



# NJ Ambient Water Quality Data Exchange

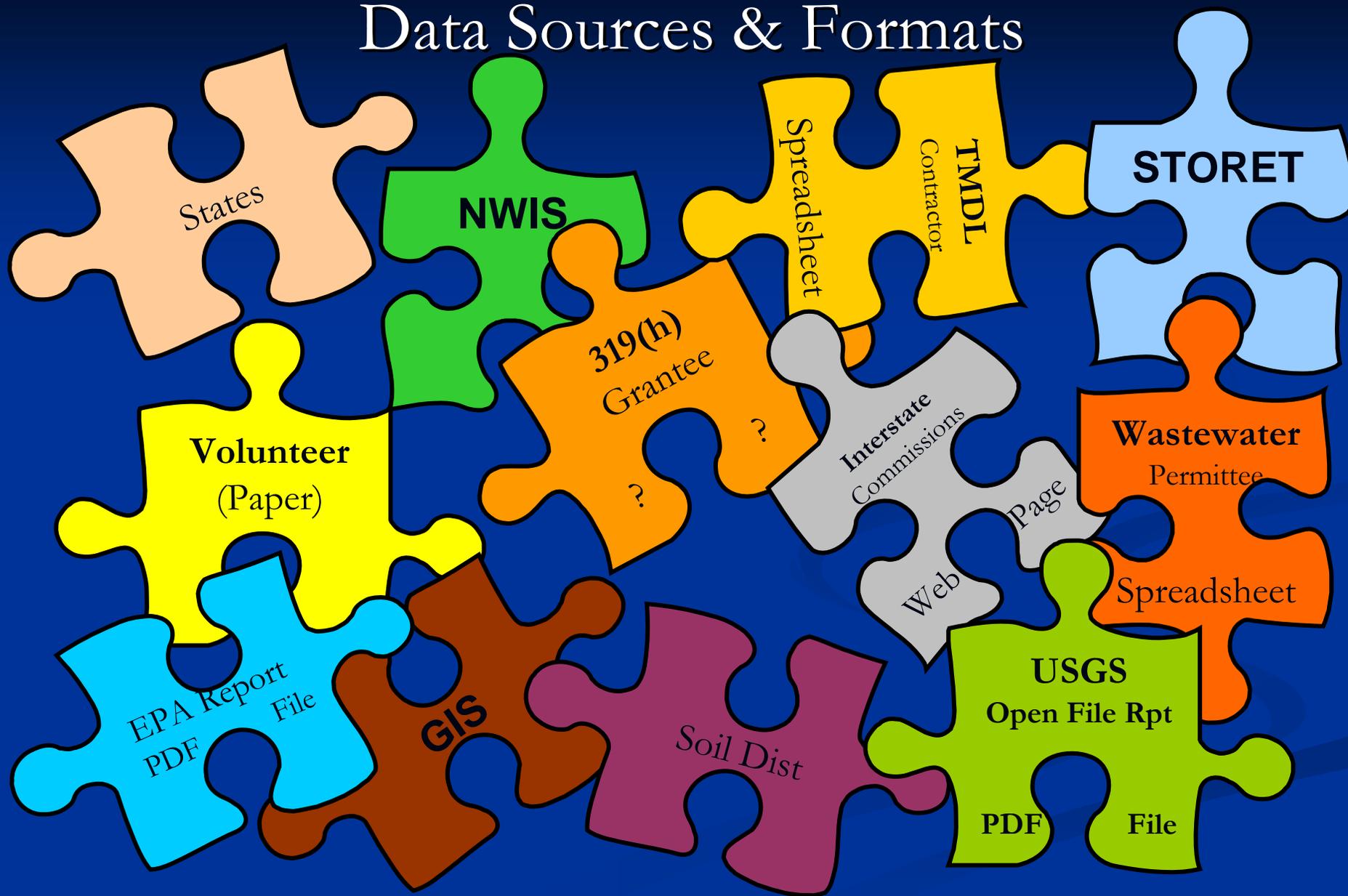
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New Jersey Water Monitoring Council  
West Trenton, NJ  
May 19, 2010



# Integrate Different WQ Data Sources & Formats



# NJ Ambient WQ Data Exchange

**NJDEP**  
 - Water Monitoring & Standards  
 - Div. Watershed Management  
 - Div. Water Quality



Counties  
 Commissions



TMDL Contractors  
 319(h) Grantees



NJPDES Permittees  
 (Water Quality Studies)



Volunteer Organizations  
 Watershed Groups



Academia  
 - Rutgers University



NJ Web Server



NJ Facility  
 Database



NJ GIS



NJ Water Quality  
 Database



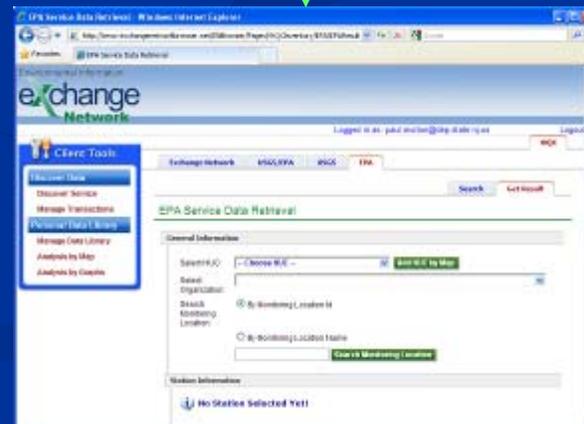
NJ GeoWeb / Data Miner



USEPA  
 STORET



USGS  
 NWIS



Exchange Network Browser





# Inventory/Data Portal

## Coordinated by the NJ Water Monitoring Council

Co-chairs:

Leslie McGeorge, NJDEP Water Monitoring & Standards  
Eric Vowinkel, USGS NJ Water Science Center

