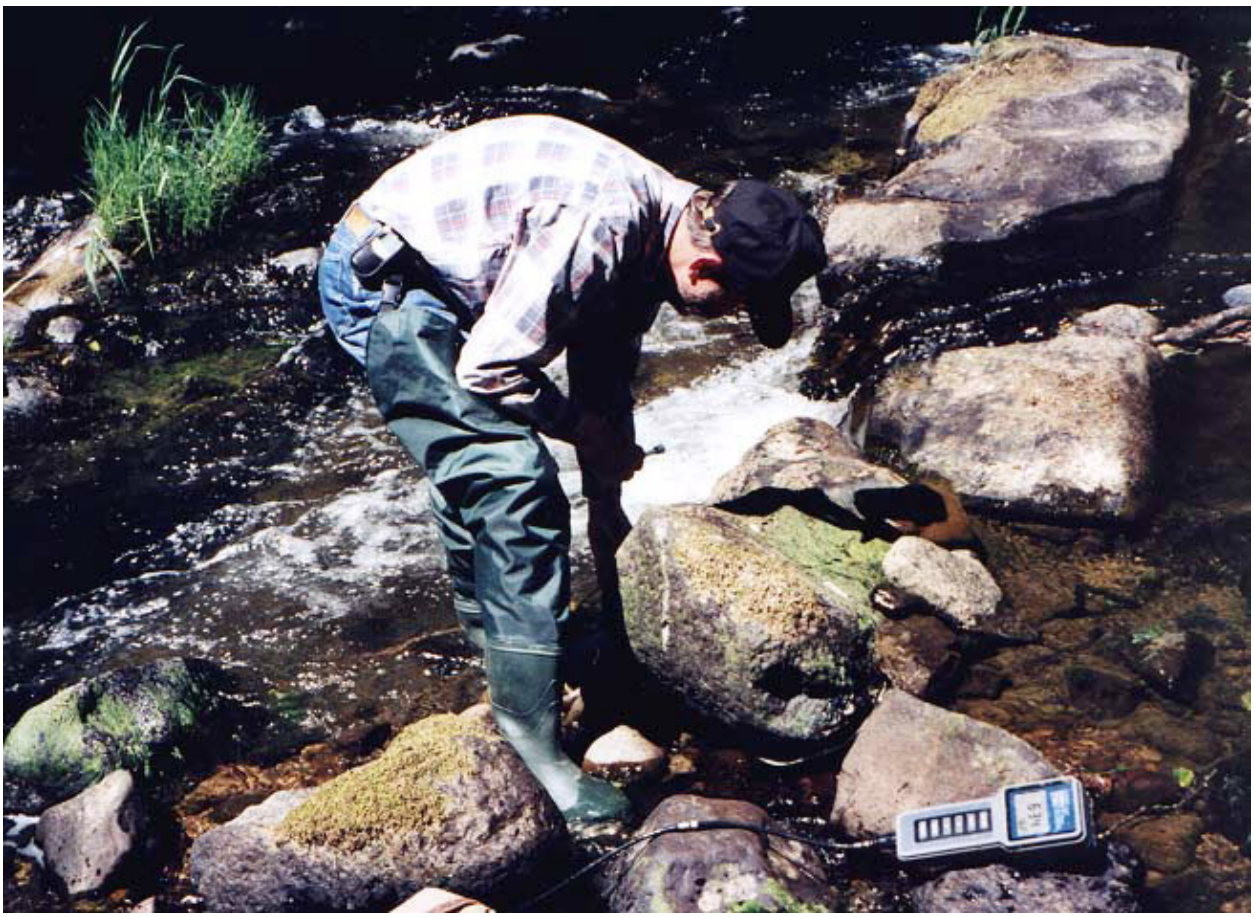
Water Quality Monitoring Database User's Guide



Washington State Department of Transportation

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Contents of the User's Guide

This user's guide provides detailed information and instructions on how to use the Water Quality Monitoring (WQM) database to enter, analyze, and report on water quality monitoring data associated with Washington State Department of Transportation (WSDOT) construction projects.

This guide contains the following seven sections:

- **Section 1, Introduction,** describes the background and development of the WQM database, the benefits of the database, and further information on the purpose of this guide.

- **Section 2, Getting Started,** outlines the installation of the database on a computer, describes how to open the database, and provides an overview of the main navigational features.

- **Section 3, Adding Water Quality Monitoring Data When a Project Does Not Exist (Adding a New Project),** describes how to create a new project in the WQM database and how to enter water quality data for that new project.

- **Section 4, Adding Water Quality Monitoring Data to an Existing Project**, describes how to add water quality data for a project that already exists.

- **Section 5, Water Bodies**, provides more detailed background than is typically necessary for routine data entry. The additional information is useful for understanding how water bodies fit into the database, including how to add new water bodies to the master list.

- **Section 6, Finding Existing Water Quality Monitoring Data**, describes how to find data for existing projects.

- **Section 7, Graphing Data**, describes how to create graphs for a particular project based on the data stored in the WQM database.

1. Introduction

Water Quality Monitoring Database Background

Since 2002, WSDOT has been monitoring water quality at numerous construction sites in accordance with the standards set forth in the *Highway Runoff Manual (HRM; Chapter 6 & Appendix 6B).* The monitoring protocols have been updated to reflect the 2005 NPDES General Construction Permit water quality monitoring requirements. The protocols are included in Chapter 6 of the 2006 revision to the HRM. The volume of water quality data collected in association with construction projects has accumulated rapidly. Storing, managing, and extracting useful information from this data, while maintaining quality control, has become a challenge. The WQM database solves many of these problems and also provides data graphing features. A more in depth discussion can be viewed by clicking on the "About This Database" button on the Project List screen.

WSDOT has also developed a database tool for creating temporary erosion and sediment control (TESC) plan narratives, and a database for documentation of TESC and spill prevention, control and countermeasures (SPCC) assessments for selected construction projects. Project information that is entered into the WQM database is shared with these other databases.

Benefits of the Water Quality Monitoring Database

The WQM database will benefit WSDOT by:

- Reducing time spent entering data
- Providing quality control during data entry
- Providing centralized storage and retrieval of water quality data
- Providing reporting functions to assist in data analysis and process improvements.

Purpose of this Guide

This guide describes in detail how to use the WSDOT WQM database. These instructions assume a correct installation of the database, as well as a general familiarity with Microsoft Windows software. Detailed instructions on how to use a Windows application are outside the scope of this guide. However, a few brief reminders of some useful Windows shortcuts are included.

2. Getting Started

Installing the Database

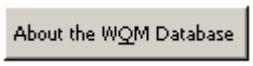
For information on installing the WQM Database go to: wwwi.wsdot.wa.gov/eesc/environmental/ under the Stormwater heading.

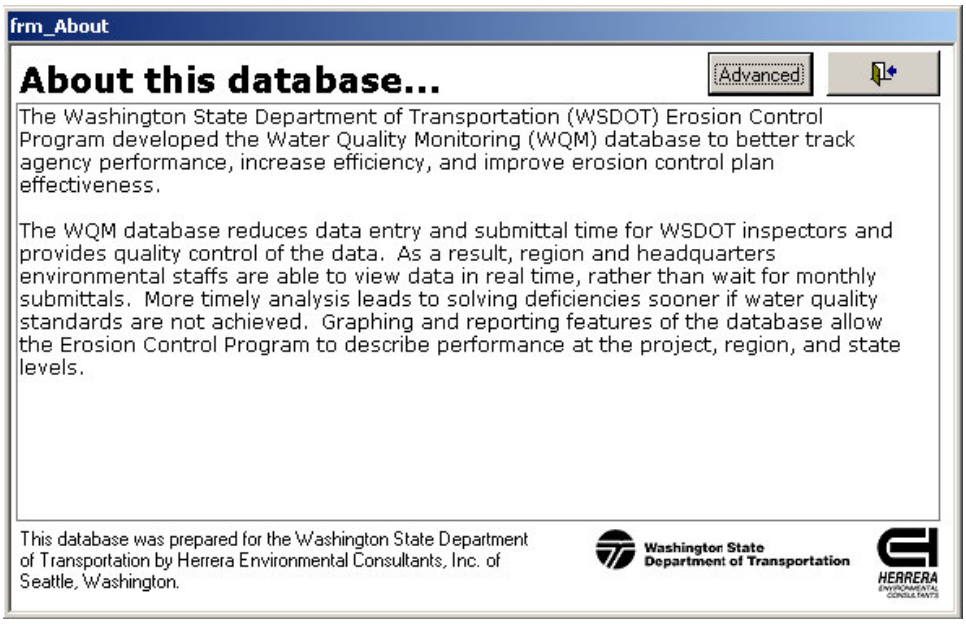
Before using the database, there are a few general concepts to keep in mind. These concepts are summarized below.

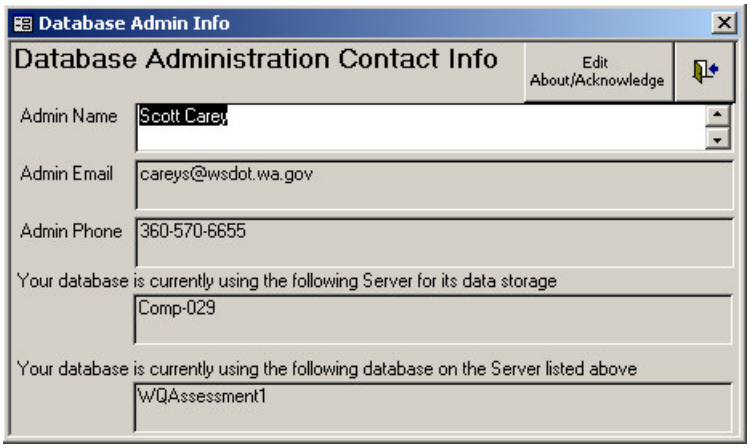
If You Have Questions

If you have any questions not answered by this document, WSDOT regional environmental staff can answer those questions. Alternatively, you can contact either Jana Crawford (360-570-6649) or Richard Tveten (360-570-6648) at the Headquarters Environmental Services Office.

