

STORET v2.0 - Tutorial Data Entry Module



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Introduction

The following exercises were developed to introduce the new user to essential parts of the STORET system. Monitoring result data can only be entered into STORET when accompanied by metadata that places it, identifies it, and qualifies it in regard to how and why the sample was taken and analyzed. Generally, the STORET Data Entry Module is used to enter and manage metadata, and to perform routine edits to your monitoring result data. There is currently no provision for automated electronic entry of the metadata, so this tutorial will guide you through the direct data entry process.

Data entry into STORET is organized into three major information categories: **Organization Information**, **Operational Activities**, and **Monitoring Activities**. Before sample results can be entered into STORET, information must be entered into each of these areas. Some of the information is required for entry of results, while other information categories are optional.

Use the Organization ID DEMOTEST or utilize an empty Organization ID provided by a STORET trainer for these exercises. Either of these Organization IDs is set up as a practice area and the information entered is not uploaded into the national database. There are ten exercises that demonstrate entry of different types of data. We will follow an example project in which three samples (two water quality and one fish sample) will be taken and analyzed for a variety of parameters. You should also have 2 additional files, **station.jpg** and **qc_plan.pdf** with this tutorial to complete the exercises.

To login to STORET, start the Data Entry Module and enter “storuser” as the ID and password. Begin Exercise 1 from the M1 Main Menu screen.

For more information about using STORET:

- See the EPA STORET Internet Site:
<http://www.epa.gov/STORET/>
- Consult the STORET v2.0 Data Entry Module User Guide located on your STORET installation CD or call EPA STORET Technical Support: 1-800-424-9067

The three major information categories found within STORET:

1. **Organizations:** This section allows the user to completely describe a monitoring organization to the STORET database. In addition, through the Preferences and Defaults screen, the user can describe many details about how the organization conducts environmental monitoring, including field and lab analytical procedures and equipment, groups of analytes, analytical laboratory information, sample collection procedures, equipment configurations, sample handling methods, and quality control sample information. This information only needs to be filled out once (and updated when things change) for each organization.
2. **Operational Activities:** This section contains information on the stations maintained by the organization, and on the projects under which sampling occurs. All data are keyed to a specific station location, linking water quality measurements to the place they represent. The location of each sampling station can be fully described, and referenced to latitude and longitude. The type of station, such as stream, well, etc. can be indicated, along with the ability to store a picture of the site. STORET allows an organization to maintain descriptions, in summary form, of the projects and surveys it conducts and store full project documents. The descriptions contain essential information concerning purpose, procedures, standards and methods, and quality goals.
3. **Monitoring Activities:** This section contains information on trips, sampling methods, and results, and provides a location for results collected by automated data recorders. Each sample is tied to a sampling event or “trip”. Information gathered in the field through the process of measuring or observing the environment during the site visit is recorded in STORET as part of the site visit description. Results are qualified by all the methods used to collect, handle, store, and process that sample. The results may be further qualified by the identity of the lab performing the analytical work, and equipment and methods used in this process.

How to Compile Your Data for STORET

(Source: *STORET v2.0 Data Entry Module User Guide, U.S. EPA, 2003*)

In order to fully realize the potential of STORET, you must take advantage of its many customizing capabilities. Over time, through your efforts to inform STORET about codes and defaults which represent the way you do business, STORET will become able to help you with most of your data entry and manipulation chores. A good rule to remember is: if you are having trouble putting data in STORET, you haven't taught STORET enough about your business.

We are all engaged in basically the same business: Environmental Monitoring and Reporting. STORET has been designed to meet the information needs of anyone engaged in this basic business. However, we all conduct this business in different ways, so at the same time, STORET can learn details of how you conduct your business, and later return these details in ways which will help you manage and document your STORET data.

As you begin teaching STORET about your business, it will be important to have ready access to the following things:

1. ***Station descriptions***, including a unique identifier for each station, a latitude/longitude location, and a State code or name. Also very useful are county codes and hydrologic unit (HUC) codes. Stations may have an unlimited number of alias identifiers, each of which must be unique within your organization, so think about how these might be determined. Only those stations which have a latitude/longitude and State (or State-county) are considered complete, and are permitted to "go active" (receive data) in STORET.
2. ***Project descriptions***, including a unique identifier for each project. STORET fully supports the Windows "Cut" and "Paste" capability, so it would be an excellent idea to have word processor versions of your project descriptions available as you attack this area of STORET. Pasting selected text from the actual Project Plan directly into STORET will save hours of unneeded typing. Once a project has been described, it must be linked to one or more stations before field results may be stored. Neither a station nor a project can be used for fieldwork until this assignment is made.
3. ***Trips and site visits***. STORET must associate all field activities (except those generated by a probe or data-logger) with a trip and site visit. STORET will expect you to provide identifiers and descriptions for trips and visits that generate data. If your organization does not now assign identifiers to trips and visits, you must invent a scheme and do this within STORET. Trip IDs must be unique within your organization, and site visit IDs must be unique within the trip.

