

# Biological Monitoring -Data Management-

Cathy Anderson

TCEQ - Water Quality Planning Division

Data Management & Analysis Team

# History...

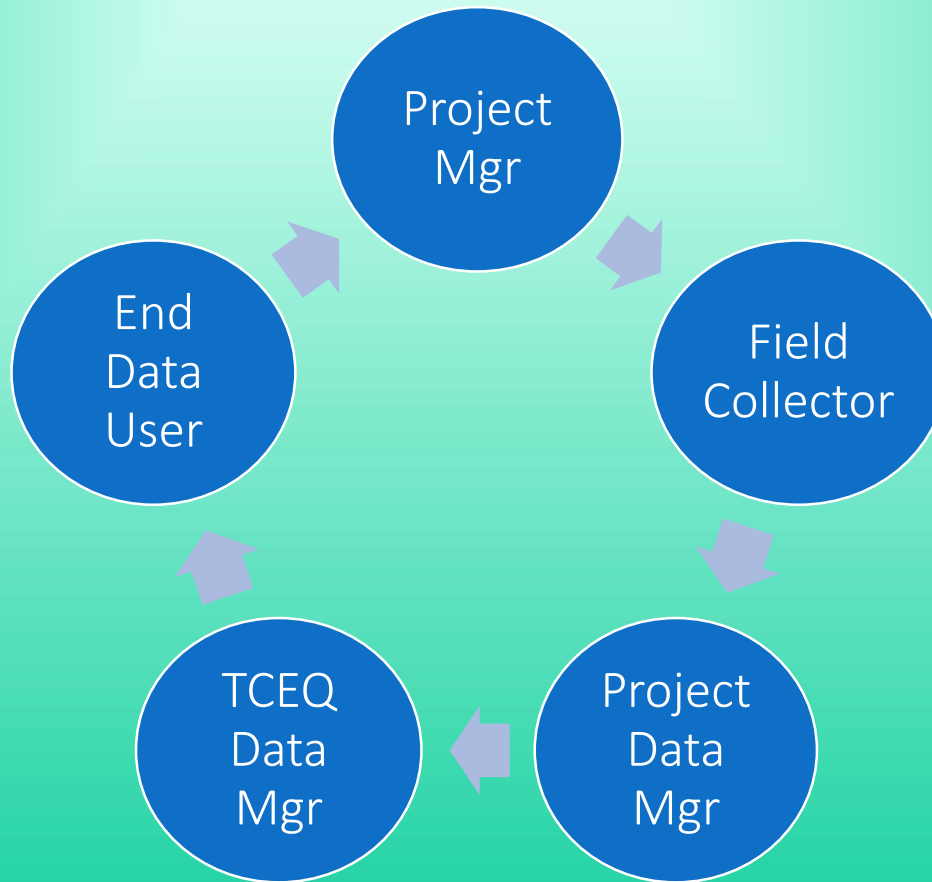
- SWQMIS was released in 2007
- Later enhanced for biological data
- Changed from 'paper' packets to 'electronic' packets
- Now, biological data can be warehoused AND reported from SWQMIS
- Adds value to monitoring effort and data usability

# Data Management Resources

- DMRG (Ch. 6, 7, and 12)
- Procedures Manual, Volume 2
- Handouts from this workshop
- Effective QAP/QAPP
- TCEQ Project Manager
- TCEQ Data Manager
- ☺ SWQMIS examples ☺

# A word about data management...

Congratulations! We are all data managers.



# Data Recording (in the Field)

View QAPP monitoring schedule (generic list, Table B1.1)

View QAPP Table A7 ('expected' list of biological parameters)

**\*\*Compare above against DMRG and forms from PM Vol. 2;  
KNOW BEFORE YOU GO !!!**

Big difference in forms used and generic sampling categories  
(Nekton, for example, can require 8 pages of forms.)

1 sampling category = 1 Tag ID = 1 SWQMIS Sample Set  
(refer to screen shot of SWQMIS biological Sample Event)

# QAPP Monitoring Schedule

Example from QAP, Table B1.1 (generic information) :

Texas Commission on Environmental Quality  
Surface Water Quality Monitoring Program, Water Quality Standards Program, and  
Water Quality Assessment Program QAPP

***Table B1.1 Sampling Sites and Monitoring Frequencies***

Segment	TCEQ Region	Site Description	Station ID	Aquatic Habitat	Benthics	Nekton	Inst Flow	24-HR DO
19##	99	The river at ABC located 99 units from XYZ	2####	2	2	2	2	2

Last 5 columns say: Aquatic Habitat, Benthics, Nekton, Inst Flow, and 24 HR DO.

Now look at the forms used in the field, and the sampling category names.

# Biological Monitoring Event 1336220

**Sampling Events - Sample Event**

**History Comments:**

**Sample Event ID:** 1336220
 **Gauge ID:**

**Station ID:** 15342
 **Start Date:** 08/22/2011
 **End Date:** 08/31/2011

**Segment ID:** 0304A

**Station Description:**

SWAMPOODLE CREEK AT W BROAD ST

**Comments**

**Attachments**

No file selected.