- NJDEP
  - Water Monitoring and Standards
  - NJ Geological Survey
  - Office of Science
- NJ Water Supply Authority
- USGS-NJ Water Science Center
- Delaware River Basin Commission
- Interstate Environmental Commission
- Meadowland Environmental Research Institute
- Passaic River Institute
- NJ Harbor Discharge Group
- Rutgers University
- Montclair University
- Monmouth University



# Enhanced Exchange Network Browser

<http://www.exchangenetworkbrowser.net/ENBrowser/Pages/Main/Login.aspx>

- Access for EN participants (states, tribes, USEPA)
- Housed on the Environmental Council of States (ECOS) server
- Accesses multiple data flows – e.g., water, air
- Gets ambient WQ data from STORET, NWIS and states
- Inventory of monitoring projects
- View maps and data graphs
- Download data
- Requires a Network Authorization and Access Service (NAAS) account

**General Information**

Service Provider:

Web Services:

Organization:   
 USGS-AK  
 USGS-AL  
 USGS-AR  
 USGS-AZ

Site Id:

(Concatenate an agency code, a hyphen ("-"), and a USGS site-identification number.)

Site Type:

**HUC Info**  
 HUC: 02040301  
 # of MonLoc: 28  
 Get MonLoc

**Choose Site Type**

- Hammoncton Creek at Route 90 at Hammoncton NJ
- North Branch Mataleoonk River at Lakewood NJ
- Hammoncton Creek tributary near Wescoaville NJ
- Toms River near Toms River NJ
- Dove Mill Branch at Whitesville NJ
- Mullica River at outlet of Abston Lk at Abston NJ
- Batsto River at Batsto NJ
- Blacks Branch at Lakehurst NJ
- Sunken Branch near Toms River NJ
- Blue Anchor Brook at Elm NJ
- Springen Brook near Hampton Furnace NJ
- Manasquan River at Squankum NJ
- West Branch Wading River at Maxwell NJ
- Hammoncton Creek at Wescoaville NJ
- Hays Mill Creek near Chesilhurst NJ
- Batsto River at Quaker Bridge NJ
- Mingamohone Bk near Earle NJ
- Lending Creek near Egg Harbor City NJ
- East Branch Bass River near New Orleans NJ
- Union Branch at Pine Lake Park NJ
- Hammoncton Creek at

JC from Map

RES_UID	Organization	Activity ID	Collection Start Date	Collection End Date	Characteristic	Characteristic Additional Value	Result	Unit	Detection Condition	Analysis Start Date	Analysis End Date	Lab Name	Lab Accredited
161259	USGS New Jersey Water Science Center	dri/trn.01.00900573	03/25/2009 09:45:00		Oxygen		20	% saturatn					
161260	USGS New Jersey Water Science Center	dri/trn.01.00900573	03/25/2009 09:45:00		Oxygen		2.4	mg/l					



# EN Browser Status

- Live on the ECOS server
- You need a NAAS account
- We're testing enhancement to use EPA and USGS REST services for better performance and to return large amounts of data



# NJDEP NJ-GeoWeb

<http://www.nj.gov/dep/gis/geoweb splash.htm>

- NJDEP based Internet mapping solution for public
- Access to GIS data layers (facilities, land use, impaired waters)
- Has usual GIS tools for identifying, selecting and querying
- Can select multiple locations to get monitoring results

The screenshot displays the NJ-GeoWeb interface within a web browser window. The main map area shows a network of waterways in New Jersey, with various monitoring points marked by colored symbols (green, yellow, pink, blue). The interface includes several toolbars and panels:

- Map Tools:** Located on the left side of the map, containing standard GIS navigation tools like pan, zoom, and search.
- Layer Manager:** A panel on the right side of the map that allows users to toggle different data layers. Visible layers include Shellfish Classification, Volunteer Water Monitoring (with sub-layers Tier A, B, C, D, and Multi Tier), Fish Index of Biotic Integrity, NJ WQDE Water Quality Monitoring, NJ STORET Water Quality Monitoring, EPA STORET Water Quality Monitoring, Sites and Facilities, Planning Areas, Landscape/Natural Heritage, and Historic Areas.
- Measure:** A panel at the bottom right for measuring distances and areas, with options for Distance Unit (Feet) and Area Unit (Square Feet).
- Selections:** A panel at the bottom left for selecting layers and features.
- Mark Up:** A panel for marking up the map with various symbols and lines.
- Buffer Selections:** A panel for creating buffers around selected points or areas.
- Locate Point Using Coordinates:** A panel for finding specific locations on the map based on Easting/Longitude (x) and Northing/Latitude (y) coordinates.

The browser window title is "OnPoint Map Viewer" and the page URL is "http://www.nj.gov/dep/gis/geoweb splash.htm". The NJDEP logo and name are visible at the top of the application interface.