You will find updated contact information by clicking the "About the WQM Database" button, and then clicking on the "Advanced" button.



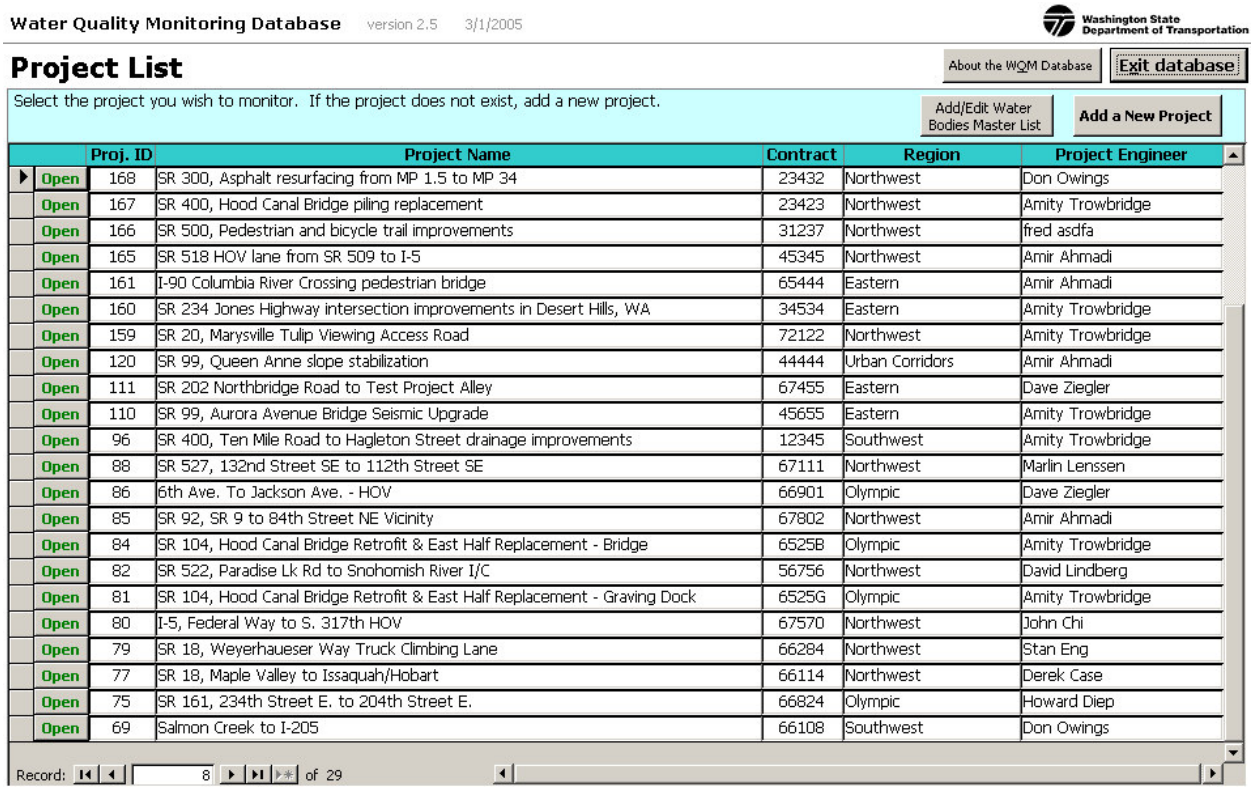




Opening the Water Quality Monitoring Database

To open the database, double-click on the database icon. The database will then open and display the Project List screen below.

The Project List shows the list of projects currently in the database for your region. You will use this screen to add a new project and enter data for it, as well as access an existing project to view or add data.



	Proj. ID	Project Name	Contract	Region	Project Engineer
Open	168	SR 300, Asphalt resurfacing from MP 1.5 to MP 34	23432	Northwest	Don Owings
Open	167	SR 400, Hood Canal Bridge piling replacement	23423	Northwest	Amity Trowbridge
Open	166	SR 500, Pedestrian and bicycle trail improvements	31237	Northwest	fred asdfa
Open	165	SR 518 HOV lane from SR 509 to I-5	45345	Northwest	Amir Ahmadi
Open	161	I-90 Columbia River Crossing pedestrian bridge	65444	Eastern	Amir Ahmadi
Open	160	SR 234 Jones Highway intersection improvements in Desert Hills, WA	34534	Eastern	Amity Trowbridge
Open	159	SR 20, Marysville Tulip Viewing Access Road	72122	Northwest	Amity Trowbridge
Open	120	SR 99, Queen Anne slope stabilization	44444	Urban Corridors	Amir Ahmadi
Open	111	SR 202 Northbridge Road to Test Project Alley	67455	Eastern	Dave Ziegler
Open	110	SR 99, Aurora Avenue Bridge Seismic Upgrade	45655	Eastern	Amity Trowbridge
Open	96	SR 400, Ten Mile Road to Hagleton Street drainage improvements	12345	Southwest	Amity Trowbridge
Open	88	SR 527, 132nd Street SE to 112th Street SE	67111	Northwest	Marlin Lenssen
Open	86	6th Ave. To Jackson Ave. - HOV	66901	Olympic	Dave Ziegler
Open	85	SR 92, SR 9 to 84th Street NE Vicinity	67802	Northwest	Amir Ahmadi
Open	84	SR 104, Hood Canal Bridge Retrofit & East Half Replacement - Bridge	6525B	Olympic	Amity Trowbridge
Open	82	SR 522, Paradise Lk Rd to Snohomish River I/C	56756	Northwest	David Lindberg
Open	81	SR 104, Hood Canal Bridge Retrofit & East Half Replacement - Graving Dock	6525G	Olympic	Amity Trowbridge
Open	80	I-5, Federal Way to S. 317th HOV	67570	Northwest	John Chi
Open	79	SR 18, Weyerhaueser Way Truck Climbing Lane	66284	Northwest	Stan Eng
Open	77	SR 18, Maple Valley to Issaquah/Hobart	66114	Northwest	Derek Case
Open	75	SR 161, 234th Street E. to 204th Street E.	66824	Olympic	Howard Diep
Open	69	Salmon Creek to I-205	66108	Southwest	Don Owings

Navigating the Database

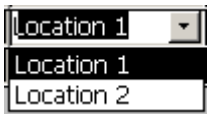
Closing Windows

As you move around in the database, new windows will open for many functions. To close a window after you are finished with it, click the close button that is always located near the upper right-hand corner of the screen.

The button with the door icon is the close button

Keyboard Shortcuts

You can navigate the database using only the keyboard instead of using a mouse. Use the [Tab] key to move through each field. The [Alt] and [arrow-down] keys will open drop-down lists, and you can then use the arrow keys to select from the lists. The [Enter] key will select the highlighted item.



Making a selection from a drop-down list

All on-screen buttons include keyboard shortcuts. To activate the same function from the keyboard, use the [Alt] key together with the underlined letter on the button.

Other keyboard shortcuts are included throughout this guide and are shown as indented text together with the ⓘ (information) symbol.

Automatic Date Fill-in

If the Sampling Date is blank, double-clicking on the field will automatically fill in the current date. Alternatively, you can type in the date in this field.

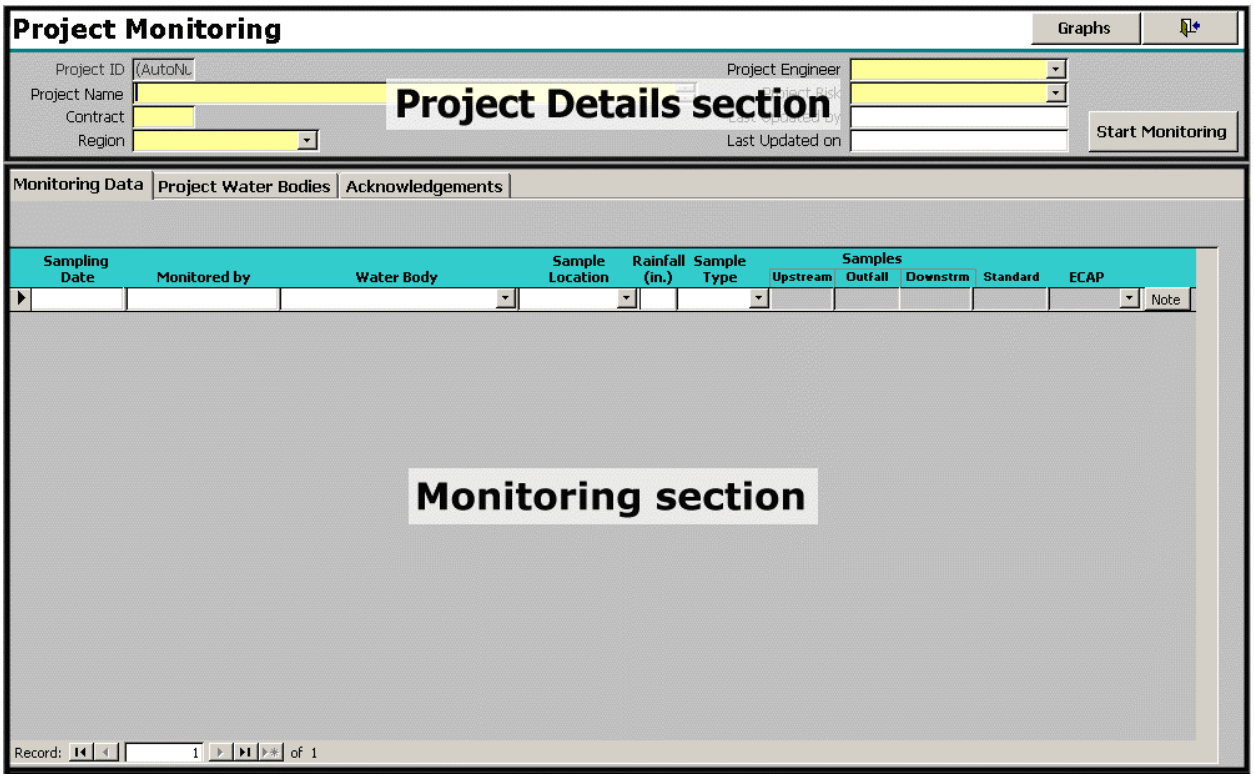
Double-clicking on the Sampling Date field will automatically fill it in.

