

How do I download data from Chesapeake Bay Program’s Data Hub?

Follow the step-by-step guide below to help you with the process of downloading data from Chesapeake Bay Program. The below walkthrough will follow one specific example, but should help provide tips and tools for the general method that you can apply to your data download needs:

****If you know you want to download water quality data from CBP Water Quality Database (1984-present), then you can skip Steps 1-4 below and instead [navigate to this data download directly by clicking this link](#). Resume guide at Step 5.****

1. Navigate to <http://www.chesapeakebay.net/data>
2. Scroll down the page until you see the section labeled “Data Downloads”

Data Downloads

Water Quality

- CBP Water Quality Database (1984-present)
- CBP Toxics Database
- CBI Water Quality Database (1949-1982)
- Alliance Citizen Monitoring Database (Exit CBP)
- National Estuarine Research Reserve System (NERRS) (Exit CBP)
- USGS River Input Monitoring Database (Exit CBP)

Living Resources

- Baywide Benthic Database
- Baywide CBP Plankton Database

3. Click on the database you are interested in downloading data from. A popular choice is “CBP Water Quality Database (1984-present)” as highlighted in blue below:

Data Downloads

Water Quality

- **CBP Water Quality Database (1984-present)**
- CBP Toxics Database
- CBI Water Quality Database (1949-1982)
- Alliance Citizen Monitoring Database (Exit CBP)
- National Estuarine Research Reserve System (NERRS) (Exit CBP)
- USGS River Input Monitoring Database (Exit CBP)

4. Let’s choose “**CBP Water Quality Database (1984-present)**”. Once you’ve clicked on that selection the window will look like this:

Bay Resource Library

Home > Bay Resource Library > Bay Data > Data Download Text Size: A A A

Photos

Maps

Videos

Publications

Bay Data

CBP Water Quality Database (1984-present)

Data Type: Measured and calculated physical and nutrient parameters

Geographic Extent: Chesapeake Bay and tidal tributaries

Date Range: 1984-present

Data is currently being collected under the following grants: CB98361804, CB98385303, CB98382503, CB97315902, CB97322001, CB97301002

The CBP Water Quality Database is rebuilt from 5:00 AM to 6:00 AM eastern standard time. Data downloaded between these times will be incomplete.

Alert: Latitude/longitude and UTM coordinates for water quality monitoring stations were corrected July 23, 2000, 10:00 am EDT. The error occurred during the conversion to NAD83 and involved almost every station. We apologize for the inconvenience.

[Download the Data](#)

5. Click on the blue button labeled “**Download the Data**” and the window will then change to display:

DataHub

Water Quality Living Resources Fluorescence Nutrient Point Source Toxics API Contact Us

Water Quality

Data Type: WaterQuality and calculated physical and nutrient parameters

Data is currently being collected under the Clean Water Act 117 funding.

Alert: Latitude/longitude and UTM coordinates for water quality monitoring stations were corrected July 23, 2000, 10:00 am EDT. The error occurred during the conversion to NAD83 and involved almost every station. We apologize for the inconvenience.

Source:

6. Click on the rectangular box that says “**Select Source...**” and choose your data source (note the date ranges for each source).

DataHub

Water Quality Living Resources Fluorescence Nutrient Point Source Toxics API Co

Water Quality

Data Type: WaterQuality and calculated physical and nutrient parameters

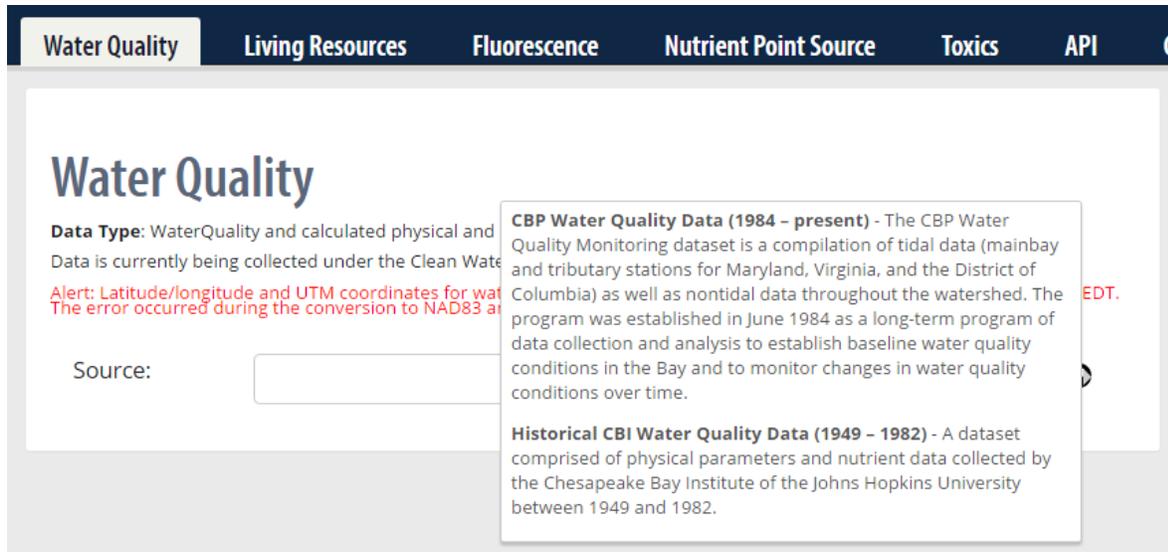
Data is currently being collected under the Clean Water Act 117 funding.