# GeoWeb Status

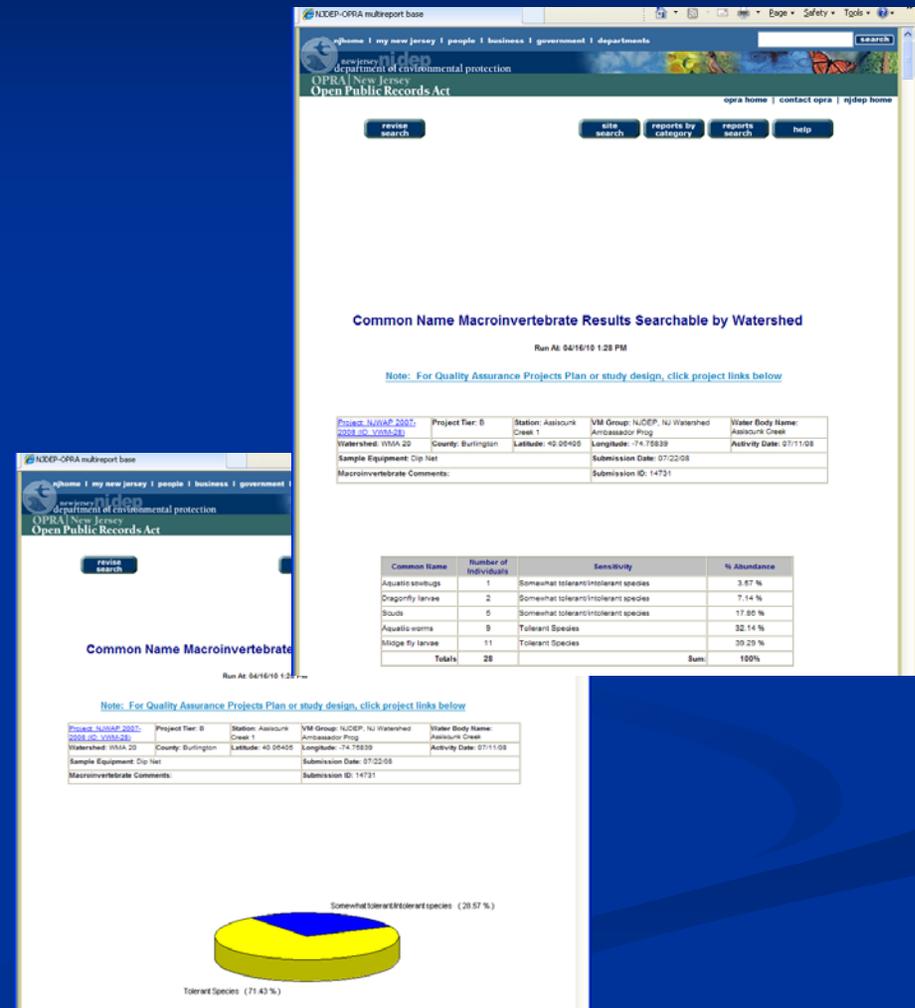
- Interface built, awaiting deployment to NJ Office of Information Technology (OIT) public server
- Initial release will just display the points and some basic attributes about the monitoring locations
- Finishing reports that link maps to monitoring data



# NJDEP Data Miner

[http://datamine2.state.nj.us/dep/DEP\\_OPRA/index2.html](http://datamine2.state.nj.us/dep/DEP_OPRA/index2.html)

- NJDEP's "text based" query and reporting tool for environmental data (WQ, facility, permits, etc)
- Inventory of monitoring projects (Who, what, where, when, why, how)
- View ambient monitoring and facility data
- Simple Graphs and Charts
- Public Access to the data for NJ Open Public Records Act



# Data Miner Status

- Finishing reports for:
  - Organizations
  - Projects
  - Monitoring Locations
  - Results
- What are your search criteria when looking for monitoring information?



# NJDEP Electronic Environmental (E2) Reporting System

<http://www.njdeponline.com/>

- An easy to use eSubmission tool within NJDEP Online
- Common data entry portal for WQDE and Volunteer Monitoring results
- Data entry via Web forms and batch file loading
- Organizations control access to data and when it is sent to NJDEP & EPA databases
- Online reference and user guides

The screenshot displays the NJDEP Electronic Environmental (E2) Reporting System web interface. The browser window shows the URL <https://www1.state.nj.us/...> and the page title "e-DWR - Windows Internet Explorer". The interface includes a navigation menu on the left with sections like "Volunteer Monitoring", "Admin Tools", "My Account", and "WQX Module". The main content area is titled "DEFAULT" and contains a form for project information. The form fields include: Project Name (MCHD Ambient SW Quality Monitoring Program), Project ID (MchdAmbient), Project Type (Ambient Routine), Project Purpose / Description (The objectives of the ambient surface water quality monitoring program are to (1) support NJDEP watershed initiatives; (2) track water quality trends through time; (3) establish background water quality; (4) obtain water quality data which can be correlated with specific land uses and (5) coordinate the collection of chemical and bacteriological data with Monmouth County Health Department Biological Assessment Program and), Does the Project have a QAPP? (Yes/No), Attach QAPP (with a file upload table), Has the QAPP been approved? (Yes/No), Approval Agency (NJDEP-OQA), Format of Data (Electronic online website), and URL of online data (http://co.monmouth.nj.us/ambients.asp).

Delete	View file	File Type	File Name	Size (bytes)
<input type="checkbox"/>		application/pdf	2009QAPPambients.pdf	212130
<input type="checkbox"/>		application/pdf	2008QAPPambients.pdf	221062



# E2-WQDE Status

- Accepting data since January 2010
- Data successfully sent to EPA CDX to make available via STORET/WQX Mini-portal
- Its better than the testing/training version but we still want to improve
- Logging issues/enhancement and addressing as resources allow



# Data Entry System Features Comparison

Added Value/Additional Features <sup>0</sup>	NJ-WQDE	USEPA WQX-Web
Indicate if QA Plans are approved and approval agency	Yes	Yes
<b>Batch loading</b> for larger data sets	Yes	Yes
<b>Web Forms</b> for project, monitoring locations and results	Yes	No
Categorize data quality of projects (Volunteer Tiers)	Yes	No
Track updates/deletes of data ( <b>Audit Trail</b> )	Yes	No
Preserve original data submission to system	Yes	No
<b>Validate results</b> against historical values	Yes	No
Check results for proper measurement units	Yes	No
Click on <b>map and add coordinates</b> to monitoring locations	Yes	No
Review/Approve data submissions (contractors, grantees)	Yes	No
Accepts Data Logger/Sonde data in column format	Yes	No
Handles Pipe/Ditch and Land Use data	Yes	No
<b>Calculate Metrics and Indices</b> for bio samples	Yes	No



# System Utilization

- System Available to Public:

