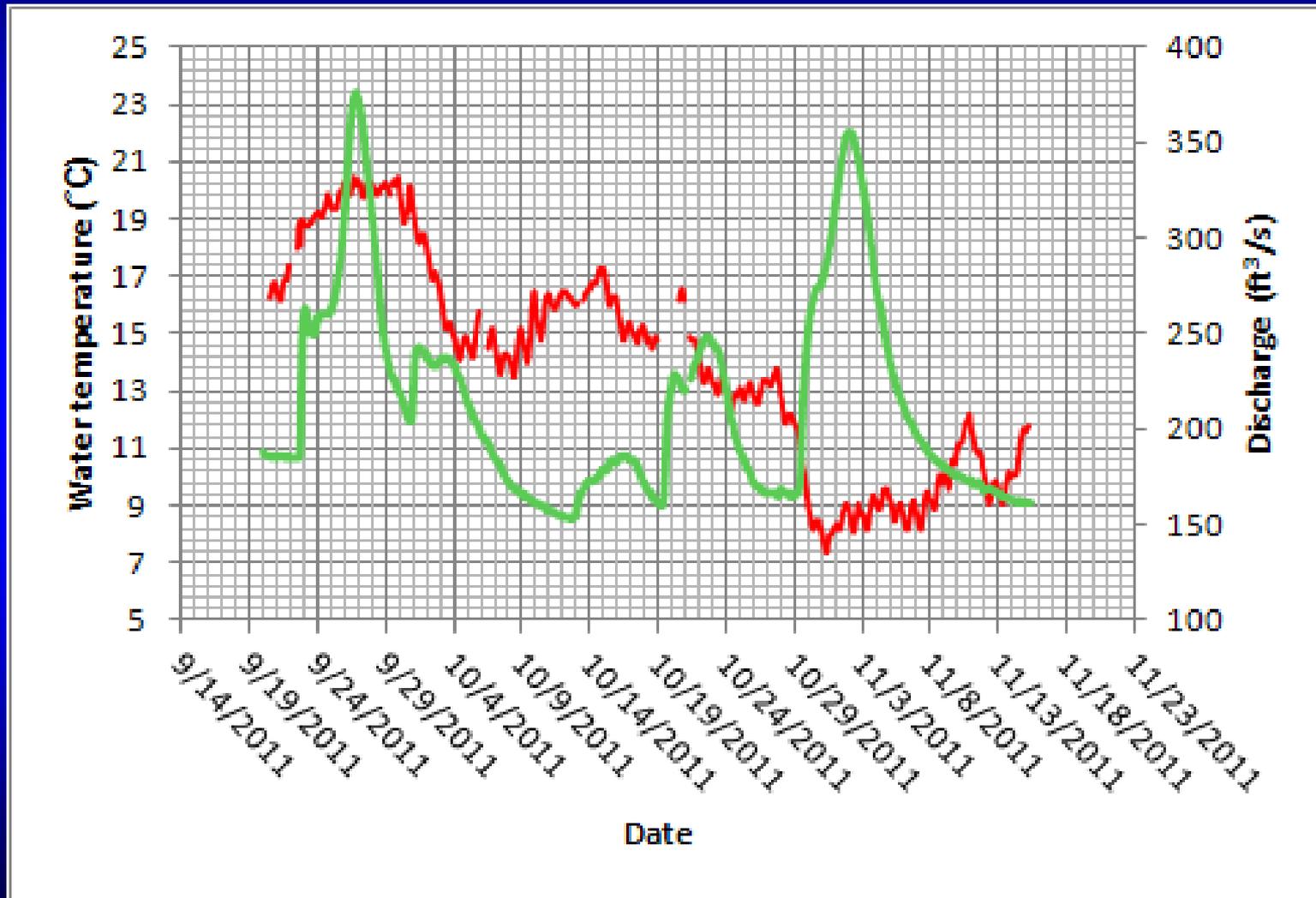
Graph courtesy of the U.S. Geological Survey

