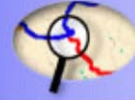


*ADB* version 2

assessment  
database



# EPA Assessment Database Version 2

## Tutorial for EPA Regional Users

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## Introduction

The U.S. Environmental Protection Agency's (EPA's) 305(b) Assessment Database (ADB) software was developed as a tool for State environmental agencies to ease the burden of State reporting of water quality assessment data. EPA supported the development and distribution of the ADB software to encourage standardization of reporting between states; and to facilitate the generation of the National Assessment Database and the biennial National Water Quality Inventory. The main function of the ADB version 2 (ADB v.2) is to store assessment information in a way that is consistent with EPA's *Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d) and 305(b) of the Clean Water Act* (EPA, 2005); henceforth referred to as the *Guidance*, which is available at: <http://www.epa.gov/owow/tmdl/2006IRG/report/2006irg-report.pdf>. In the 2006 *Guidance*, EPA encouraged States to integrate the reporting requirements under Sections 305(b) and 303(d) of the Clean Water Act (CWA). ADB v.2 is designed to facilitate the integration of the two programs and produce attainment category reports, as defined by the *Guidance*, based on the assessment information in the database.

## System Overview

The ADB v.2 is a relational database application with an Oracle, a Microsoft (MS) Access, or a SQL Server database platform and a Visual Basic user interface. The ADB includes two files, a user interface file and a database file. The user interface file must be installed locally on each user's machine. This file contains all of the graphical screens and tools that allow the user to enter and view data. The second file is a database file that stores all of the data. This file may be stored on an individual machine or on a server for access by multiple users. The advantage of the two-file design is that the graphical interface can be improved without affecting the table structure or data stored in the database file.

The user interface for the MS Access version of the ADB v.2 is virtually the same as that for the SQL Server and Oracle versions; however, choosing to use the MS Access version does not allow the user to take advantage of the power of the Oracle and SQL database. MS Access ADB v.2 users will sacrifice (1) a more secure data storage environment and the ability to create user profiles with specific data privileges; (2) the ability to restore lost or corrupted data and significantly lower incidence of database corruption; (3) data back-up features; (4) increased data storage capacity (the Oracle version of ADB v.2 can store data that could easily exceed the 2 Gigabyte storage capacity in Access); (5) web servability.

## Getting Started

### *Installing the ADB*

For detailed instructions on installing the ADB, see Appendix A of the *ADB Users Guide*, available from the **Reference** section at <http://www.epa.gov/waters/adb>. There are two parts to the installation of the ADB: installing the user interface such as data entry and viewing forms, and installing the database (the actual data tables). You may want to have your database administrator (DBA) handle the database installation for you.

### *Microsoft Access*

After installing the ADB interface, you will have a new item on your *Start->Programs* menu in Windows called *ADBv.2 for Access*. Select *ADBv.2* from this menu to start the

application. You will be prompted to navigate to the ADBAccess.mdb database if you see the following message:



The first time you start the ADB, you will be prompted to select the State with which you will be working. If no data exist for the current cycle, you will be asked if you want to begin working on the current cycle. If you click **No**, you will then be asked to select an existing cycle. The ADB will default to this selected State and cycle the next time you start the ADB. You can change the State and cycle you are working with at any time using the **Data** menu.

### **Installing the Sample Data**

Unzip the contents of the Regional.zip file into the "Regional\_SampleData" folder on your C: drive.

### **Tutorial Organization**

This tutorial uses sample data that come with the ADB v.2. All the exercises include text descriptions of the program functions and associated concepts as well as step-by-step instructions that you should follow on your PC. The step-by-step instructions are included in gray text boxes, separate from the text, as shown below.

1. This is an example of a text box that contains instructions for this tutorial.

If you have questions about this tutorial as you work through it, please e-mail [attainshd-hq@epa.gov](mailto:attainshd-hq@epa.gov).

## Exercise 1. Receiving ADB data

This exercise summarizes how to manage data that have been received an MS Access database or in XML format. In Exercise 1, we will import data to the sample database, learn how to create a copy and export data for a particular State and cycle, and discuss how to replace a set of data without altering the entire contents of the database.

### Connecting to a State MS Access Database

If a State is utilizing the ADBv.2 for MS Access, the most straightforward method of viewing their assessment data is to request a copy of the MS Access database with which the ADB interfaces. This will save you the step of importing the data.

1. Open the ADB by clicking Start->Programs->ADB v.2 for Access->ADBv.2.
2. If you have never accessed a database before using ADB, or if you have deleted or moved a database since you last accessed it, you will be prompted to connect to a database.



If your computer has been used to access an ADB database before, the ADB interface will automatically connect to the database, State and cycle that were chosen during your last login. To select a new database, go to **File -> Select Database** and browse to the appropriate database when prompted.

3. Navigate to the *ADBaccess.mdb* database located in *C:\Regional Sample Data* folder.
4. If you are prompted for "State," specify *TN* for State and click **OK**. When you get a message saying there are no data for this cycle, click **No**.
5. Next, select *1999* for the "Choose Cycle Year" dialog box and click **OK**.

The main ADB screen should appear. We will further explore the navigational buttons on this screen (**Assessments, Impaired Waters 303(d), Browse, Atlas Information, Documents, Exit**) in Exercise 3. For the purposes of Exercise 1, we will focus on the **Back-up/Restore** option available in the menu toolbar.

### Importing and Exporting Data in an XML format

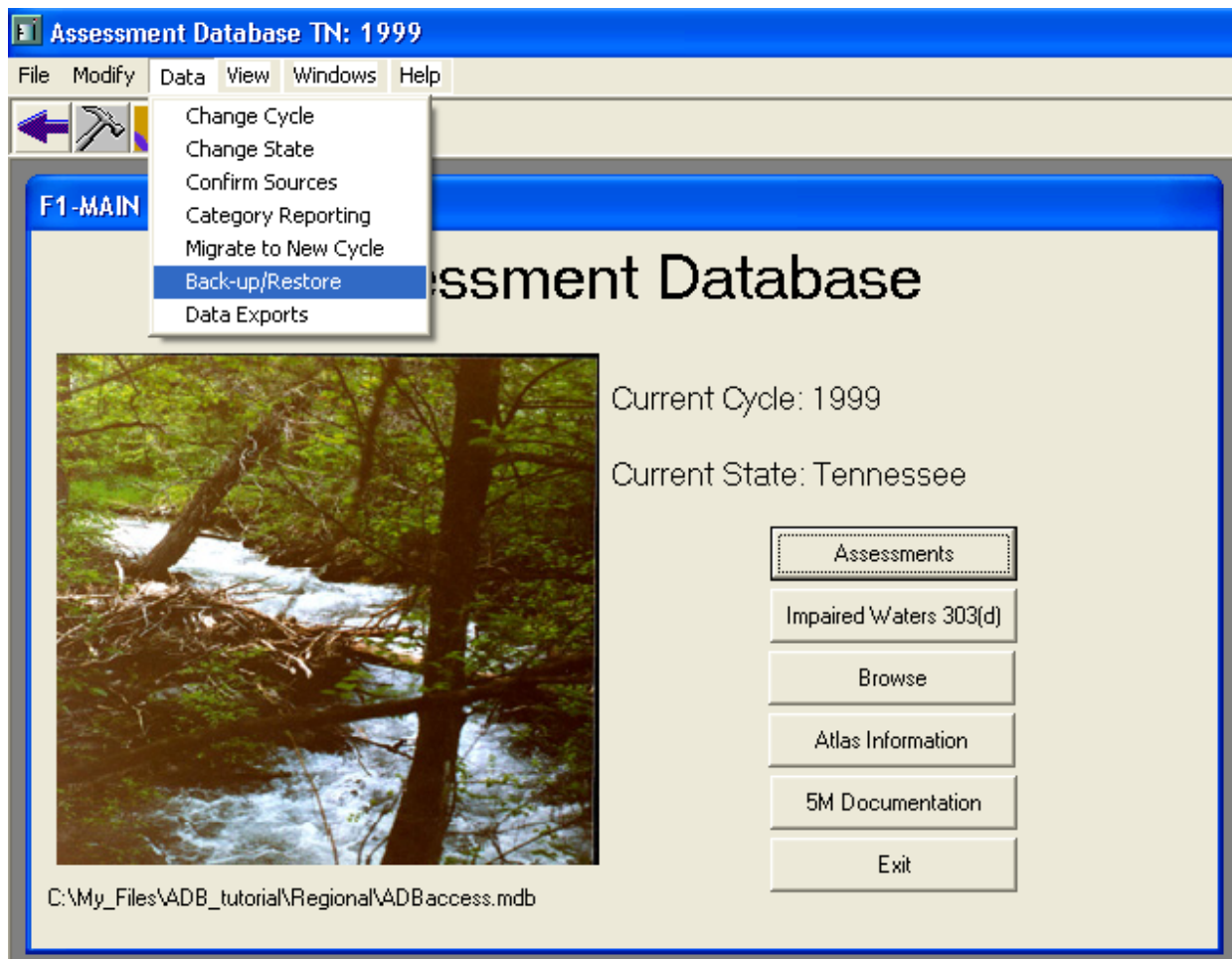
If a State has chosen to submit XML utilizing the SQL or Oracle platform of the ADB, eXtensible Markup Language (XML) files are the most efficient way to import and view the

State data. These files will be added to a blank or existing ADB database with an MS Access platform.

The *Back-up* feature is analogous to an export mechanism, while the *Restore* feature corresponds to an import mechanism. Historically, these features have primarily been used by States to save copies and reinstate copies of their data, hence the *Back-up* and *Restore* terminology. The *Backup/Restore* option utilizes XML to easily transfer data in and out of the ADB data structure for individual states and/or cycles or for all data located in the specified database.

### Importing XML files to the ADB

1. From the toolbar, choose **Back-up/Restore** from the *Data* drop-down list.



If this is the first time you have received an XML import from a State (we will use South Carolina as an example), you may choose either the *Delete and Replace* option or the *Replace* option under the “Restore” dialog to import the data into your database. If you have previously existing data for the State and cycle located within your database, it is important to decide whether you would like to update the data or completely replace the data for that cycle.

2. Under the “Restore Options” dialog, choose the radio button next to **Replace**.

You have selected **Replace**, so the ADB will first look to replace any matching Assessment Units in the database for South Carolina’s 2004 assessment cycle. Because these are the first data you will be loading, none will be found and the file you have just chosen will be loaded into the database.

3. Click the **Choose Back-up** button.
4. The *Choose Location* window will appear. Navigate to C:\Regional\_SampleData and select the **Open\_me.txt** file.
5. Click the **Restore** button. It may take a few minutes to import the data. You may receive a message asking if you want to replace existing ADB data. Click **Yes**.
6. Once the progress bar has disappeared, the data have been imported. Click **Close** to exit the **Back-up/Restore** screen.
7. From the toolbar, choose **Change State** from the *Data* drop-down list.
8. When prompted to pick a State, select **SC** from the drop-down list.
9. Another prompt will appear asking if you would like to add data to the current cycle. Click **No**.
10. When prompted to pick a cycle, pick **2004**.

You have successfully loaded an XML file that contains South Carolina’s 2004 ADB data.

All imported data files will be stored indefinitely in the ADBv.2.2 unless you choose to replace the data for the respective state and cycle with update files. For example, if you have imported data for TN, FL and SC for the 2004 cycle and begin to import data for the 2006 cycle, all of the files for all cycle years will be accessible in the ADB by changing the state and cycle under the *Data* dropdown list in the menu bar.

**A NOTE ABOUT IMPORTING STATE XML FILES:**

If a State has chosen to send their Integrated Reporting data via XML file and you would like to view the data using ADBv2.2, it is important to check with the state that they are using the latest version of ADB (version 2.2) and that the State has not modified the primary data elements or structural integrity of the ADB. If the State is using a previous version of ADB or has altered the data outside of the interface, you may receive an error prompt when trying to import or 'Restore' state data and it may not import correctly. For help in loading these XML files, please contact EPA's support help desk by e-mail at [attainshd-hq@epa.gov](mailto:attainshd-hq@epa.gov).



### Exporting Data in XML Format

XML exports are performed through the **Data Back-up/Restore** data screen, the same screen we used to import XML files. You can choose to back up (export) the entire database, or selectively back up (export) individual States and cycles.

1. From the toolbar, choose **Back-up/Restore** from the *Data* drop-down list.
2. Under the “Back-up Options” dialog, choose the radio button next to **Select Cycle and State**.

3. Choose **TN** for the State and **1999** for Cycle in the drop-down boxes provided.
4. Click **Back-up** to begin exporting the 1999 Tennessee sample assessment data.
5. Once the progress bar has disappeared, your 1999 TN XML file will be available under the C:\ADBdata\backup\TN\_(current date) folder. Click **Close** to exit the **Data Back-up/Restore** screen.

### Summary

In this exercise, you learned about the EPA’s Assessment Database (ADB v. 2) and how to install this system on your PC. You also learned how to import data, create a copy and export data for a particular State and cycle, and how to replace a set of data without altering the entire contents of the database.

In Exercise 2, you will learn about the features of the Validation Module and how to use it to check the data you have entered in the database for completeness.

## Exercise 2. Running the Validation Module

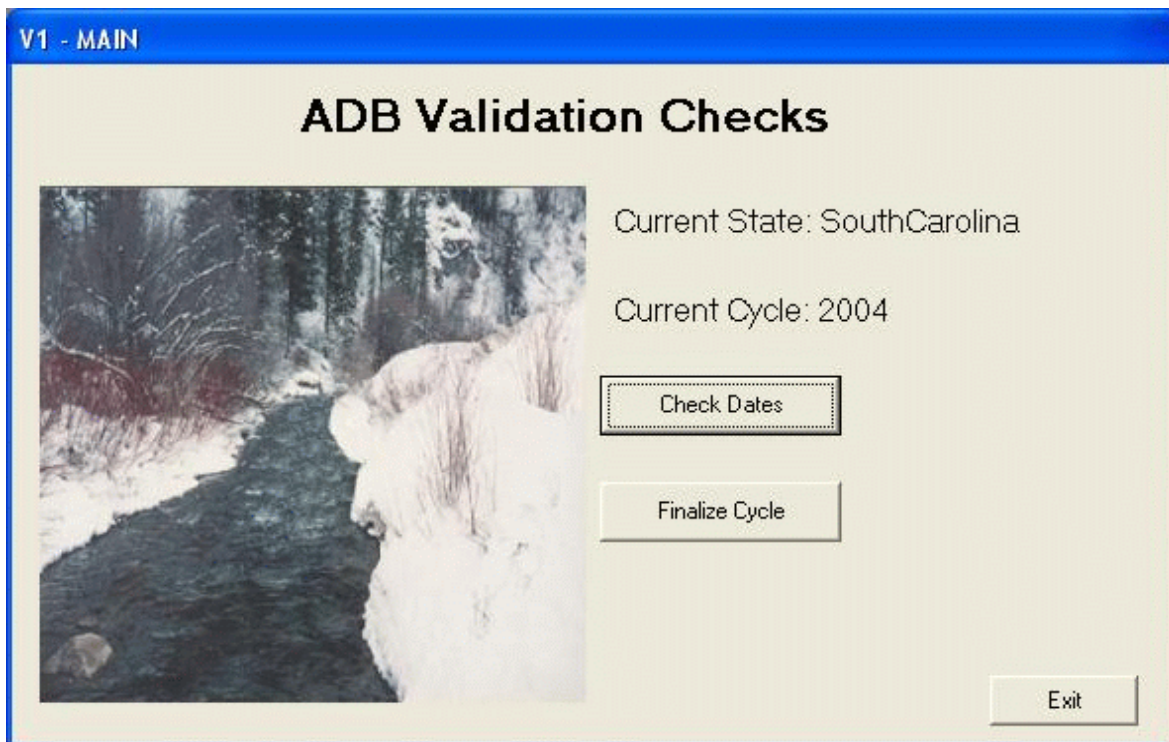
In this exercise, you will learn about the features of the Validation Module and how to use it to check the data you have imported into the database for completeness.

### Overview

The Data Validation Module serves two purposes:

1. To ensure that all dates were entered properly;
2. To run any final validation checks on the data to ensure that all of the required data elements have been entered.

1. Click the **Data Validation Module** button at the top of the screen.



## Finalize Cycle

When you finish a reporting cycle, the *Finalize Cycle* feature can help you make sure that your data have all of the necessary components. The *Finalize Cycle* feature creates log files of all the errors found during a data review check. The log files will be saved in .csv text file format, which can be opened with a number of different software programs, including Microsoft Excel. These log files can be viewed by opening them in the “Finalize Cycle” dialog. The log files will give you a listing of all of the Assessment Units (AUs) that may have problems that need to be fixed.

1. In the main “ADB Validation Checks” screen, click the **Finalize Cycle** button.
2. You are going to perform all of the validations, so **check** all of the boxes.