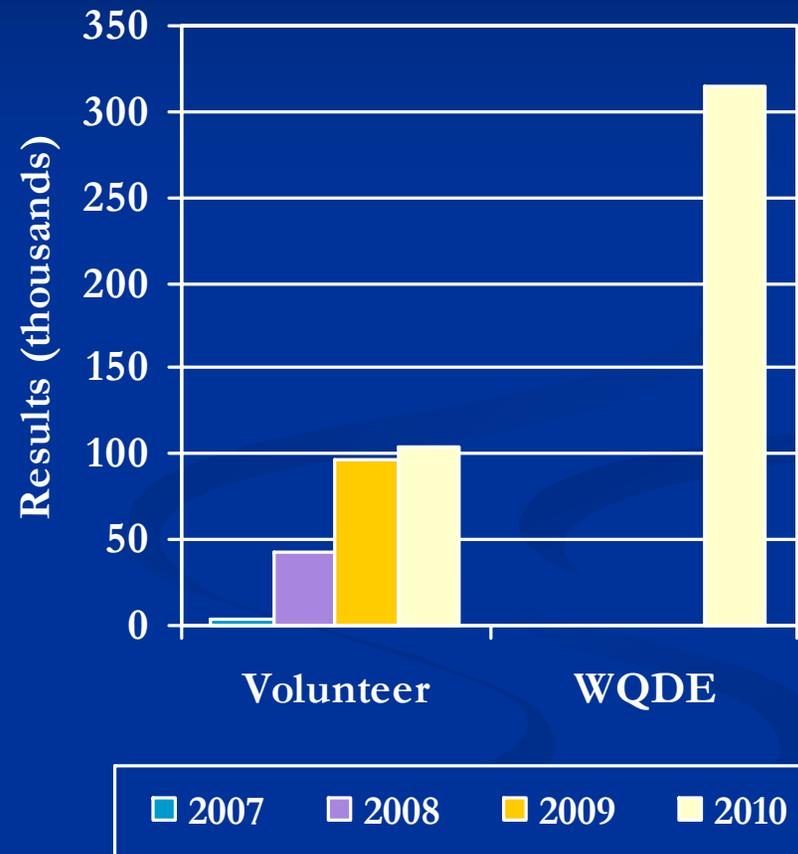
- Volunteer Module: 2007
- WQDE Module : 2010

- Results

- > 315,000 WQDE Module
- > 104,000 Volunteer Module

- Monitoring Locations

- >7,000 WQDE Module
- 1,400 Volunteer Module



# Council Data Entered

- NJDEP Water Monitoring and Standards
  - Ambient Lake Monitoring Network - Panel 3
  - Supplemental Ambient Stream Monitoring Network 2007 - 2009
  - Ambient Stream Summer Bacteria Monitoring 2009
  - Round Valley/Spruce Run Reservoir Monitoring 2009
  - National Shellfish Sanitation Program 2005 - 2009
  