01408500 Toms River near Toms River, NJ

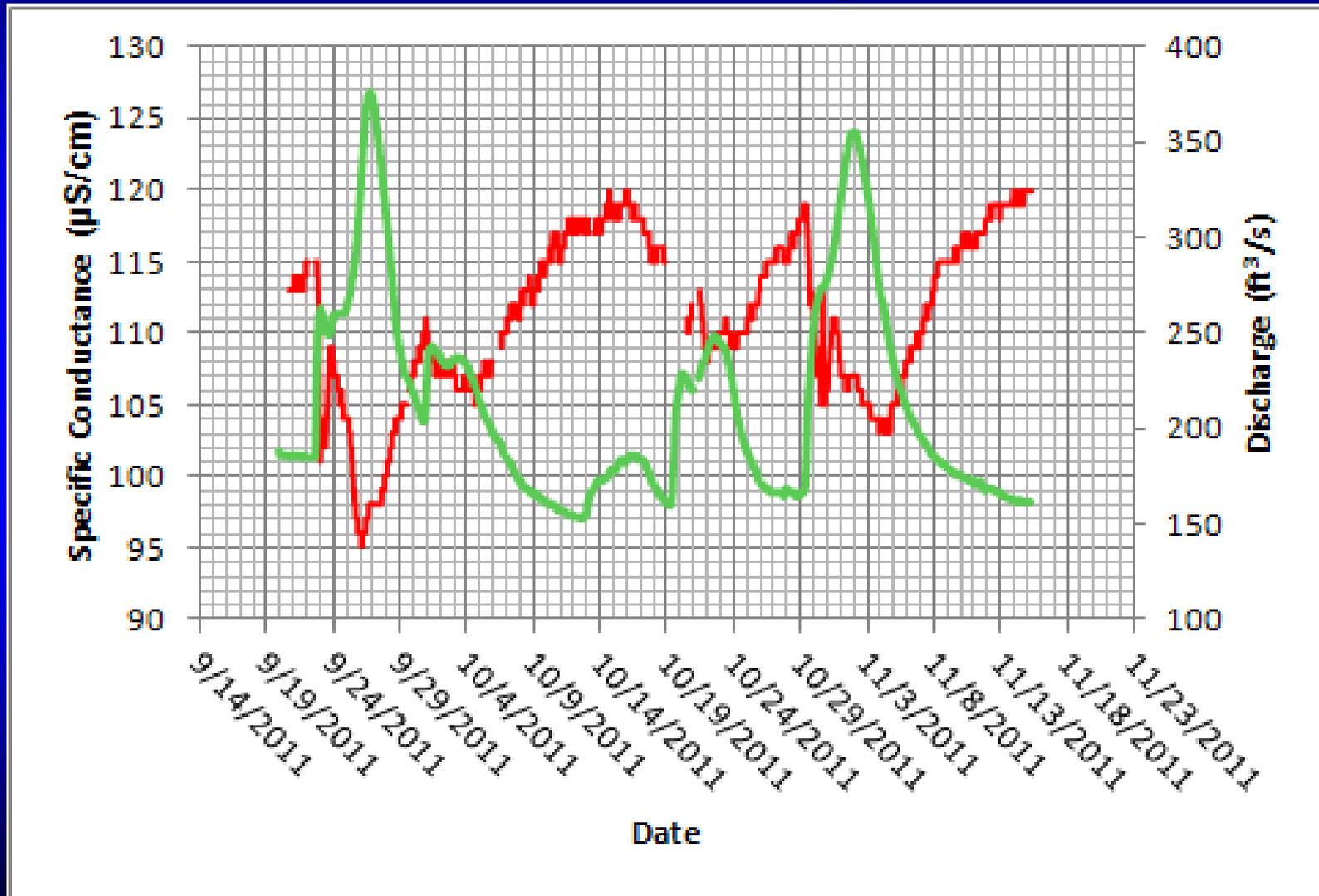
- Stage, velocity collected every 15 minutes
- Discharge computed in cubic feet per second
- Water temp., SC, pH, DO, turbidity, nitrate + nitrite, DOC



