

**WQX User Call
May 23, 2019
12:00 – 1:00 PM EST
202-991-0477 ID: 4189172**

Webinar: <http://epawebconferencing.acms.com/wqp/>

There were approximately 27 participants.

Next WQX User Meeting: Thursday, June 27, 2019

Agenda:

- 1) Water Quality Indicators (WQI) Tool Demo
- 2) Biological Workgroup Update
- 3) WQX Web API Services

1) Water Quality Indicators (WQI) Tool Demo – Russell Wasem

The Water Quality Indicators tool uses nutrient data. It pulls the last 10 years of nutrient data from the WQP and QA/QC and calculates statistics for every observation at a monitoring station then dumps the data into a user interface. The tool can also support NPDES planning and permitting, nutrient trading and water monitoring.

Version 2.5 was released last year. Performance issues from that release will be resolved within the next two weeks.

Currently, a quarterly data refresh is underway.

Future releases of the tool may incorporate lead data analysis and advanced search options.

Users who want to register to use the tool should go to:

<https://echo.epa.gov/>

- [ECHO Gov Login](#) (upper right corner of ECHO page)

Users who do not have an EPA LAN account, will need to [Self Register](#) for an account. *For registering for EPA Gov Account, use the contact name, Andrew Schulman schulman.andrew@epa.gov*

2) Biological Workgroup Update

The group kicked off their first meeting early this month. The second call is today at 2:30 p.m. EST. To join the workgroup send an email to the [WQX Help Desk](#).

3) WQX Web API Services

New API services for WQX Web have been developed and will allow users to leverage the functionality of WQX Web by providing an alternative method to publish data to WQX. The services are intended for developers and do not require a CDX account. The services will allow the automation of data submissions through WQX Web.

Information <https://www.epa.gov/waterdata/wqx-web-application-programming-interface>