3. Adding Water Quality Monitoring Data When a Project Does Not Exist (Adding a New Project)

Before entering monitoring data for a project, that project must exist or be added as new. To add a new project, click the "Add a New Project" button and you will be taken to a blank Project Monitoring screen.

Project Monitoring Screen

The Project Monitoring screen contains project and monitoring information for every project in the database. It is divided into a project details section and a monitoring section.



A blank Project Monitoring screen for a new project

The project details section at the top of the screen is where you enter basic information for the project as a whole. A new project is considered created once the information in this section is filled in.

This project details section must be filled in prior to entering water quality monitoring data for the project. In this section you will also find the "Start Monitoring" button and a button to access the "Graphs" function, which is discussed later in this guide.

Information Required in the Project Details Section

When creating a new project, start by filling out this section (all of the fields highlighted in yellow must be filled in). A brief explanation of each field is provided below.

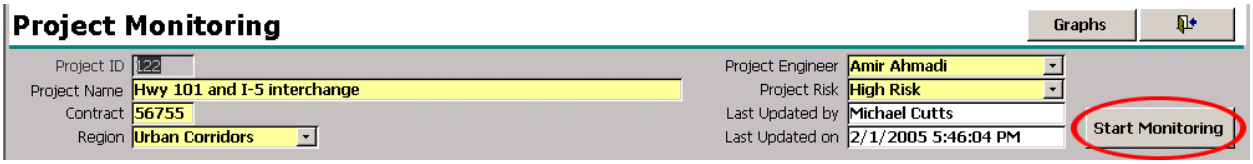
- **Project ID –** The database will generate this automatically.
- **Project Name –** Enter the official WSDOT project name.
- **Contract –** Enter the WSDOT contract number for the project.
- **Region –** Enter the WSDOT region in which the project is located.
- **Project Engineer –** Enter the name of the WSDOT Project Engineer.
- **Project Risk –** Refer to Chapter 6 of the *Highway Runoff Manual* for risk description.
- **Last Updated By –** This is automatically filled in.
- **Last Updated On –** This is automatically filled in.

ⓘ Data entry shortcuts:

[Tab] will advance through each field. [Shift]-[Tab] will back up through the fields.

[Alt]-[down-arrow] will open the drop-down list of available values for a field. You can then use the up or down arrows to select a value from the list.

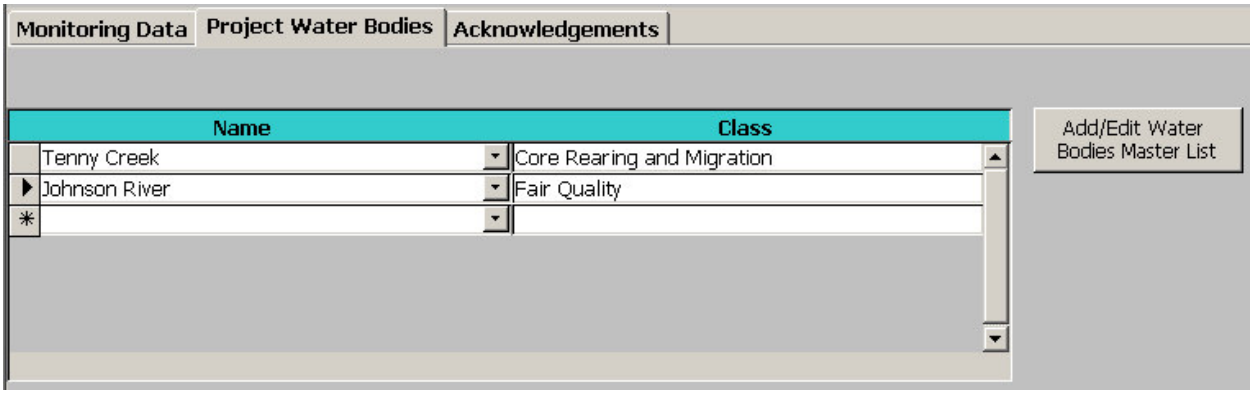
[F3] will copy the value that occurs on the line above it into the current field.



After you have filled out all of the fields in yellow, click on the "Start Monitoring" button. None of the items in the Monitoring section will be available until the "Start Monitoring" button is pressed for that project. You are now ready to enter water quality monitoring data.

Adding Project Water Bodies

When first entering water quality monitoring data for a new project, the first thing you will do is create a list of water bodies that will be used for that project. After clicking the "Start Monitoring" button, the "Project Water Bodies" tab will automatically be selected so that you can specify the water bodies that receive runoff from the project site.

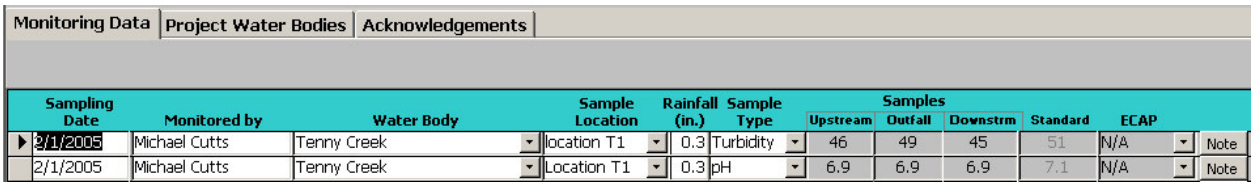


The Project Water Bodies tab

You can specify additional water bodies by clicking the drop-down list and selecting another water body. If the water body or water bodies you need are not listed under the Project Water Bodies tab, see the Water Bodies section on page 5-1 of this guide for more information on how water bodies fit into the database, and on how to add water bodies to the master list.

Monitoring Data Tab

This is where you will enter the monitoring data you have available. The Monitoring Data tab is a subset of the Monitoring section, and contains the following fields, which you will fill in.



The Monitoring Data tab

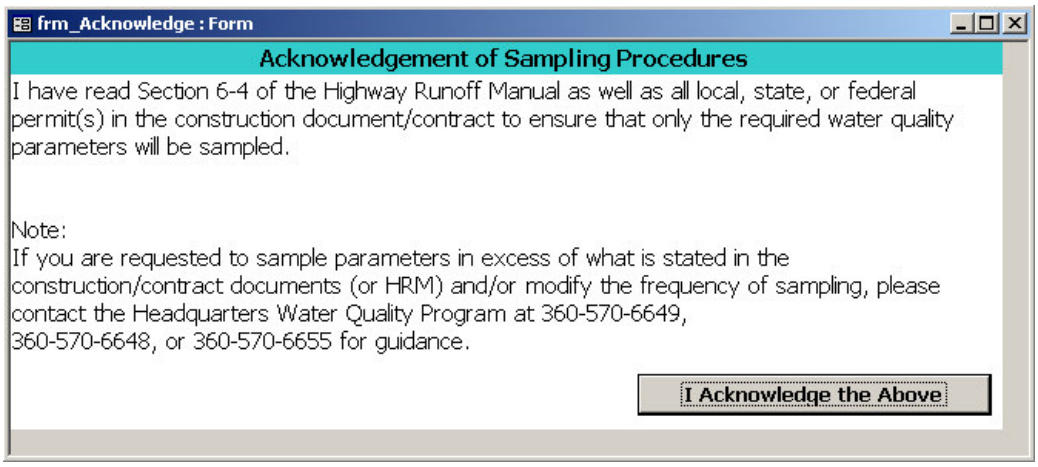
Sampling Date

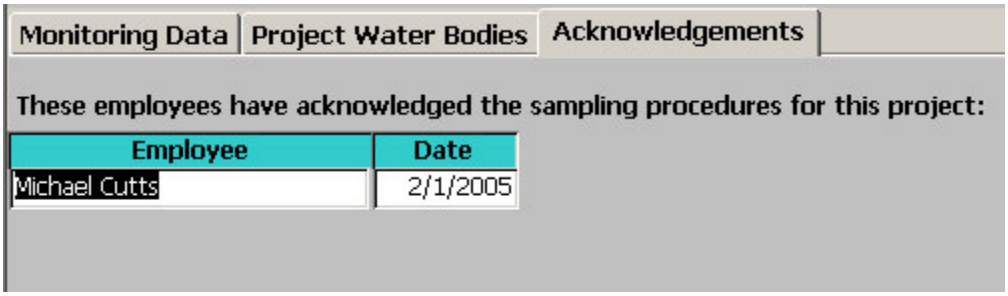
Enter the date that water quality sampling occurred in this field.

Acknowledgements

When you first enter water quality monitoring data for a particular project, you are asked to acknowledge that you have read and understand WSDOT's sampling procedures as set forth in Chapter 6 of the *Highway Runoff Manual.* This is recorded in the database as a security feature

and a critical reminder of the need to follow those procedures. A list of employees who have acknowledged the sampling procedures for the current project is shown in the Acknowledgements tab of the Monitoring section.