4. ***Field Activity IDs.*** STORET will expect unique within Station Visit identifiers for samples. These are almost always assigned using a standard procedure within your organization, and you must have access to the locally assigned sample ID for each sample. When the field activity is a Msr/Obs (measurement or observation), it still must have a STORET identifying code. If your organization does not now assign identifiers to both kinds of activity, you must be prepared to do this in STORET.
5. ***Standard Operating Procedures.*** STORET must know about standard procedures you follow for the collection of samples, the handling and transport of samples, any sample preparation done prior to lab analysis, and the lab methods you use. Before attempting to identify these items to STORET, you must compile materials that document these methods and procedures, and have them readily available as you describe them to STORET. Unique identifying codes are required in STORET for these procedures, as well as names and descriptions. Be prepared to assign these codes as you enter the data. STORET will already have a significant list of lab methods known to EPA from its experience in this area, and you may freely adopt our methods for your own use. However, you are not limited to our list, and may identify and describe procedures used by your organization, which are not found on any of our lists, or which represent deviations from protocols documented in our list.
6. ***Equipment descriptions.*** STORET will require that you identify equipment used in the conduct of both field and lab activities. Just as with SOPs, you should compile local materials which document equipment your organization uses to collect samples and specimens, and additional equipment used in laboratory analyses of these samples. Be prepared to assign identifiers to categories of equipment, and within any one category, be prepared to identify and describe the various ways in which you configure your equipment, again with unique identifying codes. As with project descriptions, you may save a lot of work here by finding computer files which hold the descriptions, from which you can cut and paste the needed text.
7. ***Bibliographic citations.*** Many of the items you describe to STORET can be extended by reference to one or more bibliographic citations. STORET comes with an initial list of these citations, but you may freely add to it entries which identify other literature which helps to describe your business, its procedures, and its equipment.
8. ***Characteristic groups.*** In STORET, a characteristic is merely something you have decided to evaluate and report. Typically a characteristic is a pollutant, such as a dangerous metal, or a toxic chemical. However, all of the following are also characteristics: Site conditions like weather and flow. Physical measurements often made directly during the site visit. Biological observations like habitat evaluation or species diversity. Taxonomic names are Characteristics. Properties of the sample other

than its pollutant evaluation, like its pH, DO, Secchi depth, and so forth. Because you often obtain field results in predictable lists of characteristics, you can (and should) create mirrors of these lists in STORET. In such a list, each row represents one Characteristic, and holds defaults to be used during data entry for things like unit of measure. So that you may reference one of these default rows during batch data entry of STORET data, each row should have an identifying code that is unique within the group. Think carefully about the assignment of these row identifiers, as it may be possible to use them to match up reports coming out of the lab with the appropriate defaults. Having a robust set of characteristic groups and their defaults is the single thing that can make the largest difference in your workload as you enter data into STORET.

Exercise 1 - Field/Lab Analytical Procedures

Before sampling results can be entered in STORET, your organization must describe the lab and field methods used to collect and analyze the samples. You have the option of picking standard procedures from a preloaded list, or of describing and documenting methods that do not exist on the list. The list includes documented methods from nationally known sources such as EPA, ASTM, AWWA, AOAC, USGS, and others. You can update your list of Field/Lab Analytical Procedures from the "Preferences and Defaults" section of STORET. The list of standard methodologies used by your organization can be revised at any time by using the following procedure:

Summary:

In this exercise, you will add to the Field/Lab Analytical Procedure List.

- The following national procedures will be adopted:

Procedure ASTM D3590 (B) TKN by Auto Analyzer

Procedure ASTM D3867 (B), Nitrite-Nitrate by Manual Cd reduction

STEP 1:

- From the ***M1 Main Menu*** click **Data Maintenance**.
- From the ***01 Organization Maintenance List Menu*** select the Org ID provided to you or select **DEMOTEST** and then click **Change** to reach ***03 Organization Menu***.
- Click **Preferences and Defaults** to reach the ***P1 Organizational Preferences Menu***.

STEP 2:

- From ***P1 Organizational Preferences Menu***, click **Field/Lab Analytical Procedures & Equipment** for a list of this Organization's existing Analytical Procedures.
- On ***P2 Field/Lab Analytical Procedure Maintenance List*** click **Adopt Nat'l** to add a new Analytical Procedure from a National Source.