**V6 - FINALIZE CYCLE**

**Finalize Cycle**

State: SouthCarolina  
Cycle: 2004

Begin Validation Checks

Potential Errors for:

Open Log  Check Water Type  
Open Log  Check Locations  
Open Log  Check Scheduled Monitoring Dates  
Open Log  Check TMDL Schedule Dates/TMDL Priority  
Open Log  Check Categories  
Open Log  Check Causes  
Open Log  Check Assessment Documentation

Error Description:

Checking a box will perform that validation check

CLOSE

All of the validation checks can be run individually or in combination with other validations. Validation checks perform the following operations:

- **Check Water Type** - verifies that all Assessment Units have at least one associated water type and water size
- **Check Locations** - verifies that all Assessment Units have at least one associated location description

- **Check Scheduled Monitoring Dates** - verifies that any Assessment Unit-cause combination designated as Category “4b” has an associated monitoring date.
- **Check TMDL Schedule Dates/TMDL Priority** - verifies that any Assessment Unit-cause combination designated as Category “5” has a date or priority scheduled for TMDL development.
- **Check Categories** - verifies that all Assessment Units have been assigned at least one designated use.
- **Check Causes** - verifies that all causes are assigned to designated uses which are as not supporting or threatened.
- **Check Assessment Documentation** - verifies that all assessed designated uses have been assigned an assessment type and confidence.

3. Click the **Begin Validation Checks** button.
4. You will be prompted to choose a location to store the log file that the Validation Module will create.
5. Click **OK**, then navigate to your `Regional_SampleData` directory and click **Save**.

The Validation Module will start working, and a status bar at the top of the screen will indicate the progress of the check. Also, the text beside the individual boxes will change as checks are completed. The new text will indicate whether or not there is a problem. All of the validations indicate the checks are okay except for *Monitoring Dates* and *TMDL Schedule Dates/TMDL Priority*.

**V6 - FINALIZE CYCLE**

### Finalize Cycle

State: South Carolina  
Cycle: 2004

Potential Errors for:

Error Description:

Begin Validation Checks

Open Log  WBTYPE check OK.  
Open Log  Location check OK.  
Open Log  Monitoring Dates found errors.  
Open Log  TMDL Dates found errors.  
Open Log  Category check OK.  
Open Log  Cause check OK.  
Open Log  Documentation checks OK.

Checking a box will perform that validation check

CLOSE

5. Click the **Open Log** button beside **TMDL Dates found errors**. The information that appears in the **Potential Errors** text box indicates that Edisto River, Church Creek, and Kinley Creek are missing information.
6. Highlight the Edisto River AU ID in the **Potential Errors** box to get an error description.

**V6 - FINALIZE CYCLE**

**Finalize Cycle**

State: South Carolina  
Cycle: 2004

Begin Validation Checks

Potential Errors for:

SC_03040201050_015_§	EDJSTO RVF	Fecal
SC_03040202030_179_§	CHURCH CK	Fecal
SC_03040202070_329_§	KINLEY CK	Fecal

Open Log  WBTYPE check OK.  
 Open Log  Location check OK.  
 Open Log  Monitoring Dates found errors.  
 Open Log  TMDL Dates found errors.  
 Open Log  Category check OK.  
 Open Log  Cause check OK.  
 Open Log  Documentation checks OK.

Checking a box will perform that validation check

Close

Error Description:  
No TMDL Schedule Date or TMDL Priority. One of these is required for IDs that have impaired uses that are pollutants.

According to the error, total maximum daily load (TMDL) schedule dates or TMDL priorities must be added, because pollutants are impairing a designated use. You can add these dates with the Validation Module's *Check Dates* feature.

7. Click **Close** on the lower right corner of the dialog box. This will return you to the main "ADB Validation Checks" dialog box.

## Entering Dates with the Validation Module

The *Check Dates* feature is provided to ensure that all dates associated with each assessment unit have been entered properly into the ADB. Both optional and required date entries may be checked in this module. Any missing dates may be entered through this screen, by an export/re-import of the list of dates, or by returning to the main ADB and individually entering the dates.

1. Click the **Check Dates** button in the main "ADB Validation Checks" dialog box.
2. Under the *Select Which Dates to Work With* section, click the radio button for **Scheduling of TMDL Dates/TMDL Priority**.
3. Under the *View Options* section, click the **Show Only IDs that require a date** radio button.

**V2 - Date Validation**

### Date Validation

Select Which Dates to Work With

Expected to Attain Dates

Monitoring Dates

Scheduling of TMDL Dates/TMDL Priority

Export list
Import List

ID	WATER NAME	CAUSE NAME	CAUSE ID	TMDL SCHEDULE
SC_03040201050_015	EDISTO RVR	Fecal Coliform	400	
SC_03040202030_179	CHURCH CK	Fecal Coliform	400	
SC_03040202070_329	KINLEY CK	Fecal Coliform	400	

View Options

Show only IDs that require a date

Show all IDs that can have a date assigned

Current Assessment Unit

SC\_03040201050\_015\_S

Assigned Date

Priority

This is a listing of all the assessment units that are in Category 5 that need a TMDL schedule or priority assigned. Either TMDL schedule or TMDL priority must be entered for all Category 5 causes.

4. Select the first record in the table. Under *Assigned Date*, type “2006” and click the **Update** button.

You can also use the calendar button to choose a year in the *Assigned Date* field. Notice that when you update a record, the record disappears from the table.

*Note: Adding a TMDL schedule date does not change the category.*

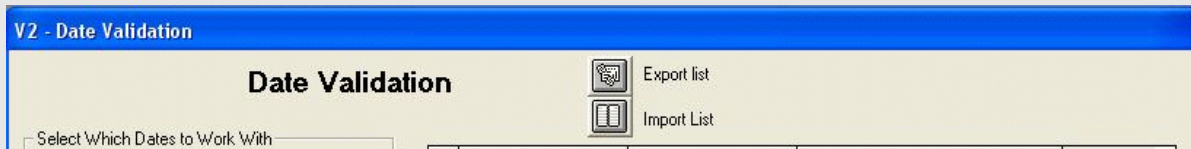
5. Repeat the step for the next two records.

It is understood that the person entering the assessment data in the ADB V.2 may not be the same person who determines the crucial dates (i.e., date scheduled to receive a TMDL) for the AUs. The *Enter Dates* feature in the Validation Module also allows you to export a list of all the items requiring a date to a .csv file that can be opened using Excel. This file can be sent to the person responsible who can fill in these crucial dates and return the file to the person responsible for the ADB. You can then import this file to the Validation Module and all of the crucial dates will be updated according to the dates entered in the .csv file.

6. Under the *Select Which Dates to Work With* section, click the radio button for **Monitoring Dates**.
7. Under the *View Options* section, click the **Show Only IDs that require a date** radio button.

Several AUs require a Monitoring Date. In this case, it may be most efficient to export the list, fill in the dates as an Excel spreadsheet, and re-import the list with the dates.

8. Click the **Export List** button located in the upper middle of the window. Save the file as “**Monitoring\_date\_export**” in your Regional\_SampleData folder.



9. Go to your Regional\_SampleData folder and open the **Monitoring\_date\_exports.csv**.
10. Under the *Monitoring Scheduled Date* column in the spreadsheet, enter “**2006**” for all of the AUs (TIP: The simplest way to fill in the entire column is to fill in the first cell, then click the lower right corner of the cell. Keep the mouse clicked as you drag it to the last row you wish to fill.)




The screenshot shows a Microsoft Excel spreadsheet titled "monitoring\_date\_export.csv". The spreadsheet has the following columns: A (ID305B), B (WATER\_NAME), C (MONITORING SCHEDULED DATE), and D (Category). The year 2006 is entered in cell C2. The rows contain the following data:

	A	B	C	D	E	F	G	H	I	J	K
1	ID305B	WATER_NAME	MONITORING SCHEDULED DATE	Category							
2	SC_03050	CLARK CK	2006								
3	SC_03050	TWENTYFIVE MILE CK									
4	SC_03050	LAKE HARTWELL									
5	SC_03050	BUCK SWAMP									
6	SC_03050	WACCAMAW RVR									
7	SC_03050	LYNCHES RVR									
8	SC_03050	LONG BRANCH									
9	SC_03050	SAMPIT RVR									
10	SC_03050	TURKEY CK									
11	SC_03050	LAKE, FISHING CK RESERVOIR									
12	SC_03050	LAKE, FISHING CK RESERVOIR									
13	SC_03050	CATAWBA RVR									
14	SC_03050	BUCK CK									
15	SC_03050	LAKE SWAMP									
16	SC_03050	ICWW									
17	SC_03050	LITTLE RVR									
18	SC_03050	LAKE ROBINSON									
19	SC_03050	BLACK CK									
20	SC_03050	BLACK CK									
21	SC_03050	BLACK CK									
22	SC_03060	CANE CK									
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
33											

11. When all of the rows in the Monitoring Schedule Date have been filled, **Save** and **Close** the spreadsheet.
12. Return to the “Date Validation” screen. Click the **Import List** button located directly under the **Export List** button.
13. Navigate to the **Monitoring\_Date\_Export.csv** file and click **Open**.
14. The “Import Data from File” screen will appear. You will need to match the **ID305B** and **Data** columns from the Monitoring\_Date\_Export.csv to match the headers in the ADB. Use the drop-down lists to fill in the **ID305B** and **Data** columns as appears below.

**V3 - Import Data: TMDL Schedule Date**

### Import Data From File

 Import

First Row Contains Headers

ID305b column:  Date Column:  Cause ID Column:  Priority Column:

ID305B	WATER NAME	MONITORING SCHEDULED DATE	Category
SC_03050201060_MD	CLARK CK	2006	
SC_03050202050_MD	TWENTYFIVE MILE CK	2006	
SC_03050202070_MD	LAKE HARTWELL	2006	
SC_03050203050_E-03	BUCK SWAMP	2006	
SC_03050205070_MD	WACCAMAW RVR	2006	
SC_03050205070_MD	LYNCHES RVR	2006	
SC_03050206040_E-11	LONG BRANCH	2006	
SC_03050208010_CST	SAMPIT RVR	2006	
SC_03050208010_CST	TURKEY CK	2006	
SC_03050208050_CST	LAKE, FISHING CK RE	2006	
SC_03050208050_CST	LAKE, FISHING CK RE	2006	
SC_03050208090_CST	CATAWBA RVR	2006	

- Click the **Import** button at the top right of the “Import Data from File” screen. A prompt box will appear notifying you that the import is complete. Click **OK** to return to the “Date Validation” screen.

The records should now be absent from the table.

- Click **CLOSE**. This will return you to the main “ADB Validation Checks” screen

After you have resolved any issues discovered in the initial round of validation checks, you can use the “Finalize Cycle” screen to ensure that all the necessary components are now located in the database.

- Click the **Finalize Cycle** button.
- Check only the boxes for **Check Monitoring Dates** and **Check TMDL Schedule Dates/TMDL Priority**, and click the **Begin Validation Checks** button. Save the log file in your Regional\_SampleData folder.

The Validation Module indicates these files are **OK**.

- |  |
|--|
| 19. <b>Close</b> the “Finalize Cycle” dialog and <b>Exit</b> the “ADB Validation Checks” screen. |
|--|

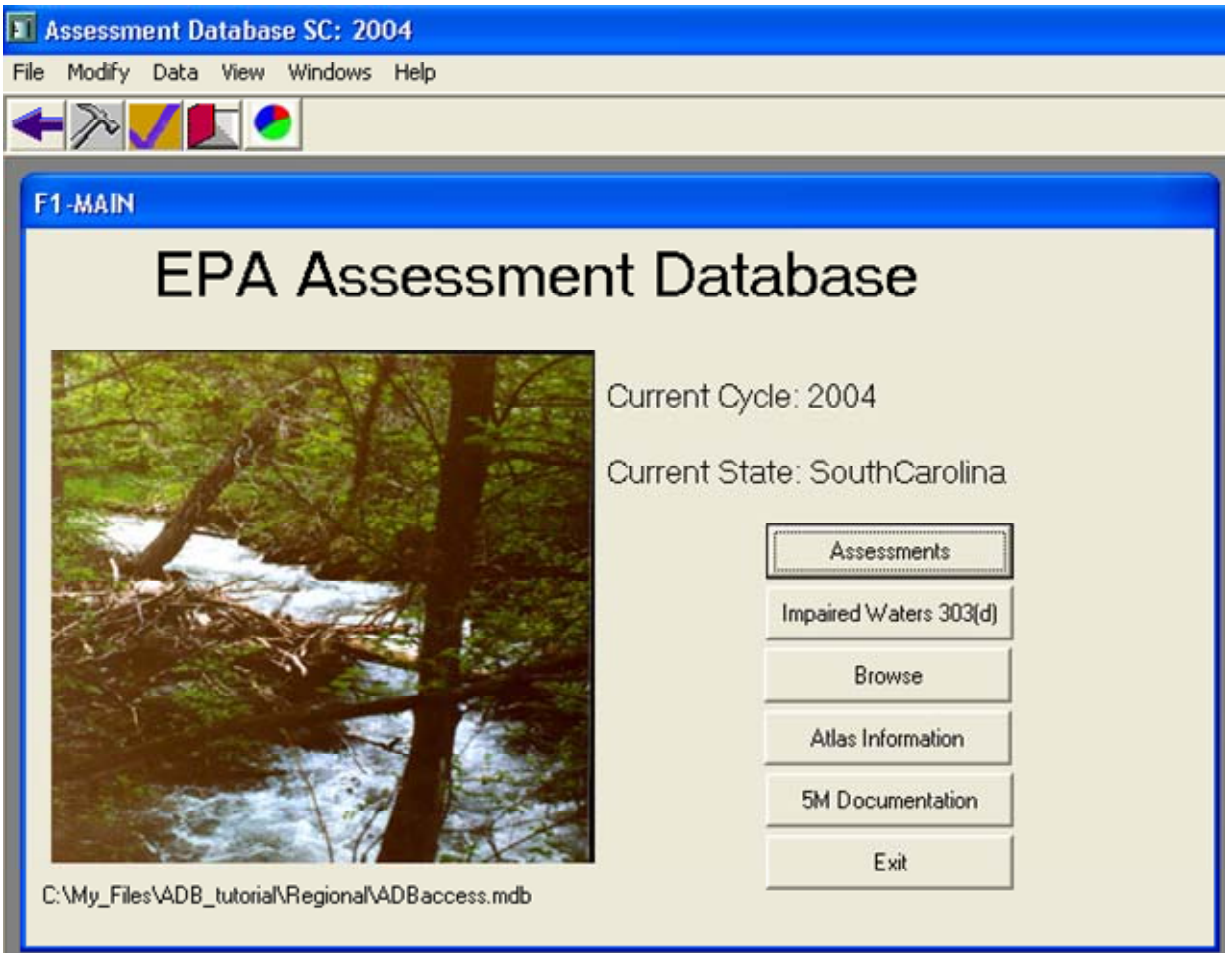
### Summary

In this exercise, you learned about the functionality of the Validation Module. You learned how to use the *Finalize Cycle* feature of the Validation Module to check the entries in the database for the presence of required information, and you learned how to enter a required date using the *Check Dates* feature.

In Exercise 3, you will learn how to browse and review data as well as view documentation and atlas information in the ADB v.2.

## Exercise 3. Exploring ADB v.2

How to Browse and Review Data; View Documentation and Atlas Information.



The main screen of the ADB v.2 features six directional buttons:

- **Assessments** – If you log into the database as a user with administrative privileges, you can use this button to add and make changes to the assessment data in the database using this button.
- **Impaired Waters 303(d)** – This button allows a user to view information about impaired Assessment Units (AUs) and manage their categories.
- **Browse** – This button allows a user to view data in the database, even if (s)he does not have administrative privileges to add, update or delete assessment information.
- **Atlas Information** – This button allows a user to independently track the total size of waterbodies in the State according to each source and/or scale cited.

- **5M Documentation** – This button allows you to enter a URL or description of the mercury program and how the program meets the recommended elements, which are both required by the Clean Water Mercury Guidance if using subcategory 5M.
- **Exit** – This button closes the ADB v.2.

## Browsing the Assessment Data

The *Browse* features provide a quick, easy way to access information in the ADB. Administrative privileges are not required to access the *Browse* features. Thus, people in your agency may access database information through *Browse* without threatening the integrity of the data.

1. From the toolbar, choose **Change State** from the *Data* drop-down list.
2. When prompted to pick a State, select **TN** from the drop-down list and click **OK**.
3. Another prompt will appear asking if you would like to add data to the current cycle. Click **No**.
4. When prompted to pick a cycle, pick **1999** and click **OK**.

## Full Browse

1. From the main ADB screen, click the **Browse** button, then click the **Full Browse** button.

The screenshot shows the 'B1 - BROWSE' window with a toolbar at the top containing buttons for 'CLOSE', 'Export', 'Filter On', and a 'Category:' dropdown. Below the toolbar are several tabs: 'Assessment Units' (selected), 'Uses', 'Metadata', 'Causes', 'Observed Effects', 'Sources', and 'Locations'. The main area displays a table with the following data:

ASSESSMENT UNIT	WATER NAME	WATER TYPE	WATER SIZE	SIZE UNIT	MONITORI
TN06030003041_0100	Yellow Branch	RIVER PERENNIAL	7.10	MILES	
TN06030003036_1000	Woods Reservoir	FRESHWATER RESEF	3908.00	ACRES	2001
TN06010102012_0410	Woods Branch	RIVER PERENNIAL	5.00	MILES	
TN06040002502_0200	Wolf Creek	RIVER PERENNIAL	26.50	MILES	
TN05130107006_0320	Witty Creek	RIVER PERENNIAL	52.40	MILES	
TN05130108036_0500	Wilkerson Creek	RIVER PERENNIAL	19.10	MILES	
TN05130108043_0400	Wildcat Creek	RIVER PERENNIAL	8.10	MILES	
TN06010102042_0700	Whitotop Creek	RIVER PERENNIAL	8.50	MILES	
TN06040001840_1000	Whites Creek	RIVER PERENNIAL	29.40	MILES	
TN06010201080_0100	Whites Creek	RIVER PERENNIAL	5.00	MILES	
TN06040005059_1000	Whiteoak Creek	RIVER PERENNIAL	27.60	MILES	
TN05130108036_0400	Whiteoak Branch	RIVER PERENNIAL	5.40	MILES	
TN06040005023_1000	West Sandu Creek	RIVER PERENNIAL	15.00	MILES	

At the bottom of the window, there is a search section with a 'Search in Active Column for:' dropdown, a 'GO' button, an 'Order by:' dropdown set to 'Descending', and 'Change' and 'Refresh' buttons.