*Description	Attachments File Name	Remove
Project Activity Summ	Project Activity Summary Report - Swampoodle.docx	<input type="button" value="Remove"/>
Elements of the Biolo	2010&2011-Swampoodle @ W Broad summary_packet_form.doc	<input type="button" value="Remove"/>
Summary of Attachme	Summary of Attachments.docx	<input type="button" value="Remove"/>

**View/Edit Sample Sets**

Sample Set Id	Station Id	Rfa Tag Id	Start Date	Submitting Entity	Collecting Entity	Monitoring Type	Sampling Category	Data type
13686599	15342		Aug 31, 2011	WC	FO	BS	BIO_HABITAT_TCEQ_PRTS123_PROTO	Habitat
13686593	15342		Aug 24, 2011	WC	FO	BS	BIO_BENTHMACROS_RAPID_BIO_QUAL	Benthic Macroinvertebrate
13686592	15342		Aug 24, 2011	WC	FO	BS	BIO_NEK_SEINING	Nekton
13686591	15342		Aug 24, 2011	WC	FO	BS	BIO_NEK_ELECTROFISHING	Nekton
13686590	15342		Aug 24, 2011	WC	FO	BS	BIO_NEK_TX_REG_INDEX_SUM&METAD	Nekton
13027436	15342			WC	FO	BS	24 HOUR FIELD MEASUREMENTS	Field Measurement
13023131	15342			WC	FO	BS	ROUTINE FIELD MEASUREMENTS	Field Measurement
13023130	15342	1278779		WC	FO	BS	ROUTINE CHEMICAL MEASUREMENTS	Analytical Result

# SWQMIS Biological Monitoring Event

The previous slide was a screen shot showing:

- SWQMIS Sample Event with attached BLOB files for the Sample Event
- Table of 8 Sample Sets reported for this Sample Event

Sample Sets were:

- Habitat – TCEQ Parts 1, 2, and 3 Protocol
- Benthic Macroinvertebrates – Rapid Bioassessment, Qualitative
- Nekton - Seining
- Nekton – Electrofishing
- Nekton – TX Regional Index Summary & Metadata
- 24 Hour Field Measurements
- Routine Field Measurements
- Routine Chemistry



# Biological Monitoring Event

- Locals use Bull Creek
- Historical – Lampasas Trail crossing with wagon ruts
- City Park – recreational use
- Small off-leash dog area
- Hiking trails for use by many



# Biological Monitoring Event

Sometimes the use can be heavy... Leashed, and unleashed



# Biological Monitoring Event

- After the monitoring event the data needs to be processed.
- Remember, in SWQMIS the monitoring will be represented by a Sample Event and multiple Sample Sets, plus BLOB files.
- What is a BLOB file? BLOB = binary large object and can be a .txt file containing a large amount of data, a .pdf file, an Excel spreadsheet, a document containing photos or images, etc.
- So it's basically 'just a file' and will have a size limitation. In SWQMIS it's 15 MB per attachment.
- BLOBs should be attached to the Sample Event in SWQMIS and to each Sample Set – for Biological Monitoring.



# How does your data go into SWQMIS?

- If you work for the TCEQ and you manually enter data into SWQMIS – you will do the same for your biological data Sample Sets and BLOB files.
- If you are a contractor and your data is loaded into SWQMIS by Data Management, you will submit your biological data using the same process (flat files) however your BLOB files will need to be forwarded to us along with a guide.
- Refer to the DMRG, Ch. 12 – Biological Data Recording and Reporting

# Parameter Code 89888

Parameter code 89888 is the key to making biological data work for data entry, and for data querying and reporting.

Parameter code 89888 is to be reported for each Sampling Category. Sampling Category examples are: Nekton electrofishing, Nekton Seining, or Benthic Macroinvertebrates Rapid Bioassessment Qualitative (DMRG Ch. 6, and 12).

\* The monitoring trip = the Sample Event.

\*\* The Sampling Categories = the various Tag IDs = Sample Sets within the Sample Event.