Alert: Latitude/longitude and UTM coordinates for water quality monitoring stations were corrected July 23, 2000, 10:00 am EDT. The error occurred during the conversion to NAD83 and involved almost every station. We apologize for the inconvenience.

Source:

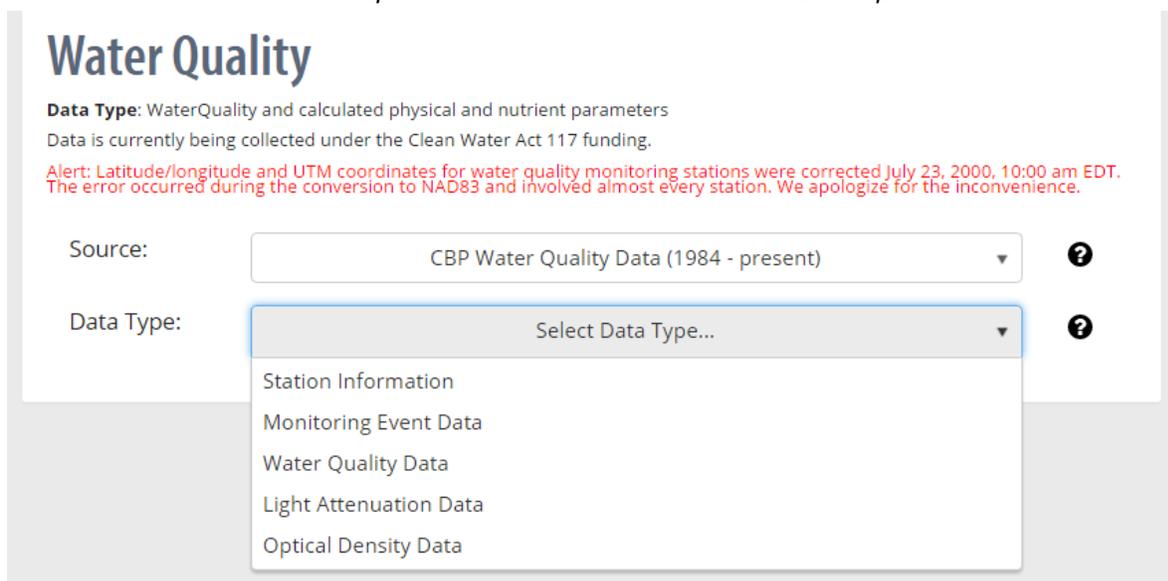
- CBP Water Quality Data (1984 - present)
- Historical CBI Water Quality Data (1949 - 1982)

If you are unsure of which option to choose you can hover your mouse cursor or ‘mouseover’ the black circular question mark to view some tips to aid your selection:



- Let's choose "**CBP Water Quality Data (1984 – present)**". For all DNR water quality data the source is "CBP Water Quality (1984-present).

Once you click on that option a new selection rectangle will appear where you can "Select Data Type..."
You can 'mouseover' the black question mark to view details about each option.



- Let's choose "**Water Quality Data**", so click on this option.

If you mouseover the question mark you will be able to read about each type of data:

Station Information - contains information related to each of the monitoring stations such as a description of location, latitude and longitude, hydrologic unit (HUC8), and FIPS (state/county).

Monitoring Event Data - contains information related to sampling events such as weather, total depth, pycnocline depth(s), and air temperature.

Water Quality Data - contains physical and chemical parameter concentrations at specific depths within the water column.

Light Attenuation Data - contains measurements of photosynthetically active radiation (PAR) at specific

depths within the water column. These values are used to calculate the light attenuation coefficient (K_d) using the equation $K_d = \ln(\text{PAR at surface} - \text{PAR at depth}) / \text{depth}$.

Optical Density Data - contains spectrophotometric or fluorometric measurements of optical density at specific depths within the water column. These values are used to calculate monochromatic active chlorophyll-a (CHLA) and pheophytin (PHEO). They can also be used to calculate trichromatic chlorophyll-a, chlorophyll-b, and chlorophyll-c.

Water Quality | Living Resources | Fluorescence | Nutrient Point Source | Toxics | API

Water Quality

Data Type: WaterQuality and calculated physical and nutrient parameters
Data is currently being collected under the Clean Water Act 117 funding.

Alert: Latitude/longitude and UTM coordinates for water quality monitoring stations were corrected July 23, 2000, 10:00 am EDT. The error occurred during the conversion to NAD83 and involved almost every station. We apologize for the inconvenience.

Source: ?

Data Type: ?