C. Highlight the following Source and click **Select**.

Analytical Procedure Source	ASTM
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D. On ***P8 Organization National Analytical Procedure Adoption*** type “TKN” in the Procedure Name field and click the **Search** button to bring up a list of the procedures that belong to this Source

E. Highlight the following Procedure and click **Select**. The procedure will be removed from the list.

Analytical Procedure ID	D3590(B)
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F. Click **Close** and return to ***P2 Field/Lab Analytical Procedure Maintenance List***.

STEP 3:

A. Repeat STEP 2 for the following information:

Analytical Procedure Source and ID	ASTM, D3867(B)
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B. Click **Close** and return to ***P1 Organizational Preferences Menu***.

Exercise 2 - Sample Collection/Creation Procedures

Your organization must have described its sample collection procedures for sampling activities before you can enter the results of a trip. There is room in STORET to enter detailed information describing your standard operating procedures.

Summary:

In this example, you will enter two sample collection procedures. One must be a water sampling procedure for collecting grab samples, and the other must be a fish collection procedure using a backpack electroshock technique. Use ID codes “ESB” and “GRAB”.

STEP 1:

- A. To start this exercise from the *MI Main Menu*,
- Click **Data Maintenance** to reach the *01 Organization Maintenance List*.
 - Double click **DEMOTEST** to reach the *03 Organization Menu*.
 - Click **Preferences and Defaults** to reach the *P1 Organizational Preferences Menu*.
- B. From *P1 Organizational Preferences Menu*, click **Sample Collection/Creation Procedures** to reach a list of this Organization’s existing Sample Collection Procedures.
- C. Click **Add**, if necessary, to reach *P31 Field Procedure Data Entry* and create a new Sample Collection Procedure:

ID	ESB
Name	Fish Sample Collection
Gear Group Name	Electroshock

- D. Click **Accept** and return to *P30 Field Procedure Maintenance List*.

STEP 2:

- A. Repeat Steps 1C & 1D to create the following Sample Collection Procedure:

ID	GRAB
Name	Water Grab Sample Collection
Gear Group Name	<blank>

- B. Click **Close** and return to *P1 Organizational Preferences Menu*.

Exercise 3: Gear/Equipment Configurations

STORET has room to store detailed information on the equipment used to collect samples.

Summary:

In this example, you will select the type of gear/equipment used to collect two types of samples: fish and water quality.

STEP 1:

- A. To start this exercise from the *MI Main Menu*,
- Click **Data Maintenance** to reach the *01 Organization Maintenance List*
 - Double click **DEMOTEST** to reach the *03 Organization Menu*.
 - Click **Preferences and Defaults** for the *P1 Organizational Preferences Menu*
- B. From *P1 Organizational Preferences Menu*, click **Gear/Equipment Configurations** to reach a list of this Organization's existing Gear Configurations
- C. Click **Add**, if necessary, to reach *P28B Gear Type Selection* and add a new piece of equipment by selecting:

Gear Group Name	Electroshock
Field Gear ID/Name	ESBP/Backpack Electroshock

- D. Click **Select** to reach *P29 Gear Configuration Data Entry* and create a new Gear Configuration:

Configuration ID	ELECTRO1
Configuration Name	Electroshock #41127N

- E. Click **Accept** and return to *P28 Gear Configuration Maintenance List*

STEP 2:

- A. Repeat Steps 1C-1E to create the following Gear Configuration:

Gear Group Name	Water Sampler
Field Gear ID/Name	WSVD/Van Dorn Bottle
Configuration ID	BOTTLE1
Configuration Name	SN 128846

- B. Click **Close** and return to *P1 Organizational Preferences Menu*.

Exercise 4: Sample Preservation, Transport and Storage

An important part of the documentation of how you take your sample is how the sample is preserved, transported, and/or stored after collection. Most sampling organizations have standard operating procedures and Quality Assurance (QA) Plans that govern how this is done. This information can be entered into STORET's Sample Transport and Storage Defaults for your organization.

Summary:

In this example, you will add information to the Organization's list of Sample Transport and Storage Defaults.