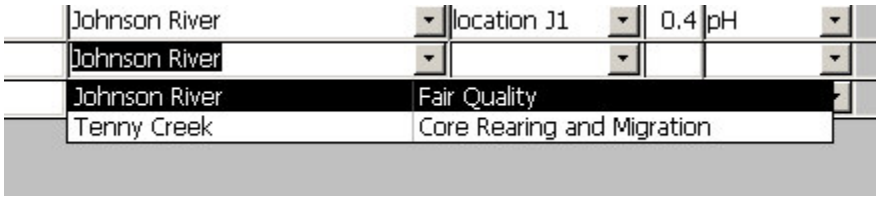
The Acknowledgements tab in the Monitoring section of the Project Monitoring screen

Monitored By

This field contains the name of the person who entered the data. It will be filled out automatically according to the WSDOT username of the person using the database.

Water Body

Select the water body that was sampled. If the water body or water bodies you need are not listed, click on the Project Water Bodies tab and see the bottom of page 3-2.



Sample Location

A sample location indicates where a stormwater discharge, whether intended or not, is observed entering a regulated water body. It is common for a project to have multiple discharge locations (i.e., sample locations) for a single water body. The naming convention used for individual sampling locations is determined by the staff performing the monitoring. The sample location naming convention must be used consistently throughout the project. For example, three stormwater discharges to Tenny Creek would require three sampling locations that could be named TC1, TC2, and TC3, or Location 1, Location 2, and Location 3.

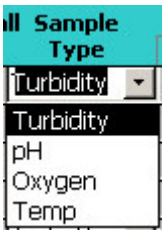
Note: three water quality samples are required for each monitoring location. See the "Samples" section below.

Rainfall

This is the rainfall amount (in inches) that occurred during the storm in which the samples were taken. Rainfall amounts are always required for completion of the database entry. For in-water work projects, this value may be zero.

Sample Type

The type of sample can be one of the following:



Turbidity (in nephelometric turbidity units, or NTU)
pH
Oxygen (in milligrams per liter [mg/L])
Temperature ("Temp", in degrees Fahrenheit)

Note: The presence of these parameters as placeholders in the database is not intended to prompt sampling for a particular project. Sampling should only be conducted for the parameters required as indicated in the permits for the project, and in accordance with the protocols presented in Chapter 6 of the *Highway Runoff Manual*.

Samples

A total of three samples are required per "sample location." They are as follows:

- Upstream - captures the background condition from which the state standard is derived
- Outfall - establishes water quality at the point of discharge
- Downstream - identifies whether the discharge caused exceedance of the state standard

Samples			
Upstream	Outfall	Downstrm	Standard
46	49	45	51
6.9	6.9	6.9	7.1
25	39	27	35
7.2	6.9	7.2	7.7
65	65	63	78

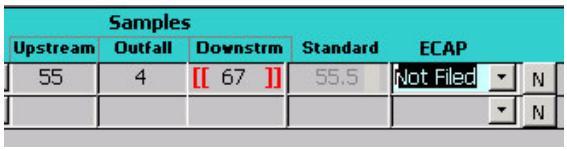
Enter the sampled values for the water quality monitoring parameters applicable to the project, for each of the sample locations noted above. Note: No outfall sample is taken for in-water work projects. As a result, enter a value of zero for the outfall for in-water work projects.

Standard

The Washington State surface water quality standards vary for different receiving water body classifications. Based on the classification provided in the Project Water Bodies section for a project (Water Bodies Master List, page 5-2 of this guide), the database will calculate the water quality standard for you immediately after entering a value for the downstream sample.

Sample Failure

If a sample fails the State standard, red brackets will appear around the failed value.

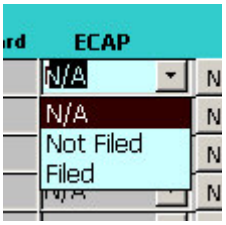


ECAP

The ECAP field will be automatically filled in based on whether the water quality monitoring data are in compliance with state standards, as follows:

If the sample is in compliance, the ECAP field will automatically be specified as “N/A”

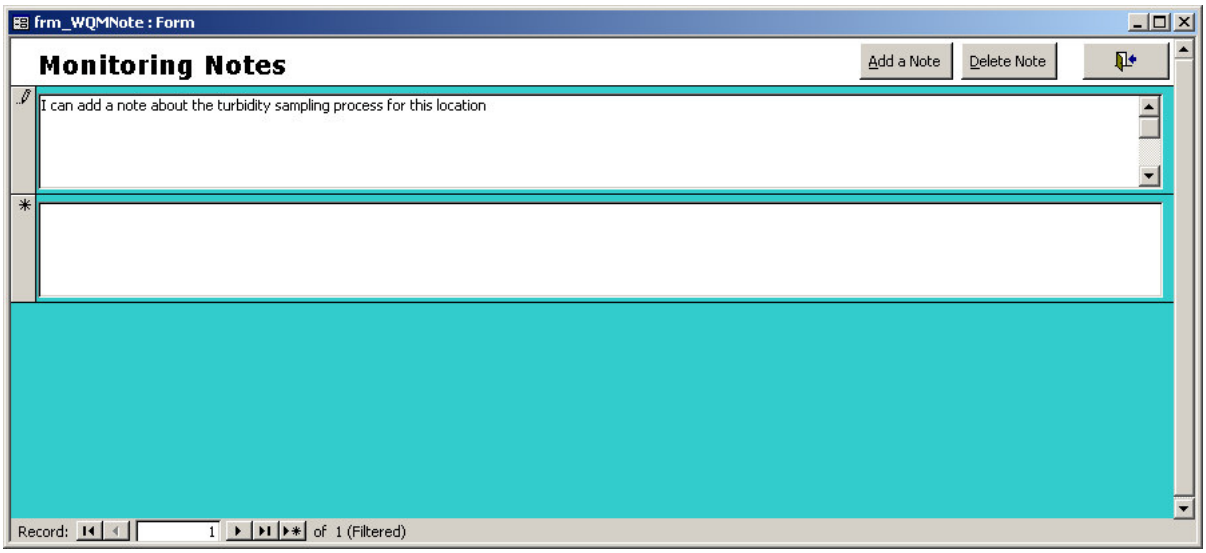
If a sample fails, the ECAP field will automatically be specified as “Not Filed”. Once the ECAP report is filed, the status should be manually changed to “Filed”.



Monitoring Notes

Lastly, the Notes button allows you to add a note concerning the collection of that particular sample. Be specific and use the notes to describe conditions or a situation that would not otherwise be clear from the data. For example, you would use a note to describe the type of work activity or a specific discharge that led to a non-compliant sample.

To add a new note, simply start writing in the empty field at the bottom of the list (you will not normally need to use the “Add a Note” button). To delete a note, use the Delete Note button.



The Monitoring Notes screen

Monitoring Notes Indicator

When a note exists for a sample, a blue "N" will appear in the right hand edge of the screen next to that line.

If you have additional water quality monitoring data to enter, go to the next empty line and enter the sampling date for the next entry and repeat the sample data entry steps described above.

4. Adding Water Quality Monitoring Data to an Existing Project

If the project you are working with already exists in the Project List, to add water quality data you just need to open the Project Monitoring screen for that project and enter the new data.

For information on ways to find the data for a project you are interested in, see section 6, "Finding Existing Water Quality Monitoring Data". Once you find the project, click the "Open" button next to it. Water quality monitoring data are added to a project using the monitoring section (the bottom part) of the Project Monitoring screen.

The monitoring section contains three tabs that appear in this order:

1. **Monitoring Data**
   Contains the actual monitoring data for the project.

2. **Project Water Bodies**
   Allows you to edit the list of water bodies that receive runoff from the project site.

3. **Acknowledgements**
   Contains the user's acknowledgement of having read WSDOT's water quality sampling procedures.

ⓘ **Data entry shortcuts:**

[Tab] will advance through each field. [Shift]-[Tab] will back up through the fields.

[Alt]-[down-arrow] will open the drop-down list of available values for a field. You can then use the up or down arrows to select a value from the list.

[F3] will copy the value that occurs on the line above it into the current field.

Monitoring Data Tab

When adding monitoring data to an existing project, you will start with the Monitoring Data tab. The Monitoring Data tab is a subset of the Monitoring section, and contains the following fields, which you will fill in.

Monitoring Data | Project Water Bodies | Acknowledgements

Sampling Date	Monitored by	Water Body	Sample Location	Rainfall (in.)	Sample Type	Samples: Upstream	Samples: Outfall	Samples: Downstrm	Standard	ECAP	
2/1/2005	Michael Cutts	Tenny Creek	location T1	0.3	Turbidity	46	49	45	51	N/A	Note
2/1/2005	Michael Cutts	Tenny Creek	Location T1	0.3	pH	6.9	6.9	6.9	7.1	N/A	Note