- Station Information
- Monitoring Event Data
- Water Quality Data**
- Light Attenuation Data
- Optical Density Data

9. When you've selected "Water Quality Data", another suite of selections will appear:

Water Quality | Living Resources | Fluorescence | Nutrient Point Source | Toxics | API

Water Quality

Data Type: WaterQuality and calculated physical and nutrient parameters
Data is currently being collected under the Clean Water Act 117 funding.

Alert: Latitude/longitude and UTM coordinates for water quality monitoring stations were corrected July 23, 2000, 10:00 am EDT. The error occurred during the conversion to NAD83 and involved almost every station. We apologize for the inconvenience.

Source: ?

Data Type: ?

Start Date: ? End Date: ?

Program: ?

- All Programs
- NTWQM - Nontidal Water Quality Monitoring Program
- SWM - Shallow Water Monitoring Programs
- TWQM - Tidal Water Quality Monitoring Program**

This is where you will choose the date range for the data you are interested in, and which type of data you are interested in. *Remember, there's information about each option if you mouseover the black question mark.*

When you first arrive at this selection point the start and end dates automatically populate with current dates, but you can change these to your selection. You can either enter numerical values for dates *OR* choose dates using the calendar icon to the right of the numeric dates. If you click on the calendar icon, and then click on the month and year it will change your selection to a choice of month within the current calendar year (*as pictured below*), and you can use the forward and back arrows to cycle through years:

Water Quality

Data Type: WaterQuality and calculated physical and nutrient parameters
Data is currently being collected under the Clean Water Act 117 funding.

Alert: Latitude/longitude and UTM coordinates for water quality monitoring stations were corrected July 23, 2000, 10:00 am EDT. The error occurred during the conversion to NAD83 and involved almost every station. We apologize for the inconvenience.

Source:

Data Type:

Start Date: End Date:

Program:

2016

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

Monday, March 28, 2016

Now that you know two different ways to select your start and end dates, let's go back to our example:

Water Quality

Data Type: WaterQuality and calculated physical and nutrient parameters
Data is currently being collected under the Clean Water Act 117 funding.

Alert: Latitude/longitude and UTM coordinates for water quality monitoring stations were corrected July 23, 2000, 10:00 am EDT. The error occurred during the conversion to NAD83 and involved almost every station. We apologize for the inconvenience.

Source:

Data Type:

Start Date: End Date:

Program:

- All Programs
- NTWQM - Nontidal Water Quality Monitoring Program
- SWM - Shallow Water Monitoring Programs
- TWQM - Tidal Water Quality Monitoring Program

In this example, we have entered the Start Date as **5/1/2015** and the End Date as **8/31/2015** to look at water quality values for summer 2015.

Next, let's choose **"Tidal Water Quality Monitoring Program"**.

- Once you've clicked on **"Tidal Water Quality Monitoring Program"** a new dropdown menu will appear to **"Select a Project"**. You can choose between **"Tidal Mainstem"** or **"Tidal Tributary"** Monitoring Projects, or choose **"All**

Projects”.

There’s information about each option if you mouseover the black question mark.

Let’s choose “**All Projects**”, so click on that selection.

11. Once you've chosen "All Projects" you are then prompted to choose a "Geographical Attribute"

Water Quality Living Resources Fluorescence Nutrient Point Source Toxics API

Water Quality

Data Type: WaterQuality and calculated physical and nutrient parameters
Data is currently being collected under the Clean Water Act 117 funding.

Alert: Latitude/longitude and UTM coordinates for water quality monitoring stations were corrected July 23, 2000, 10:00 am EDT. The error occurred during the conversion to NAD83 and involved almost every station. We apologize for the inconvenience.

Source: CBP Water Quality Data (1984 - present) ?

Data Type: Water Quality Data ?

Start Date: 5/1/2015 End Date: 8/31/2015

Program: TWQM - Tidal Water Quality Monitoring Program ?

Project: All Projects ?

Geographical Attribute: Select a Geographical Attribute... ?

- Hydrologic Unit (HUC8)
- Small Watershed (HUC12)
- County/City (FIPS)
- Monitoring Segment (CBSeg2003)
- Monitoring SegmentShed (SegmentShed2009)
- Monitoring Station

The black question mark information is especially helpful when trying to choose a Geographical Attribute, look at the information by hovering your mouse cursor over the black circular question mark:

Water Quality

Data Type: WaterQuality and calculated physical and nutrient parameters
Data is currently being collected under the Clean Water Act 117 funding.

Alert: Latitude/longitude and UTM coordinates for water quality data are not supported. The error occurred during the conversion to NAD83 and the data was not saved.

Source:

Data Type:

Start Date:

Program:

Project:

Geographical Attribute:

Hydrologic Unit (HUC8) - The United States Geological Survey has developed a system that assigns drainage areas throughout the nation to a particular region, subregion, accounting unit and cataloging unit. Cataloging units, or 8-digit hydrologic units (HUCs) as they are commonly called, delineate small to medium sized drainage areas. Within the Mid-Atlantic Region, there are four subregions (0205 – 0208) that are at least partially comprised of drainage areas within the Chesapeake Bay watershed.