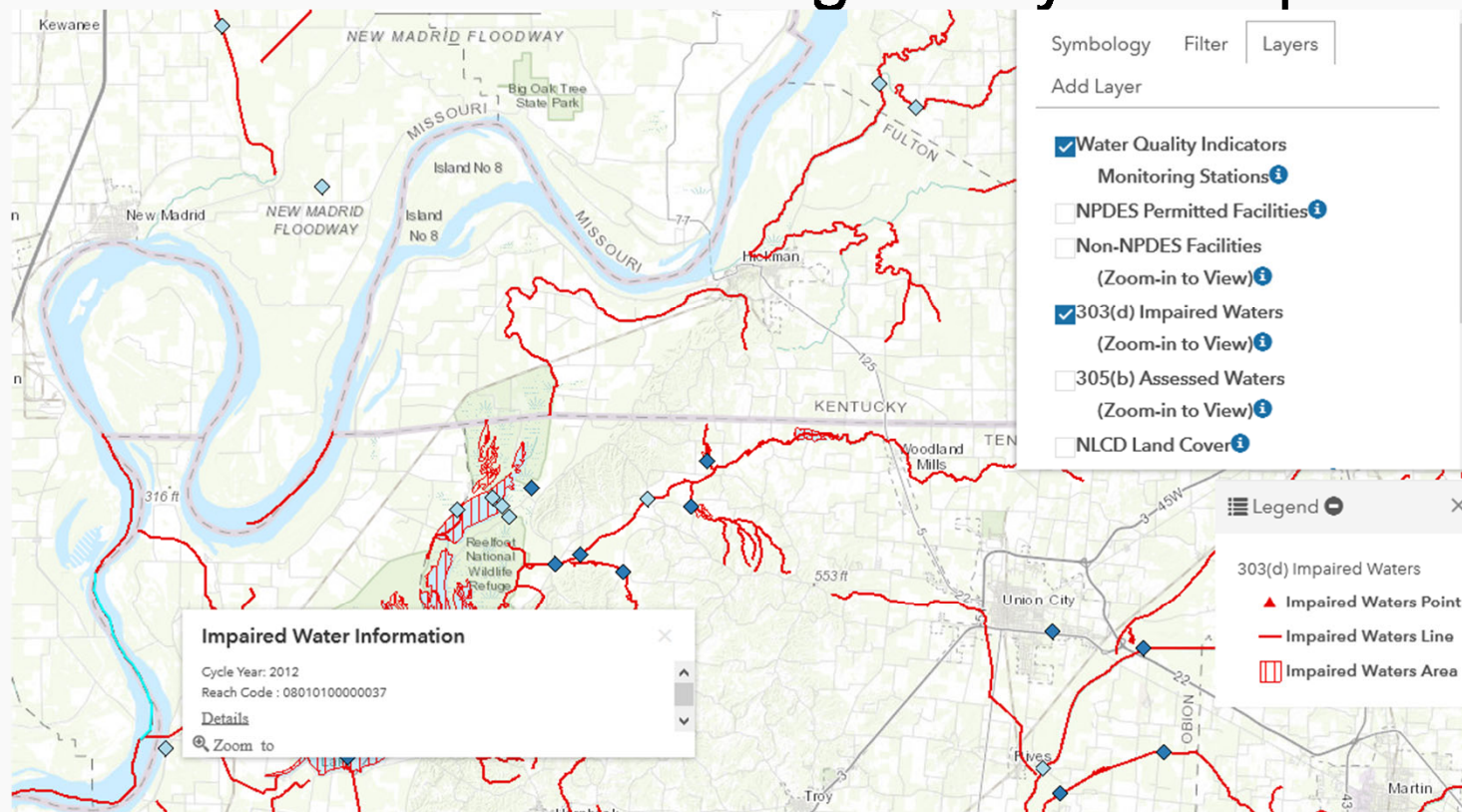


Water Quality Indicators (WQI) Tool Version 2.5

View, Focus, and Screen Ambient Monitoring Data

<https://echo.epa.gov/maps/wqimap>

OECA Concern Focusing Solely on Impaired Waters



303(d) Listed As Impaired Waters Indexed to NHDPlus Version 2.1, EPA OW

U.S. Environmental Protection Agency

- State water standards vary
- State water assessments are a snapshot in time
- Most water bodies not assessed
- Impairment data doesn't qualify severity



Project Approach

Gather Monitoring Data

- US Water Quality Portals Last 10 years
- Currently only nutrient data
- Pathogen data being incorporated

Normalize Monitoring Data

- QA/QC data
- Combine subspecies of nitrogen
- Calculate representative statistic

Visualize Data

- Compared to WQ Criteria
- Additional data layers for context

- Other important steps:
 - Only measurements reported as total phosphorus are used.
 - identifying and considering non-detects – currently substituting $\frac{1}{2}$ detection limit
 - identifying and averaging duplicate samples
 - identifying and validating ambiguously reported data
 - identifying and rejecting poorly reported data (e.g. missing units)



Version 2.5 New Features

- Data Outside of CON-US Now Available
- Upstream Discharger Pollutant Search
 - Find upstream facilities permitted to discharge selected pollutant
- Add Your Own Map Layer
- Quarterly Data Refresh



Use Cases

- NPDES Inspection Planning
- NPDES Permitting
- Water Monitoring
- Nutrient Trading

This is a screening tool!



Live Demo

- <https://echo.epa.gov/maps/wqimap>
- ECHO Gov log in required (lan ID and password)



Future Plans

- WQI Map Services Will Move to a Cloud Server (June 2019)
- Public Release (Summer 2019)
- Release of Alternate Data Format (Summer 2019)
 - WQI dataset is publicly available here: <https://echo.epa.gov/tools/data-downloads/wqi-data-review>
- Pollutant Expansion
 - Pathogens – e. coli, enterococci, fecal coliforms
 - Lead
- Enhanced Searching
 - Between monitoring locations – ‘Upstream Downstream’ Analysis
 - Between NPDES facilities



Thank you WQX Community!