The *Full Browse* option allows you to see all of the data in the database by tabbed sections. You can click on different tabs to view the different types of data in the ADB v.2.

When examining the tables, you can click on the field names and the table will be sorted by that field. You can control the sort order using the **Order by:** drop-down list. Clicking on a field name also populates the **Search in Active Column for:** list box with all of the values from that field. This allows you to quickly locate the specific values you are interested in reviewing.

2. Click the **Uses** tab and then click the *USE DESC* field. This sorts the table by Use Description.
3. Choose *Fish and Aquatic Life* from the *Search in Active Column for:* drop-down list. Click **GO**. This will take your pointer to the first record that has *Fish and Aquatic Life* in the *USE DESC* column.

You can scroll through the list and see which AUs are “Fully Supporting” the *Aquatic Life Use*, which are “Not Supporting,” and which have “Insufficient Information.” You can search for data in other tabs in the same way. Feel free to examine the other data available through this *Browse* feature.

If you want to export the data in your “Browse” screen, click the **Export** button. This will create a comma delimited (.csv) file in a location that you specify.

4. Click the **Close** button, located in the top left corner, when you are finished exploring the *Browse* feature.

### ***Browse by Category***

This dialog features the same tabs as the “Browse” dialog; however, the information shown for each tab only applies to the AU that is currently selected in the *Assessment Units* table on the upper left part of the screen. Similar to the other Browse tables, you can sort this table by clicking on one of the columns, and then can search for values in the active column. This feature is particularly useful if you want to look at the information associated with a specific AU.

1. In the “Browse Options” dialog box, click **Browse by Category**. Select **Category 5** from the *Select a Category* drop-down list.

**B3 - BROWSE BY CATEGORY**

**Browse by Category** CLOSE

Select a Category: Category 5

Number of Assessment Units: 49

Water Types and Sizes

ASSESSMENT UNIT	WATER NAME		
TN05130107002_0300	Unnamed Tributary of M		
TN05130107023_2000	Dry Creek		
TN05130108027_0810	Dry Fork		
TN05130108033_0320	Bradden Creek		
TN05130108036_0100	Clifty Creek		
TN05130108045_0400	Pigeon Roost Creek		
TN05130108097_2000	Mine Lick Creek		
TN05130108684_1000	Fall Creek		

Search in Active Column:   GO

CHANGE Refresh

AU USES META OBSV CAUSES SOURCES

**Assessment Unit**

Location Description	Water Types and Sizes
Unnamed tributary from Mountain Creek to headwaters.	RIVER PERENNIAL 1.9 MILES

The database selects all the AUs that are in Category 5, in other words, it selects all AUs that are impaired or threatened for one or more designated uses by a pollutant(s) and require a Total Maximum Daily Load (TMDL). From the screen, you can view the number of AUs, the water types, and the associated total sizes in the selected category.

2. Click the **CLOSE** button twice to return to the main database screen.

### Viewing Atlas Information

The *Atlas Information* feature is new to ADB v.2.2. It allows the user to:

- Include information for water types that may not be supported for individual AUs (e.g., canals)
- Store the number of waterbodies as indicated by various geographic scales
- Report the total sizes of waterbodies according to several sources.

The data stored within the Atlas Information fields are independent of data related to individual AUs, and therefore do not affect the assessment calculations or reports produced by the ADB. From the *Atlas Information* screen, you can view, create, update, and delete records.

1. From the main database screen, click **Atlas Information**.

Topic	Topic Item	Count	Size	Unit	Source	Scale
▶ STREAM/CREEK/RIVER	DITCHES AND CANALS	47	65.2	MILES	USGS	1:100K
BAY/HARBORS/ESTUARY	TOTAL BAYS/HARBORS/ESTUARIES	4	15	SQUARE MILES	NHD	1:24K

Size:  UNITS

Count:

Scale:

Source:

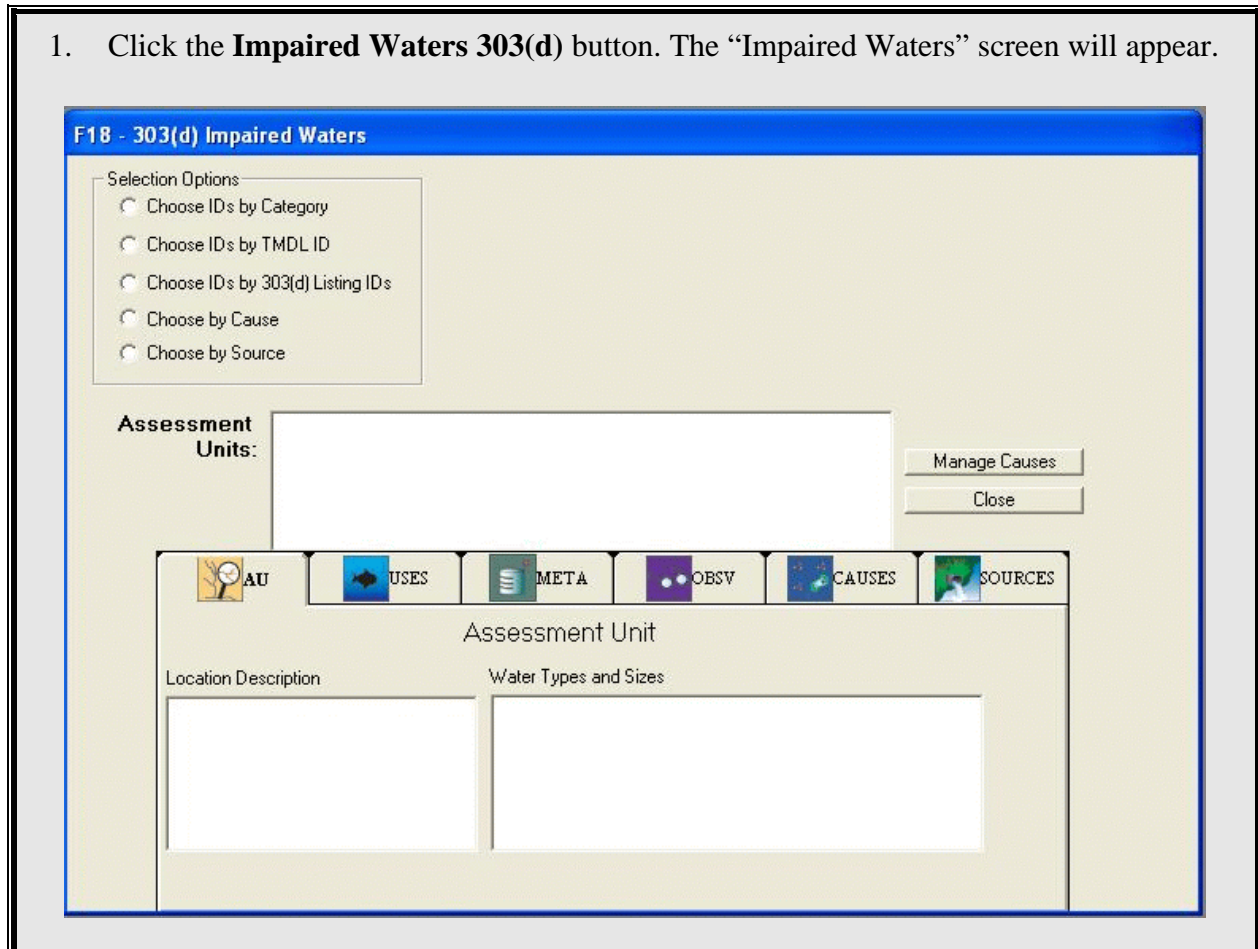
2. Click **Close** to return to the main ADB screen.



## Impaired Waters 303(d)

The *Impaired Waters 303(d)* feature works similarly to the *Browse* feature. It allows you to view causes by Category, TMDL ID, 303(d) Listing IDs, Cause, and Source. You can update the data through the **Manage Causes** button.

1. Click the **Impaired Waters 303(d)** button. The “Impaired Waters” screen will appear.



You can view impaired waters by choosing one of the *Selection Options*. Note that you may not get results if there are no data in the ADB that meet the selection criteria. For example, if you select **Choose IDs by Category** and you pick **Category 4B** in the drop-down box, no AUs will appear in the listbox unless you have specified that an impaired use is expected to meet attainment for at least one AU.

- Click the radio button beside **Choose by Cause**. Next, make sure the radio button for **Specific Codes** is selected and choose *Fecal Coliform* from the drop-down list.

If you had clicked **General Codes**, you would have been able to choose from general cause categories such as Metals and Pathogens.

The screenshot shows a web interface with two main sections. On the left, under 'Selection Options', there are five radio buttons: 'Choose IDs by Category', 'Choose IDs by TMDL ID', 'Choose IDs by 303(d) Listing IDs', 'Choose by Cause' (which is selected), and 'Choose by Source'. On the right, under 'Choose IDs by Cause', there is a sub-section 'Specific or General?' with two radio buttons: 'Specific Codes' (selected) and 'General Codes'. To the right of this is a dropdown menu with 'Fecal Coliform' selected.

- Select *TN06030003001\_0500 Sinking Creek* from the ID list.

Now you can view the data associated with the AU by clicking the tabs in the same way that you did in the *Browse* feature. You can also click the **Manage Causes** button to add TMDLs, 303(d) IDs, Expected to Attain Dates, and Implementation Actions.

*Note: 303(d) List IDs, like AU IDs, are unique identifiers for water segments. 303(d) List IDs uniquely identify Category 5 waters, and are separate from an AU ID.*

- Click the **Manage Causes** button to the right of the ID list. The “Cause Information: 303(d)” screen will appear.
- Select the *Fecal Coliform* impairment in Category 5. Hold down the left mouse button and drag the impairment to Category 4A. The “Assign TMDLs” screen will appear.

If this is your first time using the ADB, the list of TMDLs must be downloaded before you can view and assign TMDLs to an AU.

- Click the **Refresh TMDL Snapshot** button located midway down on the right side of the page. The list of TMDLs will begin downloading. The download may take a few minutes to complete.

The most current list of EPA-approved TMDLs is kept in the National TMDL Tracking System (NTTS). Each time you refresh the TMDL snapshot, the ADB downloads a recent version of the TMDL list to your hard drive. Therefore, you will want to click the **Refresh TMDL Snapshot** button every few weeks to ensure that you are viewing current TMDL information. The date of the last snapshot is located in the upper right corner of the screen.

**T3 - Expected To Attain Dates**

### Assign TMDLS

TMDL Snapshot date: 10/21/2005

**Causes**

Fecal Coliform

**Current TMDLs**

View TMDL Information  
Remove TMDL

**Assessment Unit:**

TN06030003001\_0500

**Water Name:**

Sinking Creek

**Cycle First Listed:**

1999

**Information**

TMDL IDs	TMDL NAME	ESTABLISHMENT DATE	
212	CANE CREEK (METALS)	08/24/1999	▲
4296	CANE CREEK (PATHOGE)	05/21/2003	▲
11536	CANEY FORK SILTATIOI	08/03/2005	▲
1451	CASH HOLLOW CREEK	03/27/2001	▲
4104	COLLINS RIVER WATEF	02/13/2003	▲
1664	CRAB ORCHARD CREEK	12/14/2001	▼

Assign TMDL to Cause  
Refresh TMDL Snapshot  
View TMDL Information

**303(d) List IDs currently in ADB - Associated Cause**

--

**303(d) List IDs from TMDL Snapshot - Pollutant - Cause**

--

**Search**

Search By:  Refresh

GO

CLOSE

7. Scroll through the list of TMDLs until you find the **Sinking Creek TMDL**.
8. Select **Sinking Creek TMDL** and click **View TMDL Information**. This will open a new window and direct you to the TMDL stored on the EPA Web site.
9. When you are finished viewing the TMDL, **Close** the Internet window and return to the ADB.
10. Now click **Assign TMDL to Cause**. A prompt will appear asking if this is a delisting. Click **No**.

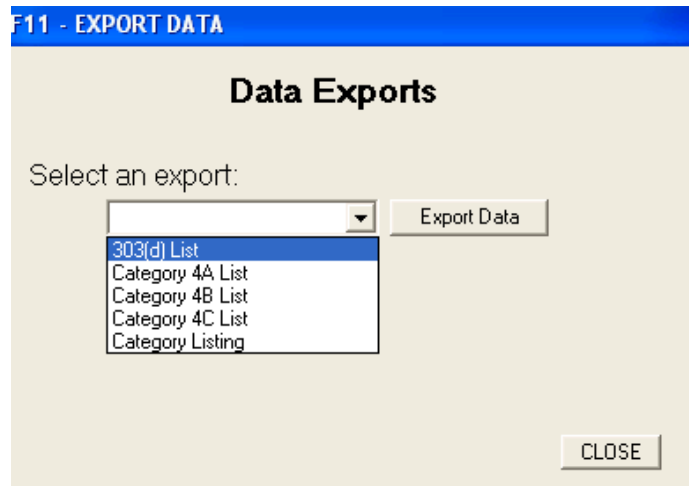
The TMDL has now been associated with the AU.

11. **Close** the “Assign TMDLs,” “Cause Information: 303(d),” and “303(d) Impaired Waters” screens to return to the main ADB screen.

## Exporting 303(d) lists

You can also export 303(d) information to comma-separated value format through the Data dropdown list in the menu toolbar.

1. Click **Data Exports** in the *Data* dropdown list.



2. In the dropdown list, select **303(d) List**.
3. Click the **Export Data** button. The “*Choose Location*” window will appear.
4. Save the file in your *Regional\_SampleData* folder.
5. **Close** the *Data Exports* window.

## Mercury Reduction Strategy (5M) Documentation

The 5M documentation feature of the ADB allows you to add a 5M related website link (URL) and comments to the database using plain text or Rich Text Format (RTF). RTF allow you can create comments that are formatted for easy reading, as well as add color, bullets, bolding, underlining, italicizing, different fonts, and font sizes.

The screenshot shows a software window titled "F6 - Mercury Reduction Strategy Documentation". The main heading is "Add Mercury Reduction Strategy (5M) Documentation". Below this, there is a text input field labeled "5M URL:" followed by a "View" button. Underneath is a section labeled "5M Comment:" which includes a rich text editor toolbar with icons for Bold (B), Underline (U), Italic (I), a font color selector, a font size dropdown, and icons for undo and redo. A large, empty text area is provided for entering the comment. At the bottom of the window, there are several controls: a "Data Save Options" group with radio buttons for "Save Formatted" and "Save Unformatted" (the latter is selected); a row of buttons including "Delete Comment", "Get from File", "Save to File", and "Open File"; and a final row with a "Save" button and a "CLOSE" button.

If you have an existing text or rich text file containing 5M comments, you can import them by using the *Get From File* button on the lower middle of the “Mercury Reduction Strategy Documentation” window. Use the “Choose Location” window to navigate to the location where the file is saved and click Open. The Comments text box should now contain the contents of your file. Click *Save* to associate the text with the cycle. You can also save the 5M comments to a separate text or rich text file by clicking the *Save to File* button and navigating to where you

would like the file to be located. You can then use the *Open File* button to retrieve your saved comments.

## Summary

In this exercise, you learned how to view, sort, and export data in the ADB using the *Browse* features; view assessment information associated with impaired waters; access a Monitoring Strategy and/or Assessment Methodology document located in the ADB; add Atlas Information; manage causes using the “Impaired Waters: 303(d) Information” screen, and view data in the ADB v.2 using the sidebar buttons on the “Assessment Units” screen.

In Exercise 4, you will learn how to add and modify Assessment information, including how to add causes of impairment to existing IDs.

## Exercise 4. Adding and Updating Assessment Information

This exercise will show you how to add a new AU, how to assign designated uses, and how to enter use support information to the ADBv2. You will also learn how to assign new causes to existing assessment units.

### Adding an Assessment Unit

1. In the main database screen, click the **Assessments** button.
2. Click the **Create New Assessment Unit** button on the **Assessment Units** screen. A dialog box will appear requesting that you add **Assessment Unit ID**, **Name**, and **Location Description**. All of these data elements are required. The database will not allow you to proceed without entering information in each box. Fill out the dialog box using the following information and then click **Add**.


*Note: If you are attending a class where you are using the ADBv2 over a network, each student must use his/her own AU ID. Otherwise, you will all be accessing the same record and cause problems with the exercise. The instructors will assign you a letter to use in place of the x. For example, if the instructors assign you the letter A, each time you see “AU-1x” use “AU-1a.”*


Next, a dialog box will appear requesting you to add **Assessment Unit Information**. The **Water Type** drop-down list contains a number of different kinds of waterbodies that you can choose from to describe the water in your AU. Your AUs can be composed of multiple waterbody types. Define one type first, and then you can define the others later. The **Size** units depend on the **Water Type** that you choose.


2. Choose **Creek** in the **Water Type** dropdown list and enter “**3**” as the *size in MILES* and click **Add**.


The information you just entered will be displayed on the **Assessment Units** screen.


