

APPENDIX E

Instructions for Using the Freshwater Biological Traits Database

Access the Traits Database at <http://www.epa.gov/ncea/global/traits>.
There are several different options for downloading data.

The screenshot shows the 'Database search' page of the EPA Traits Database. On the left is a vertical navigation menu with links: Home, Background, Database search (highlighted), Instruction, Data source, Metadata, and Import new data. The main content area is titled 'Database search' and includes links for 'Download all traits information' and 'Download all traits information - transposed'. A note explains that the transposed format uses table traits as file names. Below this, a search instruction states: 'Please select one or more options to search. (Note: when remove items, they will be appended at end of the original list.)'. The search interface consists of three sections: 'TaxaList' with a list of species (Abedus, Abedus herberti, Abedus indentatus, Ablabesmyia, and its subspecies) and an 'Add >>' button; 'State: (Optional)' with a list of US states and an 'Add >>' button; and 'Traits Group (Optional):' with a list of trait categories (Morphology, Life history, Resource Acquisition Preference, Mobility, Tolerance) and an 'Add >>' button. Each section has a '<< Remove' button. At the bottom are 'Confirm', 'Search', and 'Reset' buttons, followed by the instruction: 'Please confirm your selection before search.'

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Database search

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Data source

Metadata

Import new data

Database search

[Download all traits information](#)

[Download all traits information - transposed](#)

(Transposed format takes traits data from the table and uses them as filed names in the new table. It should provide more user-friendly interface.)

Please select one or more options to search.
(Note: when remove items, they will be appended at end of the original list.)

TaxaList:

- Abedus
- Abedus herberti
- Abedus indentatus
- Ablabesmyia
- Ablabesmyia annulata
- Ablabesmyia aspera
- Ablabesmyia cinctipes
- Ablabesmyia hauberi
- Ablabesmyia illinoensis

State: (Optional)

- Alabama
- Alaska
- Arizona
- Arkansas
- California
- Colorado
- Connecticut
- Delaware
- Florida

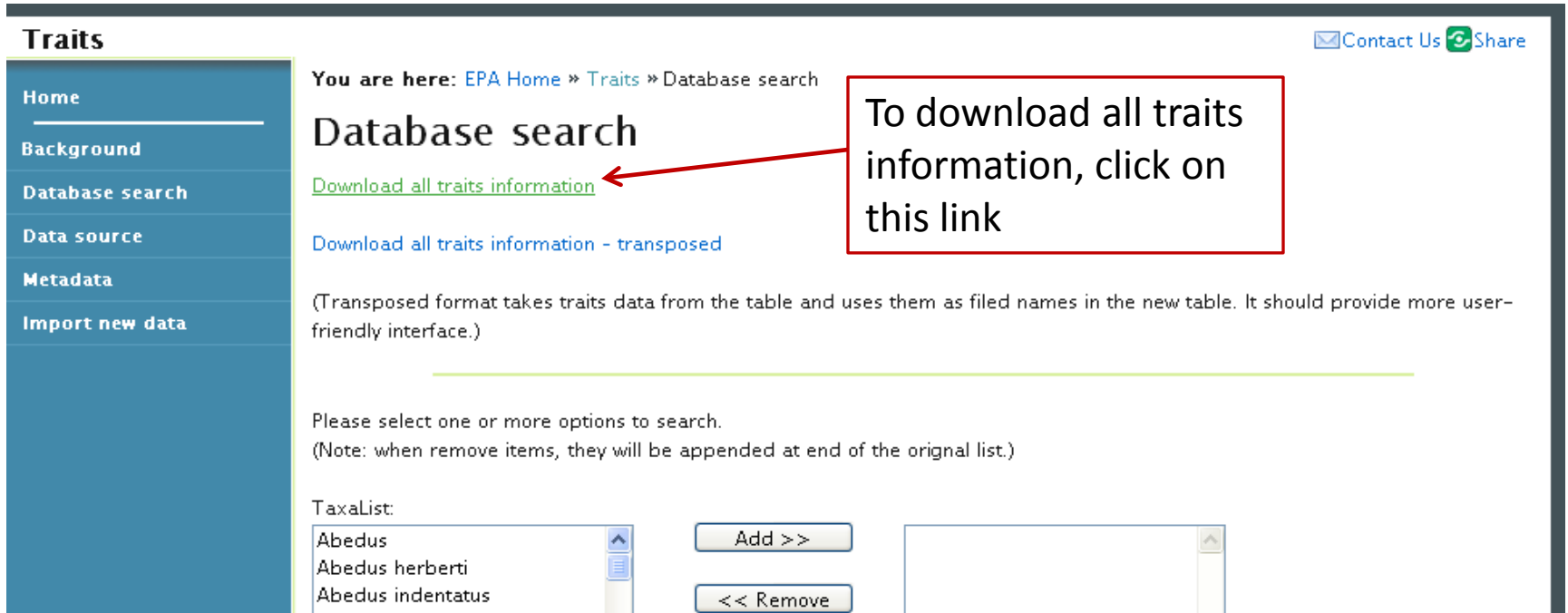
Traits Group (Optional): [Read more information about traits group.](#)