- WQI Version 1.0 was able to use ~50% of the nutrient data in the Water Quality Portal (~3.5 million records)
- WQI Version 2.5 currently uses ~80% of the available nutrient data (~7 million records over the last 10 years)
- WQI Data Usability Dashboard
 - <https://echo.epa.gov/maps/wqimap/dataquality>



Accessing the Tool

- Go to: <https://echo.epa.gov/maps/wqimap>
 - You will be asked to log into ECHO Gov with your Lan ID and password.
- Resources and Technical Documentation
 - <https://echo.epa.gov/files/echodownloads/Data-Analytics/>
- You must have an ECHO Gov account to access
 - Register here: <https://echo.epa.gov/user/register>
- Download the dataset (publicly available):
 - <https://echo.epa.gov/tools/data-downloads/wqi-data-review>



Questions, Comments & Feedback?

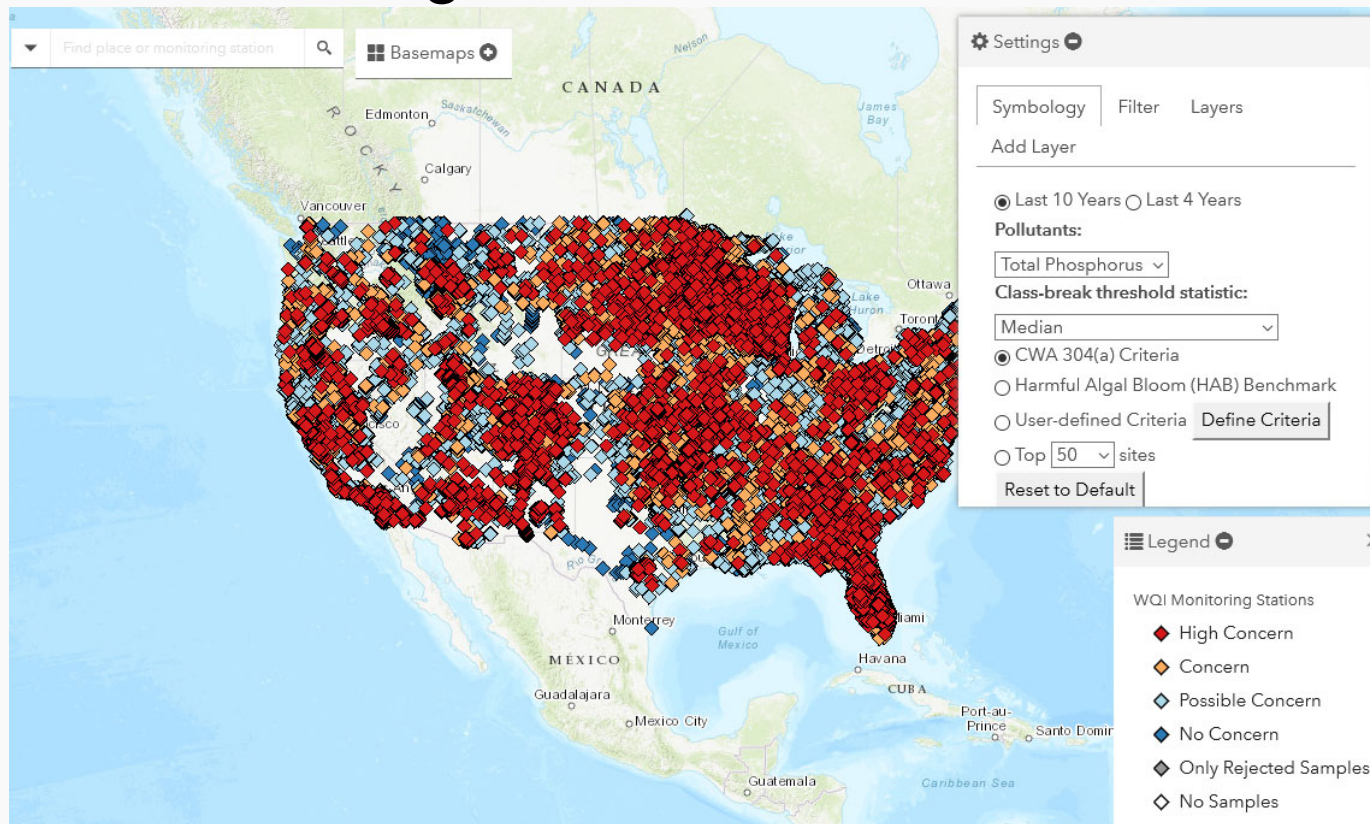
- Rusty Wasem
 - (202) 564-7096
 - wasem.russell@epa.gov
-
- A 508 compliant version of this presentation will be made available upon request.