W1 - ASSESSMENT UNITS


 Add Uses

 Assessment Documentation

 Causes(0)  
Observed Effects(0)

 Sources(0)

 Delist

 Determine Category

ASSESSMENT UNITS

Select an Assessment Unit

By ID:

or by Name:

Limit list by:

Assessment Unit Functions

Information

Assessment Unit ID

Assessment Unit Name

WATER TYPE	SIZE	UNIT
CREEK	3	MILES

Location Description

Trophic Status:

User Defined Category:

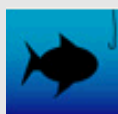
Trend:

Other Information

Cycle Last Assessed:

### Adding Designated Uses, Use Support, and Assessment Metadata

- Click the *Add Uses* button to assign designated uses to this assessment unit.



- Select the **Fish and Aquatic Life**, **Irrigation** and **Livestock Watering and Wildlife** designated uses (to select non-sequential items in the list, hold down the **Control** key) and click **ADD**.

*Note: The Designated Uses listed are from EPA's Water Quality Standards Database (WQSDB), which is populated with the data from the States' Water Quality Standards (WQS) documents. If a Use is not specified in your WQS document, it will not be available in this list. For more information on the WQSDB, visit <http://www.epa.gov/wqsdatabase>.*

- Double-click on **Fish and Aquatic Life** to add an assessment to that **Designated Use**.



The **Assessment Documentation** screen will appear. This screen allows you to add use support status, assessment data, assessment types, assessment methods, user flags, and threatened status flags to the selected designated use. The *Use Support* field is always required for each designated use. All other fields are considered assessment metadata and are either conditionally required or optional.

6. In the **Use Support** drop-down box on the “Assessment Documentation” dialog box, choose **Fully Supporting**.

When use support status is changed from not assessed, assessment type and assessment confidence information must be entered as well before you can return to the **Uses** screen. *Available Assessment Types* and *Confidence of Assessment* are the only conditionally required metadata elements. Therefore, if you delete all of the assessment types associated with a designated use, the use support will be changed to “Not Assessed.”

7. Under “Assessments Performed,” click on **ADD** to specify *Available Assessment Types* and *Confidence of Assessment*.
8. A prompt box will appear to ask if you would like to save these changes. Click *Yes* and the “Add Assessment Metadata” dialog box will appear. Enter the information specified below:

There are seven assessment types available to choose from in the drop-down box: **Biological, Habitat, Physical/Chemical, Toxicological, Pathogen Indicators, Other Public Health Indicators, and Other Aquatic Life Indicators**. Further information on assessment types is available on page 21 of the ADB User’s Guide.

Four levels of confidence or quality of the data used to make the assessment can be associated with these assessment types: Low, Fair, Good, and Excellent. How a state assigns assessment type and confidence should be explained in its Assessment Methodology Document.

9. Click **ADD** to return to the **Assessment Documentation** screen.

Feel free to explore and enter other types of assessment metadata on this screen.

*Note: Changing threatened status will change the designated use to be considered impaired, affecting the category definitions. Be sure to leave this button set to “No” when saving changes to the assessment metadata to avoid obtaining different category definitions in the following exercise section.*

The user should be certain that a given metadata category is related to the specific use being assessed. For example, it would not make sense to have a *Habitat* assessment associated with a *Primary Contact Recreation* use. The State’s Assessment Methodology Document should describe what types of assessment metadata categories can be associated with each WQS designated use.

10. Click **Save**. Then click the “Uses” icon to return the **Uses** screen.



11. Click the **Assessment Units** button to return to the main “Assessment Units” screen.



## Adding Causes of Impairment to Existing Waters

When **Assessments** is selected from the main dialog, the user is able to access assessment information for any AU in the database, and then view, add, update, or delete AU information from this screen.

Assessment information associated with an AU may include designated uses, assessment metadata, causes of impairment (or observed effects), sources of impairment, and assessment category. Access this information using the buttons on the sidebar at the left.

1. In the “Select an Assessment Unit” dialog box, choose **Dry Creek** from the *or by Name*: drop-down list and click **GO**.

**W1-ASSESSMENT UNITS**

### ASSESSMENT UNITS

Select an Assessment Unit

By ID:

or by Name:

Limit list by:

**Assessment Unit Functions**

**Information**

Assessment Unit ID:

Assessment Unit Name:

WATER TYPE	SIZE	UNIT
RIVER PERENNIAL	40.8	MILES

Upper Dry Creek from Spring Creek to headwaters.

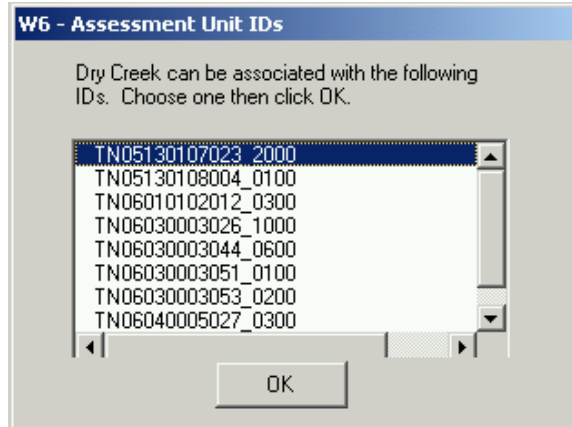
Trophic Status:

User Defined Category:   Trend:

**Other Information**

Cycle Last Assessed:

Dry Creek is associated with several AUs, so you will need to select a specific AU before you can look at AU information.



2. Select *TN05130107023\_2000* and click **OK**.

The database will retrieve information for the AU specified, displaying the *Assessment Unit ID* as well as the *Location Description* and the *Water Type* and *Size*. The text beside the sidebar buttons indicates some additional information about the AU, such as whether or not there is information for each of those data elements and, if so, how many uses, causes, or sources exist. This sidebar indicates this AU has three uses and two causes.

## Causes and Designated Uses

1. Click the **Uses** button.

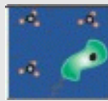


2. Highlight **Irrigation** and then click the **Change Use Support** button.

Uses		ID: TN05130107023_2000		
		Name: Dry Creek		
Assessed Uses	Use Support	User Flag	Threatened?	Assessment Date
Fish and Aquatic Life	Not Supporting			
<b>Irrigation</b>	<b>Fully Supporting</b>			
Livestock Watering and Wildlife	Fully Supporting			

Change Use Support | Monitoring Information | Add Comment

3. Highlight **Not Supporting** and then click the **Change** button.
4. Click the **Causes** button.



The “Causes” dialog indicates that no causes for the Irrigation use have been added yet.

3. Click the **Add** button. The Add Causes screen will appear.

Name	CAS Number
.alpha-BHC	319-84-6
Ammonia (Un-ionized)	7664-41-7
Benthic-Macroinvertebrate Bioassessments (Stre	
BOD, Biochemical oxygen demand	
Boron	7440-42-8
Cadmium	7440-43-9
Cause Unknown	
Chlordane	57-74-9
Chlorine	7782-50-5
Chlorophenyl-4 phenyl ether	7005-72-3

The **Add Causes** screen will automatically default to show the causes which are currently being utilized in the database. If you would like to view all causes housed in the ADB or view causes by a characteristic group (e.g. pathogens, pesticides), choose the radio button nest to **SHOW ALL** or **SHOW ONLY**.

4. Highlight Chlorine.

Additional Information on highlighted causes, such as the CAS Registry number or priority status under the Clean Water Act, will appear in the Information window.

5. Click the **ADD** button to associate chlorine with the Irrigation designated use for Dry Creek.
6. Click the **Assessment Units** button to return to the main “Assessment Units” screen.



## Summary

In this exercise, you have learned how to add a new AU, how to assign designated uses, and how to enter use support information to the ADBv2. You also learned how to assign new causes.

In Exercise 5, you will learn how to use the Reports Module, including how to create standardized reports.

## Exercise 5. Reports Module

In this exercise, you will learn about the features of the Reports Module and how to use it to create and print out standardized reports.

### Overview

The Reports Module can create summary reports for a selected state, water type, and cycle. It can also generate comprehensive reports for selected AUs.

1. Click on the **Reports Module** button at the top of the main ADB screen.



If you are not already logged in to the ADB, access the Reports Module by clicking on **Start->Programs->ADBv2 for [version]->Reports**.

X2: Select Report Type

Reports Selection

<p><b>State Reports</b></p> <p>"State Reports" loads a form that gives options to select a variety of state summary reports.</p>	<p><b>Summary Reports</b></p> <p>"Summary Reports" loads a form that gives options to select a range of possible summary reports for selected states, water types, and cycle.</p>	<p><b>AU Detail Report</b></p> <p>"AU Detail Report" loads a form that guides the selection of an assessment unit for which a detail report is created.</p>	<p><b>Cycle Comparison Reports</b></p> <p>"Cycle Comparison Report" loads a form that guides the selection of a range of cycle comparison reports comparing the current cycle to the last reporting cycle.</p>
--	---	---	--

**Exit**

## Creating State Reports

State Reports were a new feature in the ADBv2.2. The following are the six reports that are available under this dialog:

- *Assessment Unit Summary List* – This report has general information associated with the assessment unit including, AU Name, Water Type, Water Size, Location Description, Use and associated Attainments, Causes, Sources, and TMDL Status.
- *303(d) List Report* – This report shows all waters on the 303(d) list with their associated causes, TMDL status, uses, and sources.
- *303(d) Delisting Report* – Any delisting information entered into the ADB is available here. The 303(d) delisting report is a simple way to track the delisting status of all AUs in the database.
- *WQS Attainments Report* – This report contains information for waters that have been removed from the list due to WQS attainment reasons.
- *TMDL Status Report* – This report lists all of the AUs that require a TMDL and any information the user has entered regarding the progress towards submitting a TMDL. TMDL progress information can be entered through the **TMDL information** in the upper right corner of the **Causes** screen.
- *Atlas Report* – This report contains a summary of the waterbody information entered under **Atlas Information** and is independent of AU information in the database.

Feel free to open and explore the state reports. Reports will appear in a separate window. If you wish to save a report, go to **File -> Save As** in the toolbar of the report window and save the file as a text or .html where appropriate. When you are finished, close the report window and click **Cancel** on the “State Reports” dialog box to return to the main **Report Selection** screen.

## Creating Summary Reports

With the Reports Module, users can create use, cause, and source summaries for a selected state, cycle, and water type. Assessment data and 303(d) data dumps can also be performed through the *Summary Report* function.

1. Click the *Summary Reports* button.

This screen allows you to specify the type of report you want to create. The *Current State and Current Cycle* represent the state and cycle selected in the ADB. You can change these at any time by clicking on the **Data** menu. Summary Reports allow the user to:

- Generate reports by state-specific water type or general EPA water type
- Generate summaries based on uses, causes, or sources
- Create data dumps



- Produce trophic status reports on all lakes
- Produce summaries in waterbody quality trends.

2. Click the button beside **EPA Water Type** and select **Stream/Creek/River**.

3. Make sure the box for **Individual Use Support Summary** is checked and click the **Create New Report** button.

The report you have just created will appear in a separate window. This file will be available under **Display Existing Report** or can be found under **C:\Program Files\ADB v.2\Modules\XML\_Report\report.html**, but this file will be overwritten whenever another report query is performed. If you wish to save the file permanently, go to **File -> Save As** in the toolbar of the report window and save the report as a text or .html file where appropriate.

## Individual Use Support Summary for TN

Report for Water Type: STREAM/CREEK/RIVER; Units: MILES

USE	Total Size	Size Assessed	Size Fully Supporting	Size Fully Supporting and Threatened	Size Not Supporting	Size Not Assessed	Size with Insufficient Info
Domestic Water Supply	861.5	861.5	830.4	0	31.1	0	0
Fish and Aquatic Life	8,961.1	6,993	6,497.6	0	495.4	0	1,968.1
Industrial Water Supply	938	938	938	0	0	0	0
Irrigation	9,046	9,043	9,043	0	0	3	0
Livestock Watering and Wildlife	9,010.4	8,993	8,993	0	0	3	14.4
Recreation	3,293	2,405.9	1,987.2	0	418.7	0	887.1
Trout Stream	99.1	85.2	85.2	0	0	13.9	0

4. Close the report window by clicking the **X** in the upper right corner.

5. Uncheck the box beside **Individual Use Support** and click the check box beside **Cause Summary**. When the **Cause/Source Detail** check box appears, click the **Include Detail** check box to remove the check. Click **Create New Report**. This will list summaries of pollutant groups and summaries of their specific components.

6. Close the report form by clicking on the **X** in the upper right corner after you have viewed the results.

Other report summaries can be created in the same way. Feel free to explore the types and variations of summary reports by varying details, water types, and report combinations.

### Creating Data Dumps

Data dumps for assessment data and 303(d) can be created by clicking one of the buttons at the bottom of the form. Both reports provide the same type of information; however, the 303(d) data dump only lists AUs that are impaired.

1. Under “Data Dump” section of the “Summary Report” dialog box, click the **New** button for “303(d) Data.”

The .html report will open, and you can view assessment data. Notice that there are codes listed in the fields for designated use, causes, and sources. There is a legend feature in the data dump section that includes a look-up table for these codes.

2. Close the table window and click the check box for **Legend** in the “Data Dump” section of the “Summary Report” dialog box.

3. Click the **New** button under “303(d) Data.” A new report will be generated that lists the code for each field and their descriptions, as well as the 303(d) data that loaded initially.

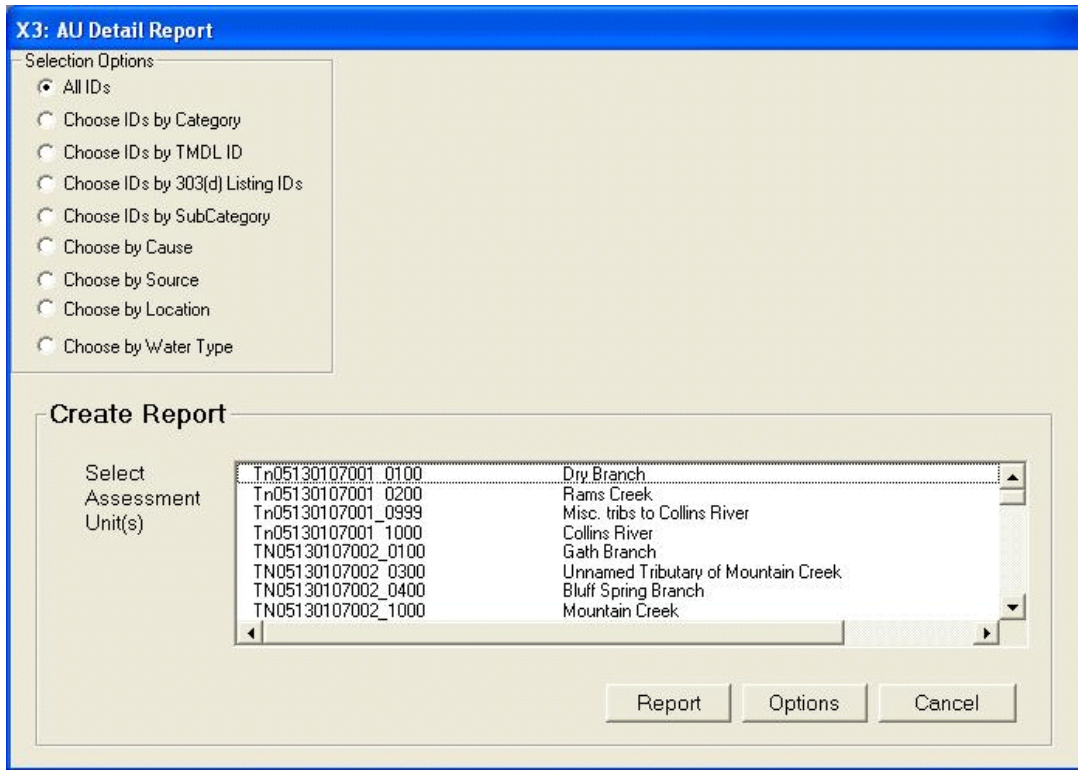
4. Close the report table form and click the **Cancel** button on the **Summary Reports** screen to return to the main reports dialog box.

### Creating AU Detail Reports

The AU reports allow you to choose specific AUs based on various criteria and create custom reports on the selected AU(s). In this exercise, we will review the types of criteria combinations a user can use to create unique reports.

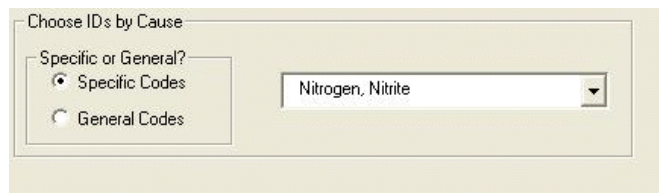
1. Click **AU Detail Reports** button.

The **AU Detail Report** screen will appear. You will notice that the button next to “All IDs” is the default selection option. Therefore, all AUs in the database appear in the list box in the lower portion of the screen. You can limit the AUs by choosing any of the other button selection options and entering additional filtering information as requested by the report module.