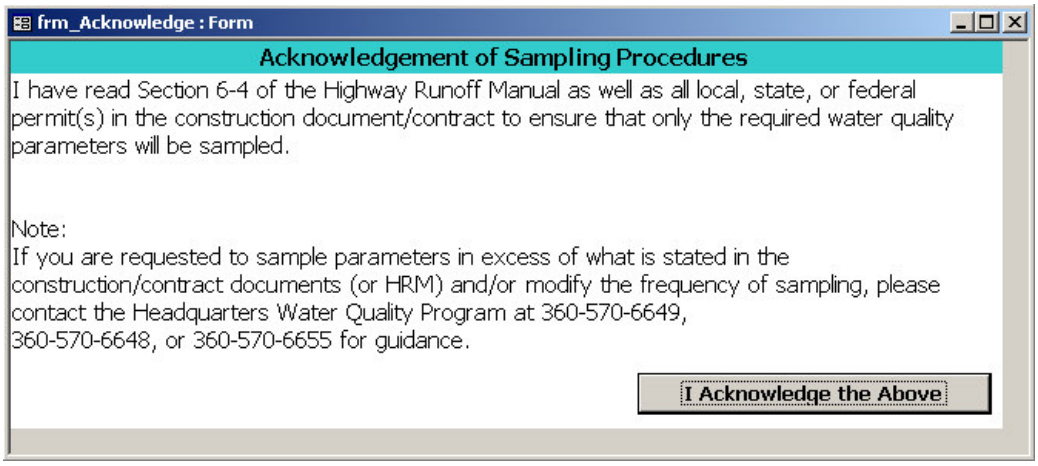
The Monitoring Data tab

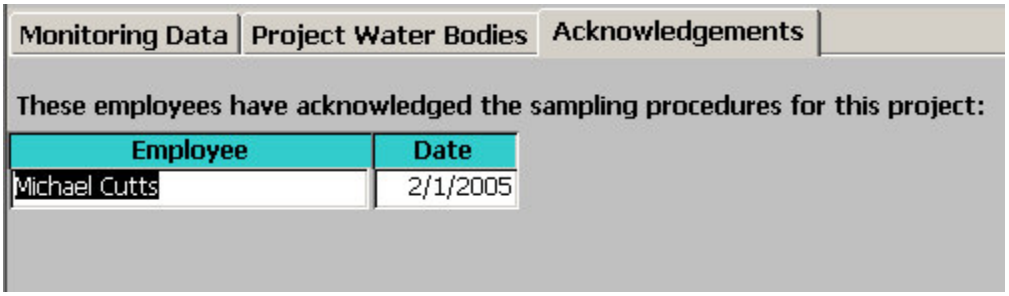
Sampling Date

Enter the date that water quality sampling occurred in this field.

Acknowledgements

When you first enter water quality monitoring data for a particular project, you are asked to acknowledge that you have read and understand WSDOT's sampling procedures as set forth in Chapter 6 of the *Highway Runoff Manual.* This is recorded in the database as a security feature and a critical reminder of the need to follow those procedures. A list of employees who have acknowledged the sampling procedures for the current project is shown in the Acknowledgements tab of the Monitoring section.





The Acknowledgements tab in the Monitoring section of the Project Monitoring screen

Monitored By

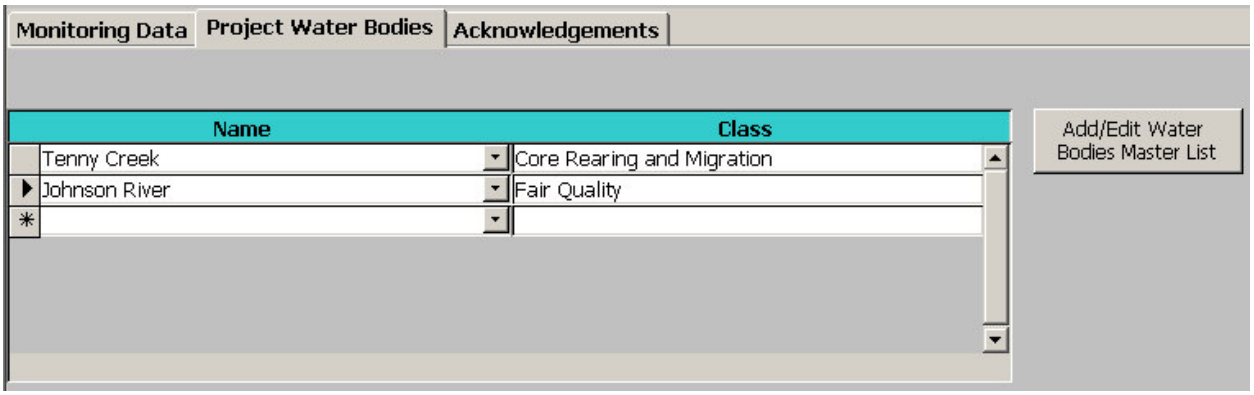
This field contains the name of the person who entered the data. It will be filled out automatically according to the WSDOT username of the person using the database.

Water Body

Select the water body that was sampled:

If the water body or water bodies you need are not listed, click on the Project Water Bodies tab.

You can specify additional water bodies by clicking the drop-down list and selecting another water body. If the water body or water bodies you need are not listed under the Project Water Bodies, see the Water Bodies section on page 5-1 for more background and information on how to add water bodies to the master list.



The Project Water Bodies tab

Sample Location

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Note: three water quality samples are required for each monitoring location. See the "Samples" section below.

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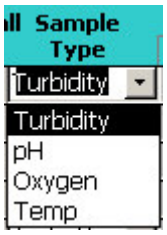

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pH
Oxygen (in milligrams per liter [mg/L])
Temperature ("Temp", in degrees Fahrenheit)

Note: The presence of these parameters as placeholders in the database is not intended to prompt sampling for a particular project. Sampling should only be conducted for the parameters required as indicated in the permits for the project, and in accordance with the protocols presented in Chapter 6 of the *Highway Runoff Manual*.

Samples

A total of three samples are required per "sample location". They are as follows:

- Upstream - captures the background condition from which the state standard is derived
- Outfall - establishes water quality at the point of discharge
- Downstream - identifies whether the discharge caused exceedance of the state standard

Samples			
Upstream	Outfall	Downstrm	Standard
46	49	45	51
6.9	6.9	6.9	7.1
25	39	27	35
7.2	6.9	7.2	7.7
65	65	63	78

Enter the sampled values for the water quality monitoring parameters applicable to the project, for each of the sample locations noted above. Note: No outfall sample is taken for in-water work projects. As a result, enter a value of zero for the outfall for in-water work projects.

Standard

The Washington State surface water quality standards vary for different receiving water body classifications. Based on the classification provided in the Project Water Bodies section for a project (Water Bodies Master List, page 5-2 of this guide), the database will calculate the water quality standard for you immediately after entering a value for the downstream sample.

Sample Failure

If a sample fails the State standard, red brackets will appear around the failed value.

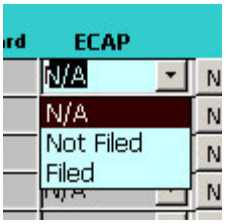
Samples					
Upstream	Outfall	Downstrm	Standard	ECAP	
55	4	[[67]]	55.5	Not Filed	N
					N

ECAP

The ECAP field will be automatically filled in based on whether the water quality monitoring data are in compliance with state standards, as follows:

If the sample is in compliance, the ECAP field will automatically be specified as “N/A”

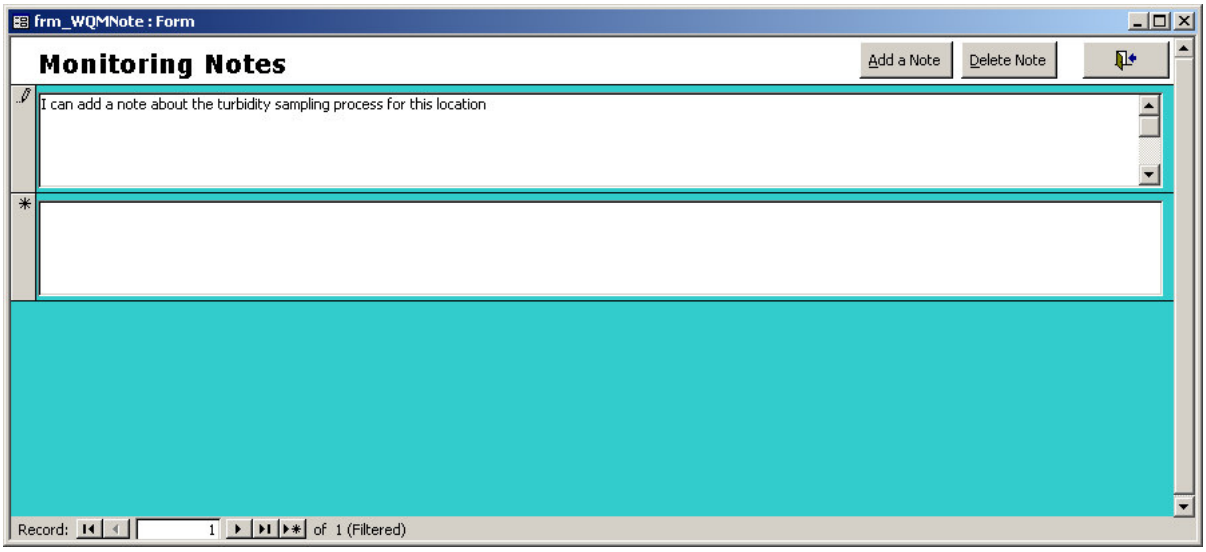
If a sample fails, the ECAP field will automatically be specified as “Not Filed”. Once the ECAP report is filed, the status should be manually changed to “Filed”.



Monitoring Notes

Lastly, the Notes button allows you to add a note concerning the collection of that particular sample. Be specific and use the notes to describe conditions or a situation that would not otherwise be clear from the data. For example, you would use a note to describe the type of work activity or a specific discharge that led to a non-compliant sample.

To add a new note, simply start writing in the empty field at the bottom of the list (you will not normally need to use the “Add a Note” button). To delete a note, use the Delete Note button.



The Monitoring Notes screen

Monitoring Notes Indicator

When a note exists for a sample, a blue “N” will appear in the right hand edge of the screen next to that line.

If you have additional water quality monitoring data to enter, go to the next empty line and enter the sampling date for the next entry and repeat the sample data entry steps described above.

The following section, “Water Bodies”, is included so that you can become familiar with the way water bodies work in the database. This information is most useful when you need to add a new water body to the Water Body Master List, and is included as a separate section in order to help streamline the training and data entry process.