# Sample Event Attachments/BLOBs

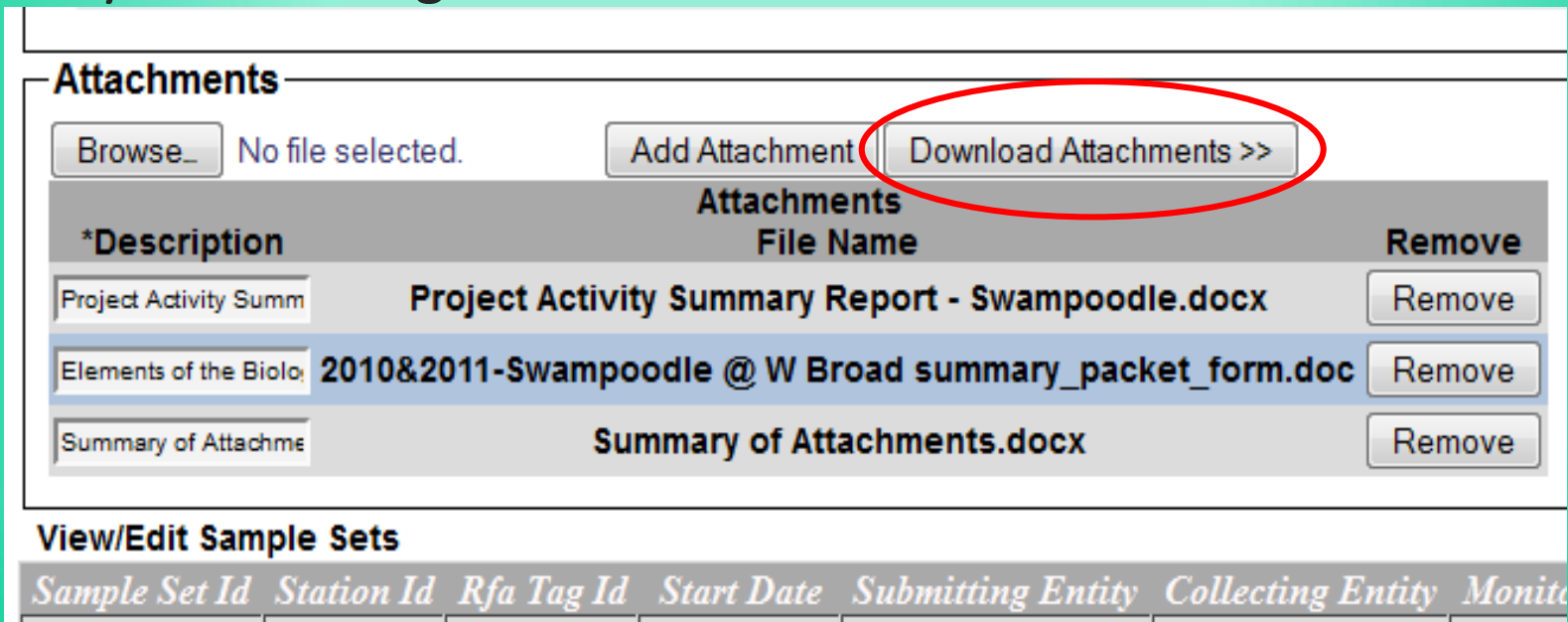
Project Activity Summary Report

Summary Packet - Form

Summary of Attachments

(Note the button for 'Download Attachments >>')

Only Data Managers can 'Remove' BLOBs



**Attachments**

Browse... No file selected. Add Attachment **Download Attachments >>**

*Description	Attachments File Name	Remove
Project Activity Summ	Project Activity Summary Report - Swampoodle.docx	Remove
Elements of the Biolo	2010&2011-Swampoodle @ W Broad summary_packet_form.doc	Remove
Summary of Attachme	Summary of Attachments.docx	Remove

**View/Edit Sample Sets**

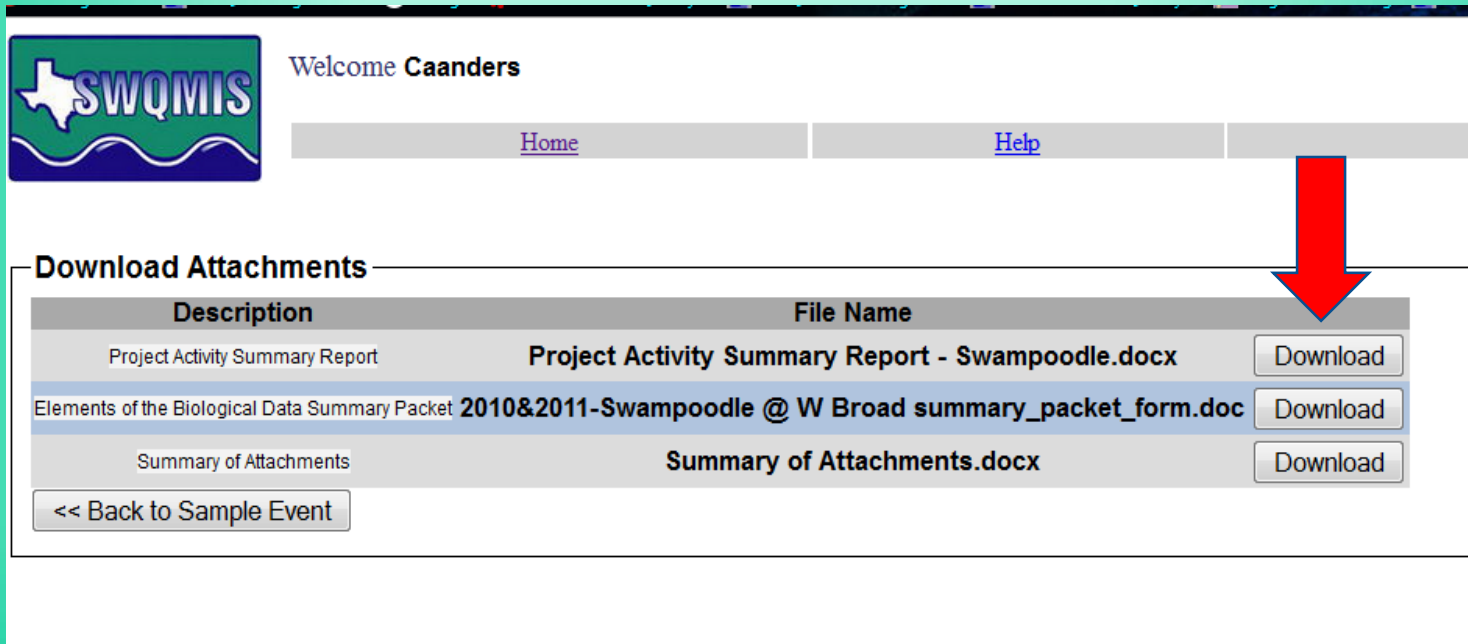
Sample Set Id	Station Id	Rfa Tag Id	Start Date	Submitting Entity	Collecting Entity	Monito
---------------	------------	------------	------------	-------------------	-------------------	--------

# Sample Event Attachments/BLOBs

Click the Download Attachments button and you see this:

Note the buttons for 'Download'

Download the file of choice and view the file contents



The screenshot shows the SWQMIS web interface. At the top left is the SWQMIS logo. To its right is a welcome message: "Welcome Caanders". Below this are two navigation links: "Home" and "Help". The main section is titled "Download Attachments". It contains a table with three columns: "Description", "File Name", and "Download". The table lists three attachments. A red arrow points to the "Download" button for the first attachment.