STEP 1:

- A. To start this exercise from the *MI Main Menu*,
- Click **Data Maintenance** to reach the *01 Organization Maintenance List*
 - Double click **DEMOTEST** to reach the *03 Organization Menu*.
 - Click **Preferences and Defaults** to reach the *P1 Organizational Preferences Menu*
- B. From *P1 Organizational Preferences Menu*, click **Sample Preservation, Transport & Storage** to reach a list of this Organization's existing Sample, Preservation and Storage Defaults
- C. Click **Add** to reach *P35 Sample Transport and Storage Defaults Data Entry* and create a new default:

ID	NUTRIENT
Name	Water Sample – nutrients
Container Type (Size & units)	HDPE bottle, 1 l
Color	Translucent
Temperature Preservation Type	Wet Ice (4 deg C)
Chemical Preservation and Storage Procedure	pH lowered to <=2 w/sulfuric acid

- D. Click **Accept** to return to *P34 Sample Transport and Storage Defaults Maintenance List*. Then click **Close** and return to *P1 Organizational Preferences Menu*.
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Exercise 5 - Characteristic Groups and Defaults

A characteristic, in STORET, is anything you will measure or observe during your fieldwork, or as a result of analyzing samples you collect. Characteristics are what many of us call “parameters” or “analytes”. A characteristic group is a short list of characteristics, to which you have assigned defaults such as units, methods, and so forth.

You will find it essential to maintain some characteristic groups in order to make it possible to enter results without the tedious and repetitive entry of units and methods. The more precisely you set up your characteristic groups, the more automated your data entry process will be. Rows in these groups should be assigned Row IDs, which can be any combination of numbers or letters. Without Row IDs, you may not refer to these defaults from the batch data entry process. The Row IDs should be codes that are used in your organization to represent the characteristics, if possible. You should consider using codes that are compatible with any Lab Information Management System (LIMS) that you employ.

Summary:

In this exercise, you will create four new Characteristic Groups, to support fieldwork done on your Project. For individual characteristics, any Row ID that may work well in your organization may be assigned. For the purposes of this training example, use the row IDs indicated. A summary of the groups is described below.

- Group 1: Water sample with Field/Lab Analytical Procedures adopted in Example 1
Nitrogen, Nitrate, dissolved, in ug/l, by method ASTM D3867 (B)
Nitrogen, Kjeldahl, total, in mg/l, by method ASTM D3590 (B)
- Group 2: Field measurements
Temperature, air, deg. C
Temperature, water, deg. C
Wind Velocity, mph
Wind direction, Deg
- Group 3: Fish census
Esox americanus (pickerel)
Ictalurus punctatus (catfish)
Oncorhynchus mykiss (trout)
- Group 4: Habitat Assessments (User Defined)
Bank Stability
Bank Vegetative Stability

STEP 1:

- A. To start this exercise from the ***M1 Main Menu***,
- Click **Data Maintenance** to reach the ***01 Organization Maintenance List***.
 - Double click **DEMOTEST** to reach the ***03 Organization Menu***.
 - Click **Preferences and Defaults** to reach the ***P1 Organizational Preferences Menu***.
- B. From ***P1 Organizational Preferences Menu***, click **Characteristic Groups & Defaults** to reach a list of this Organization's existing Characteristic Groups.
- C. Click **Add**, if needed, to reach ***P13 Characteristic Group Data Entry*** and create a new Characteristic Group:

Characteristic Group ID	NUT
Group Name	Nutrients
Field Activity	Sample
Medium	Water

- D. Click **Accept** and return to ***P12 Characteristic Group Maintenance List***.

STEP 2:

- A. Highlight the Characteristic Group you just created and click **Characteristics** to reach ***P16 Characteristic Group Characteristic Selection List***
- B. Type **NITROGEN** in the Characteristic Name field and click **Search**.
- C. Highlight the following characteristics from the list that appears and click **Select**

Characteristic	Nitrogen, Kjeldahl
Characteristic	Nitrogen, Nitrate (NO3) as N

- D. Click **Close** to reach ***P14 Characteristic Group Characteristic Maintenance List***

STEP 3:

- A. Highlight **Nitrogen, Nitrate (NO3) as N**. Click **Defaults** and enter the following:

Row ID	10
Sample Fraction	Dissolved
Value Unit	ug/l
Value Type	Actual

B. Click **Accept** and return to ***P14 Characteristic Group Characteristic Maintenance List.***

C. Highlight **Nitrogen, Nitrate (NO3) as N** and click **Field/Lab Procedure**

D. Highlight the following Analytical Procedure and click **Assign**

Analytical Procedure ID	ASTM D3867 (B)
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E. Click **Close** and return to ***P14 Characteristic Group Characteristic Maintenance List.***

STEP 4:

A. Repeat Steps 3a-3e for the following information:

Characteristic	Nitrogen, Kjeldahl
Row ID	20
Sample Fraction	Total
Value Unit	mg/l
Value Type	Actual
Analytical Procedure	ASTM D3590 (B)

B. Click **Close** and return to ***P12 Characteristic Group Maintenance List.***

STEP 5:

Now repeat Steps 1c-3b to create the following new Characteristic Groups:

For Field Measurements:

