

SOP 3: Uploading and Delivering Monthly Sonde Output Data

Version 1.0

Revision History Log:

Prev. Version #	Revision Date	Updated By	Changes Made	New Version #
-	June 2010	Bill Johnson	Initial version	1.0

1.0 Summary

The YSI-650 MDS (“650”) device is connected to the sonde in the field. The season’s cumulative seasonal data are copied from the sonde to a file on the 650. Back in the office, the 650 file is copied to a local drive using YSI’s EcoWatch software. That copied file is then renamed and written to a network drive where it is guaranteed to be backed up. That file and related information are then submitted to the Project Leader using an email message having a prescribed format. The deliverable item ultimately produced from the data files is called FQ_E: including the raw data downloaded from each sonde during the monitoring season. Once certified, these data are submitted to SEAN’s online cumulative database, NPS-Water Resources Division’s NPStoret database, and the EPA national water quality database. In addition to the sonde data files, the email submission also includes the site visit workbook “xlsx” file that corresponds to the visit. Collectively, the monthly data files and site visit workbooks are the basis for deliverable FQ_C for the season.

Parts of this procedure are sequenced with the field visit tasks detailed in SOP 1.

2.0 Connecting the 650 to the Sonde

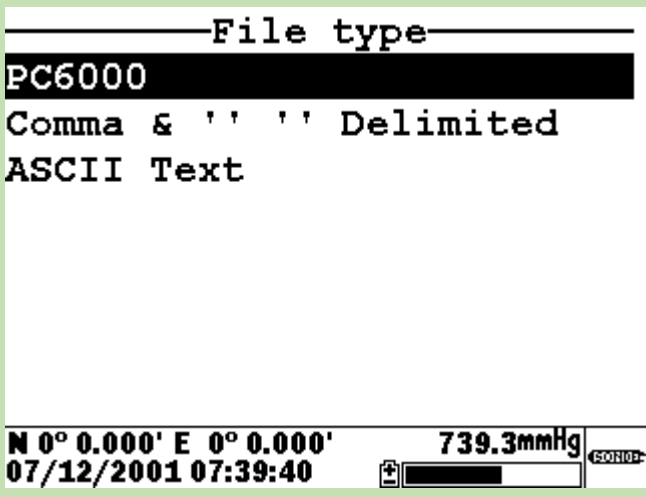
When the 650 is connected to the sonde, one can configure the sonde for one’s particular application and upload data off the sonde.

The YSI field cable is used to connect the 650 (from the bottom of its case) to the sonde via the MS-8 connectors. To connect to the 650 to the field cable, rotate the cable connector until engagement occurs, and rotate the field cable connector approximately ¼ turn until it is fully engaged with a “click”. To attach the other end of the field cable to the sonde connector, remove the waterproof cap from the sonde connector and set it aside for later reassembly. A built-in “key” will ensure proper pin alignment. Rotate the cable gently until the “key” engages and then tighten the connectors together by rotating clockwise. Be careful not to over tighten or bend the signal pins.

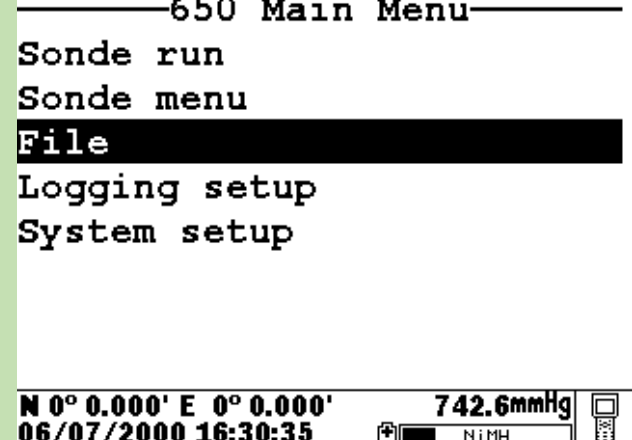
3.0 Uploading Data from the Sonde to the 650