Description	File Name	Download
Project Activity Summary Report	Project Activity Summary Report - Swampoodle.docx	Download
Elements of the Biological Data Summary Packet	2010&2011-Swampoodle @ W Broad summary_packet_form.doc	Download
Summary of Attachments	Summary of Attachments.docx	Download

<< Back to Sample Event

# Sample Event Attachments/BLOBs

## Attachment/BLOB #1 – Project Activity Summary Report

Project 344						
Aquatic Life Assessment of Swampoodle Creek @ Broad Street						
(Station ID 15342)						
Station Name	Station ID	Activity Type	Event Start Date	Sample Event #	Sample Set #	Results
Swampoodle Cr (Project 344)	15342	Routine	06/29/2010	1247717	12318632	---
↑	↑	Field	06/29/2010	↑	12318633	---
↑	↑	24 Hour DO	06/27/2010	↑	12318634	DO avg = 5.5
↑	↑	Habitat	06/27/2010	↑	13612830	High - 22
					13662283	
↑	↑	Nekton	06/28/2010	↑	13612833	Intermediate - 40
↑	↑	Benthic	06/29/2010	↑	13612834	Intermediate - 22
↑	↑	Routine	08/24/2010	1260933	12461288	---
↑	↑	Field	08/24/2010	↑	12461289	---
↑	↑	24 Hour DO	08/24/2010	↑	12537310	DO avg = 4.5
↑	↑	Habitat	09/02/2010	↑	13686553	High - 21
					13686536	
↑	↑	Nekton	08/25/2010	↑	13686537	High - 45
↑	↑	Benthic	08/25/2010	↑	13686538	High - 45
					13686542	Limited - 17

Station Name	Station ID	Activity Type	Event Start Date	Sample Event #	Sample Set #	Results
Swampoodle Cr (Project 344)	15342	Routine	06/01/2011	1314707	12889024	---
↑	↑	Field	06/01/2011	↑	12889025	---



# Sample Set – Habitat TCEQ 1 2 3

## Habitat Sample Set with 4 attachments

Sample Event ID: 1336220		Station ID: 15342		Station Description: SWAMPOODLE CREEK		Segment ID: 0304A																
<b>Sample Set</b>																						
<input type="button" value="Save"/> <input type="button" value="Save With History"/> <input type="button" value="Sample Results &gt;&gt;"/>																						
History Comments: <div></div>																						
Sample Set Id: 13686599				Start Depth: <input type="text"/> meters																		
<a href="#">RFA Tag No.</a>				End Depth: <input type="text"/> meters																		
Field Collector: MVANBUSK				Deepest Depth: <input type="text"/> meters																		
Quality Control Type: FIELD MSR/OBS <a href="#">Details</a>				Level of Effort: <input type="text"/>																		
Submitting Entity: WC <a href="#">Details</a>				Composite Category: <input type="text"/> <a href="#">Details</a>																		
Collecting Entity Id: FO <a href="#">Details</a>				Composite Type: <input type="text"/>																		
Monitoring Type: BS <a href="#">Details</a>				<a href="#">Equipment Name:</a> <input type="text"/>																		
Data Type: Habitat <a href="#">Details</a>				Equipment Type: <input type="text"/> <a href="#">Details</a>																		
Sampling Category: BIO_HABITAT_TCEQ_PRTS123_PROTO <a href="#">Details</a>				Number Of Seconds: (Nekton) <input type="text"/>																		
Medium: Other <a href="#">Details</a>				Distance Covered: (Nekton) <input type="text"/>																		
Sample Type: <input type="text"/> <a href="#">Details</a>				Tissue Type: <input type="text"/> <a href="#">Details</a>																		
Replicate No: 0				Species: <input type="text"/> <a href="#">Details</a>																		
Start Date: 08/31/2011				Production Status: PROD																		
Start Time: (HH:mm) 00:00				Data Validation Level for Sample Set: 0 <a href="#">Details</a>																		
End Date: 08/31/2011				<a href="#">Project Name:</a> Swampoodle Creek ALA																		
End Time: (HH:mm) 00:00				Comments: <div></div>																		
Collector Observations: <div></div>																						
<b>Attachments</b>																						
<input type="button" value="Browse..."/> No file selected. <input type="button" value="Add Attachment"/> <input type="button" value="Download Attachments &gt;&gt;"/>																						
<table border="1"><thead><tr><th>Description</th><th>File Name</th><th>Remove</th></tr></thead><tbody><tr><td>Part 1</td><td>Swampoodle-Habitat Assessment Worksheet #1 (08-31-2011).doc</td><td><input type="button" value="Remove"/></td></tr><tr><td>Part 2</td><td>Swampoodle-Habitat Assessment Worksheet #2 (08-31-2011).doc</td><td><input type="button" value="Remove"/></td></tr><tr><td>Part 3</td><td>Swampoodle-Habitat Assessment Worksheet #3 (08-31-2011).doc</td><td><input type="button" value="Remove"/></td></tr><tr><td>Habitat Photographs</td><td>Swampoodle Photographs 2011-08-31.pdf</td><td><input type="button" value="Remove"/></td></tr></tbody></table>								Description	File Name	Remove	Part 1	Swampoodle-Habitat Assessment Worksheet #1 (08-31-2011).doc	<input type="button" value="Remove"/>	Part 2	Swampoodle-Habitat Assessment Worksheet #2 (08-31-2011).doc	<input type="button" value="Remove"/>	Part 3	Swampoodle-Habitat Assessment Worksheet #3 (08-31-2011).doc	<input type="button" value="Remove"/>	Habitat Photographs	Swampoodle Photographs 2011-08-31.pdf	<input type="button" value="Remove"/>
Description	File Name	Remove																				
Part 1	Swampoodle-Habitat Assessment Worksheet #1 (08-31-2011).doc	<input type="button" value="Remove"/>																				
Part 2	Swampoodle-Habitat Assessment Worksheet #2 (08-31-2011).doc	<input type="button" value="Remove"/>																				
Part 3	Swampoodle-Habitat Assessment Worksheet #3 (08-31-2011).doc	<input type="button" value="Remove"/>																				
Habitat Photographs	Swampoodle Photographs 2011-08-31.pdf	<input type="button" value="Remove"/>																				