Group ID	OBS
Group Name	Field Measurements
Field Activity	Field Msr/Obs
Medium	Water

Characteristic	Temperature, air
Row ID	TEMP1
Value Unit	deg C
Value Type	Actual

Characteristic	Temperature, water
Row ID	TEMP2
Value Unit	deg C
Value Type	Actual

Characteristic	Wind velocity
Row ID	WIND1
Value Unit	mph
Value Type	Actual

Characteristic	Wind direction
Row ID	WIND2
Value Unit	Deg
Value Type	Actual

For Fish Census:

Group ID	FISH
Group Name	Fish census
Field Activity	Sample
Medium	Biological
Intent	Taxon Abundance
Community	Fish/Nekton
Result Group	Multi-taxon Population Census

Characteristic	Esox americanus (pickerel)
Row ID	10
Units	count
Value Type	Actual

Characteristic	Ictalurus punctatus (catfish)
Row ID	20
Units	count
Value Type	Actual

Characteristic	Oncorhynchus mykiss (trout)
Row ID	30
Units	count
Value Type	Actual

For Habitat Assessments:

Group ID	HABITAT
Group Name	Habitat Assessment Measurement
Habitat Assessment Flag	Click the check box
Field Activity	Field Msr/Obs

- On screen ***P12B Habitat Assessment Scheme Characteristic Definition***, select “User-defined” Characteristic Definition and click **Accept** to reach ***P27 Habitat Classification Scheme Characteristic Maintenance List***.

Characteristic Name	Bank Stability
Row ID	BANK1
Description	Scored on a points system, 1-100 points available, 1=total instability, 100=completely stable.

Characteristic Name	Bank Vegetative Stability
Row ID	BANK2
Description	Scored on a 1-100 points system, 1=Unstable, 100=Completely covered.

Click **Close** 3 times and return to ***O3 Organization Menu***.

Exercise 6 – Station Information

One of the most important pieces of information that accompanies a sample is the location of the sampling station. In STORET, your organization will maintain a common list of sampling stations used for all projects. The location information can be quite detailed, including method of determining latitude and longitude, geographic areas, and pictures or graphics depicting the location.

Summary:

Add a station to your copy of STORET.

- Use the Station ID **STA-1**.
- If you are using an electronic copy of this tutorial, use the Windows "CUT" and "PASTE" functions where possible to reduce keyboard entry (use the right mouse button to cut and paste within STORET.)

Here is a summary description of the site:

Primary ID: STA-1

Name: Deep Creek at Suwannee River

Type: Wetland

Secondary Type: Riverine, emergent

Established: 01-01-1985

Description: A wetland of an intermittent nature, formed by the typical spring floods of the conjoined streams. The wetland is confined to the floodplain of Suwannee River, about 10 meters either side of the stream.

Latitude/Longitude: 30 22 24.0 N 82 39 43.0 W

as determined by Kinematic G.P.S., Ref. North American Datum of 1983

State/County: Hamilton County, Florida

Hydrologic Unit Code (HUC): 03110201 - Upper Suwannee

Document/Graphic Name: Picture of Station

STEP 1:

- To start this exercise from the ***M1 Main Menu***,
 - Click **Data Maintenance** to reach the ***01 Organization Maintenance List***.
 - Double click **DEMOTEST** to reach the ***03 Organization Menu***.
- From the ***03 Organization Menu***, click **Stations** to reach a list of this Organization's existing Stations.

C. Click **Add**, if necessary, to create a new Station:

ID	STA-1
Name	Deep Creek at Suwannee River
Primary Type	Wetland
Secondary Type	Riverine, emergent
Establishment Date	01-01-1985
Description	A wetland of an intermittent nature, formed by the typical spring floods of the conjoined streams. The wetland is confined to the floodplain of Suwannee River, about 10 meters either side of the stream.

D. Click **Save** and then **Close** to go to the *ST3 Station Menu*.

STEP 2:

A. Click **Geographic Areas** to reach *GO1 Geographic Area Menu*.

B. Click **Latitude/Longitude** and enter the following information:

Latitude	30 22 24.0 N
Longitude	82 39 43.0 W
Geopositioning Method	GPS Carrier Phase Kinematic Relative Position
Geopositioning Datum	North American Datum 1983

C. Click **Save** and then **Close** twice and return to *GO1 Geographic Area Menu*.

STEP 3:

A. Click **State/County/Province** to reach *GO2 Geopolitical Area Selection List*.

B. Highlight the following State and County and click **Assign Primary**

State	Florida
County	Hamilton

(Note: This step is easy to skip when you are entering station data. If this step is omitted, you will not be able to enter any additional data for the site.)