- Morphology
- Life history
- Resource Acquisition Preference
- Mobility
- Tolerance

Confirm Search Reset

Please confirm your selection before search.

OPTION 1: DOWNLOAD ALL DATA



The screenshot shows the 'Traits' section of a website. On the left is a blue sidebar with links: Home, Background, Database search, Data source, Metadata, and Import new data. The main content area is titled 'Database search' and includes a breadcrumb trail: 'You are here: EPA Home » Traits » Database search'. Below the title are two links: 'Download all traits information' (underlined in green) and 'Download all traits information - transposed'. A red box with a red arrow points to the first link. Below these links is a note: '(Transposed format takes traits data from the table and uses them as filed names in the new table. It should provide more user-friendly interface.)'. Further down, there is a section for searching with the text 'Please select one or more options to search. (Note: when remove items, they will be appended at end of the original list.)'. This section includes a 'TaxaList:' with a list of 'Abedus', 'Abedus herberti', and 'Abedus indentatus', and buttons for 'Add >>' and '<< Remove'.

Traits

You are here: [EPA Home](#) » [Traits](#) » Database search

Database search

[Download all traits information](#)

[Download all traits information - transposed](#)

(Transposed format takes traits data from the table and uses them as filed names in the new table. It should provide more user-friendly interface.)

Please select one or more options to search.
(Note: when remove items, they will be appended at end of the original list.)

TaxaList:

Abedus
Abedus herberti
Abedus indentatus

Add >>

<< Remove

To download all traits information, click on this link

To download all the data (i.e. you do not want to select for taxa, state or trait group), click on the 'Download all traits information' link.

A zipped Excel file titled 'FreshwaterBioTraits_20100927.zip' will automatically download onto your computer.

OPTION 2: DOWNLOAD ALL DATA – TRANSPOSED FORMAT

The screenshot shows the 'Traits' database search interface. On the left is a blue sidebar with navigation links: Home, Background, Database search (highlighted), Data source, Metadata, and Import new data. The main content area has a breadcrumb trail 'You are here: EPA Home » Traits » Database search' and a title 'Database search'. Below the title are two links: 'Download all traits information' and 'Download all traits information - transposed'. A red rectangular box is drawn around the second link, with a red arrow pointing to it from the right. To the right of the box, text reads: 'To download all traits information, click on this link'. Below the links is a note: '(Transposed format takes traits data from the table and uses them as filed names in the new table. It should provide more user-friendly interface.)'. Further down, there is a section for searching with the text 'Please select one or more options to search. (Note: when remove items, they will be appended at end of the original list.)'. This section includes a 'TaxaList' with a scrollable list of taxa: 'Abedus', 'Abedus herberti', 'Abedus indentatus', 'Ablabesmyia', and 'Ablabesmyia annulata'. To the right of the list are two buttons: 'Add >>' and '<< Remove'. An empty scrollable box is to the right of these buttons. In the top right corner of the interface are links for 'Contact Us' and 'Share'.