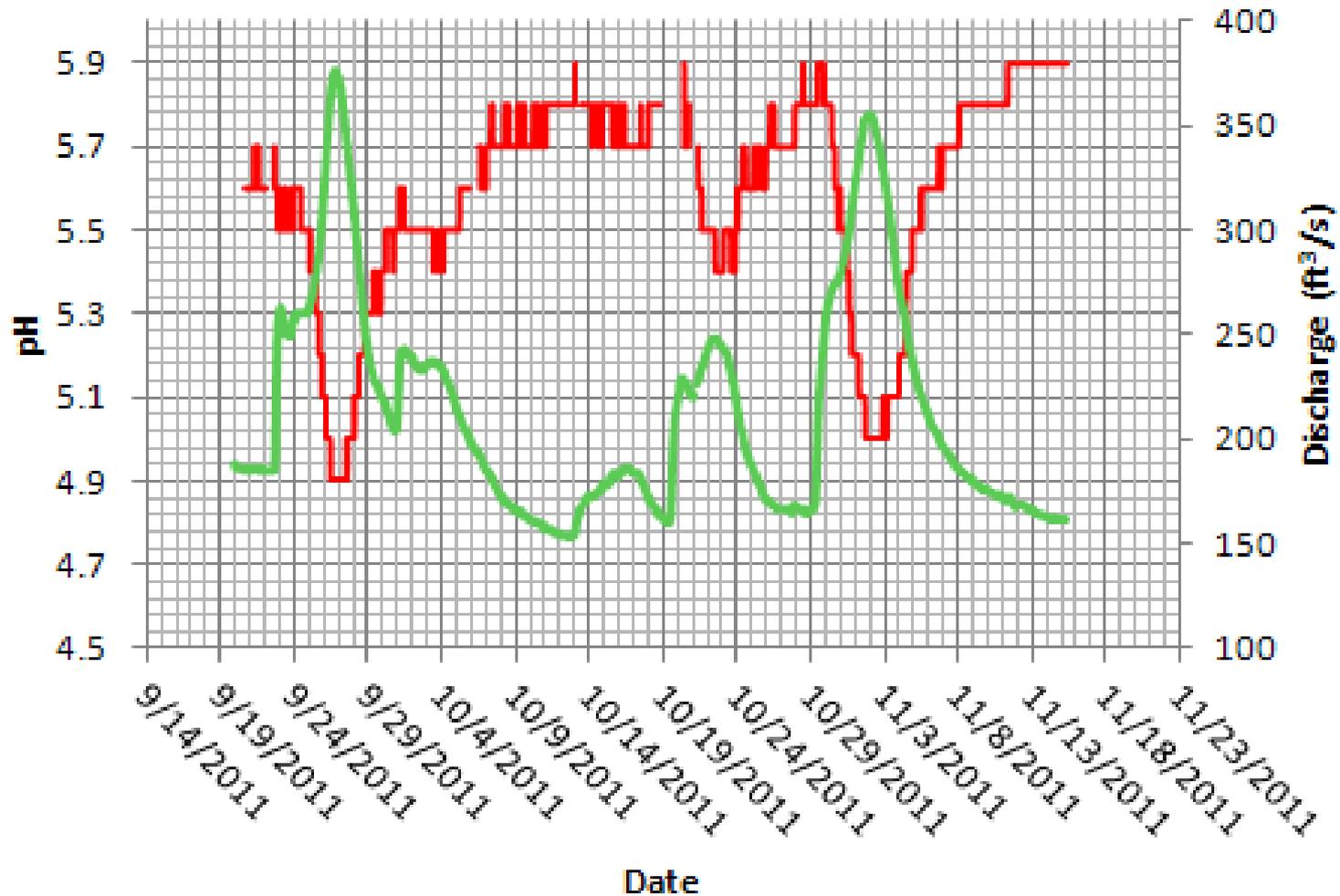
Toms River Water Temperature and Discharge