C. Click **Close** to return to *GO1 Geographic Area Menu*.

STEP 4:

A. Click **FIPS Hydrologic Unit**

B. Highlight the following FIPS Hydrologic Unit code and click **Select** to return to *GO1 Geographic Area Menu*.

FIPS Code	03110201 - Upper Suwannee
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C. Click **Close** to return to *ST3 Station Menu*.

STEP 5:

A. Click **Document/Graphic**

B. Enter login information (e.g. storuser/storuser) and click **Accept** to reach *ST14 Station Document/Graphic*.

C. Click **Browse** to find the file “station.jpg”. Select the file and click **Open**

D. Enter a name for the graphic and click **Accept** to return to *ST3 Station Menu*

Document Title	Picture of Station
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E. Click **Close** twice to return to the *O3 Organization Menu*.

Exercise 7 – Project Information

STORET provides space to include detailed information about each project for which you collect data. This is necessary information for those who will utilize the project data for later studies and assessments.

Summary:

- Using the Project ID **PR-1**, create a new Project in your copy of STORET.
- Utilize the Windows "CUT" and "PASTE" functions and the text below to construct the Project Description.

STEP 1:

- A. To start this exercise from the *MI Main Menu*,
- Click **Data Maintenance** to reach the *01 Organization Maintenance List*.
 - Double click **DEMOTEST** to reach the *03 Organization Menu*.
- B. From *03 Organization Menu*, click **Projects** and then, if necessary, click **Add** to reach *PJ4 Project Data Entry*. Enter the following information for your project.

Project ID	PR-1
Start Date	01-01-2003
Planned Duration	Ongoing
Project Name	Suwannee River Project
Project Purpose	This project has 3 specific objectives: 1. Determine the sources of pollution causing or contributing to existing or anticipated pollution problems in the Suwannee River and its tributaries. 2. Evaluate the effectiveness of efforts to reduce or eliminate those sources of pollution. 3. Evaluate progress toward achieving and maintaining water quality standards and protecting and restoring the fisheries, shellfisheries and other resources of the river.
Project Study Area	The project will extend along the entire river, including its estuaries and tributaries, and their adjacent urban and agricultural lands with their attendant runoff.

- B. Click **Save** and then click **Additional Info** and input the following information:

Project Design & Sampling Frequency	A monitoring program has been developed consisting of three main elements: water quality monitoring, fish tissue analysis, and taxonomic diversity/richness monitoring. The water quality monitoring program will consist of surveys during which in-field water quality parameters will be measured and samples will be collected for laboratory analysis. Sampling will be conducted during the summer of 2003 and will continue for several years.
How/Where to Obtain Complete Plan	Contact Julie Utter at 850-245-8508.

C. Click **Save** and then click **Additional Info** and input the following information:

Quality Assurance Project Plan Summary	<ol style="list-style-type: none"> 1. Replicate samples will be taken at all field stations where applicable. 2. Laboratory performance evaluations must be done monthly. 3. Standard chlorophyll samples should be used for calibrations. 4. A voucher specimen collection will be maintained at Commission HQ.
Measurement Specific Quality Objectives	Dissolved ammonium N precision, 5%, accuracy 95-105%, Minimum Detection Level (MDL) 0.05 umol/l Dissolved Nitrite- N precision 5%, accuracy 95-105%, MDL 0.01 umol/l Dissolved Nitrate- N precision 5%, accuracy 95-105%, MDL 0.03 umolA Total Nitrogen precision 5%, accuracy 95-105%, MDL 2.1 umolA Chlorophyll a precision 5%, accuracy 95-105%, MDL 0.1 ug/1 Turbidity precision 5%, accuracy 95-105%, MDL 0.1 NTU

D. Click **Accept** then **Close** two times to reach **PJ3 Project Menu**.

STEP 2:

A. Click **Stations on Project** to reach **PJ11 Project Station Selection List**.

B. Highlight the station that you created in Exercise 6 and click **Select**

C. Click **Close** to reach **PJ3 Project Menu**.

STEP 3:

- A. Click **Document/Graphic** to reach *PJ22 Project Document/Graphic*.
- C. Click **Browse** to find the file “qc_plan.pdf”. Select the file and click **Open**
- D. Enter a name for the graphic and click **Accept** to return to *PJ3 Project Menu*.

Document Title	Quality Control Plan
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- E. Click **Close** twice to return to the *O3 Organization Menu*.
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Exercise 8 – Trip Information

STORET stores data in relation to the outing or sampling run during which collection took place. This is required metadata and must be entered. You'll also learn to link a trip to a project so that monitoring activities can be associated with a project.

Summary:

Create a trip plan in your copy of STORET. Give it the ID Code "TR-1".
Use Windows "CUT" and "PASTE" to minimize keyboard entry.