- Slides 12-20 to be used if live demo is not possible.





Using the Tool: Default View











Using the Tool: The Legend & Default Breakpoints

Legend  

WQI Monitoring Stations

-  High Concern
-  Concern
-  Possible Concern
-  No Concern
-  Only Rejected Samples
-  No Samples

- High Concern
 - Threshold Statistic ≥ 10.00 of criteria
- Concern
 - Threshold Statistic $5.00 < 10.00$ of criteria
- Possible Concern
 - Threshold Statistic $1.00 < 5.00$ of criteria
- No Concern
 - Threshold Statistic < 1.00 of criteria
- Only Rejected Samples
 - All samples were rejected by QA/QC
- No Samples
 - $n = 0$



Using the Tool: Viewing Symbol Pop Up Window

(1 of 5)

Organization: USGS Texas Water Science Center(USGS-TX)
Station ID: USGS-08057410

Location name: Trinity Rv bl Dallas, TX
Waterbody Type: River/Stream
EcoRegion: V
Pollutant: Phosphorus
Units: µg/L
304(a) Criteria: 67

Summary statistics: +

Class-break threshold statistic: 880

Samples - 276
Samples Rejected - 0
Max - 2760
Median - 880
Time-weighted Median - 780
70th Percentile - 1365

Time-weighted 70th Percentile - 1200
90th Percentile - 1920
Time-weighted 90th Percentile - 1860
Samples > Default - 274
Max of Monthly Medians - 2350

Jul Aug Sep Oct Nov Dec 2018 Feb Mar Apr May Jun Jul

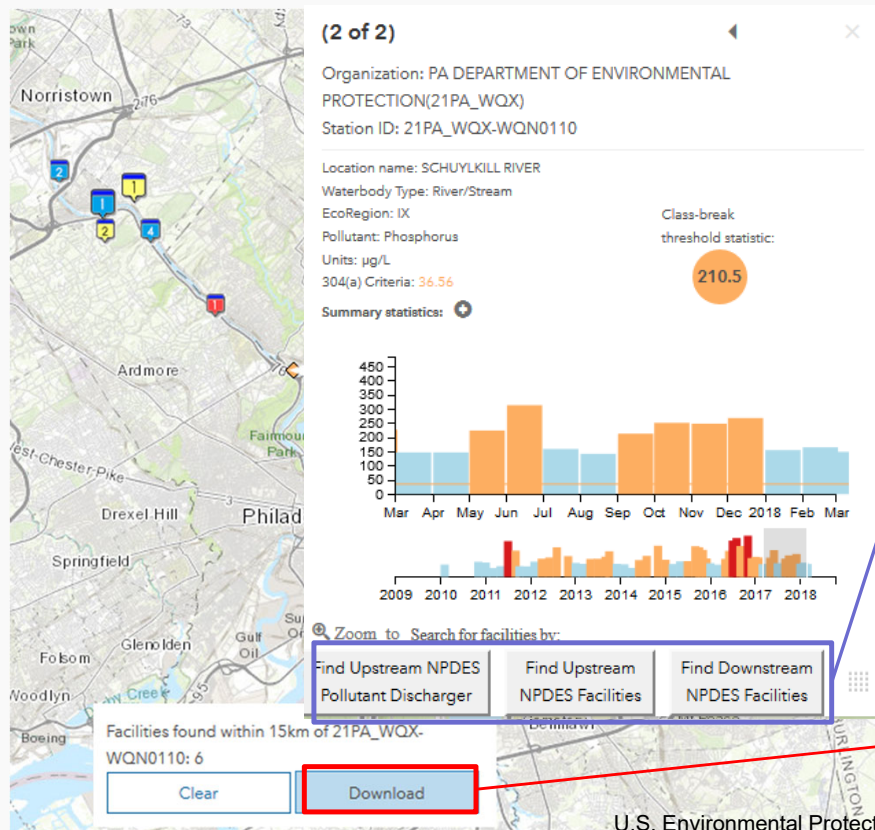
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018