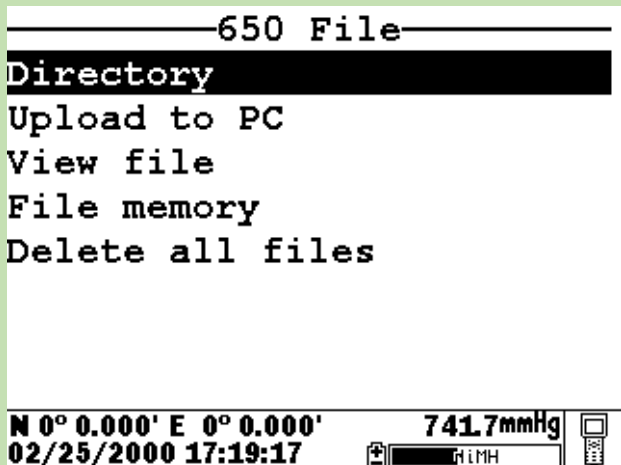
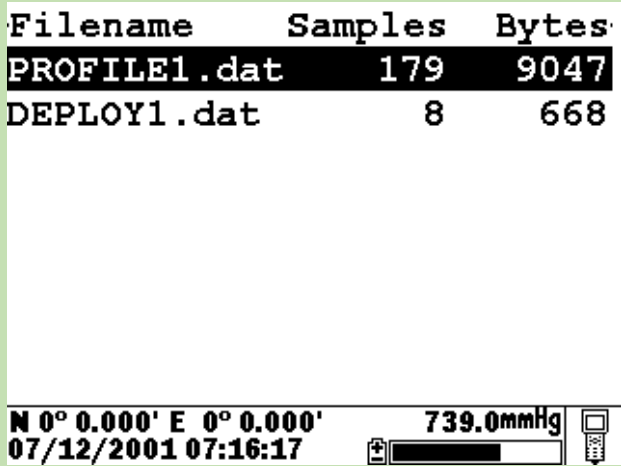
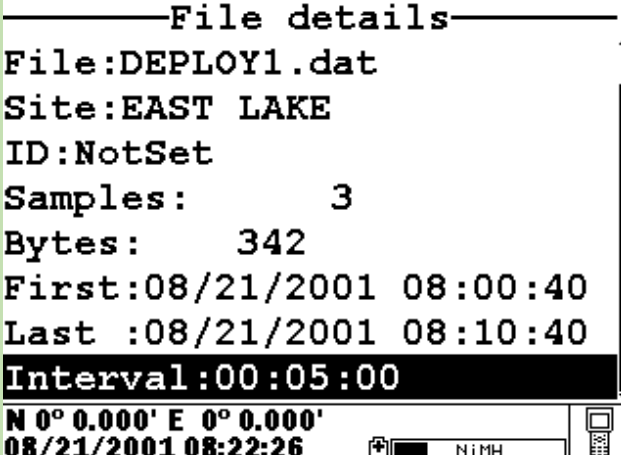
The following steps illustrate how to copy the latest data from the sonde into the 650.

After connecting the sonde to the 650, press the “on” button on the upper left of the 650 keypad. The screen titled “650 Main Menu” will be shown. Press the down arrow to highlight Sonde menu and press Enter.	
Notice the lower right icon is now a sonde symbol on the displayed “Main” screen. Scroll down to highlight File and Enter.	
On the “File” screen choose Quick Upload (Enter) to copy the most recent file. There is only one cumulative file maintained in the sonde throughout the season and this is periodically copied to the 650 for quality review and safekeeping. The filename was set as part of the process used to start up logging in SOP 1.	

On the “File type” screen select the file format as PC6000. Press Enter again, and the 650 display will indicate that an upload is in progress. Be aware that there is no need to turn off data logging in order to copy the file; if the sonde takes an hourly reading while out of the water the data points will be flagged and discarded from the certified data file.	
If this is the first upload of the season the file will immediately transfer. The 650 will confirm successful completion by displaying the message “Bytes Received: xxxx.” If this is not the first upload, the 650 warns the file already exists. In this case, select Overwrite and press Enter. Only one file is built over the season, though it grows continuously.	

It is important to be certain the data file has been correctly copied into the 650 device. The following steps should be taken.

Verify the file is present in the 650 by pressing the Esc button repeatedly to return to the “650 Main Menu.” Select the File item (Enter).	
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On the “650 File” screen select Directory. It should list all the files currently stored in the 650. (Be certain you are <u>not</u> looking at the sonde contents; there should be a 650 icon on the bottom right of the screen).	 650 File Directory Upload to PC View file File memory Delete all files N 0° 0.000' E 0° 0.000' 741.7mmHg 02/25/2000 17:19:17									
Highlight the name of the file just uploaded and press Enter. There is normally only one “.dat” file present. (The files shown here are for illustrative purposes only. They do not follow the required naming convention defined in SOP 1.)	 <table><thead><tr><th>Filename</th><th>Samples</th><th>Bytes</th></tr></thead><tbody><tr><td>PROFILE1.dat</td><td>179</td><td>9047</td></tr><tr><td>DEPLOY1.dat</td><td>8</td><td>668</td></tr></tbody></table> N 0° 0.000' E 0° 0.000' 739.0mmHg 07/12/2001 07:16:17	Filename	Samples	Bytes	PROFILE1.dat	179	9047	DEPLOY1.dat	8	668
Filename	Samples	Bytes								
PROFILE1.dat	179	9047								
DEPLOY1.dat	8	668								
The “File details” screen should display the starting and ending date of the contents as well as the number of samples recorded. Verify the file details have expected values. Also perform a visual check of the data by scrolling up the “File details” screen and selecting the View File option. Be certain values are being recorded for all columns.	 File details File:DEPLOY1.dat Site:EAST LAKE ID:NotSet Samples: 3 Bytes: 342 First:08/21/2001 08:00:40 Last :08/21/2001 08:10:40 Interval:00:05:00 N 0° 0.000' E 0° 0.000' 08/21/2001 08:22:26									