[CBP Map](#)

Subwatershed (HUC12) - Within each HUC8, there are 12-digit hydrologic units known as subwatersheds that comprise the entire Chesapeake Bay watershed. [more info](#)

County/City (FIPS) - the Federal Information Processing System (FIPS) assigns 5-digit codes to all counties and incorporated cities in the United States. The first two digits correspond to the state and the last three to the county or incorporated city within that state.

Monitoring Segment - In 1998, the Chesapeake Bay Program redefined its monitoring segmentation scheme to be based upon salinity regime. The following suffixes are associated with areas based upon salinity levels in parts per thousand (ppt): TF (tidal fresh) - 0.0 to 0.5 ppt, OH (oligohaline) - 0.5 to 5.0 ppt, MH (mesohaline) - 5.0 to 18.0 ppt, PH (polyhaline) - 18.0 to 35.0 ppt

[CBP Map](#)

Monitoring SegmentShed (SegmentShed2009) - A segmentshed is the discrete land area that drains into each of the 92 Bay Program segments that have TMDLs associated with them. [CBP Map](#).

Monitoring Station - Refers to the text identifier used to denote a CBP monitoring station. [Map of CBP mainstream and tributary long-term monitoring stations](#)

Note that there are links to additional information for some of the options, as denoted by the blue text. These links are very helpful for determining what geographical attribute is most appropriate for the data you need, and also how CBP designates the name for the area you are interested in.

Let's choose "**Monitoring Segment (CBSeg2003)**"

12. Once you've clicked on "Monitoring Segment (CBSeg2003)" a list of the **Attribute Selections** will populate where you can choose which selection or selections you would like to choose. Note that a blank window for "Parameter" initially displays, and will not provide selections until you choose your sites or segments, so **choose your "Attribute Selections" first.**

In the below screenshot, the left-hand list of "Attribute Selections" has all the site/segment/area options to choose from, and the initially blank right-hand rectangle is where your selections will show up when you choose them.

Project: ?

Geographical Attribute: ?

Attribute Selection:

ANATF - Anacostia River-Tidal Fresh Region

APPTF - Appomattox River-Tidal Fresh Region

BACOH - Back River-Oligohaline Region

BIGMH - Big Annessex River-Mesohaline Region

BOHOH - Bohemia River-Oligohaline Region

BOHOL - Back River-Oligohaline Region

Click on option to select

Parameter:

Click on option to select

Format: TAB XML CSV JSON

Wrap text values in quotes

View in browser window

To **choose a site, or several sites** you just click on each one in the left-hand list and it will immediately appear in the right-hand list. Note that there are up and down arrows on the side of the left-hand list of sites/segments/areas so that you can scroll to other options in the alphabetical list. If you accidentally add a selection that you want to remove, just click on it in the right-hand list and it will be immediately deselected.

To choose **ALL the sites** at once click on the forward and backward facing arrows between the two Attribute Selection panes and all the sites/segments will be added to your right-hand selection list, which would look like this example (*notice that the parameter list has populated with options*):

Geographical Attribute: ?

Attribute Selection:

ANATF - Anacostia River-Tidal Fresh Region

APPTF - Appomattox River-Tidal Fresh Region

BACOH - Back River-Oligohaline Region

BIGMH - Big Annessex River-Mesohaline Region

BOHOH - Bohemia River-Oligohaline Region

BOHOL - Back River-Oligohaline Region

Click on option to select

Parameter:

CHLA - Active Chlorophyll-A

DIN - Dissolved Inorganic Nitrogen

DO - Dissolved Oxygen in MG/L

DON - Dissolved Organic Nitrogen

DOP - Dissolved Organic Phosphorus

NH4F - Ammonium Nitrogen As N (Filtered Sample)