- USEPA Region 2
  - Lake Bioassessment Study Fish Component 2002-2005



# EPA Region 2 Monitoring

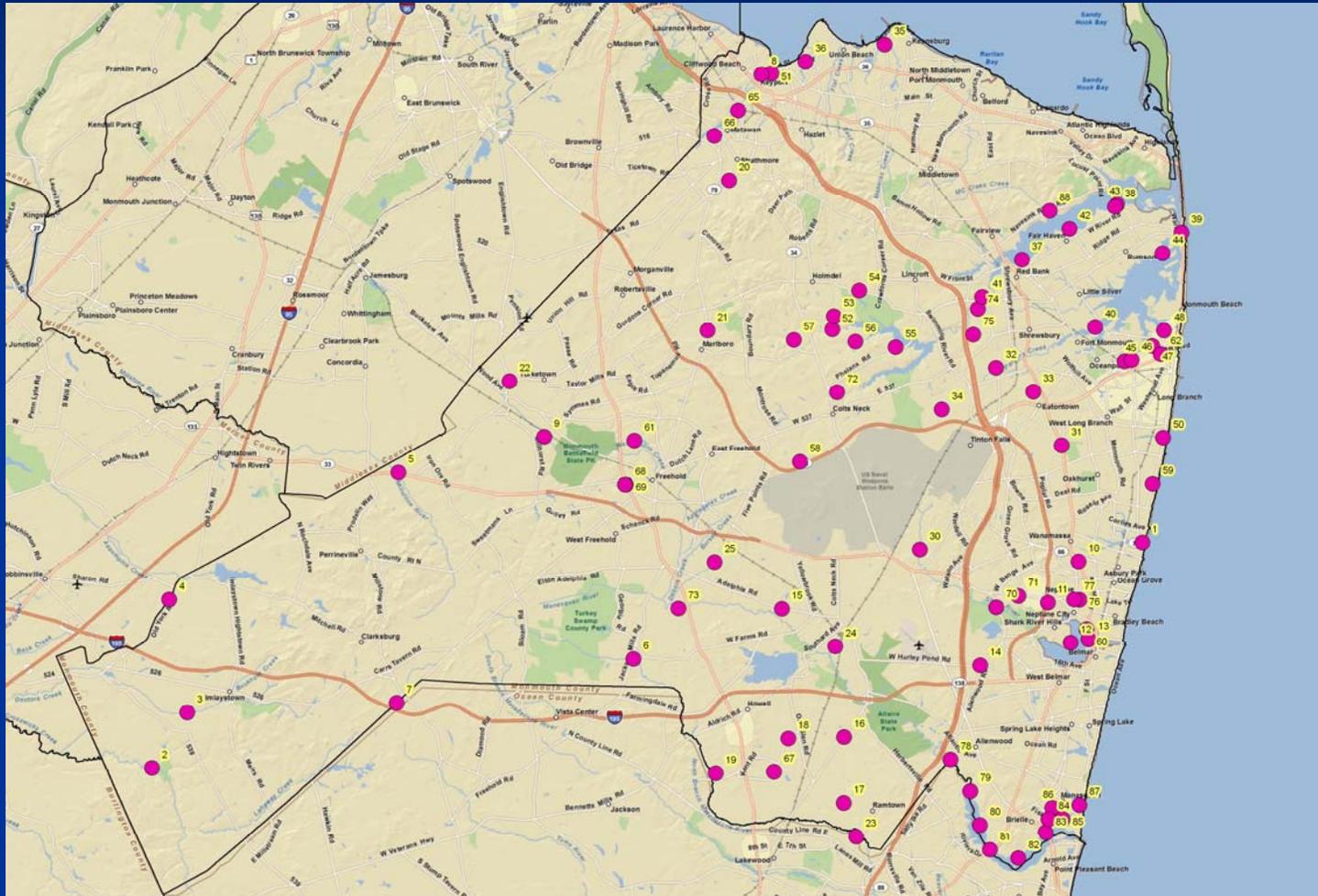


# Council Data Entered – cont'd

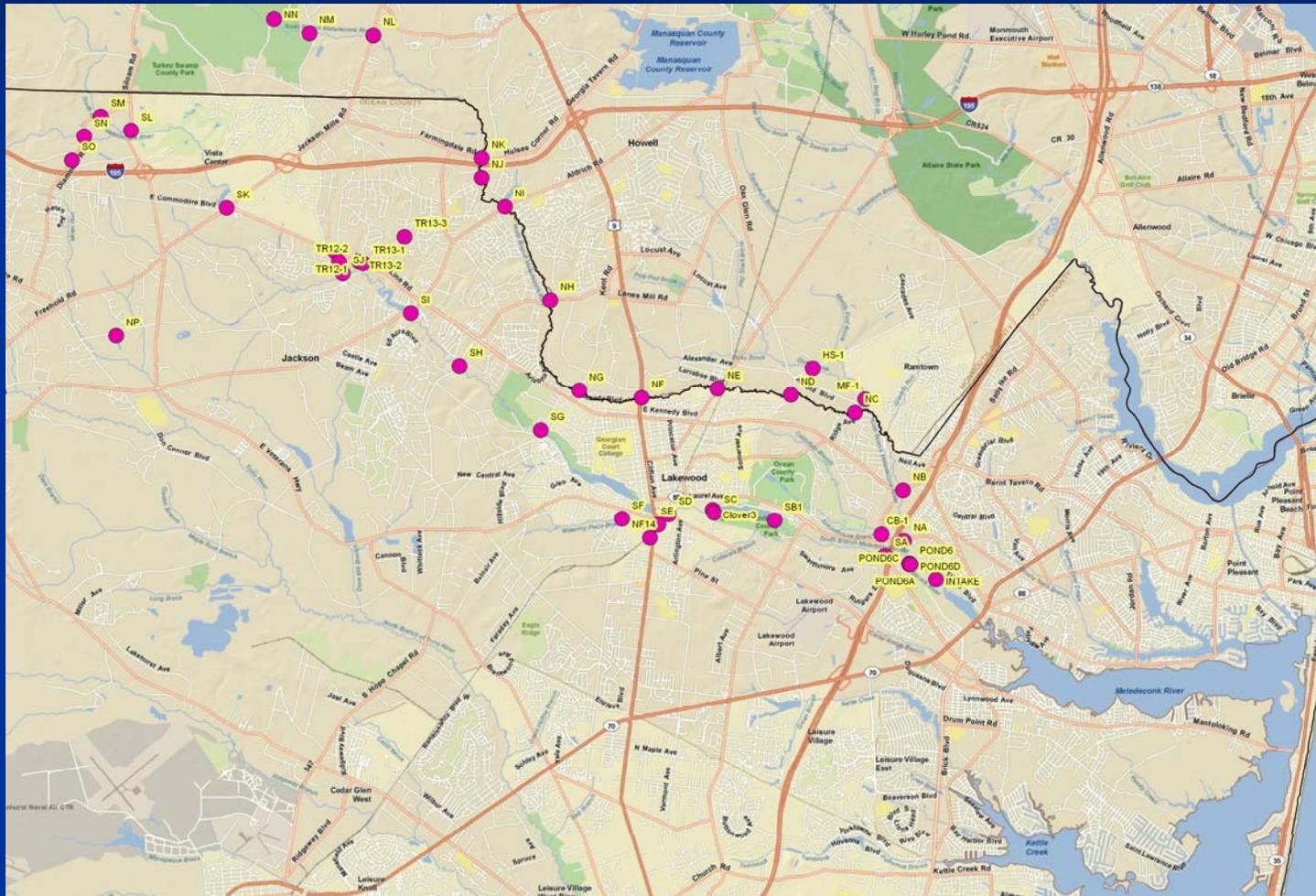
- Monmouth County Health Department
  - MCHD Ambient SW Quality Monitoring Program
  
- Brick Township MUA
  - Metedeconk River Watershed Monitoring Program 2000 - 2009
  
- Wallkill River Watershed Management Group
  - Watershed Restoration Plan for the Paulins Kill
  
- Rutgers Cooperative Extension Water Resource Program
  - Musconetcong River Watershed Restoration Plan
  - Musquapsink Brook Watershed Restoration Plan
  - Tenakill Brook Restoration Plan
  - Upper Salem River Watershed Restoration Plan