To download all the data in a transposed format, click on the 'Download all traits information - transposed' link.

A zipped Excel file titled 'FreshwaterBioTraits_Transposed_20100927.zip' will automatically download onto your computer.

Why the two formats?

Data is stored in the database in the format shown below because it is more efficient than the transposed format (it eliminates all the blanks, of which there are many in this database).

A	B	C	D	E	F
TAXON	CATEGORY_NAME	TRAITS_NAME	VALUE_YN	VALUE_NUMBER	VALUE_TEXT
Acentrella	Waterbody Type	Second-fourth order streams	Y		
Acentrella	Morphology - Adaptation	Suckers	Y		
Acentrella	Mobility	Swimming ability			strong
Acentrella	Tolerance	Thermal Indicator			cold
Acentrella	Tolerance	Thermal optima rank		3	
Acentrella	Tolerance	Thermal optima value		16.92	
Acentrella	Tolerance	Thermal tolerance rank		4	
Acentrella	Resource Acquisition Preference	Vertical habitat position benthic	Y		
Acentrella	Resource Acquisition Preference	Vertical habitat position	Y		
Acentrella	Life history - emergence	Voltinism			> 1 Generation per year

Although it may be more efficient at storing data, it is likely to be less user-friendly for many of you, so we wanted to provide you with the option of downloading the data in a transposed format, as shown below (trait names are column headings, etc.).

TSN	Taxon	Study_Citation_abbrev	WB_type_headwater	WB_type_2-4_order	Max_body_size	Body_shape_abbrev	ThermalOptima
100801	Acentrella	EPA GCRP North Carolina (2010)		1		streamlined	16.93
100801	Acentrella	EPA GCRP Maine (2010)		1		streamlined	20.61
100801	Acentrella	Rankin and Yoder (2009)		1			23.90
100801	Acentrella	Yuan (2006)		1			17.00
100801	Acentrella	USGS (2006)		1			
100801	Acentrella	Poff et al. (2006)		1	Small (length < 9 mm)	streamlined	
609528	Acentrella alachua	USGS (2006)		1	Small (length < 9 mm)		
568571	Acentrella ampla	USGS (2006)		1			
568571	Acentrella ampla	USGS (2006)		1			
568571	Acentrella ampla	USGS (2006)		1	Small (length < 9 mm)		
609529	Acentrella feropagus	USGS (2006)			Small (length < 9 mm)	streamlined	
568572	Acentrella	Oregon DEQ (2008)		1			22.20

OPTION 3: DOWNLOAD SELECTED DATA

You can select for taxa, state (optional) and/or trait group (optional)

Home

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[Download all traits information](#)

[Download all traits information - transposed](#)

(Transposed format takes traits data from the table and uses them as filed names in the new table. It should provide more user-friendly interface.)

Please select one or more options to search.
(Note: when remove items, they will be appended at end of the original list.)

TaxaList:

Abedus

Abedus herberti

Abedus indentatus

Ablabesmyia

Ablabesmyia annulata

Ablabesmyia aspera

Ablabesmyia cinctipes

Ablabesmyia hauberi

Ablabesmyia illinoensis

Add >>

<< Remove

State: (Optional)

Alabama

Alaska

Arizona

Arkansas

California

Colorado

Connecticut

Delaware

Florida

Add >>

<< Remove

Traits Group (Optional): [Read more information about traits group.](#)

Morphology

Life history

Resource Acquisition Preferenc

Mobility

Tolerance

Add >>

<< Remove

Confirm

Search

Reset

Please confirm your selection before search.

SELECTING FOR A TAXON OR MULTIPLE TAXA –

Step 1: Highlight the taxa of interest

The taxa list is sorted alphabetically.