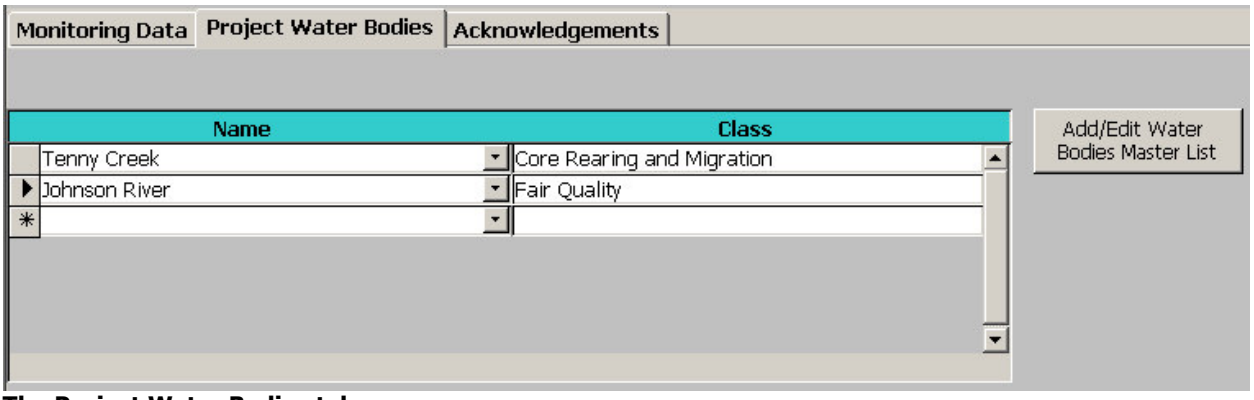
5. Water Bodies

There are three types of lists of water bodies in the database: the master list, lists of project water bodies, and lists of monitored water bodies.

1. The **Water Bodies Master List** contains all the water bodies entered in the database. The water bodies here are the ones you can choose from in the Project Water Bodies screen for inclusion in a specific project. Think of this as the menu of items you can order from at a restaurant.

2. The **Project Water Bodies tab** is specific to each project, and it lets you choose from the water bodies in the master list. The water bodies you actually choose are the ones that are made available in the Monitoring Data tab when water quality monitoring data is entered for that project. Think of the project water bodies as the items that are brought out to your table that you ordered from the menu. Another table at the restaurant will probably choose a different assortment of food, just like a different project will probably have a different set of water bodies.

3. Lastly, the monitored water bodies are those chosen from the monitoring tab that you actually enter water quality monitoring data for. Think of these monitored water bodies as the items from your table that you actually eat.



The Project Water Bodies tab

When you choose a project water body for a specific project, you choose it from the Project Water Bodies tab (the food at your table) which gives you the option of choosing anything in the Water Bodies Master List (the menu).

The water body selected will become a project water body.

Monitoring Data | Project Water Bodies | Acknowledgements

Name	Class
Lake Sammamish @ Issaquah Creek	Non-anadromous Interior Redband Trout
Denny Creek	Noncore Rearing and Migration
Denny Creek - below 90	Indigenous Warm Water Species
Hood Canal Bridge east	Fair Quality
Hood Canal Bridge West	Good Quality
Johnson River	Fair Quality
Lake Sammamish @ Issaquah Creek	Non-anadromous Interior Redband Trout
Lake Sammamish @ Redmond	Indigenous Warm Water Species
Lake Sir Dave	Rearing and Migration Only
Lake Union @ Puget Sound	Indigenous Warm Water Species
Lake Union @ Southshore	Indigenous Warm Water Species
Salmon Creek	Indigenous Warm Water Species
Salmon River	Indigenous Warm Water Species

The water bodies you can choose from are all those in the water bodies master list.

To choose a project water body, simply select it from the drop down list. If it is not available on this list, press the "Add/Edit Water Bodies Master List" button to add it to the master list.

Add/Edit Water Bodies Master List

Water Bodies Master List

If the water body you need for your project is not available in the drop down list that appears in the Project Water Bodies screen, it does not exist in the database and needs to be added to the Water Bodies Master List. This is like adding a new menu item at the restaurant.

Waterbodies

Water Bodies Master List

Name	Class
Denny Creek	Noncore Rearing and Migration
Denny Creek - below 90	Indigenous Warm Water Species
Hood Canal Bridge east	Fair Quality
Hood Canal Bridge West	Good Quality
Johnson River	Fair Quality
Lake Sammamish @ Issaquah Creek	Non-anadromous Interior Redband Trout
Lake Sammamish @ Redmond	Indigenous Warm Water Species
Lake Sir Dave	Rearing and Migration Only

See the database administrator if you wish to change a locked water body.

Record: 1 of 20

To add a water body to the master list, scroll down to the bottom of the list where you will see blank fields for the water body name and class. You can also click on the button with the arrow/asterisk to add a water body. Fill out the name, making sure to be consistent with any naming guidelines that have been established. Assign the water body a class by choosing one of the classes from the drop-down menu. These classifications are in accordance with the classifications defined in the Water Quality Standards for Surface Waters of the State of Washington (WAC 173-201A), and are therefore not to be defined at the discretion of the project water quality monitoring staff. Prior to assigning a water body class, you must verify the appropriate classification based on a review of WAC 173-201A and consultation with regional environmental staff as necessary.

As is noted at the bottom of the screen on page 5-2, see the database administrator if you wish to make changes to a locked water body. Likewise, any changes to the classification system will need to be made by the database administrator.

6. Finding Existing Water Quality Monitoring Data

Water quality monitoring data that have previously been entered in the database are accessed through the Project List screen. By default, the list is sorted in descending order by Project ID. This means that the latest projects are listed at the top of the screen.

Water Quality Monitoring Database version 2.5 3/1/2005

Washington State Department of Transportation

Project List

About the WQM Database | Exit database

Select the project you wish to monitor. If the project does not exist, add a new project.

Add/Edit Water Bodies Master List | Add a New Project

	Proj. ID	Project Name	Contract	Region	Project Engineer
Open	168	SR 300, Asphalt resurfacing from MP 1.5 to MP 34	23432	Northwest	Don Owings
Open	167	SR 400, Hood Canal Bridge piling replacement	23423	Northwest	Amity Trowbridge
Open	166	SR 500, Pedestrian and bicycle trail improvements	31237	Northwest	fred asdfa
Open	165	SR 518 HOV lane from SR 509 to I-5	45345	Northwest	Amir Ahmadi
Open	161	I-90 Columbia River Crossing pedestrian bridge	65444	Eastern	Amir Ahmadi
Open	160	SR 234 Jones Highway intersection improvements in Desert Hills, WA	34534	Eastern	Amity Trowbridge
Open	159	SR 20, Marysville Tulip Viewing Access Road	72122	Northwest	Amity Trowbridge
Open	120	SR 99, Queen Anne slope stabilization	44444	Urban Corridors	Amir Ahmadi
Open	111	SR 202 Northbridge Road to Test Project Alley	67455	Eastern	Dave Ziegler
Open	110	SR 99, Aurora Avenue Bridge Seismic Upgrade	45655	Eastern	Amity Trowbridge
Open	96	SR 400, Ten Mile Road to Hagleton Street drainage improvements	12345	Southwest	Amity Trowbridge
Open	88	SR 527, 132nd Street SE to 112th Street SE	67111	Northwest	Marlin Lenssen
Open	86	6th Ave. To Jackson Ave. - HOV	66901	Olympic	Dave Ziegler
Open	85	SR 92, SR 9 to 84th Street NE Vicinity	67802	Northwest	Amir Ahmadi
Open	84	SR 104, Hood Canal Bridge Retrofit & East Half Replacement - Bridge	6525B	Olympic	Amity Trowbridge
Open	82	SR 522, Paradise Lk Rd to Snohomish River I/C	56756	Northwest	David Lindberg
Open	81	SR 104, Hood Canal Bridge Retrofit & East Half Replacement - Graving Dock	6525G	Olympic	Amity Trowbridge
Open	80	I-5, Federal Way to S. 317th HOV	67570	Northwest	John Chi
Open	79	SR 18, Weyerhaueser Way Truck Climbing Lane	66284	Northwest	Stan Eng
Open	77	SR 18, Maple Valley to Issaquah/Hobart	66114	Northwest	Derek Case
Open	75	SR 161, 234th Street E. to 204th Street E.	66824	Olympic	Howard Diep
Open	69	Salmon Creek to I-205	66108	Southwest	Don Owings

Record: 8 of 29

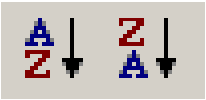
The Project List is the initial screen displayed when you open the WQM database

To find a specific project, you can scroll through the project list to look for it, or you can sort the list by a particular field, such as the project name, contract number, region, or project engineer. Continue reading below for more information on this function.

The Access toolbar, located at the top of the screen, allows you to sort, filter, or search the project list so that you can find projects more easily. These toolbar options are described below.

Sorting

Clicking in a column (Project name, contract, project engineer, etc.) and clicking either of the A-Z or Z-A sort buttons will sort all of the records in the database by that criterion.



Filtering

Another way to find specific projects is to filter them from the project list according to the specific identifier you are looking for. For instance, if you want to find all projects for a particular project engineer (PE), click on the PE's name and click the filter by selection button (the funnel with the lightning bolt). The window will then display only those projects under that PE's name.