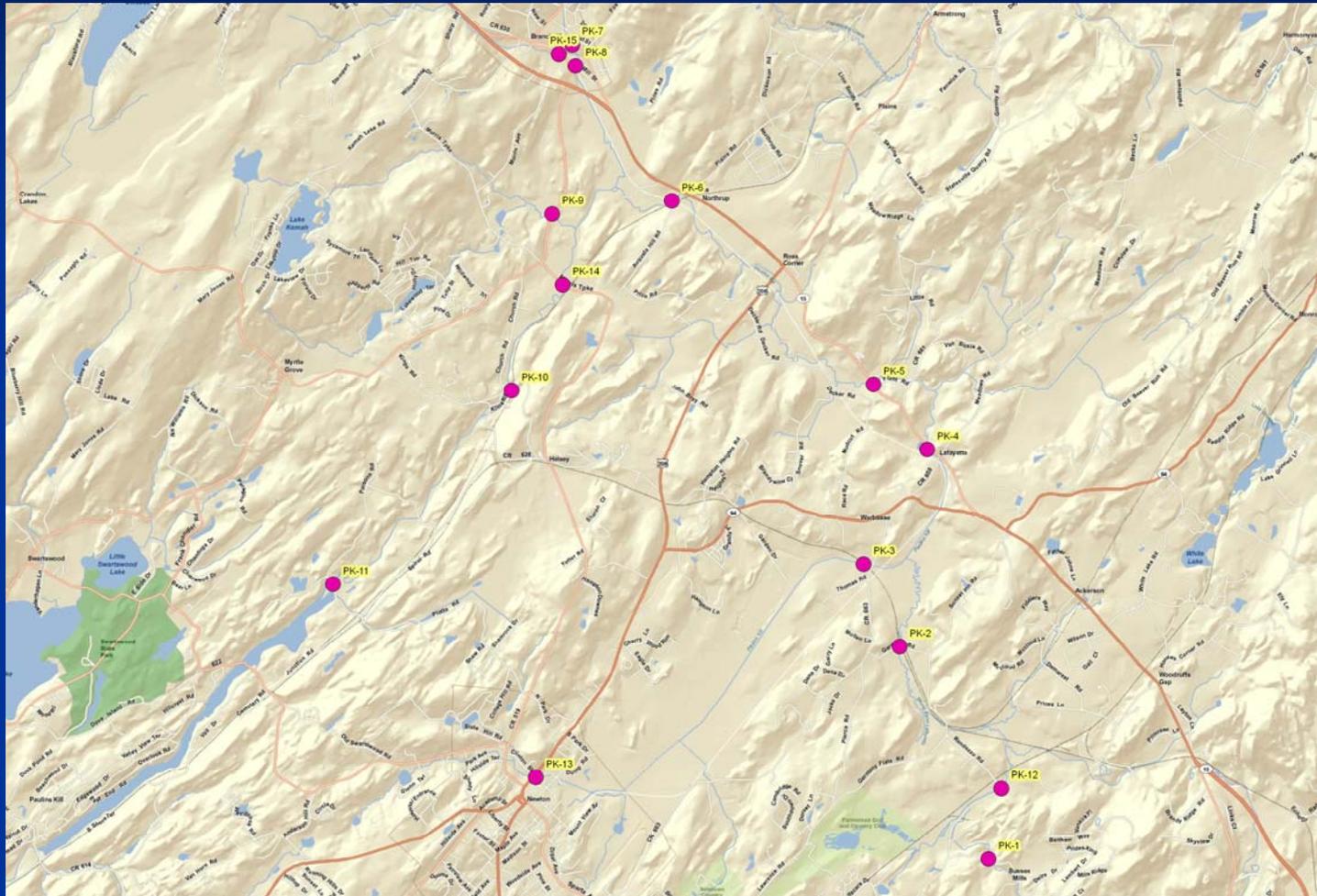
# Monmouth Co HD



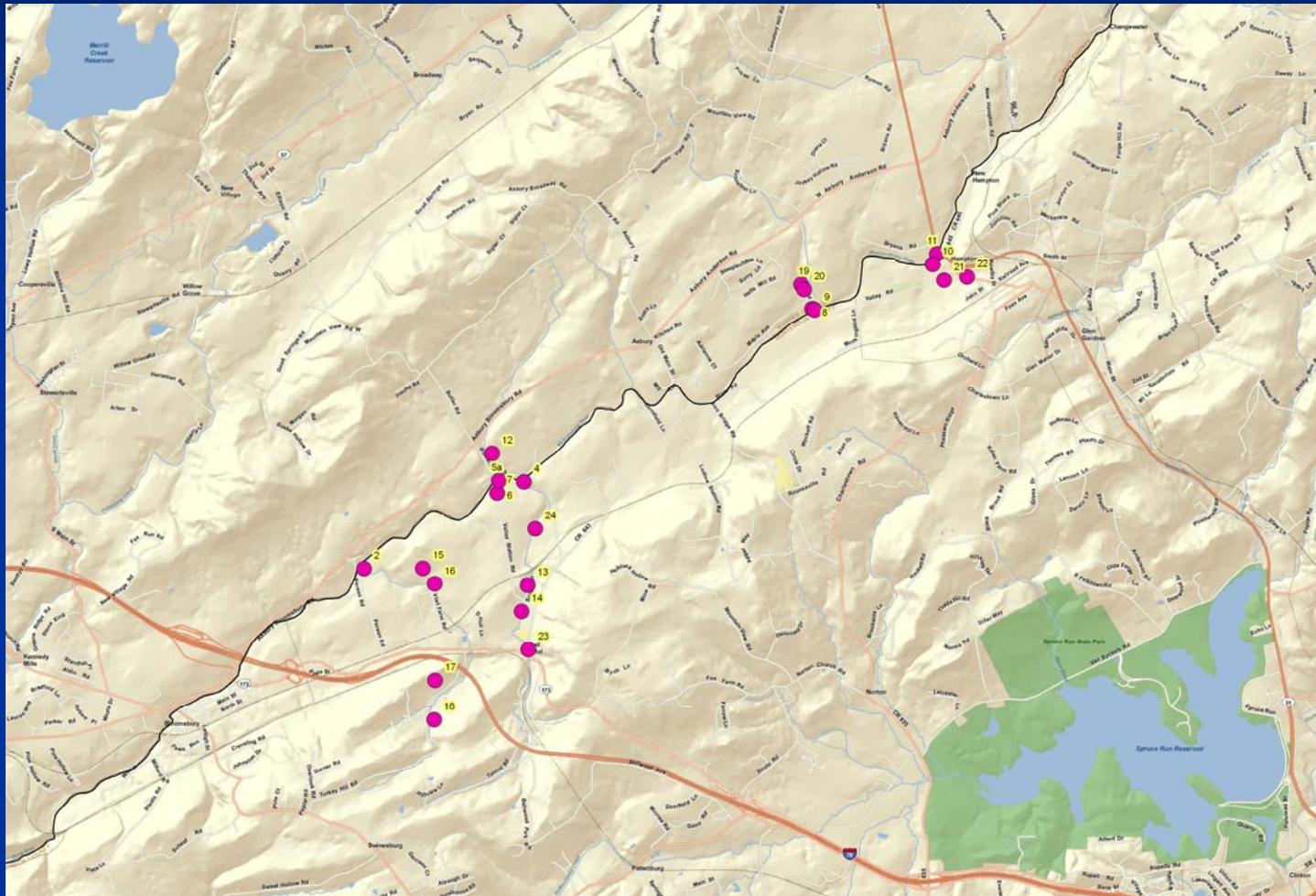
# Brick Twp MUA



# Wallkill R Watershed Mgt Grp



# Rutgers Cooperative Extension



# Volunteer Monitoring Community Tier “D”

- Crafts Creek/Spring Hill Brook Watershed Association
- Great Swamp Watershed Association (GSWA)
- Musconetcong Watershed Association
- Pequannock Watershed Association
- Pompeston Watershed Association
- So Br Raritan Watershed Association
- Stony Brook Millstone Watershed Association
- Upper Raritan Watershed Association
- New Jersey DEP Volunteer Monitoring Group



# Council Data Being Entered

- NJDEP Water Monitoring and Standard
  - Coastal Water Quality Network
  - Evaluation of Metals at Un-assessed Drinking Water Intakes
  - AMNET – Round 4 data
  - Fish IBI – 2009 results
  - Continuous data – diurnal DO and water temp
  
- Delaware River Basin Commission
  - Scenic Rivers Monitoring Program
  - PCB TMDL