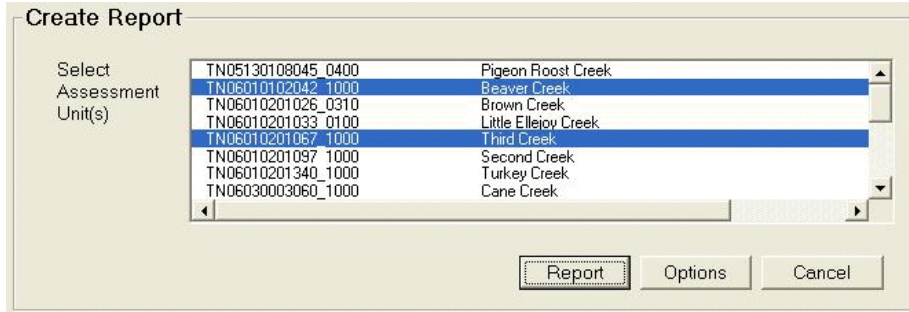
2. Under the “Selection Options” section, select the *Choose by Cause* button.

3. The *Choose IDs by Cause* box will appear to the right. Make sure that the *Specific Codes* button is selected and choose **Nitrogen, nitrite** from the drop-down list.



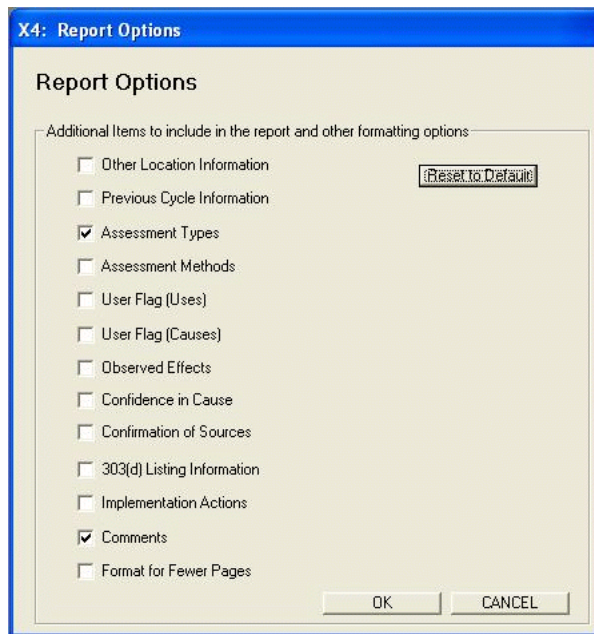
The AUs listed in the lower portion of the screen will be filtered to only include those AUs that have *Nitrogen, nitrite* as an associated cause.

4. Choose **TN06010102042\_1000, Beaver Creek** and **TN06010201067, Third Creek** from the list box by depressing the **Control** key while selecting the AUs.



There are several ways to choose more than one AU. If you would like to select several consecutive AUs, you can press the **Shift** key while choosing the first and last AU you wish to include. To select all of the AUs, you can hold the **Control** key down and press **A**. You can also use the mouse to click and drag from the first AU you would like to select to the last consecutive AU you would like to select to highlight a list.

5. To limit or add assessment information to be included in the report, click the *Options* button. The checked boxes default to *Assessment Type* and *Comments*.



6. Click the **OK** button to return to the **AU Detail Report** screen.

7. Click the **Report** button to generate the detailed report for these two AUs.

8. When you are finished viewing the report, close the report by clicking the **X** in the upper right corner and exit the reporting module.

## Creating Cycle Comparison Reports

Cycle Comparison Reports is a new feature in the ADBv2.3. This reporting feature allows you to select a range of information in which you can compare data from the current cycle to the previous cycle. There are 5 available reports to choose from:

- *Summary Statistics* – This report allows you to view the total number of assessment units in the current cycle compared to the previous cycle. You can also compare the current cycle Assessment Unit – Cause Combinations and compare Water Sizes by Category for both the current and previous cycle.
- *Assessment Unit – Cause Combinations Added to List* – This report contains any new assessment units and associated causes added to the 303(d) list for the current cycle.
- *Changed Use Attainments* – This report allows you to view current and previous assessment unit IDs, the associated uses and how the use attainments changed from the previous cycle to the current cycle.
- *Changed Category (Assessment Unit)* – This report displays overall category changes for an assessment unit. You can view the current assessment unit ID and overall category in comparison to the previous cycle assessment unit ID and overall category.
- *Waters Unaccounted For* – This report contains information for waters and their associated causes that have been unaccountable removed from the 303(d) list without a valid delisting reason.

## Summary

In this exercise, you learned how to create summary reports and comprehensive reports for AUs. You also learned how to perform a data dump for assessment data.

In Exercise 6, you will learn how to use the Connections module to connect to outside databases and tables.

## Exercise 6. Using the Connections Module

The Connections Module is designed to help you work with your data outside of the ADB v.2 environment as well as to help you work within the ADB v.2 environment using data from other databases. The Connections Module enables the user to directly access the ADB database and view ADB data in table format. These tables can also be exported for analysis outside of the ADB. Additionally, it allows the user to link to tables in other databases (i.e., Oracle, Access, SQL Server, or any Open Database Connectivity [ODBC] compliant database). This enables these databases to be viewed in the ADB. This connection could be useful, for example, if you want to store information about the sub-basin in which an AU is located.

This feature is solely for the convenience of the ADB v.2 users. Any data accessed through the Connections Module will not be included in the electronic submission to EPA.

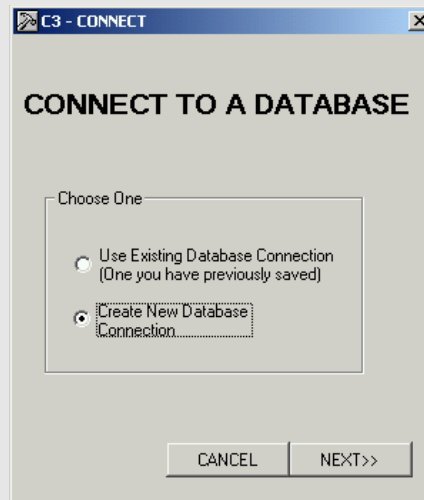
In this exercise, you will learn how to connect to the ADB database to view tables within the Connections Module and bring a table into the ADB using the connection to the database. You will also learn how to use custom queries to create tables that can be exported into a .csv text file, which can then be used to limit the AUs viewed in the database.


### Creating a New Database Connection

The Access database you will be using contains some assessment information that was collected in the field. It is stored in a single table called *TN\_streams* in an Access data file.

1. Open the Connections Module by clicking *Start->Programs->ADBv2 for [version]->Connections*.
2. From the *File* menu, select **CONNECT TO A DATABASE**.

- In the “CONNECT TO A DATABASE” dialog box, click the **Create a New Database Connection** radio button and then click **NEXT**.



- From the “Connections Type” dialog box, choose **Microsoft Access** and click **Next**.
- In the “Connect to Access” dialog box, click on the navigation button  and navigate to the TN\_streams.mdb database in your Regional\_SampleData folder. Click **Open**.
- Next, check the **Save Connection on Finish** check box. This will allow you to use the same connection later after you close the ADB.
- Click **Test Connection**. This will let you know if the database connection is working properly. You should get a message saying “Test Successful.” Click **OK**, then click **Finish** in the “Connect” dialog box.
- You will be prompted to name your database connection. Call it **TN\_streams**. Click **OK**. The *Scenic\_rivers* table will appear in the *Tables* tab.



- Select the *Scenic\_rivers* table, then right-click on it. Choose **Open**. The *Scenic\_rivers* table will open.



scenic_rivers		
AUID	STBASIN	SCENIC
TN06010201026_0999	Upper Tennessee	0
TN06010201026_1000	Upper Tennessee	0
TN06010204056_1000	Little Tennessee	0
TN05110002009_1000	Lower Cumberland	0
TN06010208008_0320	Clinch - Powell	-1
TN06020002018_0700	Lower Tennessee	0
TN06020004009_0500	Lower Tennessee	0
TN06030001057_0100	Lower Tennessee	0
TN08010202029_0100	Obion - Forked	0
TN06030002056_0320	Wheeler Lake	0
TN06030003006_1000	Elk-Shoal	0
TN06030004036_1000	Elk - Shoal	0
TN06030004043_0300	Elk - Shoal	0
TN06030005001_1000	Western Tennessee	0
TN06030005095_1000	Elk - Shoal	0
TN06040002008_1000	Duck River	-1
TN08010100001_0999	Mississippi Riv	0
TN08010207031_1530	Hatchie River	-1
TN08010202040T_010	Obion - Forked	0
TN08010203001_0700	Obion - Forked	0
TN08010209021_0300	Memphis Basin	0
TN08010210002_0999	Memphis Basin	0
TN0801021100720_09	Memphis Basin	0

Records 1 - 25

In this example, the *Scenic\_rivers* table contains information about AUs, including State basin information and an indication of whether the stream is designated as a Scenic River (“-1” indicates a scenic river, “0” indicates not a scenic river). Although these data cannot be stored in the ADB v.2, it is easy to connect to a table storing these data and to update the data while you work in the ADB v.2. To work with this table, you can access the following functions by making a column active:

- Sort Ascending/Descending
- Copy/Paste
- Filter
- Find
- Export Data

10. Make the *STBASIN* column active by clicking on the column heading, and then right clicking it to open the drop-down list.
11. Click the **Sort Ascending** button to organize the basins in alphabetical order.
12. Close the table by clicking the **X** in the upper right corner.

## Creating a Table/Database Connection

Now that you have created a database connection to “TN\_streams,” you need to make a connection between the table in the database, “*Scenic\_rivers*,” and the ADB. You must also tell the ADB v.2 how the fields in the *Scenic\_rivers* table relate to the AUs. In this case, the *AUID* field in the table corresponds to AU ID in the ADB.

1. Make the *Scenic\_rivers* table active by selecting it with your mouse. Right-click the word *Scenic\_rivers* in the **Tables** tab. Select **Make New Table Connection**.



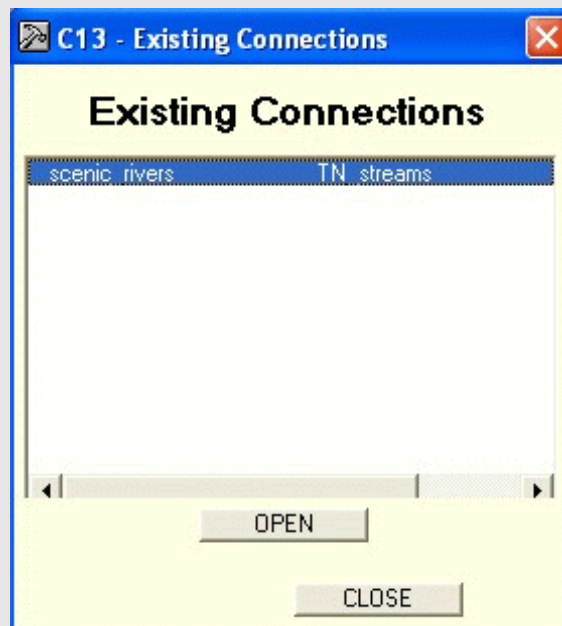
2. Name the connection **scenic\_rivers** and click **Next**.
3. In the “Limit Connection” screen, pick **AUID** from the drop-down list beside **Limit By: Assessment Unit ID**.

The “Limit By:” dialog defines the relationship between the *Scenic\_rivers* table and the ADB. If the table has a “Cycle” field or a “TMDL ID field,” you can further limit the records your table displays. For example, if you relate the cycle field in your table to the cycle in the database, the table will only show records for the current cycle in the database. You can limit the records by TMDL ID in the same way.

4. Click **Finish**. When prompted, make sure the table connection is still called *scenic\_rivers* and click **OK**.
5. Close the Connections Module by clicking the **X** in the upper right corner.

## Bringing a Table into the ADB

1. Open the ADB by going to the Start menu and clicking **Programs -> ADBv2 for [version] -> ADBv2**. Click the **Assessments** button from the main database menu.
2. From the **View** menu, choose **Show Connections**. From the “Existing Connections” screen, select the *scenic\_rivers* entry and click **OPEN**.



3. Click **Yes** when you are asked if you want to enforce limits for the connection.

The table can be resized so you can view both the table and the ADB screen. If you click on the ADB screen, it will appear on top of the *scenic\_rivers* table. After you resize the box, drag it to either the top or the bottom so that you can make it active from the ADB screen. As long as a part of the table is visible on the screen, you can click on it to make it active.

You can view the records as a form by clicking on the **View as Form** button. If the **View as Form** button disappears as a result of resizing the table, close the table and reopen it by going to **View->Show Connections** and picking the table.

One advantage of connecting to the table is the ability to enter information into the table at the same time as you enter the AU data into the database. Another advantage of using table connections is that you can view the Cycle Tracking table in the ADB. This will allow you to view if there have been any changes to any AU in terms of AU size, naming convention or AU ID. You can also view if there have been any splits or merges since the previous cycle.

4. Close the *scenic\_rivers* table by clicking the **X** in the upper right corner.

## Exporting Data

Another feature of the Connections Module allows you to export data from the ADB to Access 97, Access 2000, and SQL Server. You can also choose to export the data as a .csv text file, which is illustrated in the following example.

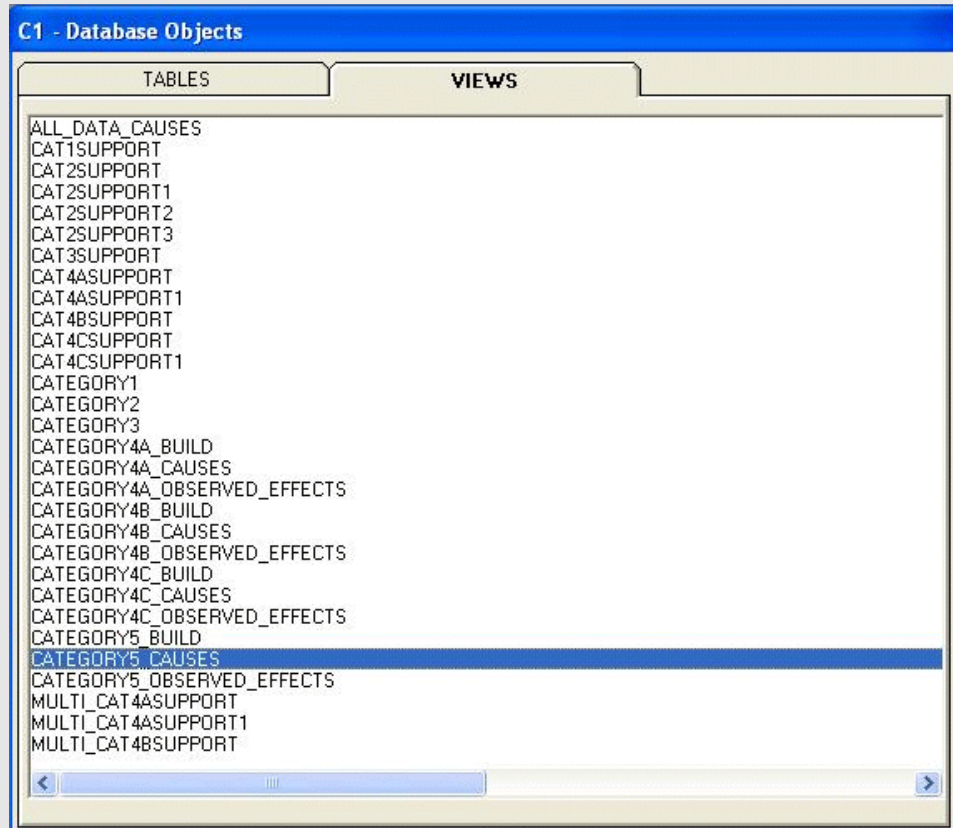
For this example, let's say that a water quality manager asks the question: *Which AUs with a "Fish and Aquatic Life" designated use are on the Category 5 list for causes from Iron?* In Exercise 1, you were able to use the ADB's *Browse* feature to view, sort, and filter the data in table format. However, the *Browse* feature limits the user in performing more custom queries required for answering questions such as the one above. By being able to interact directly with the ADB tables, the user is able to directly select out data to create a new table that specifically answers the questions you want to ask.

1. Return to the Connections Module by clicking the hammer icon at the top of your screen, or access this module through *Start->Programs->ADBv.2 for Access->Connections*.
2. Choose *File->Connect to Database*. Click **Create New Connection**, then click **Next**.
3. Choose *Microsoft Access* and click **Next**.
4. In the "Connect to Access" dialog box, click on the navigation button  and navigate to the *ADBaccess.mdb* database in *C:/ADB\_access* and click **Open**.
5. Next, check the **Save Connection on Finish** box. This will allow you to use the same connection later after you close the ADB.
6. Click **Test Connection**. You should get a message saying "Test Successful." Click **OK**, then click **Finish** in the "Connect" dialog box.
7. Name the connection **ADB**. Click **OK**.

From this point forward, this connection will be available through the *Existing Connections* option.

## Performing Queries Through the Connections Module

1. Click the *Views* tab and select the *Category5\_Causes* view.



2. From the *Connections* menu, select *Advanced SQL*. The “Advanced SQL” dialog box allows you to create a custom query.
3. Check the boxes beside:  
*ID305B, CYCLE, WATER\_NAME, USE\_DESC, ATTAINMENT\_DESC, THREATENED\_FLAG, CAUSE\_NAME, SOURCE\_NAME*
4. Check the Select Unique Records box.
5. Under the “WHERE:” dialog box, select *STATE* from the drop-down list and enter *TN* in the box to the right of the “=” sign. Click the **ADD** button.

So far, your SQL structure should look like this:

6. Under **WHERE:** Select *CAUSE\_NAME* from the drop-down list and enter *Iron* in the box to the right of the “=” sign. Click the **ADD** button.