Clearing Filters

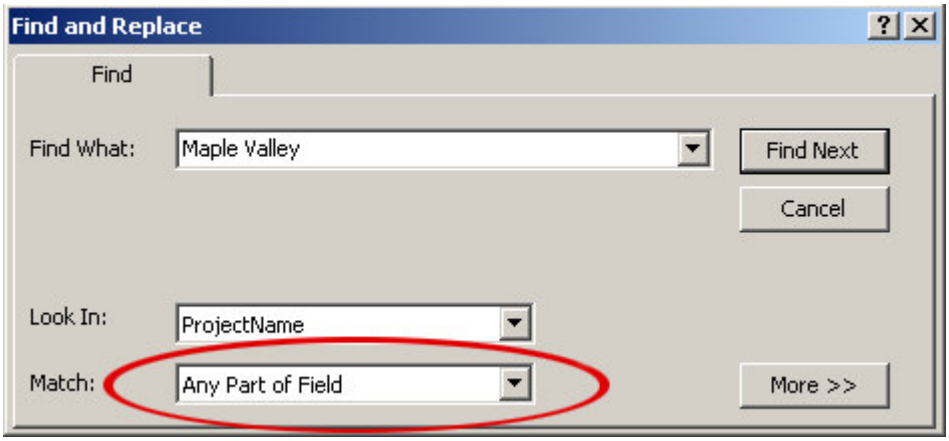
To clear all filters and start a different search, click the remove filters icon (the funnel with an 'X' through it) in the toolbar.

Finding

To use this feature, first click inside one of the records in the field you want to search, for example in any of the "Project Name" fields. Then click on the binoculars button.

ⓘ *CTRL+F is the shortcut for the Find function.*

Type the words you want to find, making sure that the "Look In" field is set to the correct field, and that you change the Match setting to "Any Part of Field".



Using the Find function to quickly select a specific project. Make sure you change the Match setting to find "Any Part of Field".

Note that Access will only find the exact search term you enter (the same words in the same order). For example, a search for "Maple Valley" will find a project named "SR 18, Maple Valley to Issaquah/Hobart", but not a project named "SR 00, Maple Leaf Valley", because this includes another word (Leaf) in between the specific words you entered for the search function. If you are not sure of the exact wording of a project list item, it is preferable to enter only a single word you are sure of, such as "Maple" in this case.

If a project matching the search term you entered exists, it will be highlighted in the Project List.

A project containing the search phrase is highlighted

Note that only the first match in the database will initially be highlighted. To check if there are other projects with your search term, press the "Find Next" button. A message will appear once the entire project list has been searched.

When you have found the project you are interested in, press the "Open" button to go to the Project Monitoring screen for that project.

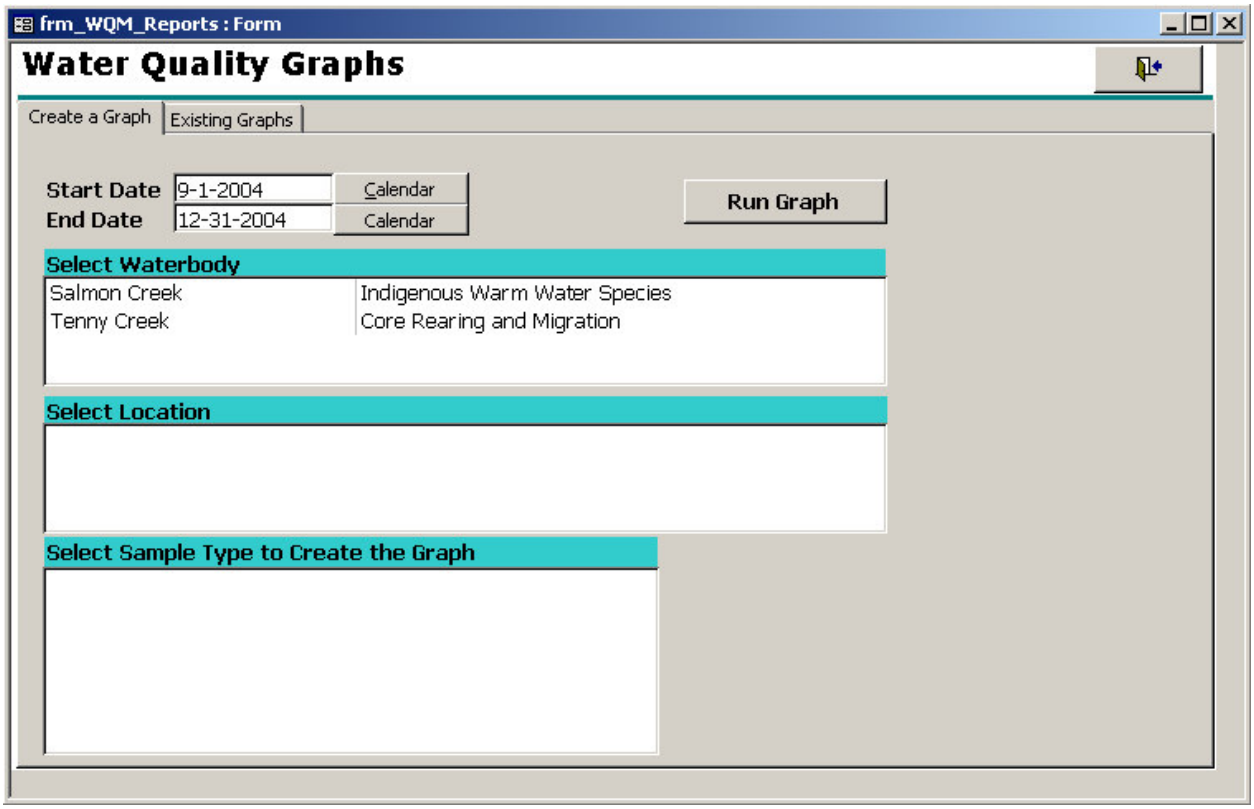
More information on the Project Monitoring screen can be found in Section 3 of this guide. While Section 3 is geared to someone entering water quality data, it also serves as an overview and description of the data stored for each project.

7. Graphing Data

You can use the WQM database to create graphs of the water quality data that have been entered in the database. These graphs can be useful in analyzing your data and identifying trends.

The graphing function is accessed from the Graphs button near the top right of the Project Monitoring screen.

After clicking on the Graphs button, you will see the Water Quality Graphs screen shown below.



The "Create a Graph" tab of the Water Quality Graphs screen

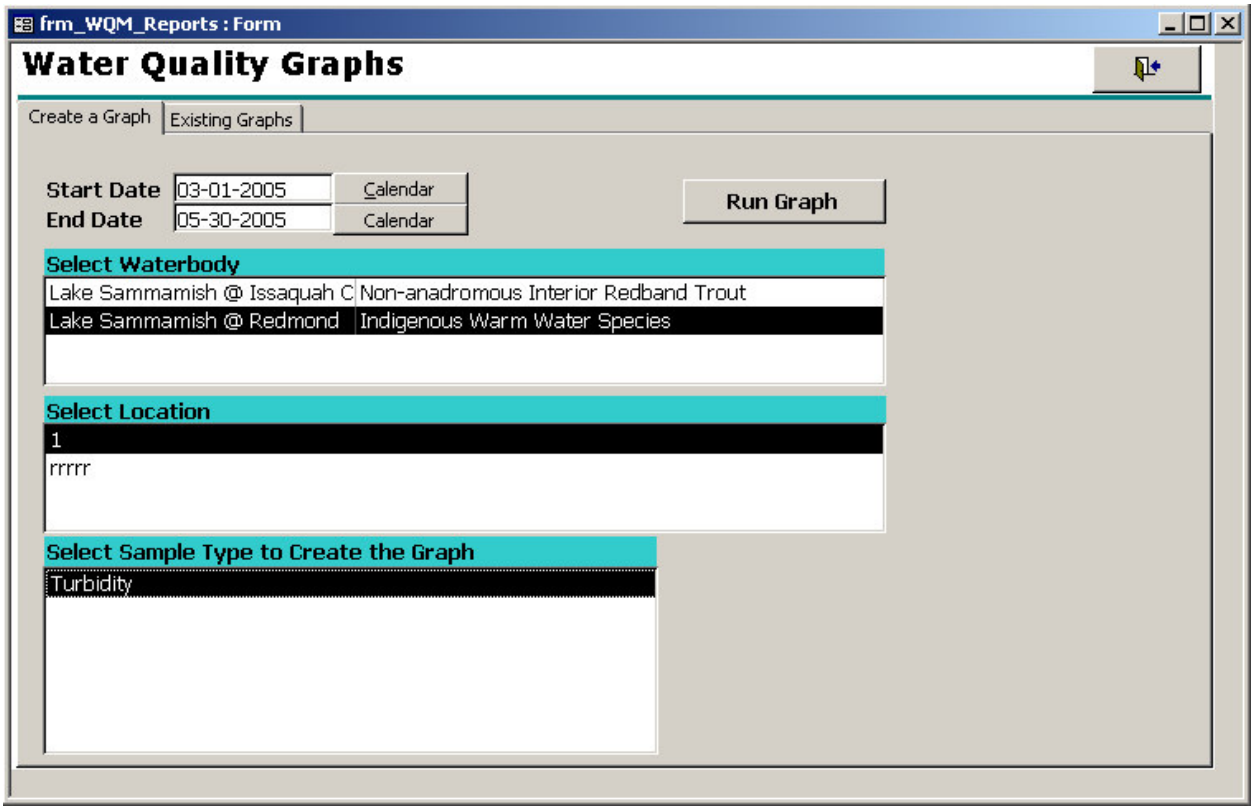
The screen is divided into two main tabs, named "Create a Graph", and "Existing Graphs".

Creating a Graph

To create a new graph, first fill in the date fields. The "Calendar" button will open a calendar to help you select the correct dates.