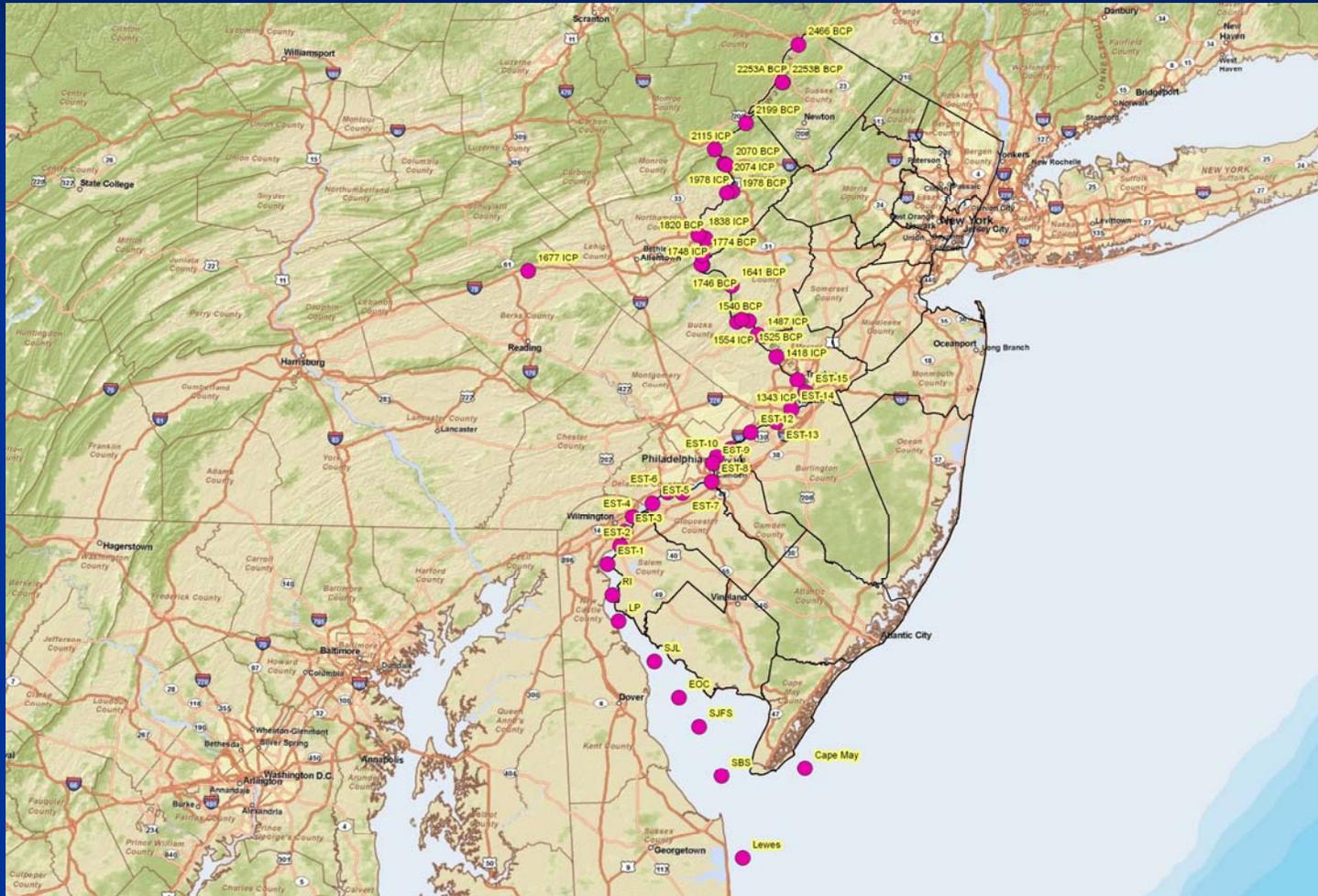


# Council Data Being Entered

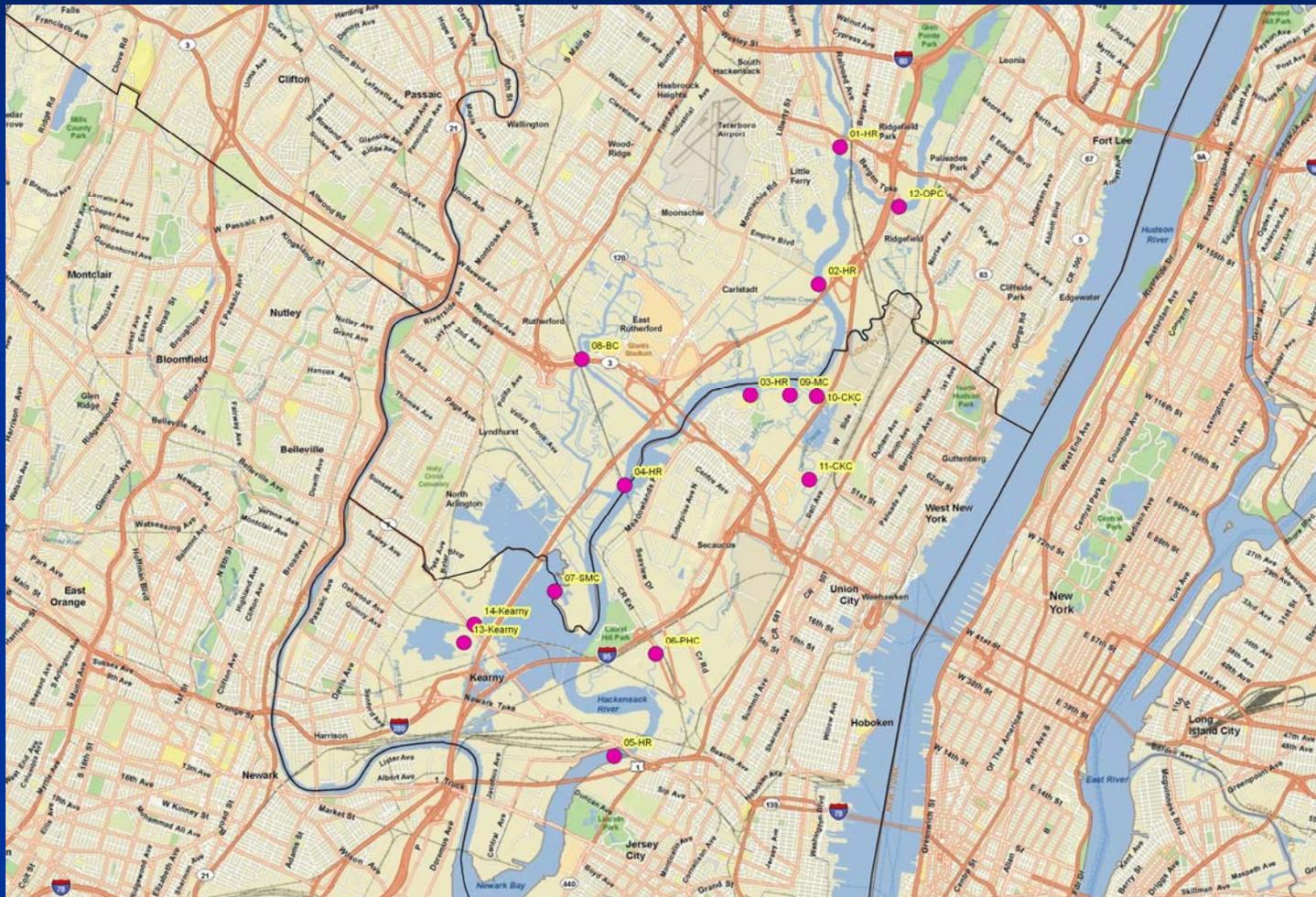
- New Jersey Harbor Dischargers Group
  - 2003-2006 Ambient WQ Monitoring of NY/NJ Harbor
  - 2007-2008 Ambient WQ Monitoring of NY/NJ Harbor
  
- New Jersey Meadowlands Commission
  - Hackensack River Water Quality Monitoring
  
- New Jersey Water Supply Authority
  - Lockatong and Wickecheoke Cr Watersheds Rest and Prot Plan



# DRBC Monitoring



# NJ Meadowlands Commission



# STORET/WQX “Mini-Portal”

<http://storetnwis.epa.gov/storetqw/portal.html>

U.S. ENVIRONMENTAL PROTECTION AGENCY

## STORET/ WQX

Recent Additions | Contact Us Search:  All EPA

### Location Parameters

**Bounding Box ?**

North:   
West:  East:   
South:

**Distance within ?**

miles from  
Latitude:   
Longitude:

State:  [select](#)  
County:  [select](#)

Note: input fields accept semicolon-delimited values (where valid)

### Site Parameters

Site Type:  [select](#)  
Organization ID:  [select](#)  
Site ID:  ?  
HUC:  ?

### File Format

**data**

WQX-XML ?  
 Comma-separated  
 Tab-separated  
 MS Excel

Excel 2003 and earlier versions have a limit of 65,536 rows. If your download file exceeds this limit, only the first 65,536 rows will open.

**map**

Keyhole Markup Language (KML)  
KML output is available for the "Download Sites Only" option.

**Compress**

zip

### Result Parameters

Sample Media:  [select](#)  
Characteristic Group:  [select](#)  
Characteristic:  [select](#)  
Activity ID:  ?

**Start Date (MM-DD-YYYY)**  
after  and before

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Last updated on Wednesday, October 28th, 2009.  
<http://www.epa.gov/storet/>  
[Print As-Is](#)



# Next Steps

- Near Future
  - Enhance “Data In” to accept additional formats:
    - **Results in columns**, not rows
    - **Results with qualifiers** (<, >, etc.)
  - Need to get data from USEPA and USGS Web Services using **same names and codes (domain values)**
  
- Long Term
  - Add analytical tools to system for use **attainment determinations** and generation of 305(b)/303(d) lists for biannual Integrated Report and eventual submission to EPA’s Assessment Database (ADB)
  - **Migrate data** from Legacy and Modernized versions of STORET to WQDE for trends analysis
  - Further **consolidation** (sharing features) of Volunteer Monitoring and WQDE modules



# NJDEP Contact Information

## NJDEP Water Monitoring & Standards

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