# Sample Set – Swampoodle Photos

Download the Swampoodle Photographs pdf

Aquatic Life Assessment for Swampoodle Creek located in Texarkana (Bowie County, Texas). Station # 15342



Photograph 1. Swampoodle Creek, Station # 15342, Transect #1 - Left Bank.



Photograph 2. Swampoodle Creek, Station # 15342, Transect #1 - Right Bank.

Aquatic Life Assessment Photographs. Photographs taken August 31, 2011, TCEQ Tyler Region SWQM Program

# Sample Set – Swampoodle Photos

Swampoodle Photo pdf file details:

- 10 page file
- 2 photos per page
- File size = 2.5 MB
- Used Adobe's Acrobat PDFMaker 10.1 for Word

So your photos can go into a Word document, 2 per page, with document headers / footers, and individual photo captions.

*Use DMRG guidance for file naming conventions.*

# Sample Event Attachments/BLOBs

**Attachments**

No file selected.

*Description	Attachments File Name	Remove
<input type="text" value="Project Activity Summ"/>	Project Activity Summary Report - Swampoodle.docx	<input type="button" value="Remove"/>
<input type="text" value="Elements of the Biolo"/>	2010&2011-Swampoodle @ W Broad summary_packet_form.doc	<input type="button" value="Remove"/>
<input type="text" value="Summary of Attachme"/>	Summary of Attachments.docx	<input type="button" value="Remove"/>

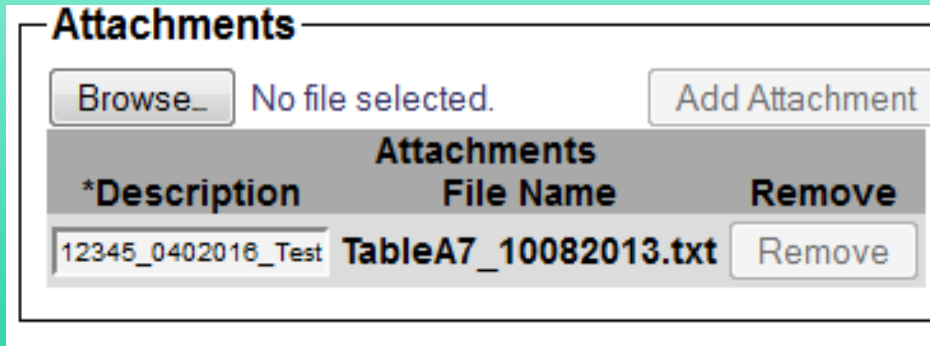
**View/Edit Sample Sets**

Sample Set Id	Station Id	Rfa Tag Id	Start Date	Submitting Entity	Collecting Entity	Monitoring Type
12686500	15242		Apr 21, 2011	WC	EO	DS

# Add an Attachment/BLOBs

Five steps:

1. Place screen in 'Edit' mode; go to Attachment area
2. 'Browse' – locate attachment file; uses Windows Explorer
3. Click 'Add Attachment'; the File Name is added
4. Enter a 'Description' – (suggest StationID + EndDate + info)
5. Click 'Save' or 'Save with History' at top of screen.



The screenshot shows a web interface titled "Attachments". At the top, there is a "Browse\_" button, the text "No file selected.", and an "Add Attachment" button. Below this is a table with the following structure:

*Description	File Name	Remove
12345_0402016_Test	TableA7_10082013.txt	Remove

# Querying for Biological Data



Welcome **Caanders**

[Home](#)

[Help](#)

[History](#)

[About](#)

• Your password will expire on 06/14/2016.

## Home

### Monitoring Stations

Search/View/Edit

### Equipment

Equipment - Search/View/Edit

### Geographical Areas

Geographic Places Search

### Constituents

Constituents - Search/View/Edit

### Sampling

RFA - Search/View/Edit

### Comparison Information

Search/View/Edit

### Projects

Project - Search/View/Edit

### Reports and Extracts

Parameter Inventory Report

Parameter Inventory Report  
Single Parameter Report  
Monitoring Station Inventory Report  
Selective Data Report  
Raw Data Report  
Full Raw Data Export  
RFA Status Report  
Sampling History Report  
Comparison Information Report  
Upload Tracking Info Report  
Biological Raw Data Report