*Note: Instead of entering values at the right of the “=” sign, you may use the **GET VALUES** button to access a drop-down list to choose values from a selected list. However, this may be a slower option than entering the values directly.*

This statement will retrieve from the database all the AUs in the Category 5 causes that are in Tennessee and are impaired by Iron. If you save this query, you will be able to recall this SQL string at any time in the future. Additionally, because it is a live connection to the database, updating the database will also update the query results.

- Click the **TEST** button.

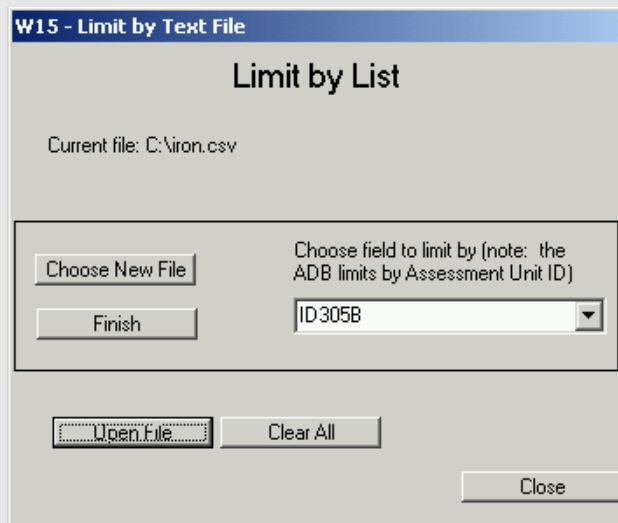
This will show you what the table will look like. (You may need to scroll to the right to see all the fields.) Note that although this is a table of Category 5 causes, one of the AUs is listed as “Fully Supporting.” This is because the “Y” in the *Threatened\_Flag* field indicates it is a threatened water, which puts it in Category 5.

- Close the table by clicking the **X** in the upper right corner.
- Click the **SAVE** button. Save the query as *IronFilter* and click **OK**.
- From the *Connections* menu, choose *View Saved SQL Scripts*. (This table can be accessed this way at any point in the future.) Double-click on *IronFilter*.
- If you are using the Access version, the table you just created will open. Otherwise, enter **ADBUSER** (or the appropriate password) and click **OK**.
- The table you just created will open. Select one of the cells with *Fish and Aquatic Life* under the *USE\_DESC* field. Right-click on the cell and pick **Filter**. Only records with the *Fish and Aquatic Life* use should now be visible in the table.
- Right-click on the same cell and pick **Export Data**. Choose the *Export as Filtered* option.
- Save the file in the *Regional\_SampleData* folder as *Iron.txt*. Click **Save**. In the “Text File Export Wizard” window, click **Finish** to create the text file.

ATTAINMENT_DESC	CAUSE_NAME	CYCLE	ID305B	SOURCE_NAME	THREATENED_FLAG	USE_DESC	WATER_NAME
Fully Supporting	Iron	2000	TN03150101012_0400		Y	Irrigation	Minnewauga Creek
Not Supporting	Iron	1999	TN05130107023_2000			Fish and Aquatic Life	Dry Creek
Not Supporting	Iron	1999	TN05130108036_0100			Fish and Aquatic Life	Dry Creek
Not Supporting	Iron	2000	TN05130104050_0100			Fish and Aquatic Life	Dry Creek
Not Supporting	Iron	2000	TN06020001421_0100			Fish and Aquatic Life	Suck Creek

The text file you created above can be used to limit which AUs can be accessed in the main “Assessment Units” screen.

15. **Close** the Connections Module and return to the main “Assessment Units” screen in the ADB v.2. (If the database is not already open, you can access it through the **Start** menu.)
16. In the “Select an Assessment Unit” section of the screen, pick **Limit by Text File** from the **Limit List By:** drop-down list and click **Change List**.
17. In the “Limit List By:” dialog box, click the **Choose New File** button. Navigate to the **Iron.txt** file in your Regional\_SampleData folder and click **Open**.
18. Pick **ID305B** from the **Choose field to limit by:** drop-down list. This will relate the field that contains the ID in the Ironfilter.txt table to the AU ID in the ADB v.2. Click **Finish**.



*Note: The **Limit by List** function will only work with lists that have 1,000 IDs or less.*

19. Under the “Select by Assessment Unit” dialog, Click the **By ID:** drop-down list.



**W1 - ASSESSMENT UNITS**

**ASSESSMENT UNITS**

Uses

Assessment

Causes Observed Effects

Sources

Delist

Determine Category

CLOSE

**Other Information**

Cycle Last Assessed:

Add Comment

Add File

Monitoring Information

Previous Cycle Info.

Other Location Info.

Category Reporting

**Select an Assessment Unit**

By ID:

or by Name:

Limit list by:  CHANGE LIST

GO

**Assessment Unit Functions**

Create New Assessment Unit

Update Current Assessment Unit

Delete Current Assessment Unit

Split Current Assessment Unit

**Information**

Assessment Unit ID:

Assessment Unit Name:

WATER TYPE	SIZE	UNIT

Add Type    Delete Type

Trophic Status:

User Defined Category:  See Definition    Trend:

You can see that of the records that were in the table, only two are present in this list. These are the two records associated with the 1999 cycle.

20. **Close** the “Assessment Units” screen.

The Advance SQL feature can be very useful to obtain information over multiple states and cycles. If you have additional time after this exercise, run the following query:

- Using the CATEGORY5\_CAUSES view, type “TMDL\_ID is null and CAUSE\_NAME is not null” in the where text box.

This query will return a list of all AU-cause combinations for all state and cycles in the database which do not have an assigned TMDL. Note that because the “Pollutant\_Flag” field has not been restricted to “Y”, Category “4c” waters, or waters which impaired by a non-pollutant, may be present in the list.

### Viewing Changes to AU’s in the Cycle Track table

1. Open the Connections Module by clicking *Start->Programs->ADBV2 for [version]->Connections*.
2. From the *File* menu, select **CONNECT TO A DATABASE**.
3. In the “CONNECT TO A DATABASE” dialog box, click the **Use Existing Database Connection** radio button and then click **NEXT**.

4. In the **Existing Connections** screen, select the **ADB Defined Database** and click **OPEN**.
5. On the **TABLES** tab, highlight the **CYCLE\_TRACK** table. Right click the selected table and choose **OPEN**. The Cycle Track table in the ADB will open.

ID	CYCLE	PREID	PRECYCLE	PURPOSE	AUTO_FLAG
ID3058		PREID3058			
TN05130107001_0200_AA	1999	Tn05130107001_0200	1999	Rename	1
TN05130107001_1000A	1999	Tn05130107001_1000	1999	Split	1
TN05130107001_1000B	1999	Tn05130107001_1000	1999	Split	1
*					

Records 1 - 3

In this example, you learned how to view which IDs have been Renamed and which IDs have be Split. If there had been any IDs merged in this dataset, you would also be able to view that information here.

## Summary

In this exercise, you learned how to connect to an outside database and bring a table from that database into the ADB v.2 and how to sort records in that table. You also learned how to perform a custom query within the Connections Module to answer a specific question. Finally, you learned how to export a newly created table from a query into a text file and, using the file, limit the records in the “Assessment Units” screen.

In Exercise 7, you will learn how to use GIS data with the information stored in the ADB to create maps of water quality data. You will learn how to do this by linking water quality data in .dbf form to an NHD-based shapefile that contains the appropriate surface waterbody delineations.

## Exercise 7. Reviewing GIS Data

This exercise is intended for users who are already familiar with geographic information system (GIS) and reach indexing methodology. If you are unfamiliar with the National Hydrography Dataset Reach Indexing please refer to the following Web page: <http://www.epa.gov/owow/monitoring/georef/index.htm>. This site explains the reach indexing process and database formats that work well with GIS.

The IR Reporting guidance requests states to provide spatial files that show the locations of assessment units. Reviewing these spatial data files ensures adherence to the EPA Guidance and requirements. The integrity of the submittals should also be validated. Usually these segments are defined using GIS. The state GIS submittals should be referenced to the 1:100,000 scale National Hydrographic Dataset (NHD) and have IDs that match the IDs in the ADB. Also the segments displayed should properly represent the waters identified in the ADB. Stream lengths and Lake/Reservoir areas should be the same between the GIS and ADB information.

States may submit GIS materials in different formats. For example, some states may submit shapefiles, geodatabases or event tables created with the NHD-Reach Indexing Tool or the Hydrography Event Management (HEM) Tool. This exercise uses a shapefile that was created using 1:100,000 NHD layers. ArcGIS 9.x software will be used to review the data. For other submittal versions, the steps may need to be adjusted in terms of mechanics but functionally should remain the same.

Before you begin this exercise, you need to unzip the GIS\_SampleData.zip file to your computer's hard drive.

### Exporting the ADB information

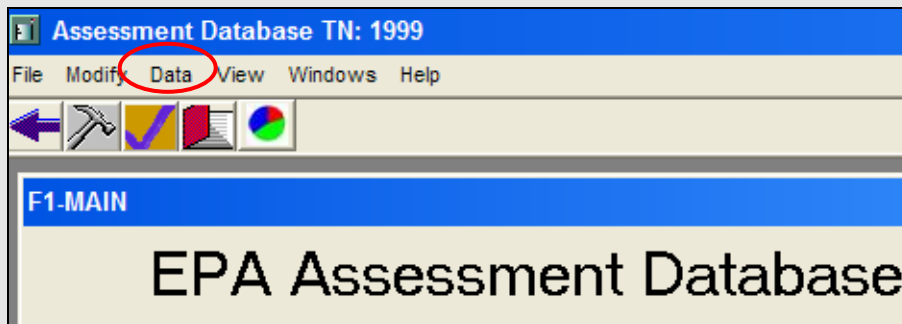
The first step in reviewing the GIS information against the ADB requires you to export the category list from the ADB. This information can then be joined to the state provided GIS data.

Follow the steps below to export the category list.

1. Open the ADB by clicking Start->Programs->ADB v.2 for Access->ADBv.2.
2. If you have never accessed a database before using ADB, or if you have deleted or moved a database since you last accessed it, you will be prompted to connect to a database. (NOTE: If your computer has been used to access an ADB database before, the ADB interface will automatically connect to the database, State and cycle that were chosen during your last login. To select a new database, go to File -> Select Database and browse to the appropriate database when prompted.)




3. Navigate to the ADBaccess.mdb database located in C:\Regional Sample Data folder.
4. If you are prompted for "State," specify **TN** for State and click OK. When you get a message saying there are no data for this cycle, click No.
5. Select **1999** for the "Choose Cycle Year" dialog box and click OK.
6. Under the **Data** Drop down menu, Select **Data Exports**.



7. Choose **Category Listing** from the **Select an Export** drop-down menu and click the **Export Data** button.
8. You will be prompted for a location to save the file. Save the Export file as **TN\_cat\_list.csv** in the C:\Regional Sample Data folder\GIS.
9. Click the **Close** button in the **Data Exports** dialog box, then click **Exit** to close the ADB.
10. Navigate to the C:\Regional Sample Data folder\GIS, right click on the **TN\_cat\_list.csv** file and change the file name to **TN\_cat\_list.txt**. A dialog box will appear that says "If you change a file name extension, the file may become unstable. Are you sure you want to change it?" Click **Yes**.


Now that we've learned how to export the list of IDs and categories from ADB, we'll learn how to import this data into GIS.

1. Open ArcGIS by clicking Start->Programs->ArcGIS->ArcMap. Open with a new empty map.
2. Click the **Add Data** button . Navigate to the C:\Regional Sample Data\GIS folder and select the **TN\_cat\_list.txt** file created in step ten above and click **Add**.
3. In the **Layers** list, right click on the **TN\_cat\_list.txt** layer and click **Open**. The table shows the AUs for this state. The table provides information such as ID, Waterbody Name, Location, Category and Size. Close the attribute table.
4. Convert the txt file to a .dbf file by right clicking on the **Tn\_cat\_list.txt** layer and select **Data**, then **Export**.
5. Navigate to the C:\Regional Sample Data\GIS folder and save the new file as **TN\_cat\_list.dbf**. Click **Save**, then Click **OK**. When prompted, add **TN\_cat\_list.dbf** to the map.

In this section you learned how to export data from the ADB and import it into ArcGIS. The remainder of the tutorial will show you how to compare the state provided GIS files against the ADB data.

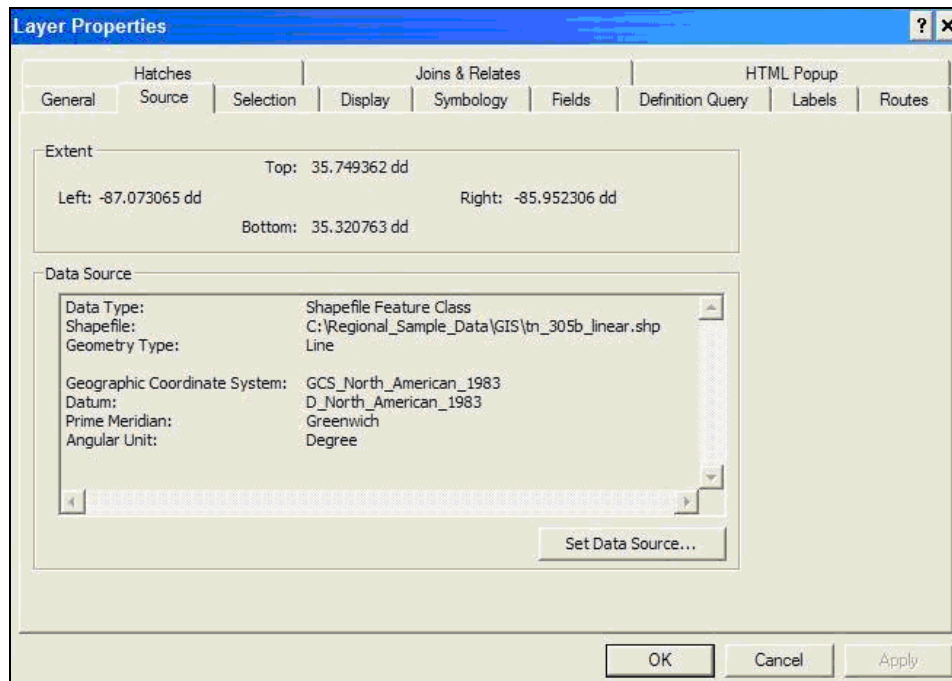
### Viewing NHD-Based Event Tables as Shapefiles

NHD event tables can easily be viewed in ArcMap as a shapefile. In this exercise you will learn how to add NHD event tables and NHD to ArcMap. Loading this information to ArcGIS allows you to check the projection and coordinate information of the state submitted shapefiles. You can also see if the state submitted shapefiles are compatible with the 1:100,000 NHD.

1. In ArcMap, Click the **Add Data** button . Navigate to the C:\Regional Sample Data\GIS folder and select **tn\_305b\_linear.shp** and **tn\_305b\_polygon.shp** and click **Add**. (Note: use the CTRL key or shift key to select multiple files) This adds the state provided GIS files to the ArcMap Project.
2. Save the project by clicking on **File -> Save**. Navigate to the C:\Regional Sample Data\GIS folder and save the project as **TN\_Review.mxd**


With the shapefile added you can check the projection and coordinate system information for the state GIS submittal.

1. Click once on the **tn\_305b\_linear** layer to make it active.
2. Right click on the **tn\_305b\_linear** layer and select **Properties**.
3. In the **Layer Properties** dialog box select the **Source** tab. Check the projected coordinate system information and be sure to record your findings.



In this example the projection is in North American Geographic 1983. You can use ArcGIS tools to change the projection if necessary. Repeat the steps above with the TN\_305b\_polygon layer.

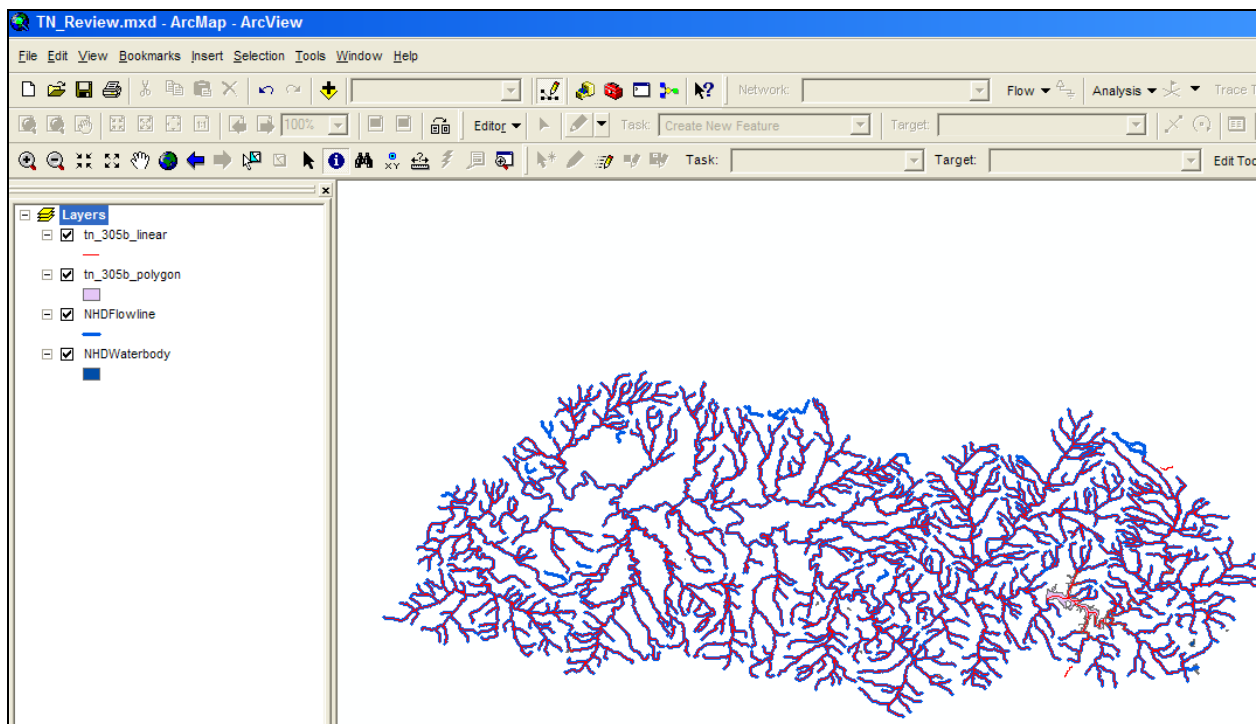
The next step is to add NHD to the view. With the NHD and state provided shapefile loaded to the view you can compare the compatibility of the state submitted layers with the NHD layers.