Zoom to Search for facilities by:

Find Upstream NPDES Pollutant Discharger | Find Upstream NPDES Facilities | Find Downstream NPDES Facilities



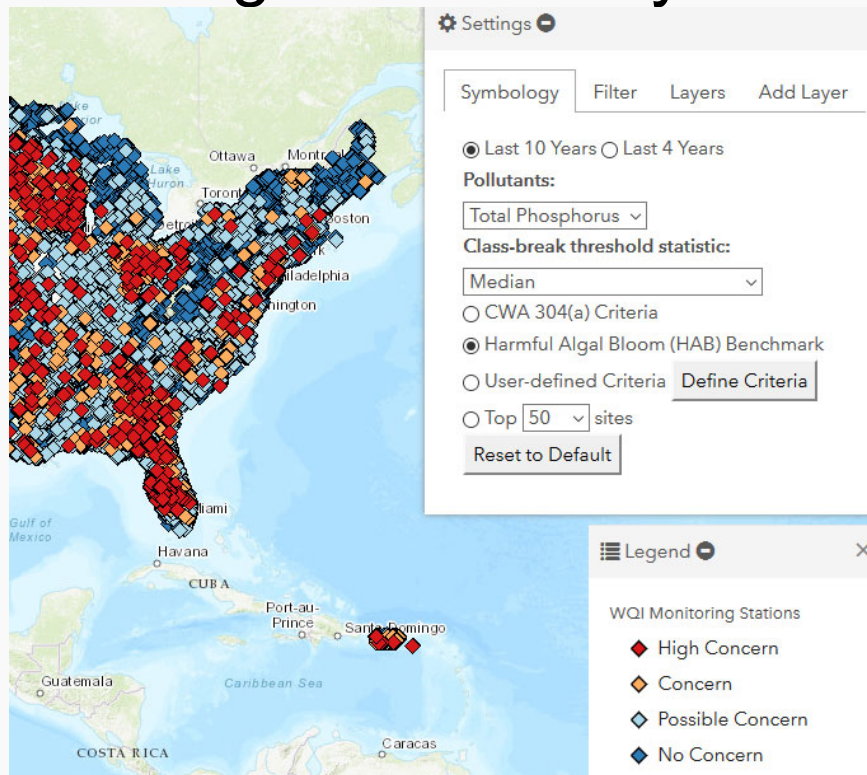
Using the Tool: Search for Upstream Facilities



Click to search 15 km upstream, downstream, or upstream pollutant point source

Download facility list as a .csv file

Using the Tool: Symbology Tab Options



- Timeframe
- Pollutant
- Class-break threshold statistic
- CWA 304(a) Criteria
- HAB Criteria
- User Defined Criteria
- Top 50-500 Sites



Using the Tool: User Defined Criteria and Break Points

Global Phosphorus Custom Criteria and Thresholds

Criteria	Concern Breakpoints (% of Criteria)		
	High Concern	Concern	Possible Concern
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Global Advanced