### Maps (GIS)

Display Full Extent Map

### Assessment

Segment - Search/View/Edit

### Administration

Change My Password

### Forms

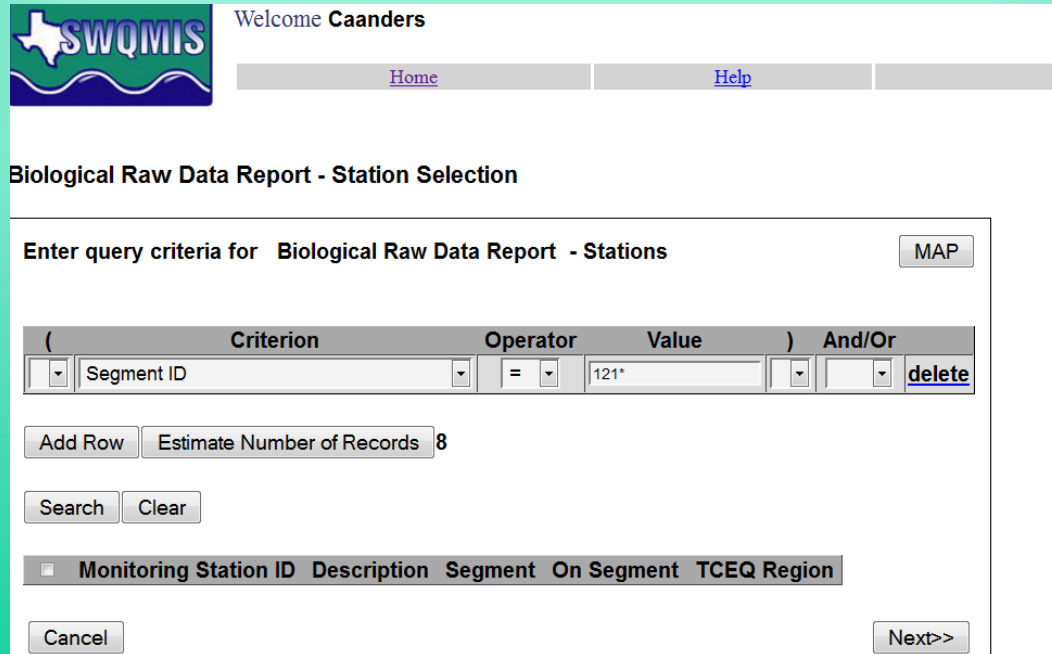
System Change Request

# Querying for Biological Data

To locate Biological data in SWQMIS, do the following:

From the SWQMIS home page, locate the Reports and Extracts module and select the 'Biological Raw Data Report' option

Add 1 line to the query builder and search for a geographical feature (Segment ID = 121\* used in this example)



The screenshot displays the SWQMIS web application interface. At the top left is the SWQMIS logo, and to its right is a welcome message: "Welcome Caanders". Below this are navigation links for "Home" and "Help". The main heading is "Biological Raw Data Report - Station Selection".

The query builder section is titled "Enter query criteria for Biological Raw Data Report - Stations" and includes a "MAP" button. It features a table with columns: "Criterion", "Operator", "Value", and "And/Or". The first row contains the criteria: "Segment ID", "=", "121\*", and a "delete" link.

Below the table, there are buttons for "Add Row" and "Estimate Number of Records", which shows a count of "8". There are also "Search" and "Clear" buttons.


At the bottom, there is a table header with columns: "Monitoring Station ID", "Description", "Segment", "On Segment", and "TCEQ Region". Below this header are "Cancel" and "Next>>" buttons.

Criterion	Operator	Value	And/Or
Segment ID	=	121*	<a href="#">delete</a>

Monitoring Station ID	Description	Segment	On Segment	TCEQ Region
-----------------------	-------------	---------	------------	-------------

# Querying for Biological Data

Click 'Next' on the next 2 screens, and then 'Generate' on the Extract Report screen.



Welcome **Caanders**

[Home](#) [Help](#) [History](#)

**Biological Raw Data Report - Extract Report**

**Biological Extract Report Format For Biological Raw Data Report-Events/Results**

**Extract Report To :**  ▼

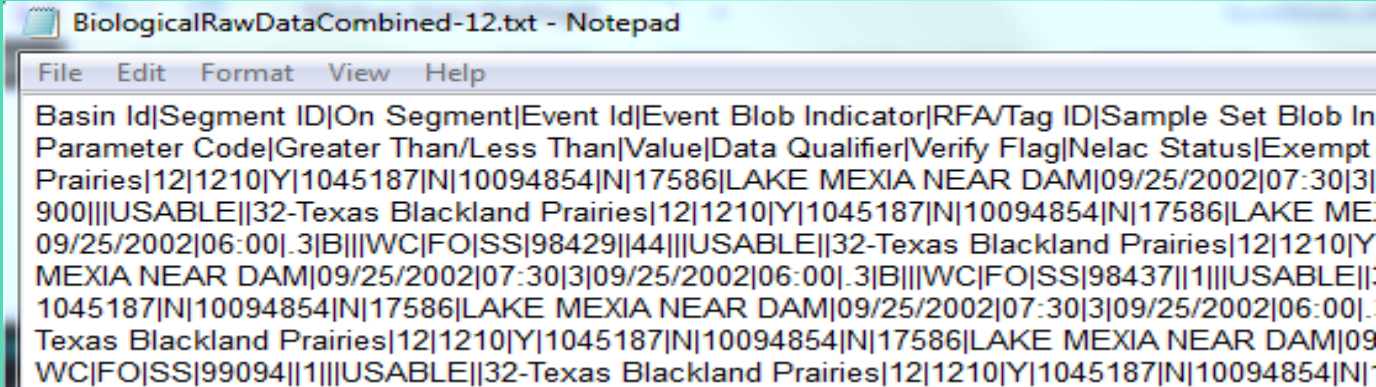


# Querying for Biological Data

The system will generate a pop-up window asking what you want to do with the data file.

Save the file to your local drive as a .txt file.