You can select a single taxon or multiple taxa.

To select a single taxon, click on the name of the taxon. The name will then be highlighted.

To select multiple taxa, if sequential, you can hold the shift key down while left clicking on the taxa of interest. If not sequential, use Ctl+Shift to make your selections, or select each taxa and click on 'Add' individually.

You will see the selected taxa highlighted in blue.

Please select one or more options to search.
(Note: when remove items, they will be appended at end of the original list.)

TaxaList:

Abedus	↑
Abedus herberti	↑
Abedus indentatus	↑
Ablabesmyia	↑
Ablabesmyia annulata	↑
Ablabesmyia aspera	↑
Ablabesmyia cinctipes	↑
Ablabesmyia hauberi	↑
Ablabesmyia illinoensis	↓

State: (Optional)

Alabama	↑
Alaska	↑
Arizona	↑
Arkansas	↑
California	↑
Colorado	↑
Connecticut	↑
Delaware	↑
Florida	↓

Traits Group (Optional): [Read more information about traits group.](#)

Morphology	↑
Life history	↑
Resource Acquisition Preferenc	↑
Mobility	↑
Tolerance	↑

Add >>

<< Remove

Add >>

<< Remove

Add >>

<< Remove

SELECTING FOR A TAXON OR MULTIPLE TAXA – Step 2: Click ‘Add’

After you click ‘Add,’ the names of the highlighted taxa will appear in the box to the right, as shown.

If you would like to remove any of these taxa from this list, click ‘Remove.’

The names of the removed taxa will be appended to the bottom of the taxa list. If you want to resort the taxa list, click the ‘Reset’ button at the bottom of the page.

Please select one or more options to search.
(Note: when remove items, they will be appended at end of the original list.)

TaxaList:		
Ablabesmyia aspera Ablabesmyia cinctipes Ablabesmyia hauberi Ablabesmyia illinoensis Ablabesmyia janta Ablabesmyia mallochi Ablabesmyia monilis Ablabesmyia ornata Ablabesmyia parajanta	Add >> << Remove	Abedus Abedus herberti Abedus indentatus Ablabesmyia Ablabesmyia annulata
State: (Optional) Alabama Alaska Arizona Arkansas California Colorado Connecticut Delaware Florida	Add >> << Remove	
Traits Group (Optional): Read more information about traits group. Morphology Life history Resource Acquisition Preference Mobility	Add >> << Remove	

SELECTING FOR A STATE (OPTIONAL) –

You have the option of selecting a state or multiple states.

You can do so by following the same instructions as above.

If you do not select a state, all records will be shown.

IMPORTANT NOTE: search on this field with caution; this type of geographical information has not been entered for all of the records.

The screenshot shows a web application interface with three main selection sections on the left, each with a list of items and a scroll bar. To the right of each section are two buttons: 'Add >>' and '<< Remove'. Below these sections are three buttons: 'Confirm', 'Search', and 'Reset'. At the bottom, a message reads 'Please confirm your selection before search.'

TaxaList:

- Ablabesmyia aspera
- Ablabesmyia cinctipes
- Ablabesmyia hauberi
- Ablabesmyia illinoensis
- Ablabesmyia janta
- Ablabesmyia mallochi
- Ablabesmyia monilis
- Ablabesmyia ornata
- Ablabesmyia parajanta

State: (Optional)

- Alabama
- Alaska
- Arizona
- Delaware
- Florida
- Georgia
- Hawaii
- Idaho
- Illinois

Traits Group (Optional): [Read more information about traits group.](#)

- Morphology
- Life history
- Resource Acquisition Preferenc
- Mobility
- Tolerance

Buttons: Add >>, << Remove

Buttons: Add >>, << Remove

Buttons: Add >>, << Remove

Buttons: Confirm, Search, Reset

Please confirm your selection before search.