Apply & Close Cancel Advanced

- Set criteria and breakpoints either globally or by Ecoregion

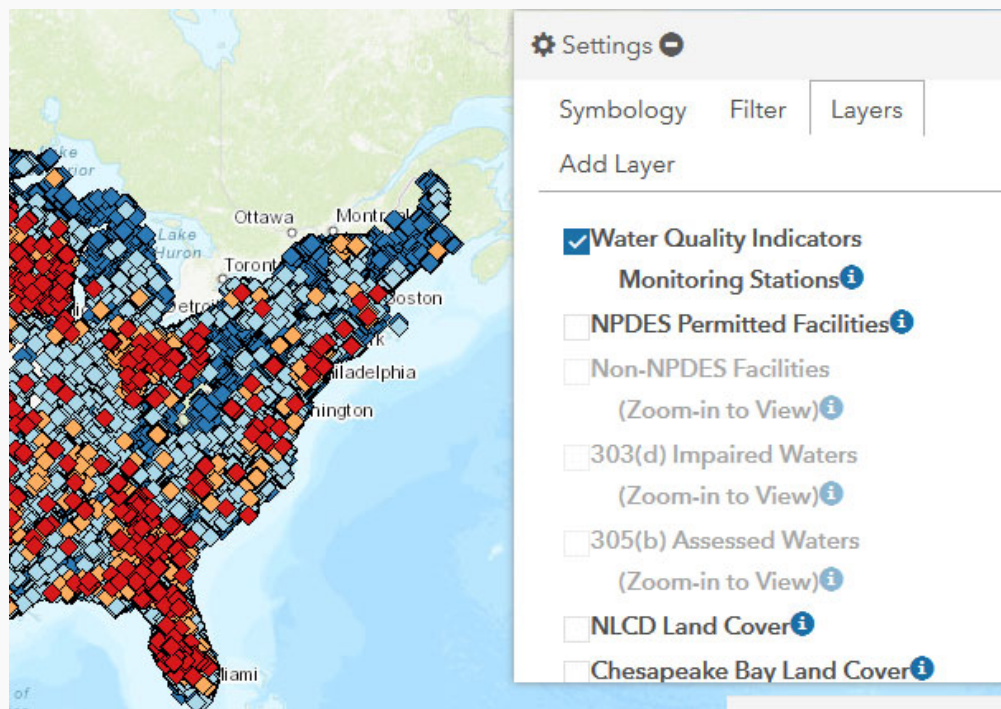
Ecoregional Phosphorus Criteria and Thresholds

Lake River/Stream

Ecoregion	Criteria		Concern Breakpoints (% of Criteria)		
	Default	Value	High Concern	Concern	Possible Concern
I	<input checked="" type="checkbox"/>	55	10	5	1
II	<input checked="" type="checkbox"/>	8.75	10	5	1
III	<input checked="" type="checkbox"/>	17	10	5	1
IV	<input checked="" type="checkbox"/>	20	10	5	1
V	<input checked="" type="checkbox"/>	33	10	5	1
VI	<input checked="" type="checkbox"/>	37.5	10	5	1
VII	<input checked="" type="checkbox"/>	14.75	10	5	1
VIII	<input checked="" type="checkbox"/>	8	10	5	1
IX	<input checked="" type="checkbox"/>	20	10	5	1
X	<input checked="" type="checkbox"/>	60	10	5	1
XI	<input checked="" type="checkbox"/>	8	10	5	1
XII	<input checked="" type="checkbox"/>	10	10	5	1
XIII	<input checked="" type="checkbox"/>	17.5	10	5	1
XIV	<input checked="" type="checkbox"/>	8	10	5	1