It will be pipe-delimited data that looks like this:



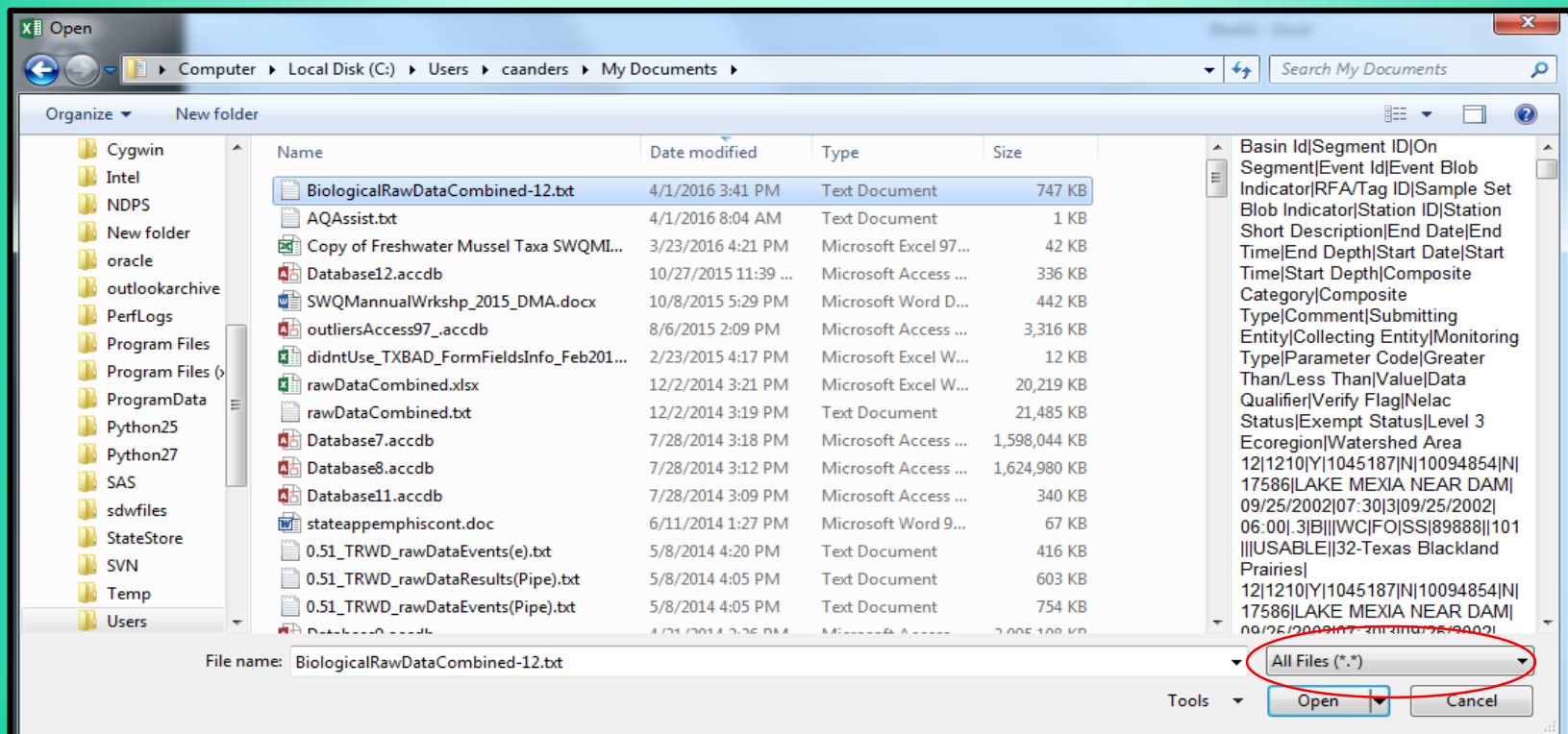
The screenshot shows a Notepad window titled "BiologicalRawDataCombined-12.txt - Notepad". The menu bar includes "File", "Edit", "Format", "View", and "Help". The text content is pipe-delimited data with the following structure: Basin Id|Segment ID|On Segment|Event Id|Event Blob Indicator|RFA/Tag ID|Sample Set Blob In|Parameter Code|Greater Than/Less Than|Value|Data Qualifier|Verify Flag|Nelac Status|Exempt. The data includes entries for "Prairies" and "LAKE MEXIA NEAR DAM" with various numerical and categorical values.

```
Basin Id|Segment ID|On Segment|Event Id|Event Blob Indicator|RFA/Tag ID|Sample Set Blob In|
Parameter Code|Greater Than/Less Than|Value|Data Qualifier|Verify Flag|Nelac Status|Exempt
Prairies|12|1210|Y|1045187|N|10094854|N|17586|LAKE MEXIA NEAR DAM|09/25/2002|07:30|3|
900|||USABLE||32-Texas Blackland Prairies|12|1210|Y|1045187|N|10094854|N|17586|LAKE ME
09/25/2002|06:00|.3|B|||WC|FO|SS|98429||44|||USABLE||32-Texas Blackland Prairies|12|1210|Y
MEXIA NEAR DAM|09/25/2002|07:30|3|09/25/2002|06:00|.3|B|||WC|FO|SS|98437||1|||USABLE||
1045187|N|10094854|N|17586|LAKE MEXIA NEAR DAM|09/25/2002|07:30|3|09/25/2002|06:00|.
Texas Blackland Prairies|12|1210|Y|1045187|N|10094854|N|17586|LAKE MEXIA NEAR DAM|09
WC|FO|SS|99094||1|||USABLE||32-Texas Blackland Prairies|12|1210|Y|1045187|N|10094854|N|
```

# Querying for Biological Data

## Next Step - Open Excel

Select 'File' -> 'Open' and browse to the .txt file you just saved. Excel will think you are looking for an Excel file, so tell it to look for files of all types (lower right of 'Open' pop-up).