Sampling Trip Description

Trip ID: TR-1

Start Date: 08-20-2003 2:00 pm EDT (14:00)

Stop Date: 08-20-2003 6:00 pm EDT (18:00)

Trip Name: Sampling Trip 1

Leader: Your Name

Vehicle: 1995 Ford F-150

Trip Plan: Proceed from the FDEP Office and go directly to the Monitoring Site.

Comments:

Collect 2 water samples in High-Density Polyethylene bottles (1 liter) and while on site record the cloud cover, air and water temperatures, and wind velocity and direction.

Using the electroshock, collect a fish sample according to field procedure "ESB".

Projects supported: Project created in Exercise 7

STEP 1:

- A. To start this exercise from the *MI Main Menu*,
- Click **Data Maintenance** to reach the *01 Organization Maintenance List*.
 - Double click **DEMOTEST** to reach the *03 Organization Menu*.
- B. From *03 Organization Menu*, click **Trips, Sampling and Results** then if necessary, **Add** to reach *T3 Field Trip Data Entry* and create a new Field Trip:

Field Trip ID	TR-1
Trip Start Date/Time	08-20-2003 1400 EDT
Trip Stop Date/Time	08-20-2003 1800 EDT
Trip Name	Sampling Trip 1
Leader	Your Name
Vehicle/Ship	1995 Ford F-150

Trip Origin and Plan Summary	Proceed from the FDEP Office and go directly to the Monitoring Site
Comments	Collect 2 water samples in High-Density Polyethylene bottles (1 liter) and while on site record the cloud cover, air and water temperatures, and wind velocity and direction.
	Using the electroshock, collect a fish sample according to field procedure “ESB”.

C. Click **Accept** and reach ***T2 Field Trip Menu.***

STEP 2:

A. Click **Projects Supported by Trip** to reach ***T4 Field Trip Project Assignment.***

B. Link this trip to a project by highlighting the Project you created in Exercise 7 and click **Assign**.

C. Click **Close** twice and return to ***T2 Field Trip Menu.***

Exercise 9 – Site Visit

STORET has room to store information describing site visits. This includes time and date of the visit, and information about the activities conducted at the site. This is where you can log your sampling activities. Note: actual field data are not entered here, but rather information about sample collection and handling.

Summary:

Describe a site visit, which takes place during the Trip described above.
Link activities performed to Sample Collection/Creation Procedures.

Site Visit Description

Visit No. 1,

Arrival 08-20-2003, 3:00 PM EDT (1500)

Departure 08-20-2003, 4:00 PM EDT (1600)

Activities on Site

- Water Samples
Sample Ids 030820-1 (routine sample) and 030820-2 (replicate sample)
- Fish Census 030820-3
- Field Observations and Measurements, ID 030820-4

STEP 1:

- A. To start this exercise from the **MI Main Menu**,
- Click **Data Maintenance** to reach the **01 Organization Maintenance List**.
 - Double click **DEMOTEST** to reach the **03 Organization Menu**.
 - Click **Trips, Samples and Results** to reach **T1 Field Trip Maintenance List**.
 - Double click on the name of the trip you created in Exercise 8, “TR-1” to reach **T2 Field Trip Menu**.
- B. From **T2 Field Trip Menu**, click **Station Visit** then if necessary, click **Add** to reach **SV3 Station Visit Data Entry** and create a new Station Visit:

Station ID	STA-1
Visit Number	1
Arrival Date and Time	08-20-2003, 1500 EDT
Departure Date and Time	08-20-2003, 1600 EDT

- C. Click **Save** and **Close** to reach **SV2 Station Visit Menu**.

STEP 2:

- A. Click **Samples, Measurements and Observations** to reach *SV5B Activity Type Selection*.
- B. Choose **Sample** and click **Select** to reach the *FA2 Sample Data Entry*.
- C. Create a new Sample:

ID	030820-1
Medium	Water
Activity Category	Routine Sample
Start Date and time	Leave default

- D. Click **Accept** and return to *FA1 Field Activity Menu*.

STEP 3:

- A. Click **Sample Collection/Creation Procedures** to reach *FA7 Field Activity Procedure Data Entry*. Click the double-arrows and highlight the grab sample collection procedure that you created in Exercise 2 (GRAB) and click **Select** then **Accept** and return to *FA1 Field Activity Menu*.
- B. Click **Sample Preservation, Transport, and Storage** and reach *FA10 Sample Handling, Transport and Storage Data Entry*.
- C. Click **Defaults** to reach *FA11 Sample Transport and Storage Defaults Selection List*. Highlight the grab sample collection procedure that you created in Exercise 4 for nutrient samples (NUTRIENT) and click **Select** and return to *FA10 Sample Handling, Transport and Storage Data Entry*. Click **Accept** and return to *FA1 Field Activity Menu*. Click **Close** twice and return to the *SV2 Station Visit Menu*.