SELECTING FOR A TRAIT GROUP (OPTIONAL) –

You have the option of selecting one or multiple trait groups.

You can do so by following the same instructions as above.

If you do not select a trait group, all records will be shown.

To see which traits are included in each trait group, click on the 'read more information about traits group' link.

Please select one or more options to search.
(Note: when remove items, they will be appended at end of the original list.)

TaxaList:

Ablabesmyia aspera Ablabesmyia cinctipes Ablabesmyia hauberi Ablabesmyia illinoensis Ablabesmyia janta Ablabesmyia mallochi Ablabesmyia monilis Ablabesmyia ornata Ablabesmyia parajanta	Add >> << Remove	Abedus Abedus herberti Abedus indentatus Ablabesmyia Ablabesmyia annulata
State: (Optional) Alabama Alaska Arizona Delaware Florida Georgia Hawaii Idaho Illinois	Add >> << Remove	Arkansas California Colorado Connecticut
Traits Group (Optional): Read more information about traits group. Life history Mobility Tolerance	Add >> << Remove	Morphology Resource Acquisition Preference

Please confirm your selection before search.

4. CLICK 'CONFIRM'

Important!

Do not forget to do this, otherwise you will get an error message when you try to do the data download.

After you click 'confirm,' the selections you have made will be highlighted in gray.

Please select one or more options to search.

(Note: when remove items, they will be appended at end of the original list.)

TaxaList:

Ablabesmyia aspera
Ablabesmyia cinctipes
Ablabesmyia hauberi
Ablabesmyia illinoensis
Ablabesmyia janta
Ablabesmyia mallochi
Ablabesmyia monilis
Ablabesmyia ornata
Ablabesmyia parajanta

Add >>

<< Remove

Abedus
Abedus herberti
Abedus indentatus
Ablabesmyia
Ablabesmyia annulata

State: (Optional)

Alabama
Alaska
Arizona
Delaware
Florida
Georgia
Hawaii
Idaho
Illinois

Add >>

<< Remove

Arkansas
California
Colorado
Connecticut

Traits Group (Optional): [Read more information about traits group.](#)

Life history
Mobility
Tolerance

Add >>

<< Remove

Morphology
Resource Acquisition Preferenc

Click on this!



Confirm

Search

Reset

Please confirm your selection before search.

5. CLICK 'SEARCH'

Please select one or more options to search.

(Note: when remove items, they will be appended at end of the original list.)

TaxaList:

- Ablabesmyia aspera
- Ablabesmyia cinctipes
- Ablabesmyia hauberi
- Ablabesmyia illinoensis
- Ablabesmyia janta
- Ablabesmyia mallochi
- Ablabesmyia monilis
- Ablabesmyia ornata
- Ablabesmyia parajanta

Add >>

<< Remove

- Abedus
- Abedus herberti
- Abedus indentatus
- Ablabesmyia
- Ablabesmyia annulata

State: (Optional)

- Alabama
- Alaska
- Arizona
- Delaware
- Florida
- Georgia
- Hawaii
- Idaho
- Illinois

Add >>

<< Remove

- Arkansas
- California
- Colorado
- Connecticut

Traits Group (Optional): [Read more information about traits group.](#)

- Life history
- Mobility
- Tolerance

Add >>

<< Remove

- Morphology
- Resource Acquisition Preferenc

Then click on this!



Search

Reset

Please confirm your selection before search.

6. SELECT CITATIONS

You are given a choice of citations.

To find out more about the citations, click on the arrow next to the Data Source column heading, and you will be taken to the Data Source page.

To select individual citations, click on the check boxes.

Or to select all records, click 'select all.'

If, after doing so, you decide you don't want to select them all, click the 'uncheck all' button.