# Querying for Biological Data

Step 1 of 3 - Select data file type 'Delimited', then click 'Next'

Text Import Wizard - Step 1 of 3

The Text Wizard has determined that your data is Fixed Width.  
If this is correct, choose Next, or choose the data type that best describes your data.

Original data type

Choose the file type that best describes your data:

☒ **Delimited** - Characters such as commas or tabs separate each field.

☐ Fixed width - Fields are aligned in columns with spaces between each field.

Start import at row: 1 File origin: 437 : OEM United States

☐ My data has headers.

Preview of file C:\Users\caanders\Documents\BiologicalRawDataCombined-12.txt.

	Basin Id	Segment ID	On Segment	Event Id	Event Blob Indicator	RFA/Tag ID	S				
1	12	1210	Y	1045187	N	10094854	N	17586	LAKE MEXIA NEAR DAM	09/25/2002	07:30
2	12	1210	Y	1045187	N	10094854	N	17586	LAKE MEXIA NEAR DAM	09/25/2002	07:30
3	12	1210	Y	1045187	N	10094854	N	17586	LAKE MEXIA NEAR DAM	09/25/2002	07:30
4	12	1210	Y	1045187	N	10094854	N	17586	LAKE MEXIA NEAR DAM	09/25/2002	07:30
5	12	1210	Y	1045187	N	10094854	N	17586	LAKE MEXIA NEAR DAM	09/25/2002	07:30

Cancel < Back Next > Finish

# Querying for Biological Data

Step 2 of 3 - Check 'Other' for type of Delimiter, and enter a 'pipe' into the box by 'Other'.

Text Import Wizard - Step 2 of 3

This screen lets you set the delimiters your data contains. You can see how your text is affected in the preview below.

Delimiters

- ☒ Tab
- ☐ Semicolon
- ☐ Comma
- ☐ Space
- ☒ Other: |

☐ Treat consecutive delimiters as one

Text qualifier: " " ▾

Data preview

Basin Id	Segment ID	On Segment	Event Id	Event Blob Indicator	RFA/Tag ID	Sam
12	1210	Y	1045187	N	10094854	N
12	1210	Y	1045187	N	10094854	N
12	1210	Y	1045187	N	10094854	N
12	1210	Y	1045187	N	10094854	N

Cancel < Back Next > Finish

# Querying for Biological Data

## Step 3 of 3 - Click 'Finish'

Text Import Wizard - Step 3 of 3

This screen lets you select each column and set the Data Format.

Column data format

☒ General  
☐ Text  
☐ Date: MDY  
☐ Do not import column (skip)

'General' converts numeric values to numbers, date values to dates, and all remaining values to text.

Advanced...

Data preview

General	General	General	General	General	General	General
Basin Id	Segment ID	On Segment	Event Id	Event Blob Indicator	RFA/Tag ID	Sam
12	1210	Y	1045187	N	10094854	N
12	1210	Y	1045187	N	10094854	N
12	1210	Y	1045187	N	10094854	N
12	1210	Y	1045187	N	10094854	N

Cancel < Back Next > Finish

# Querying for Biological Data

Now it appears to be in spreadsheet format.

Look for the column for 'Event Blob Indicator' – Column E

A 'Y' = there's an attachment at the Sample Event level

	A	B	C	D	E	F	G	H	I
1	Basin Id	Segment	On Segme	Event Id	Event Blo	RPA/Tag I	Sample Se	Station ID	Station Sh
2	3	0304A	Y	1336220	Y	13023131	N	15342	SWAMPO
3	3	0304A	Y	1336220	Y	13027436	Y	15342	SWAMPO
4	3	0304A	Y	1336220	Y	13027436	Y	15342	SWAMPO
5	3	0304A	Y	1336220	Y	1278779	N	15342	SWAMPO
6	3	0304A	Y	1336220	Y	13686591	Y	15342	SWAMPO
7	3	0304A	Y	1336220	Y	13686593	Y	15342	SWAMPO
8	3	0304A	Y	1336220	Y	13686599	Y	15342	SWAMPO
9	3	0304A	Y	1336220	Y	13686599	Y	15342	SWAMPO
10	3	0304A	Y	1336220	Y	13686599	Y	15342	SWAMPO
11	3	0304A	Y	1336220	Y	13686599	Y	15342	SWAMPO
12	3	0304A	Y	1336220	Y	13686599	Y	15342	SWAMPO
13	3	0304A	Y	1336220	Y	13686599	Y	15342	SWAMPO
14	3	0304A	Y	1336220	Y	13027436	Y	15342	SWAMPO
15	3	0304A	Y	1336220	Y	13027436	Y	15342	SWAMPO

# Querying for Biological Data

## Reminder:

- Query by geographical feature (station, segment, or basin) for best results
- If there is a Sample Event BLOB ('Y') you can go back into the Sampling module and locate the Sample Event and review the Sample Event (and BLOB files), and the Sample Sets (and BLOB files).
- Without reporting parameter code 89888 and associated values for Sampling Categories, the data usability will be low.
- Code 89888 applies to both manually entered data (TCEQ staff) and contractor deliverables/flat files.

# Questions?

Cathy Anderson

[Cathy.Anderson@tceq.texas.gov](mailto:Cathy.Anderson@tceq.texas.gov)

512.239.1805