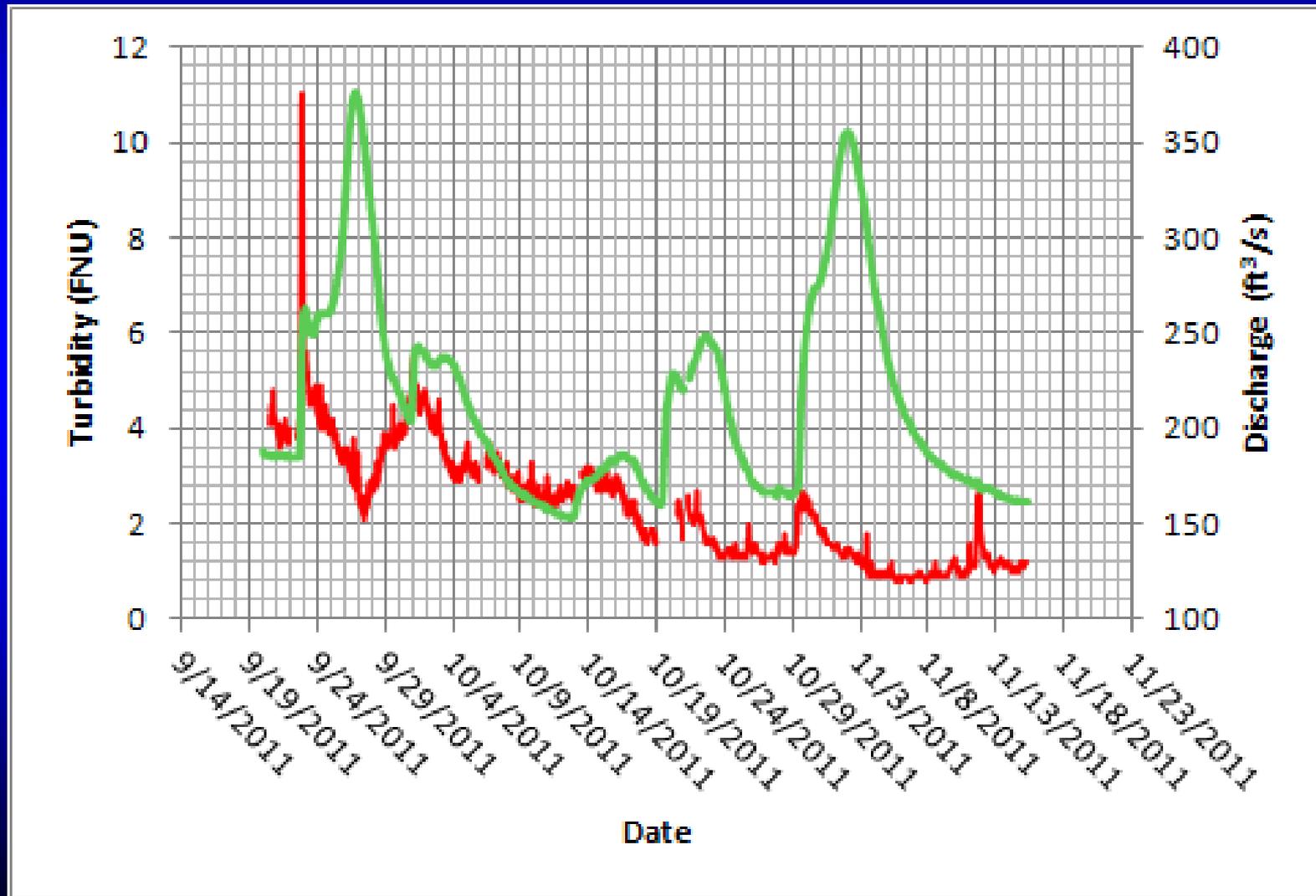
Toms River Specific Conductance and Discharge