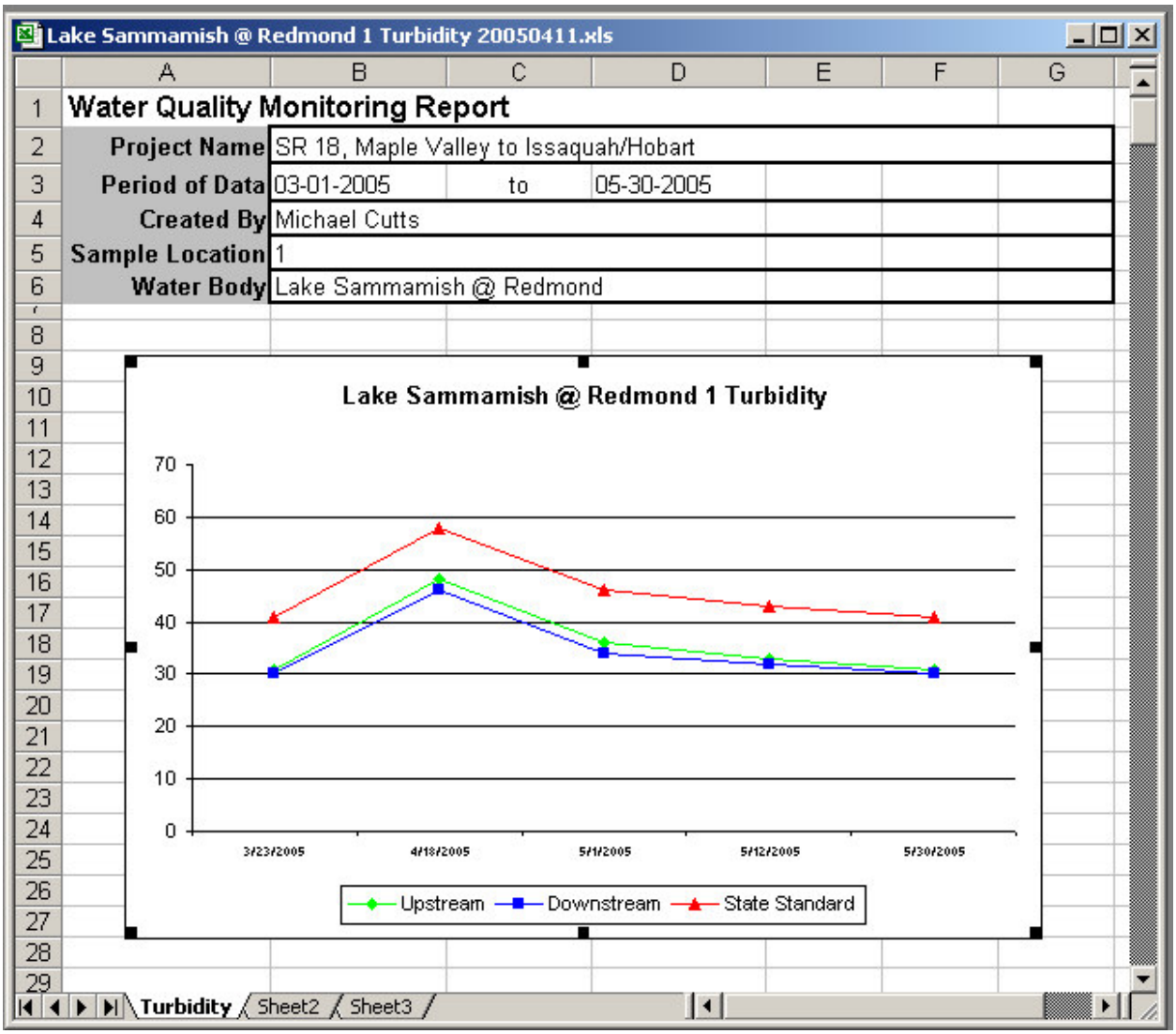
After filling in the dates, press the "Run Graph" button.

The water bodies for which data exist in the database for sampling dates within the range of dates entered will appear as your choices. Select a water body, and the available sampling locations for that water body will appear in the next field. Likewise, when you select a sampling location, the available sample types (Turbidity, pH, etc…) will appear in the lower portion of the screen.



Preparing to create a graph

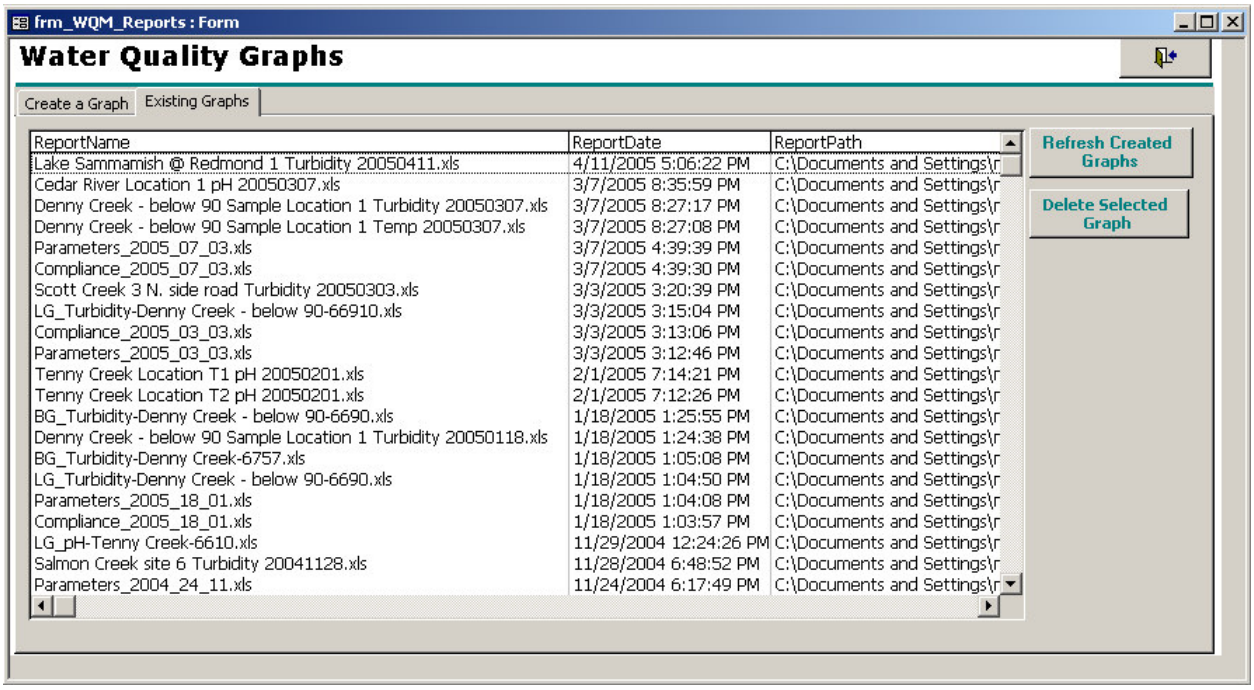
The sample type is the last item of information the database needs to create your graph. Once this is selected, the data will be automatically transferred to the Microsoft Excel program and a graph will be generated. The parameters you selected are shown at the top of the Excel spreadsheet screen, and the resulting data graph for the project location, time period, and water quality parameters of interest will be shown below it.



A Water Quality Monitoring Graph showing the turbidity data specified in the "Water Quality Graphs" screen.

Existing Graphs

You can access previously created graphs through this second tab in the Water Quality Graphs screen.



ReportName	ReportDate	ReportPath
Lake Sammamish @ Redmond 1 Turbidity 20050411.xls	4/11/2005 5:06:22 PM	C:\Documents and Settings\r
Cedar River Location 1 pH 20050307.xls	3/7/2005 8:35:59 PM	C:\Documents and Settings\r
Denny Creek - below 90 Sample Location 1 Turbidity 20050307.xls	3/7/2005 8:27:17 PM	C:\Documents and Settings\r
Denny Creek - below 90 Sample Location 1 Temp 20050307.xls	3/7/2005 8:27:08 PM	C:\Documents and Settings\r
Parameters_2005_07_03.xls	3/7/2005 4:39:39 PM	C:\Documents and Settings\r
Compliance_2005_07_03.xls	3/7/2005 4:39:30 PM	C:\Documents and Settings\r
Scott Creek 3 N. side road Turbidity 20050303.xls	3/3/2005 3:20:39 PM	C:\Documents and Settings\r
LG_Turbidity-Denny Creek - below 90-66910.xls	3/3/2005 3:15:04 PM	C:\Documents and Settings\r
Compliance_2005_03_03.xls	3/3/2005 3:13:06 PM	C:\Documents and Settings\r
Parameters_2005_03_03.xls	3/3/2005 3:12:46 PM	C:\Documents and Settings\r
Tenny Creek Location T1 pH 20050201.xls	2/1/2005 7:14:21 PM	C:\Documents and Settings\r
Tenny Creek Location T2 pH 20050201.xls	2/1/2005 7:12:26 PM	C:\Documents and Settings\r
BG_Turbidity-Denny Creek - below 90-6690.xls	1/18/2005 1:25:55 PM	C:\Documents and Settings\r
Denny Creek - below 90 Sample Location 1 Turbidity 20050118.xls	1/18/2005 1:24:38 PM	C:\Documents and Settings\r
BG_Turbidity-Denny Creek-6757.xls	1/18/2005 1:05:08 PM	C:\Documents and Settings\r
LG_Turbidity-Denny Creek - below 90-6690.xls	1/18/2005 1:04:50 PM	C:\Documents and Settings\r
Parameters_2005_18_01.xls	1/18/2005 1:04:08 PM	C:\Documents and Settings\r
Compliance_2005_18_01.xls	1/18/2005 1:03:57 PM	C:\Documents and Settings\r
LG_pH-Tenny Creek-6610.xls	11/29/2004 12:24:26 PM	C:\Documents and Settings\r
Salmon Creek site 6 Turbidity 20041128.xls	11/28/2004 6:48:52 PM	C:\Documents and Settings\r
Parameters_2004_24_11.xls	11/24/2004 6:17:49 PM	C:\Documents and Settings\r

The "Existing Graphs and Reports" tab of the Water Quality Reports screen

To make sure you are seeing all available graphs including those that you may have just created, press the "Refresh Created Graphs" button.

In addition to listing previously created graphs, you can also use this screen to delete them, by using the "Delete Selected Graph" button.