Database search

Here is your search criteria:

Taxa List: ('Abedus', 'Abedus herberti', 'Abedus indentatus', 'Ablabesmyia', 'Ablabesmyia annulata', 'Ablabesmyia aspera', 'Ablabesmyia cinctipes', 'Ablabesmyia hauberi')

State

List: ('Arizona', 'Arkansas', 'California', 'Colorado', 'Connecticut', 'Delaware', 'Florida', 'Georgia', 'Hawaii', 'Idaho', 'Illinois', 'Indiana', 'Iowa', 'Kansas', 'Kentucky', 'Louisiana', 'Maine', 'Maryland', 'Massachusetts', 'Michigan', 'Minnesota', 'Mississippi', 'Missouri', 'Montana', 'Nebraska', 'Nevada', 'New Hampshire', 'New Jersey', 'New Mexico', 'New York', 'North Carolina', 'North Dakota', 'Ohio', 'Oklahoma', 'Oregon', 'Pennsylvania', 'Rhode Island', 'South Carolina', 'South Dakota', 'Tennessee', 'Texas', 'Utah', 'Vermont', 'Virginia', 'Washington', 'West Virginia', 'Wisconsin', 'Wyoming')

Traits Groups: ('Mobility', 'Morphology', 'Resource Acquisition Preference')

Please select the items to download:

	Taxon	TSN	Citation	Country	Region	State	Data Source 
☐	Abedus	103721	Aquatic Insects and Oligochaetes of North and South Carolina.	United States	Gulf Coast / Delta Area (TX - FL)	Mississippi	Vieira, N.K.M., N.L. Poff, D.M. Carlisle, S.R. Moulton II, M.K. Koski, and B.C.Kondratieff. 2006. A database of lotic invertebrate traits for North America: U.S. Geological Survey Data Series 187. Available at: http://pubs.water.usgs.gov/ds187
☐	Ablabesmyia	128079	Secondary production of Chironomidae (Diptera)	United States		Indiana	Vieira, N.K.M., N.L. Poff, D.M. Carlisle, S.R. Moulton II, M.K. Koski, and B.C.Kondratieff. 2006. A database of lotic invertebrate traits for North America: U.S. Geological Survey Data Series 187. Available at: http://pubs.water.usgs.gov/ds187
☐	Ablabesmyia	128079	Freshwater Biological Traits Table for Maine	United States		Maine	EPA GCRP State Biomonitoring Data Climate Change Pilot Project 2010: Freshwater Biological Traits Table for Maine (traits data came from several different sources (main sources were Vieira et al. 2006 and the Poff et al. 2006 trait matrix).
☐	Abedus herberti	103731	An Introduction	United States		Arizona	Vieira, N.K.M., N.L. Poff, D.M. Carlisle, S.R. Moulton II, M.K. Koski, and

Whichever citations have checks in the checkboxes will be included in your data output file.

Why are there multiple records for one taxon?

Data has been compiled from numerous different sources. Traits information for a taxon can differ depending on the source. That is why each taxon-citation combination has been entered as a unique record.

7. DOWNLOAD THE DATA

Click on the 'Download traits information to Excel' button at the bottom of the page.

Database search

Here is your search criteria:

Taxa List: ('Abedus', 'Abedus herberti', 'Abedus indentatus', 'Ablabesmyia', 'Ablabesmyia annulata', 'Ablabesmyia aspera', 'Ablabesmyia cinctipes', 'Ablabesmyia hauberi')

State

List: ('Arizona', 'Arkansas', 'California', 'Colorado', 'Connecticut', 'Delaware', 'Florida', 'Georgia', 'Hawaii', 'Idaho', 'Illinois', 'Indiana', 'Iowa', 'Kansas', 'Kentucky', 'Louisiana', 'Maine', 'Maryland', 'Massachusetts', 'Michigan', 'Minnesota', 'Mississippi', 'Missouri', 'Montana', 'Nebraska', 'Nevada', 'New Hampshire', 'New Jersey', 'New Mexico', 'New York', 'North Carolina', 'North Dakota', 'Ohio', 'Oklahoma', 'Oregon', 'Pennsylvania', 'Rhode Island', 'South Carolina', 'South Dakota', 'Tennessee', 'Texas', 'Utah', 'Vermont', 'Virginia', 'Washington', 'West Virginia', 'Wisconsin', 'Wyoming')