Back to Global Apply & Close Cancel Set All Criteria to Default

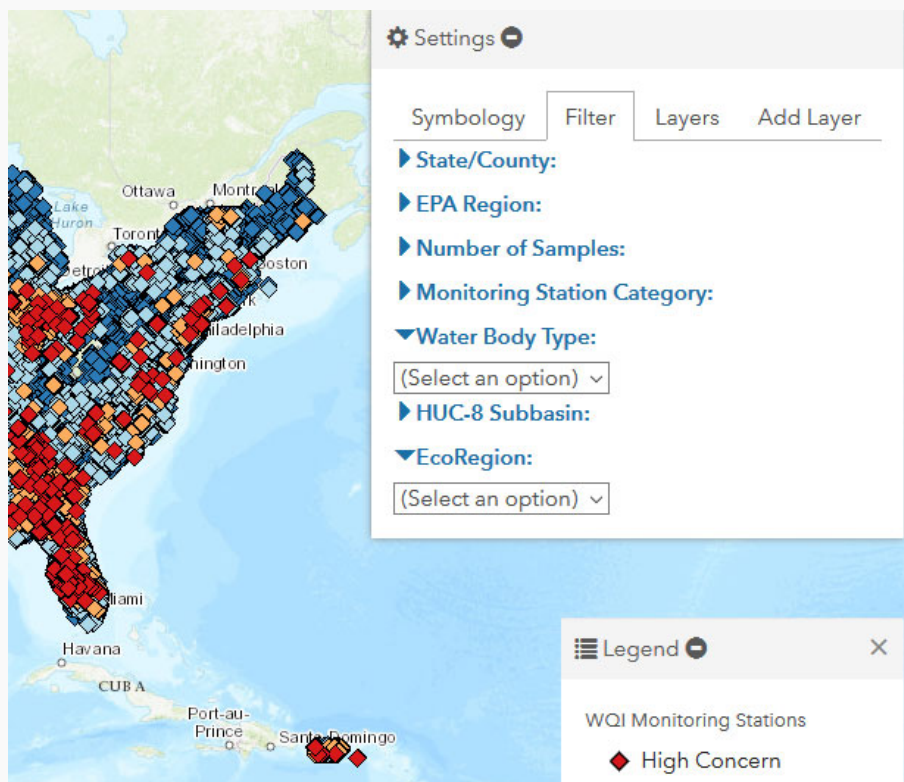
Using the Tool: Layers Tab Options



- Check Box(s) & Zoom to View Layer(s)
 - NPDES Permitted Facilities
 - CWA 303(d) Impaired Waters*
 - CWA 305(b) Assessed Waters*
 - HUC 8, 10 and 12*
 - NHD+ Flow Lines*
- Click the *i* to view a layer's legend

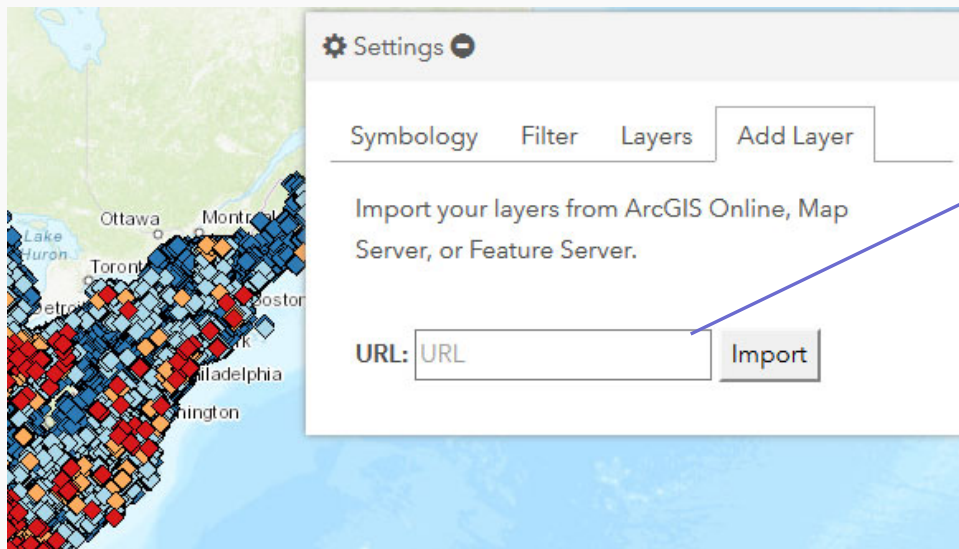
*To view these layers, you must be zoomed in

Using the Tool: Filter Options



- Geographic
 - State County
 - EPA Region
 - Ecoregion: I-XIV
 - Water Body Type: River/Stream or Lake/Reservoir
- Station Category:
 - High Concern, Concern, Possible Concern, No Concern
- Number of Samples
- Hydrologic
 - HUC-8 Subbasin

Using the Tool: Adding a Map Layer



Import your own map or map layer, by adding the service URL in the Add Layer Tab