NO23F - Nitrite+Nitrate Nitrogen

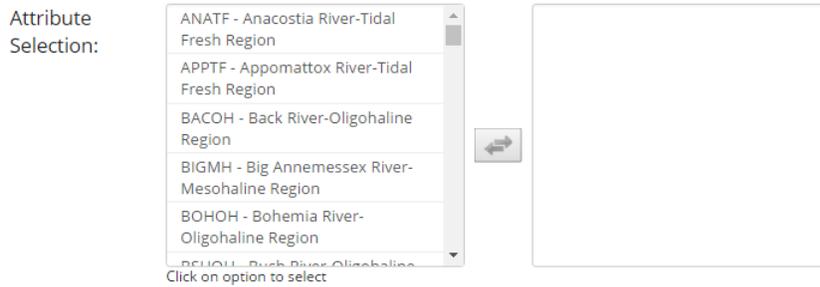
Click on option to select

Format: TAB XML CSV JSON

Wrap text values in quotes

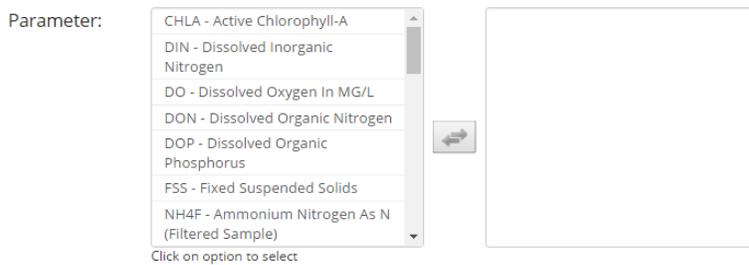
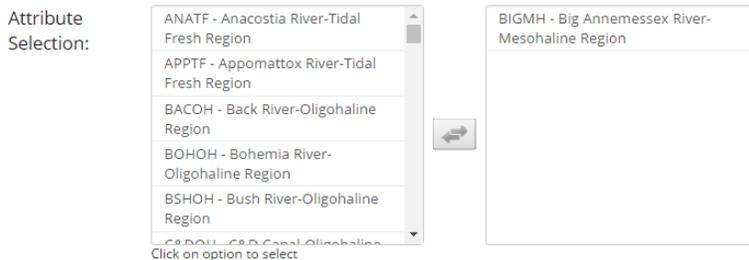
View in browser window

Next, undo the selection for all sites by again clicking on the double arrows between the Attribute Selection panes. Your right-hand rectangle should now be empty like this:



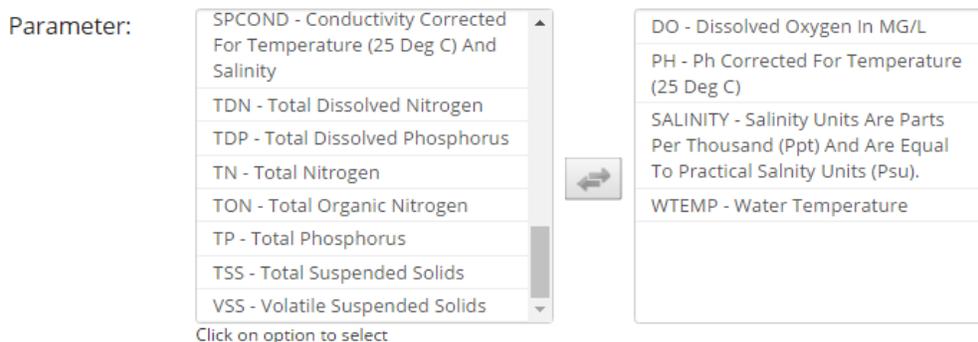
Ok, that was good practice, but let's choose a site and move on.

Select **"BIGMH – Big Annessex River – Mesohaline Region"**



- Now that you've chosen the site/segment/area you can now choose which parameters you are interested in investigating. You can use the same method to choose parameters as you did to choose your site/segment/area, either choosing one or a few parameters by clicking on each one, or choosing all of them by clicking on the double arrows between the two panes.

Let's choose **"Dissolved Oxygen", "pH", "Salinity", and "Water Temperature"**:



- Now you are ready to choose what format you would like for your data download, and whether you'd also like to "view in a browser window" (Note that this 'browser-view' option only works for small datasets):

Format: TAB XML CSV JSON

Wrap text values in quotes

View in browser window

Let's choose **TAB** (the data will be Tab-delimited, meaning a 'Tab' separates each data field) and then click the blue "Submit" button (I chose not to select any other options, we'll get back to those).

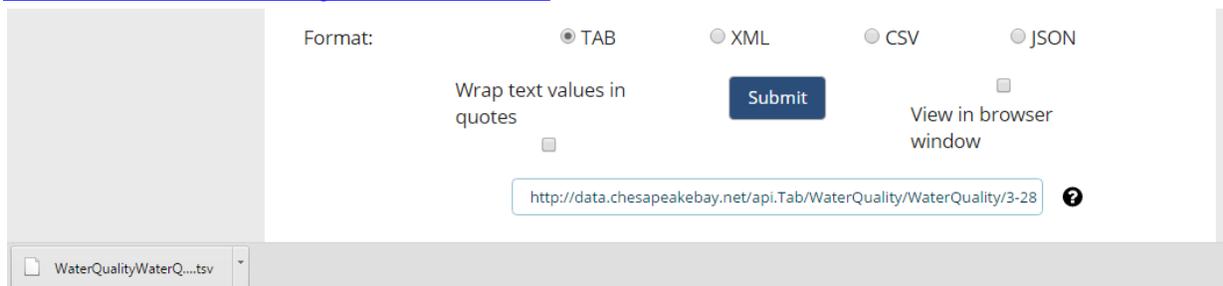
Wait for the download to complete.