1. Click the **Add Data** button . Navigate to the C:\Regional Sample Data folder\GIS and double click on **NHDPlus06040002** folder, next double click on **hydrography**. Click on **NHDflowlines.shp** and **NHDWaterbody.shp** then click **Add**. This adds a portion of the NHD for TN to the map.
2. In the **Layers List**, right click on **NHDFlowlines** and select **Zoom to Layers**.

Now, let's move the layers and change the legend symbology to make it easier to review this data.

1. Click on the **Display** tab under the layers window.
2. Move the **tn\_305b\_linear** layer above the **NHDflowlines** layer by clicking on the **tn\_305b\_linear** layer and, with the left mouse button held down, slide the layer up. Repeat this process and move the **tn\_305b\_polygon** layer to below the **tn\_305b\_linear** layer.
3. Click on the symbology for the **tn\_305b\_linear** layer (the symbology is the colored line below the layer name) and under options, select a red color and click **OK**.
4. Click on the symbology for the **NHDFlowlines** layer (the symbology is the colored line below the layer name) and under options select a blue color, change the width to 2 and click **OK**.
5. Click on the **NHDWaterbody** layer and under options select a blue color and click **OK**.

Your project should look similar to the one shown below. To review this information, Zoom in and Pan across the map, turning layers on and off to view the difference between the state submittals and the NHD layers.



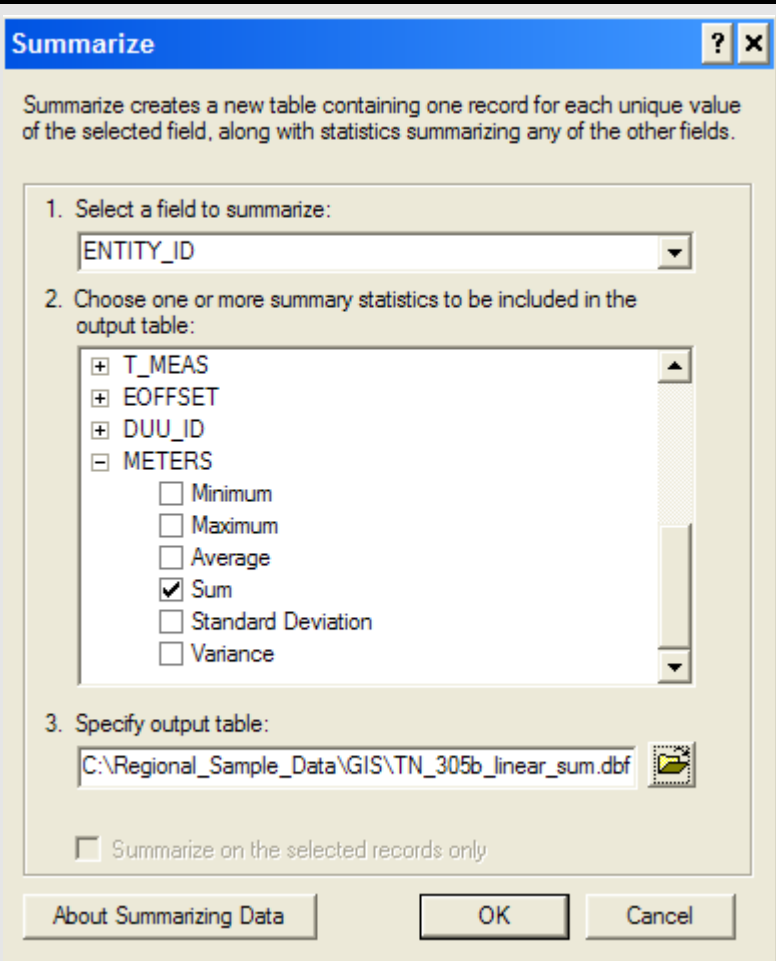


## Comparing the GIS and ADB IDs and size information

In this next section we will learn how to summarize the miles and acres in the GIS submittals by the unique state assessment ID in the line and polygon GIS files. Note that the ID name field may vary from state to state. The summary of entity id/mileage information should be compared to the ADB derived list of ENTITY\_IDs and sizes. The purpose of this comparison is to identify ADB assessed segments with missing GIS delineation.

Follow the directions below to summarize the mileage information from the state provided GIS files.

1. In the Layers list, select the **tn\_305b\_linear** layer by left clicking on it. Then right click on the highlighted layer and choose **Open Attribute Table**.
2. In the attribute table click on the field name **ENTITY\_ID**. Then right click on this field and select **Sort Ascending**.
3. Right click on this field name again and choose **Summarize**. The **Summarize options** dialog box will appear.
4. In the Summarize options dialog, under step 1, Select a field to Summarize choose **ENTITY\_ID** from the dropdown list. Under step 2, Choose one or more summary statistics to be added to the output table, scroll down to the meters field and click the box next to **Sum**. Under step 3, specify output table, click the folder icon and navigate to C:\Regional Sample Data folder\GIS and change the file name to **TN\_305b\_linear\_sum.dbf** Click **Save** then click **OK**.



4. The summarize completed dialog box will appear. It will ask “Do you want to add the result table in the map?” Click **Yes**.

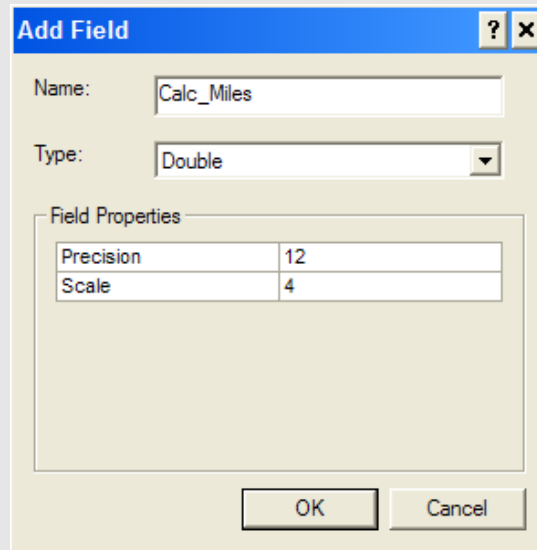
5. Close the **TN\_305b\_linear attribute table**.

Repeat the above process for the polygon layer. (Note: in the summarize dialog box, use the sq\_km column.) Also change the file name to **TN\_305b\_Polygon\_sum.dbf** and save the file in C:\Regional Sample Data folder\GIS.

You have just successfully summarized the size information in meters and square kilometers for the GIS layers. If the length information stored in the ADB is in miles/acres you will need to convert the data in order to compare the numbers. In this exercise the size information stored in ADB is in miles. In this next section we will learn how to do this conversion in GIS.

1. Click on the source tab under the layers window. This will allow you to see the summary tables that were just created.
2. Right click on the **TN\_305b\_linear\_sum.dbf** file and choose **Open**.

3. In the table window click on the **Options** button, located at the bottom right hand side of the table. Choose **Add Field**.
4. The **Add Field** Menu should appear. Enter **Calc\_Miles** as the new field name. Select **Double** as the field type. In the field properties section, enter 12 for Precision and 4 for Scale. Click **OK**.



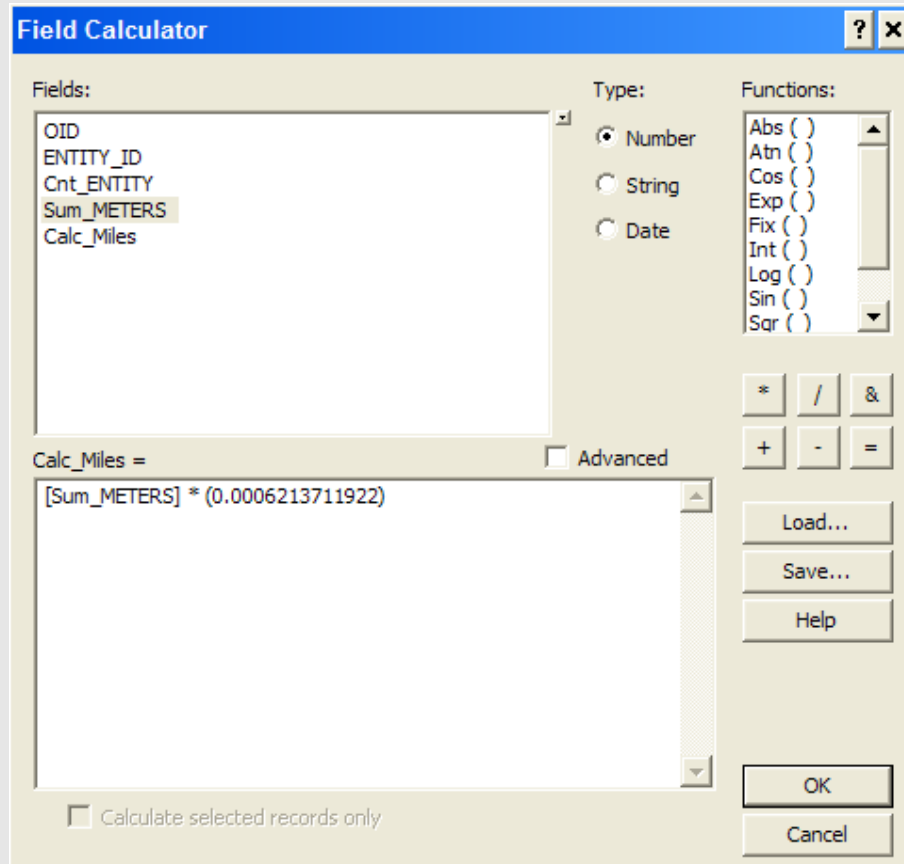
The screenshot shows a dialog box titled "Add Field" with a blue header bar containing a question mark and a close button. The dialog has the following fields and controls:

- Name:** A text input field containing "Calc\_Miles".
- Type:** A dropdown menu currently showing "Double".
- Field Properties:** A section containing a table with two rows:

Precision	12
Scale	4
- Buttons:** "OK" and "Cancel" buttons at the bottom.

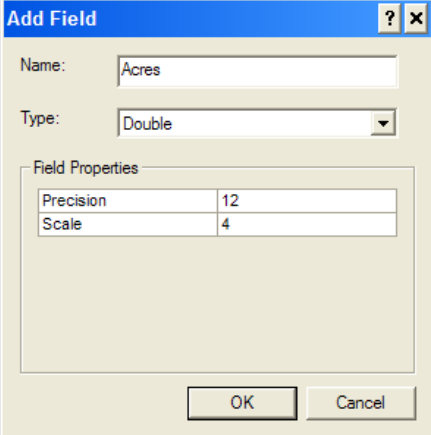
5. A new field called **Calc\_Miles** has been added to the table. Right click on the **Calc\_Miles** field heading and choose **Field Calculator**. You may receive a dialog box that says "You are about to do a calculate outside of an edit session. This method is faster than calculating in an edit session, but there is no way to undo your results once the calculation begins. Do you wish to continue?" Click **Yes**.

6. The **Field Calculator** dialog box will appear. In the fields section, double click on **Sum\_METERS**, this will put the Sum\_METERS field in the Calc\_Miles= box. Then click on the \* operation, available from the right hand side of the dialog box. Then enter **(0.0006213711922)**. You should now have an equation in the calc\_miles= box that reads **[Sum\_METERS] \*(.0006213711922)**. (Note (.0006213711922) is the multiplier necessary to convert meters to miles, depending on the units in the ADB and GIS files you may need to use a different multiplier.) Click on **OK**.



The TN\_305b\_linear\_sum.dbf table should now have the mileage calculated in the Calc\_Miles field. Check to make sure that the Calc\_Miles field now has a new value in each record. Next we will repeat the process for the polygon layer. Close the tn\_305b\_linear\_sum attribute table.

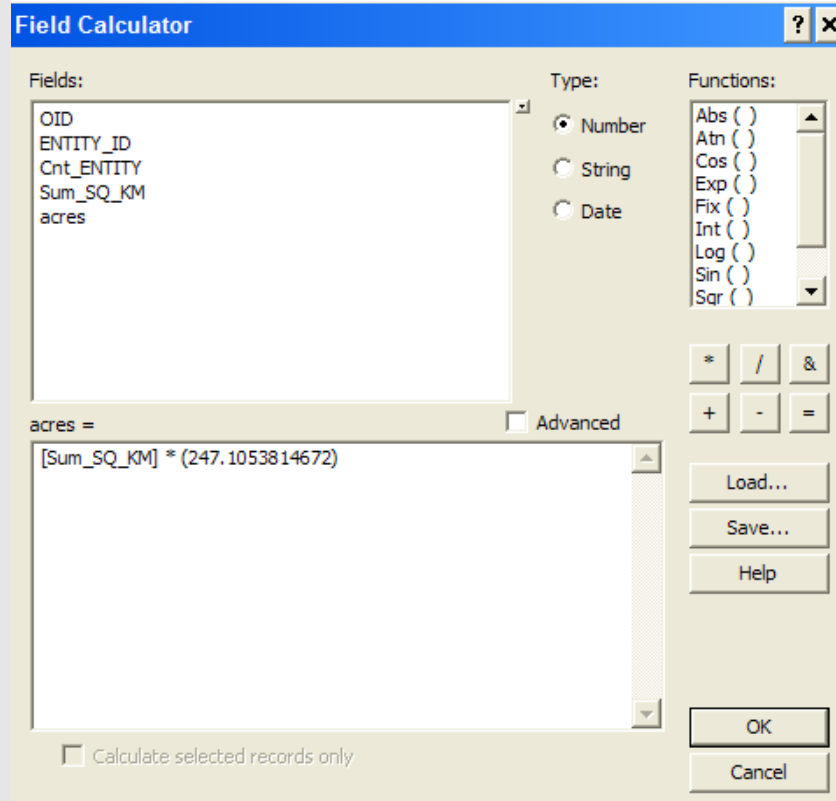
1. Click on the **Source** tab under the layers window. This will allow you to see the summary tables that were just created.
2. Right click on the **TN\_305b\_polygon\_sum.dbf** file and choose **Open**.
3. In the table window click on the **options** button, located at the bottom right hand side of the table. Choose **Add Field**.
4. The **Add Field** Menu should appear. Enter **Acres** as the new field name. Select **Double** as the field type. In the field properties section, enter 12 for Precision and 4 for Scale. Click **OK**.



Field Properties	
Precision	12
Scale	4

5. A new field called **Acres** as now been added to the table. Right click on the **Acres** field heading and choose **Field Calculator**. You may receive a dialog box that says “*You are about to do a calculate outside of an edit session. This method is faster than calculating in an edit session, but there is no way to undo your results once the calculation begins. Do you wish to continue?*” Click **Yes**.

6. The **Field Calculator** dialog box will appear. In the fields section, double click on **Sum\_SQ\_KM**, this will put the **Sum\_SQ\_KM** field in the Acres= box. Then click on the \* operation, available from the right hand side of the dialog box. Then enter **(247.1053814672)**. You should now have an equation in the Acres= box that reads **[Sum\_SQ\_KM] \*( 247.1053814672)**. (Note: (247.1053814672) is the multiplier necessary to convert SQ\_KM to Acres. Depending on the units in the ADB and GIS files you may need to use a different multiplier.) Click **OK**.



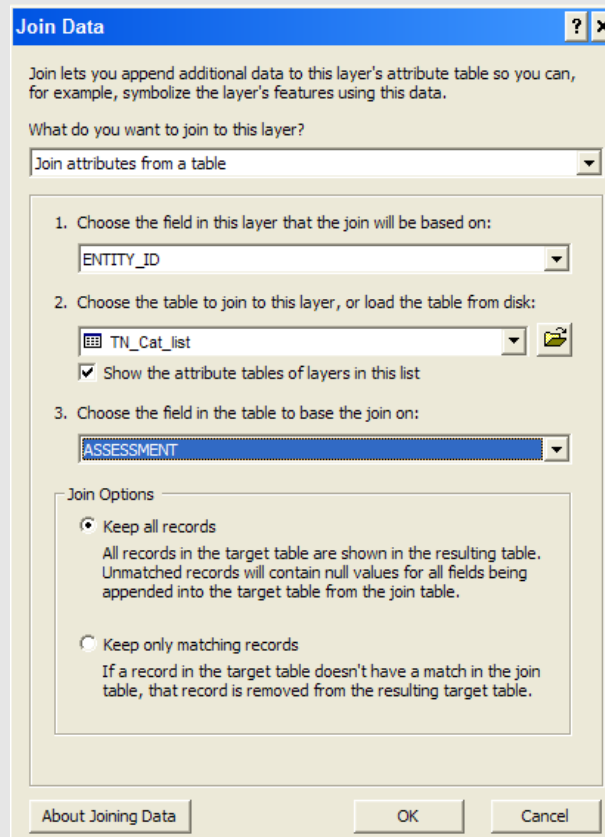
The TN\_305b\_polygon\_sum.dbf table should now have the acres calculated. Check to make sure that the acres field has a new value in each record. Close the TN\_305b\_polygon\_sum attribute table.