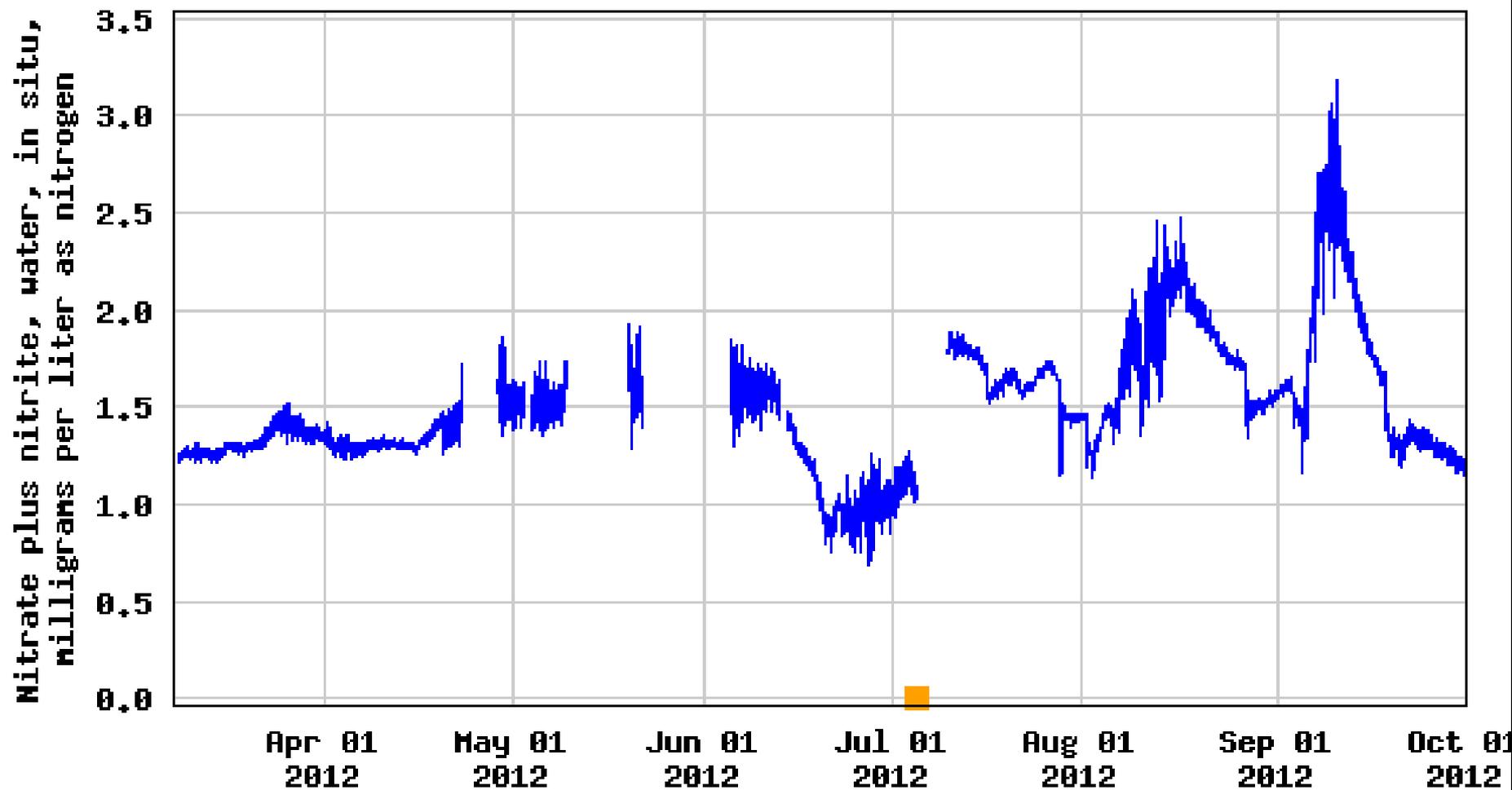
Toms River pH and Discharge



Toms River Turbidity and Discharge



USGS 01408500 Toms River near Toms River NJ



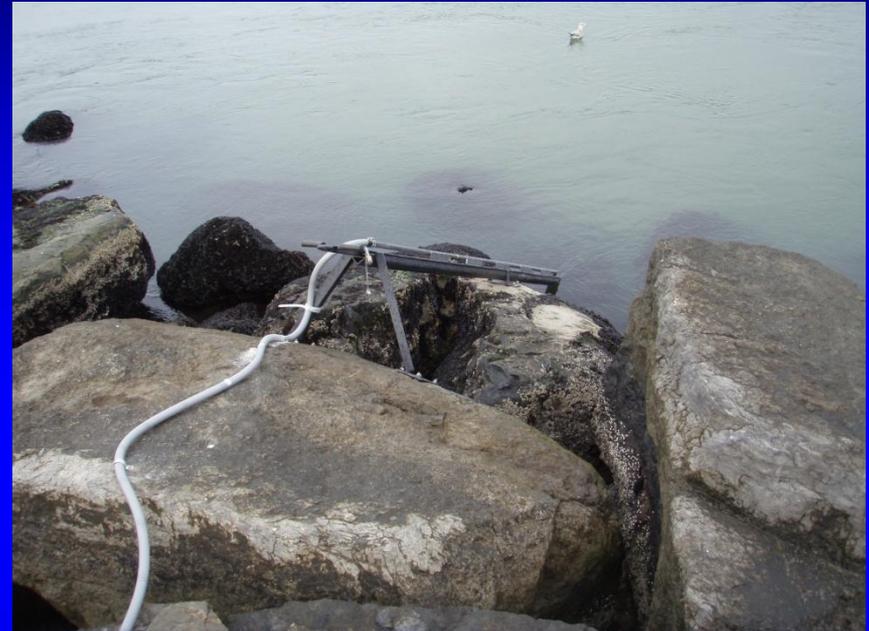
---- Provisional Data Subject to Revision ----