***NOTE:** if you select "View in browser window your file will not download, it will only open in a browser window if your dataset is small enough to be viewed this way)

15. Check your downloaded files folder you should see your requested file, in the below image my downloaded file shows up in the footer of my browser window

[Windows 7, 8, or 10 instructions for finding a downloaded file](#)

[Mac Instructions for finding a downloaded file](#)



You may have also noticed that a URL populated in the empty box, and next to this is a question-mark with a tip that says, "The following URL will yield this query with up to date data". This URL can be copied and saved and used to retrieve your query again. To save this URL: click in the box and hit **Ctrl-a** (press the *Ctrl* button and the letter *a* at the same time) to "select all", next **copy the text** by hitting **Ctrl-c**, and choose a location to paste this URL and then hit **Ctrl-v** to **paste** the link. An important note is that this URL will only work with small dataset queries. Try copying and pasting this URL into a new browser window address line, and you should see your data displayed like the below image:

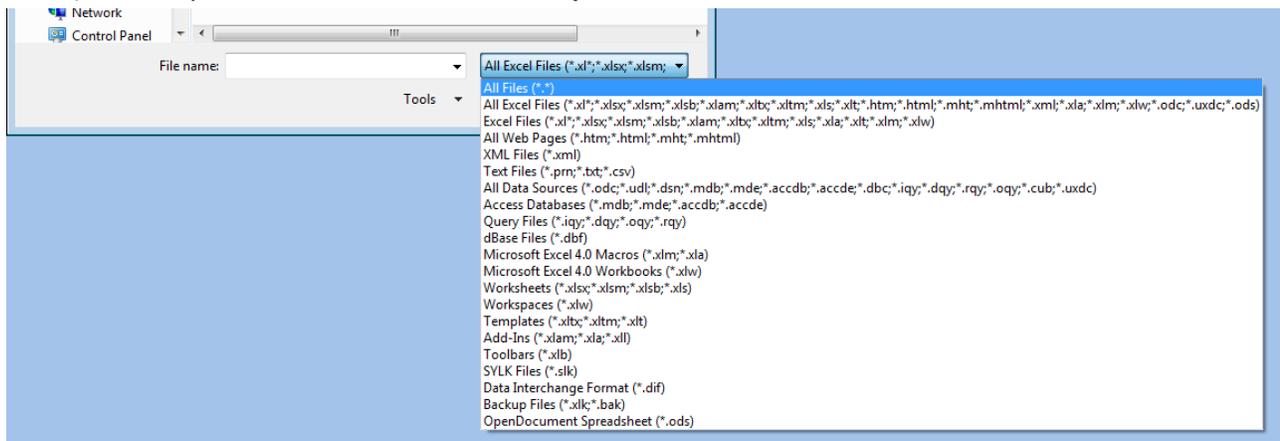
(If you had selected "View in browser window" before hitting "Submit" this would have happened automatically IF your selected dataset was small enough to be displayed in this format. However, if you chose this option your file will not have downloaded separately.)

SampleDate	SampleTime	Depth	TotalDepth	Layer	SampleType
2/13/2013	11:34:00	3.5	4.5	B	ISM
2/13/2013	11:34:00	1	4.5	M	ISM
2/13/2013	11:34:00	2	4.5	M	ISM
2/13/2013	11:34:00	3	4.5	M	ISM
2/13/2013	11:34:00	0.5	4.5	S	ISM
3/26/2013	11:34:00	4.5	5.5	B	ISM
3/26/2013	11:34:00	1	5.5	M	ISM
3/26/2013	11:34:00	2	5.5	M	ISM

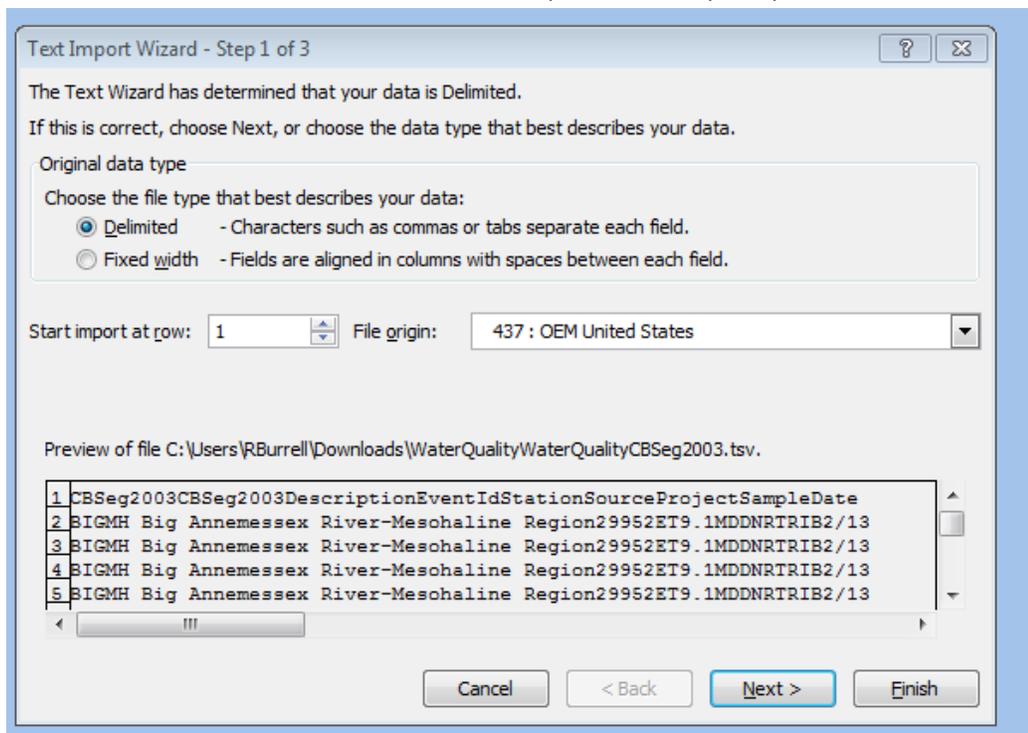
If you click in the browser window on the data, you can hit **Ctrl-a** to select all, **Ctrl-c** to copy it to your clipboard, and if you open a destination (e.g. Excel or notepad) you can **Ctrl-v** and paste the data into a new file.