STEP 4:

- A. Repeat Steps 2-3 to add the following new Activities:

Activity Type	Sample
ID	030820-2
Medium	Water
Activity Category	Field Replicate/Duplicate

Replicate Number	1
Start Date and time	Leave default

Sample Collection/ Creation Procedure	GRAB
Sample Preservation, Transport, and Storage default	NUTRIENT

Activity Type	Sample
ID	030820-3
Medium	Biological
Activity Category	Routine Sample
Intent	Taxon Abundance
Community	Fish/Nekton
Start Date and time	Leave default

Sample Collection/ Creation Procedure	ESB
Gear Group Name	Electroshock
Gear	ESBP – Backpack electroshock

Activity Type	Field Measurement/Observation
ID	030820-4
Medium	Water
Activity Category	Routine Msr/Obs
Start Date and time	Leave default

Exercise 10. Results

This is where you get to enter the results of your monitoring activities. You will notice that in order to enter data, you must have all of the documenting metadata in place. In this example, you will enter the results through direct data entry.

Summary:

Enter the results of the above samplings and measurements. Use Characteristic Groups to assist in data entry. A summary of the results is listed below.

Water Sample 1:

Activity ID 030820-1

Nitrogen, Nitrate 0.6 ug/l

Nitrogen, Kjeldahl, (TKN) 1.5 mg/l

Water Sample 2:

Activity ID 030820-2

Nitrogen, Nitrate: not detected, detection limit = 4 ug/l

Nitrogen, Kjeldahl, (TKN) 1.1 mg/l

Fish Sample:

Activity ID 030820-3

Esox americanus (pickerel) 2 juveniles

Ictalurus punctatus (catfish) None

Oncorhynchus mykiss (trout) 1

Field Observations and Measurements:

Activity ID 030820-4

Air Temperature 23.5 C

Water Temperature 12.8 C

Wind Velocity 3 mph

Wind direction from the NW, out of 315 Deg.

STEP 1:

A. To start this exercise from the **MI Main Menu**,

- Click **Data Maintenance** to reach the **01 Organization Maintenance List**.
- Double click **DEMOTEST** to reach the **03 Organization Menu**.
- Click **Trips, Samples and Results** to reach **T1 Field Trip Maintenance List**.
- Double click on the name of the trip you created in Exercise 8, “**TR-1**” to reach **T2 Field Trip Menu**.
- Click **Station Visit** then double click station “**STA-1**”.

- B. From *SV2 Station Visit Menu*, click **Samples, Measurements and Observations** to reach *SV5 Station Visit Activity Summary List*.
- C. **Highlight** activity ID 030820-1 and click **Change** to reach *FA1 Field Activity Menu*.
- D. Click **Results**, then Click **Search Organization Characteristic Group**. Click on the nutrient characteristic group created in Example 5 and click **Select**. Click **Close** to reach *R1 Result Maintenance List*.
- E. Highlight **Nitrogen, Nitrate** and then click **Result** to reach *R4 Chemical Result Data Entry*.
- F. Enter the result “2” and click **Accept** and return to *R1 Result Maintenance List*.

STEP 2:

- A. Repeat steps 1E and 1F for Nitrogen, Kjeldahl.

Characteristic	Nitrogen, Kjeldahl
Result	1.5 mg/l

- B. Click **Close** twice to reach *SV5 Station Visit Activity Summary List*.

STEP 3:

- A. Repeat the appropriate steps to enter results for the following activities. Note: You will need to access the “Lab Info” screen from the *R1 Result Maintenance List* to enter the lab detection limit.

ID	030820-2
Characteristic group ID	NUT

Characteristic	Nitrogen, Nitrate
Result	Not Detected
Detection Limit	1 ug/l

Characteristic	Nitrogen, Kjeldahl
Result	1.1 mg/l

ID	030820-3
Type Name	Multi-Taxon Population Census
Group ID	1
Characteristic group ID	FISH

Characteristic	Esox americanus
Result	2
Comments	juveniles

Characteristic	Ictalurus punctatus
Result	0

Characteristic	Oncorhynchus mykiss
Result	1

ID	030820-4
Characteristic group ID	OBS

Characteristic	Temperature, air
Result	23.5 deg C

Characteristic	Temperature, water
Result	12.8 deg C

Characteristic	Wind velocity
Result	3 mph

Characteristic	Wind direction
Result	315 Deg