Traits Groups: ('Mobility', 'Morphology', 'Resource Acquisition Preference')

Please select the items to download:

	Taxon	TSN	Citation	Country	Region	State	Data Source
☒	Abedus 3654	103721	Aquatic Insects and Oligochaetes of North and South Carolina.	United States	Gulf Coast / Delta Area (TX - FL)	Mississippi	Vieira, N.K.M., N.L. Poff, D.M. Carlisle, S.R. Moulton II, M.K. Koski, and B.C. Kondratieff. 2006. A database of lotic invertebrate traits for North America: U.S. Geological Survey Data Series 187. Available at: http://pubs.water.usgs.gov/ds187
☒	Ablabesmyia 3663	128079	Secondary production of Chironomidae (Diptera)	United States		Indiana	Vieira, N.K.M., N.L. Poff, D.M. Carlisle, S.R. Moulton II, M.K. Koski, and B.C. Kondratieff. 2006. A database of lotic invertebrate traits for North America: U.S. Geological Survey Data Series 187. Available at: http://pubs.water.usgs.gov/ds187
☒	Ablabesmyia 3666	128079	Freshwater Biological Traits Table for Maine	United States		Maine	EPA GCRP State Biomonitoring Data Climate Change Pilot Project 2010: Freshwater Biological Traits Table for Maine (traits data came from several different sources (main sources were Vieira et al. 2006 and the Poff et al. 2006 trait matrix).
☒	Abedus 3660 herberti	103731	An Introduction to the Aquatic Insects of North America	United States		Arizona	Vieira, N.K.M., N.L. Poff, D.M. Carlisle, S.R. Moulton II, M.K. Koski, and B.C. Kondratieff. 2006. A database of lotic invertebrate traits for North America: U.S. Geological Survey Data Series 187. Available at: http://pubs.water.usgs.gov/ds187

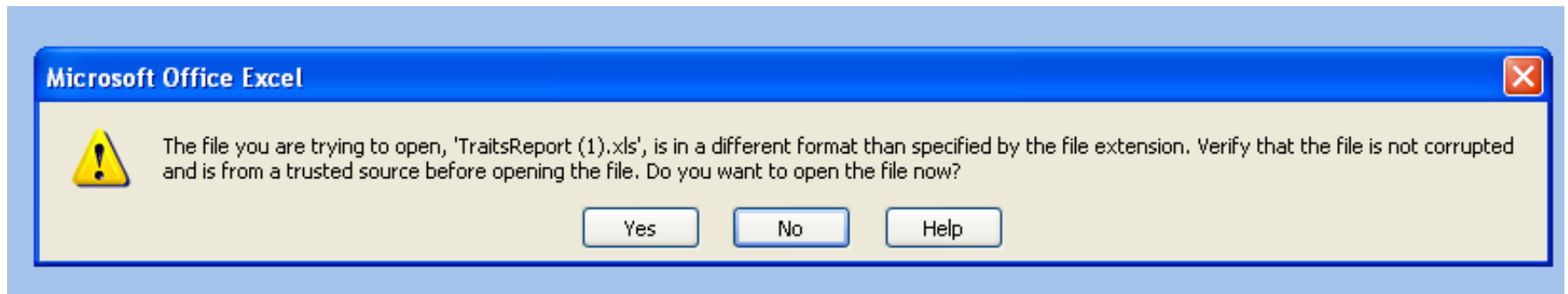
Click on this!



8. RETRIEVE THE EXCEL FILE FROM YOUR DOWNLOAD FOLDER

The Excel file will be named 'TraitsReport.'

When you go to open the file, you will most likely receive an error message like the one shown below. Do not be alarmed. Just click 'Yes' and the file should open without a problem.



Congrats! You have completed your first successful download!