16. **Your downloaded TAB file:**

One option for viewing your downloaded file is to open it in **Excel**. Open the Excel program, click on “Open” and navigate to your downloaded TAB delimited file. Note that Excel generally defaults to only show “All Excel files” as you are browsing, so you will likely need to choose “All Files” to be able to see your downloaded file (*see image below*). Locate your downloaded file and click **open**.

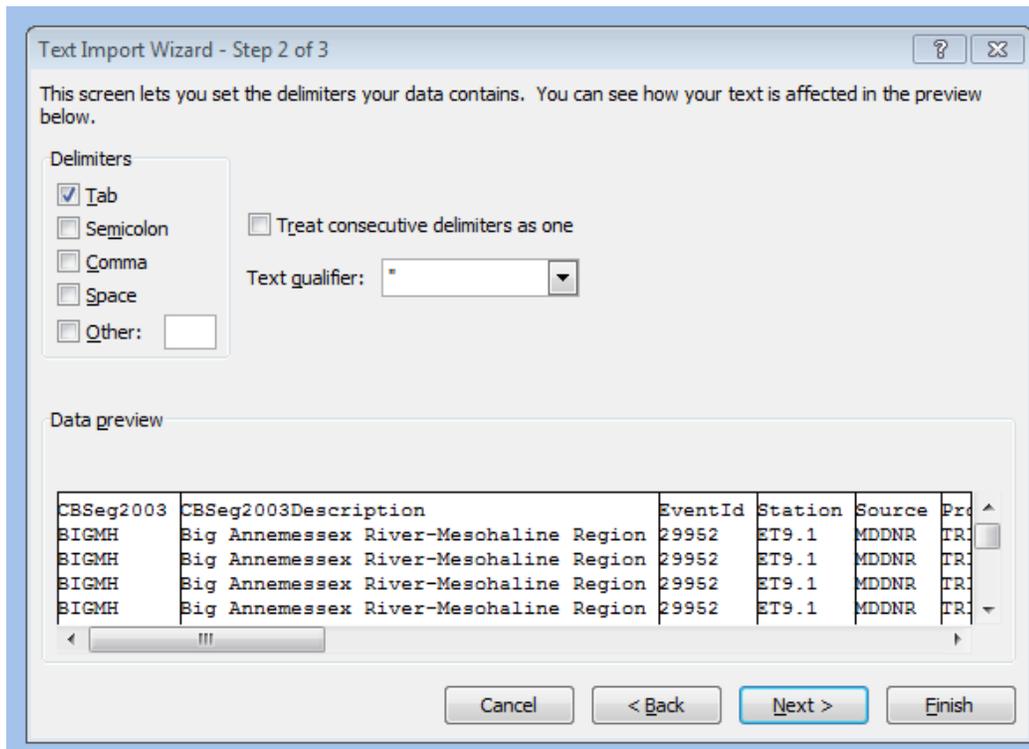


17. You should now see a window with a “Text Import Wizard” prompt:

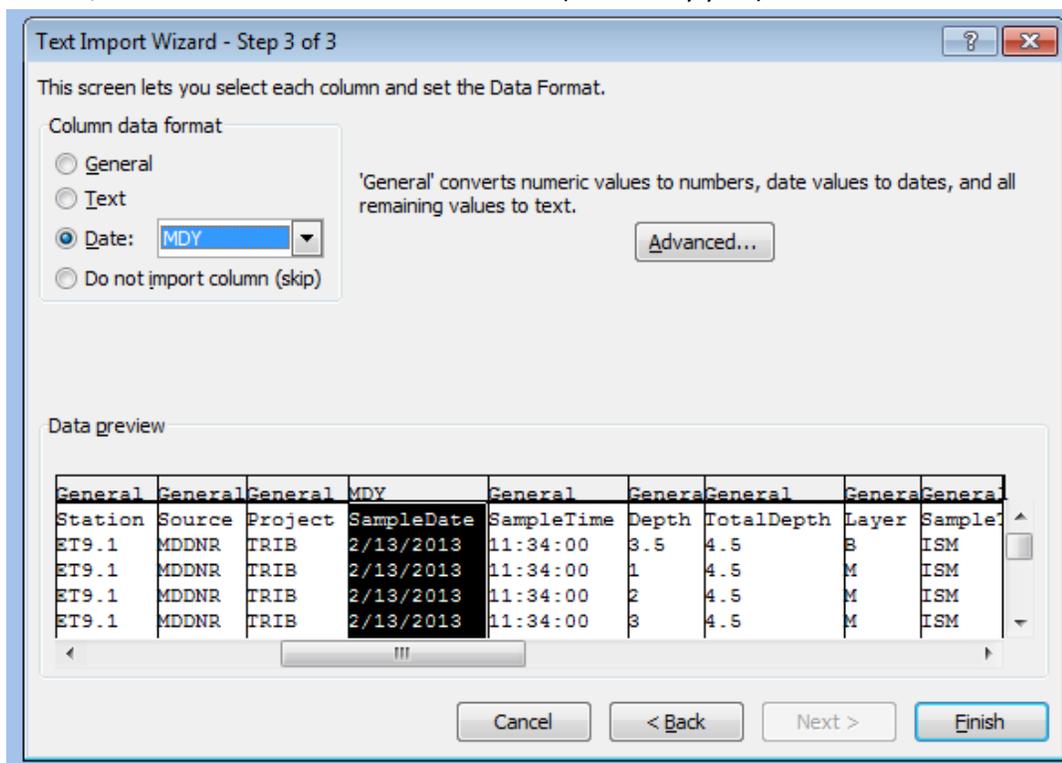


18. Recall that we chose this file to be “Tab” delimited, so choose “**Delimited**” here, and click **Next**.

19. In Step 2 of 3 of the Text Import Wizard, choose “Tab”, and click **Next**.



20. In Step 3 of 3 you can choose data formats for specific columns. I left everything as “General” except for the date column, which I selected as “Date” and “MDY” (month day year) format. And then choose **Finish**.



21. Your data should now be arranged in an excel table format in discrete columns and rows, and is ready for you to begin analyzing:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	P
1	CBSeg200	CBSeg200	EventId	Station	Source	Project	SampleDa	SampleTir	Depth	TotalDept	Layer	SampleTy	SampleRe	Paramete	Qualifier	MeasureV	Unit	Method	Lab	
2	BIGMH	Big Anner	29952	ET9.1	MDDNR	TRIB	#####	11:34:00	3.5	4.5	B	ISM	M1	DO		11.5	MG/L	F01		