### Joining and Reviewing the ADB and GIS Data

In order to perform an adequate quality assurance check of the GIS and ADB ID matches, the information needs to be examined in two directions; GIS joined with ADB and then ADB joined to the GIS. When you join the GIS data to the ADB, you will be able to find any GIS segments that are not represented in the ADB. These should be recorded so they can be resolved. Joining the ADB to the GIS lets you see which IDs in the ADB are not represented in the GIS layer. These IDs should also be recorded so they can be resolved.

## Joining the GIS data with ADB Data

1. Click on the **source tab** under the Layers window.
2. Right click on the **tn\_305b\_linear\_sum.dbf** table and select **Joins and Relates** then click on **Join**.
3. The **Join Data** dialog box should appear. In this window you will enter the appropriate join information. The default information in the first menu item **Join attribute from a table** is correct. Under step 1, choose **ENTITY\_ID**. Next, choose the category listing table (**tn\_cat\_list.dbf**) and choose **ASSESSMENT** for the ID join field. Click **OK**.



4. Right click on the **tn\_305b\_linear\_sum table** and choose **Open**. Scroll over till you see the **TN\_cat\_list.ASSESSMENT**. Click on this column and chose **Sort Descending**.
5. The **TN\_cat\_list.Cal\_Miles** column contains the mileage value from the GIS. The **TN\_cat\_list.water\_size** column is the length value from the ADB. The data in these columns should be compared for discrepancies. Close the attribute table.

With this first join you have found IDs that are represented in the GIS, but not in the ADB. You can print this list for review. You can do this by right clicking on the **tn\_305b\_linear\_sum.dbf**, choose **Data** then **Export**. The export data dialog box will appear. Specify an output location and name for the file.

Another good review check you can do with this join is to compare the size information calculated in GIS with the size information in ADB.

6. Right click on the **tn\_305b\_linear\_sum** table and choose **Open**. Scroll over till you see the **TN\_cat\_list.ASSESSMENT**. Click on this column and chose **Sort Descending**.
7. The **TN\_cat\_list.Cal\_Miles** column contains the mileage value from the GIS. The **TN\_cat\_list.water\_size** column is the length value from the ADB. The data in these columns should be compared for discrepancies. Close the attribute table.

Before you can perform new joins, you need to remove the existing joins. Follow the instruction below to remove the joins before moving on to the next section.

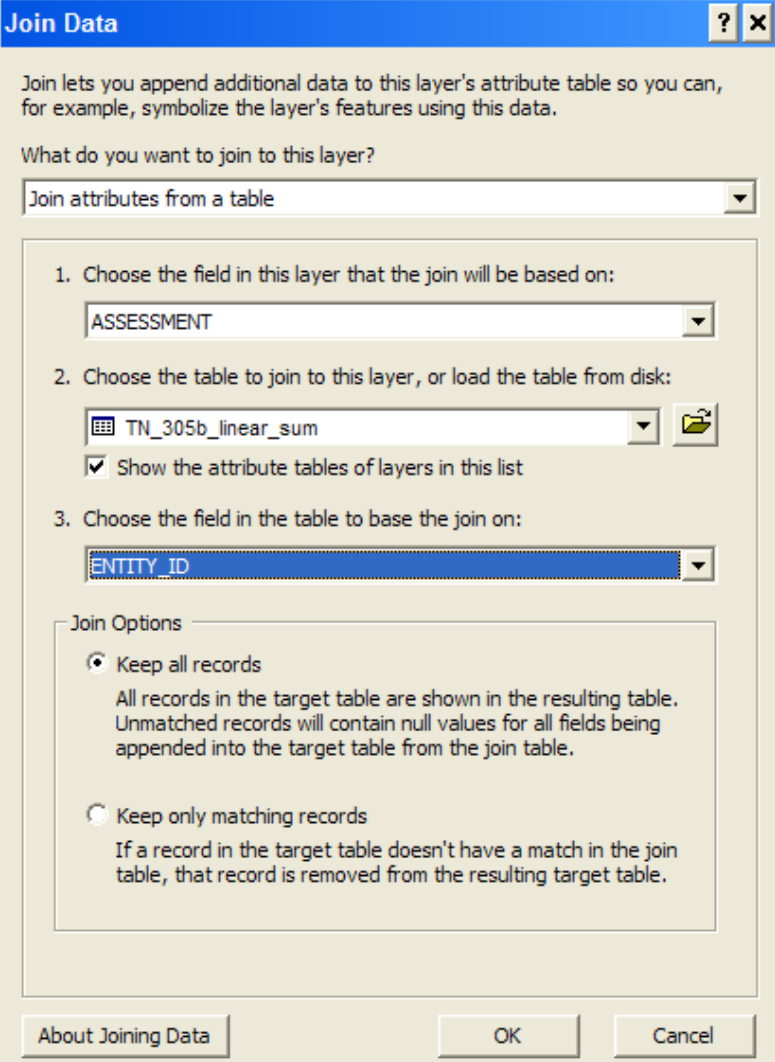
8. Right click on the **TN\_305b\_linear\_sum** file and select **Joins and Relates** then **Remove Joins**, click on **Remove All Joins**.

Repeat this process as needed with any other GIS layers.

### Joining the ADB Data with GIS data

1. Click on the **Source** tab under the Layers window.
2. Right click on the **TN\_cat\_list** table and select **Joins and Relates** then click on **Join**.
3. The Join Data dialog box should appear. In this window you will enter the appropriate join information. The default information in the first menu item **Join attribute from a table** is correct. Under step 1, choose **ASSESSMENT**. Next, choose **TN\_305b\_linear\_sum.dbf** and choose **ENTITY\_ID** for the ID join field. Click **OK**.





4. Right click on the **TN\_cat\_list** table and choose the **Open**. Scroll over to see the additional fields that have been added.

5. Click on **ENTITY\_ID** and select **Sort Descending**. Any records in this field with a null value means there is data in the ADB that is not represented in the GIS.

With this join you have found IDs that are represented in the ADB, but not in the GIS. You can print this list for review. You can do this by right clicking on the TN\_cat\_list.dbf choose data then export. The export data dialog box will appear. Specify an output location and name for the file.

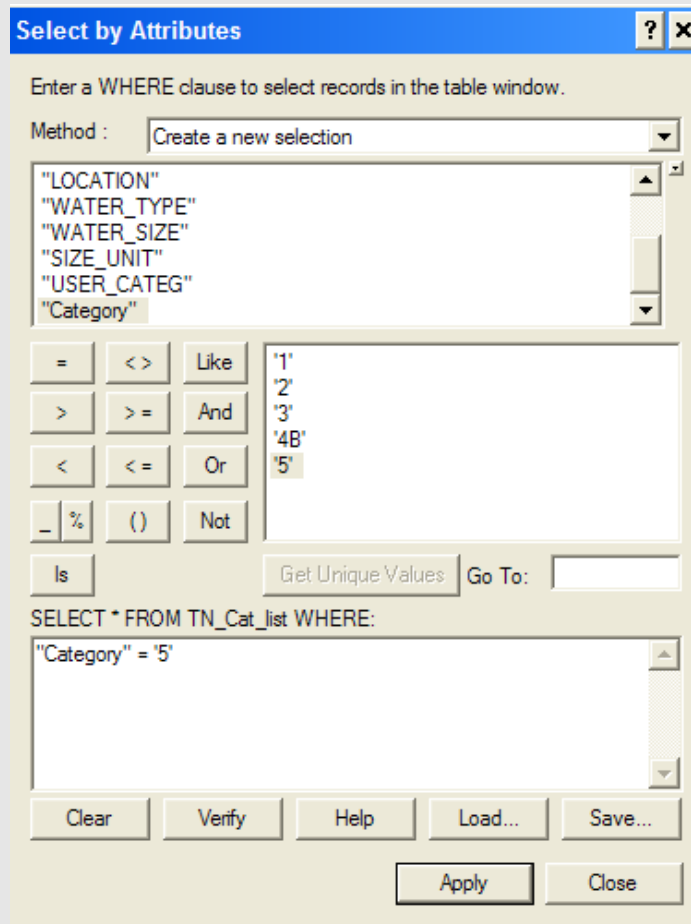
6. Right click on the **TN\_cat\_list.dbf** file and select **Joins and Relates** then **Remove Join(s)**, click on **Remove All Joins**.

## Verify 303(d) GIS Segments

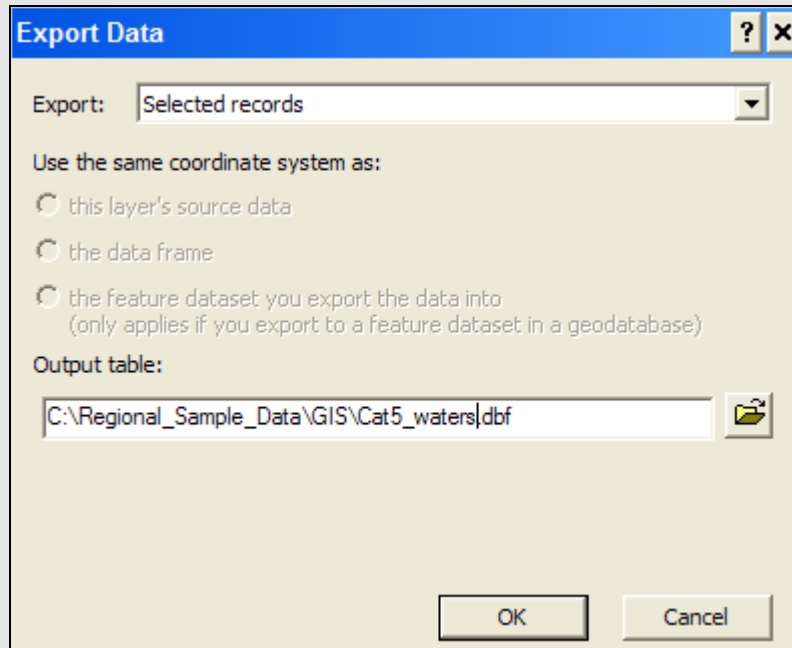
In this next section we will verify that the GIS referenced segments are in fact the appropriate segments and that the ADB information links to the correct segments. A detailed review of the 303(d) (category 5) waters should be preformed. Categories 1-4 can be done through a sampling process. In the exercise below you will learn how to export a list of the category 5 waters for review.

The example illustrates how to review the category 5 waters.

1. Click on the **Source** tab under the Layers window.
2. Right click on the **TN\_cat\_list.dbf** table and choose **Open**.
3. In the table view, click the options button and then choose **"Select By Attributes"**. The **Select By Attributes** dialog box should appear. In the method box leave the default of **Create a new selection**. In the box below method, scroll down till you see **"Category"**. Double click on **Category**, then Single click on the = sign. Click on the **Get Unique Values** button, then double click on **'5'**. You should now have a query that reads **"Category" = '5'**. Click **Apply** then **Close**.



4. You should now have the category 5 waters highlighted in the TN\_cat\_list table. (Note: you may have to scroll to the bottom of the table to view the highlighted records). At the bottom of the table view after “**Show:**” click the **Selected** button. The table now shows just the selected records.
5. To export the selected records, click on the **Options** button, then select **Export**. The **Export Data** dialog box will appear. Leave the default of export: Selected records. Navigate to the C:\Regional Sample Data\GIS folder and name the file Cat5\_waters.dbf. Click **OK**.



6. When asked if you want to add the file to your map click **Yes**. Close the table.

Now that you have a list of the category 5 waters you can join this to the GIS layers to review just the 303d waters.

7. Right click on the **tn\_305b\_linear** file and select **Joins and Relates**, click on **Join**. For section 1, select **ENTITY\_ID**, for section 2 select the **Cat5\_waters** table for section 3 select **ASSESSMENT**. Click **OK**.

**Join Data** ? x

Join lets you append additional data to this layer's attribute table so you can, for example, symbolize the layer's features using this data.

What do you want to join to this layer?

Join attributes from a table

1. Choose the field in this layer that the join will be based on:  
ENTITY\_ID
2. Choose the table to join to this layer, or load the table from disk:  
Cat5\_waters  
 Show the attribute tables of layers in this list
3. Choose the field in the table to base the join on:  
ASSESSMENT

**Join Options**

Keep all records  
All records in the target table are shown in the resulting table. Unmatched records will contain null values for all fields being appended into the target table from the join table.

Keep only matching records  
If a record in the target table doesn't have a match in the join table, that record is removed from the resulting target table.

About Joining Data OK Cancel

8. The list of category 5 waters from the ADB and associated attributes have now been added to the shapefile. Open the attribute table for the **tn\_305b\_linear** layer by right clicking on the layer name and choosing **Open Attribute Table**. Scroll over to the right to see the added fields.
9. In the **tn\_305b\_linear** attribute table right click on the **Cat5\_waters.ASSESSMENT** column heading and choose **Sort Descending**. You can now see which IDs in the GIS file have successfully joined with the ADB data.

Now you can zoom to individual assessment units and review the location and the associated ADB data.

- Highlight the records for Little Duck River by clicking on the gray squares to the left of the rows and holding down the shift key. Close the table.

OFFSET	DUU_ID	METERS	OID	ASSESSMENT	CYCLE	WATER_NAME	LOCATION
0	3476001	1137	48	TN06040002502_1000	1999	Little Duck River	Little Duck River from Duck River to headwaters.
0	3476001	3018	48	TN06040002502_1000	1999	Little Duck River	Little Duck River from Duck River to headwaters.
0	3476001	1556	48	TN06040002502_1000	1999	Little Duck River	Little Duck River from Duck River to headwaters.
0	3476001	2997	48	TN06040002502_1000	1999	Little Duck River	Little Duck River from Duck River to headwaters.
0	3476001	737	48	TN06040002502_1000	1999	Little Duck River	Little Duck River from Duck River to headwaters.
0	3476001	1036	48	TN06040002502_1000	1999	Little Duck River	Little Duck River from Duck River to headwaters.
0	3476001	1036	48	TN06040002502_1000	1999	Little Duck River	Little Duck River from Duck River to headwaters.
0	3476001	1036	48	TN06040002502_1000	1999	Little Duck River	Little Duck River from Duck River to headwaters.
0	3476001	1036	48	TN06040002502_1000	1999	Little Duck River	Little Duck River from Duck River to headwaters.
0	3476002	1836	47	TN06040002033_0300	1999	Bell Buckle Creek	Bell Buckle Creek from Watrace Creek to headwaters.

- Right click in the map window and choose **Zoom To Selected Features**. The map will re-center on the selected waterbody. Review the location and associated ADB Attributes for accuracy.

ASSESSMENT	CYCLE	WATER_NAME	LOCATION	WATER_TYPE	WATER_SIZE	SIZE_UNIT	USER_CATE
TN06040002502_1000	1999	Little Duck River	Little Duck River from Duck River to headwaters.	RIVER PERENNIAL	10.6	MILES	
TN06040002502_1000	1999	Little Duck River	Little Duck River from Duck River to headwaters.	RIVER PERENNIAL	10.6	MILES	
TN06040002502_1000	1999	Little Duck River	Little Duck River from Duck River to headwaters.	RIVER PERENNIAL	10.6	MILES	
TN06040002502_1000	1999	Little Duck River	Little Duck River from Duck River to headwaters.	RIVER PERENNIAL	10.6	MILES	
TN06040002502_1000	1999	Little Duck River	Little Duck River from Duck River to headwaters.	RIVER PERENNIAL	10.6	MILES	
TN06040002502_1000	1999	Little Duck River	Little Duck River from Duck River to headwaters.	RIVER PERENNIAL	10.6	MILES	
TN06040002502_1000	1999	Little Duck River	Little Duck River from Duck River to headwaters.	RIVER PERENNIAL	10.6	MILES	
TN06040002502_1000	1999	Little Duck River	Little Duck River from Duck River to headwaters.	RIVER PERENNIAL	10.6	MILES	
TN06040002033_0300	1999	Bell Buckle Creek	Bell Buckle Creek from Watrace Creek to headwaters.	RIVER PERENNIAL	11.1	MILES	

Alternatively, you can use the Selection menu in ArcGIS to check a stream or lake.

- Click on the **Selection** Menu and choose **Select By Attributes**.
- Create a query, like the one shown below for a waterbody of interest. Click **OK**.

14. Right click in the map window and choose **Zoom To Selected Features**. The map will re-center on the selected waterbody.

## Summary

This exercise illustrates how you can review GIS submittals against data from the ADB. You learned how to export data from ADB and how to load and check state submitted shapefiles. For more information on delineating surface waters in a database and associated GIS, see the *Concepts* section of the *Georeferencing Web site* at <http://www.epa.gov/owow/monitoring/georef>. More information on the ADB can be found at: <http://www.epa.gov/waters/adb/>