■ Data temporarily unavailable — Nitrate plus nitrite

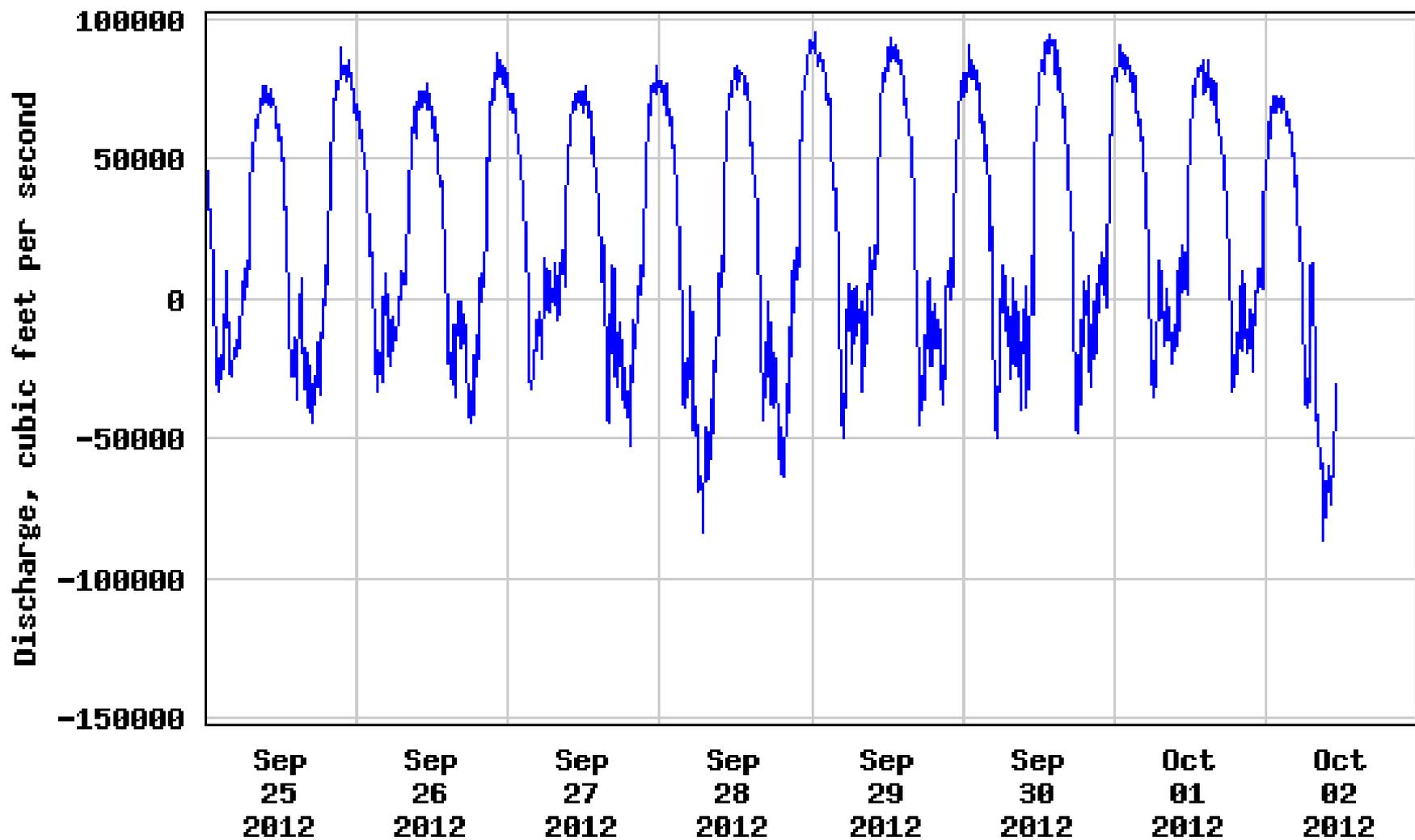
Graph courtesy of the U.S. Geological Survey

01409147 Barnegat Inlet at Barnegat Light, NJ

- Stage, velocity collected every 15 minutes
- Discharge computed in cubic feet per second



USGS 01409147 Barnegat Inlet at Barnegat Light NJ



---- Provisional Data Subject to Revision ----

Graph courtesy of the U.S. Geological Survey

01409334 Little Egg Inlet near Beach Haven Heights, NJ

- Stage, velocity collected every 15 minutes
- Discharge computed in cubic feet per second



Other new gages for Passaic Flood Warning System

Stage and Discharge

- Pompton River at Route 202 at Mountain View (01388910)
- Rockaway River at Warren St at Dover (01379845)

Coming soon: Passaic River at I-80 at Two Bridges

Raritan Basin: Royce Brook at Manville (01402600)

Stage Only

- Beaver Dam Brook at Lincoln Park (01388700)

Precipitation gages

- Green Pond Brook at Picatinny Arsenal
- Ramapo River at Pompton Lakes
- Mahwah River near Suffern, NY