3	BIGMH	Big Anner	29952	ET9.1	MDDNR	TRIB	#####	11:34:00	1	4.5	M	ISM	M1	DO		11.6	MG/L	F01		
4	BIGMH	Big Anner	29952	ET9.1	MDDNR	TRIB	#####	11:34:00	2	4.5	M	ISM	M1	DO		11.6	MG/L	F01		
5	BIGMH	Big Anner	29952	ET9.1	MDDNR	TRIB	#####	11:34:00	3	4.5	M	ISM	M1	DO		11.5	MG/L	F01		
6	BIGMH	Big Anner	29952	ET9.1	MDDNR	TRIB	#####	11:34:00	0.5	4.5	S	ISM	M1	DO		11.6	MG/L	F01		
7	BIGMH	Big Anner	30181	ET9.1	MDDNR	TRIB	#####	11:34:00	4.5	5.5	B	ISM	M1	DO		11.5	MG/L	F01		
8	BIGMH	Big Anner	30181	ET9.1	MDDNR	TRIB	#####	11:34:00	1	5.5	M	ISM	M1	DO		11.6	MG/L	F01		
9	BIGMH	Big Anner	30181	ET9.1	MDDNR	TRIB	#####	11:34:00	2	5.5	M	ISM	M1	DO		11.7	MG/L	F01		
10	BIGMH	Big Anner	30181	ET9.1	MDDNR	TRIB	#####	11:34:00	3	5.5	M	ISM	M1	DO		11.7	MG/L	F01		
11	BIGMH	Big Anner	30181	ET9.1	MDDNR	TRIB	#####	11:34:00	4	5.5	M	ISM	M1	DO		11.6	MG/L	F01		
12	BIGMH	Big Anner	30181	ET9.1	MDDNR	TRIB	#####	11:34:00	0.5	5.5	S	ISM	M1	DO		11.6	MG/L	F01		
13	BIGMH	Big Anner	30451	ET9.1	MDDNR	TRIB	#####	12:12:00	4.7	5.7	B	ISM	M1	DO		8.7	MG/L	F01		
14	BIGMH	Big Anner	30451	ET9.1	MDDNR	TRIB	#####	12:12:00	1	5.7	M	ISM	M1	DO		8.4	MG/L	F01		
15	BIGMH	Big Anner	30451	ET9.1	MDDNR	TRIB	#####	12:12:00	2	5.7	M	ISM	M1	DO		8.4	MG/L	F01		
16	BIGMH	Big Anner	30451	ET9.1	MDDNR	TRIB	#####	12:12:00	3	5.7	M	ISM	M1	DO		8.6	MG/L	F01		
17	BIGMH	Big Anner	30451	ET9.1	MDDNR	TRIB	#####	12:12:00	4	5.7	M	ISM	M1	DO		8.7	MG/L	F01		