After the file transfer is verified the 650 may be turned off. At this point it is typical to perform additional field tasks as indicated in SOP 1. The 650 may be used to perform other functions such as plotting data, but these are outside the standard procedures and not discussed here. However, be aware the other functions may be of use for some purposes, such as problem diagnosis or special research.

4.0 Transferring Data from the 650 to the Office Network Drive

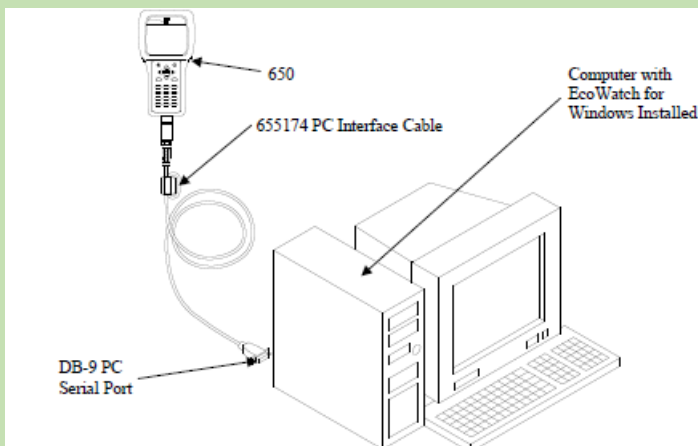
After the 650 is brought back to the office from the field, the data must be transferred to the NPS network—not a local workstation—using YSI’s EcoWatch software. The NPS network is used because NPS does not reliably back up files on local machines, but does on file servers.

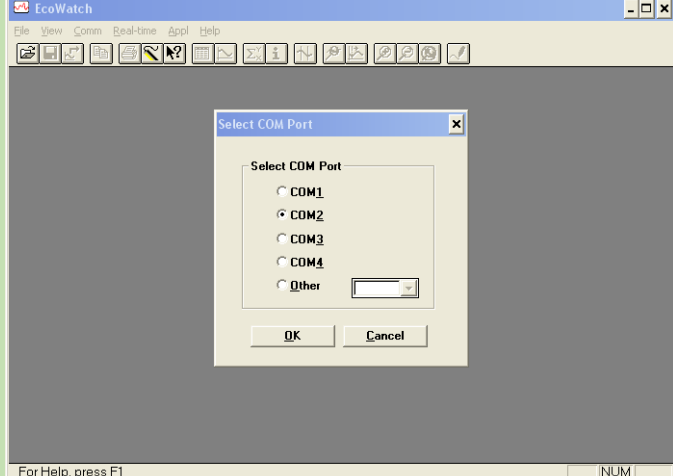
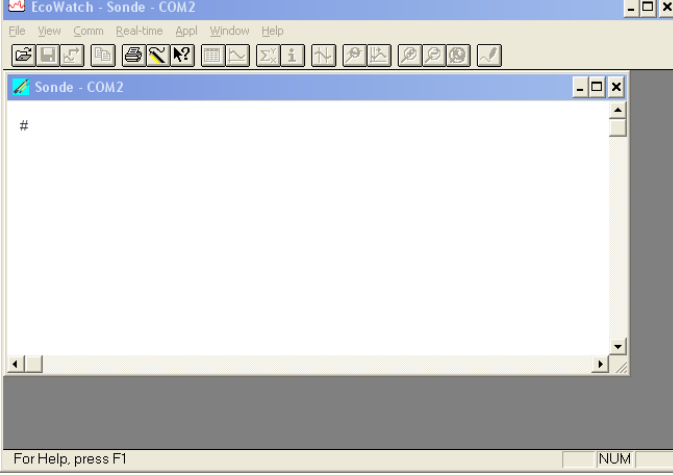
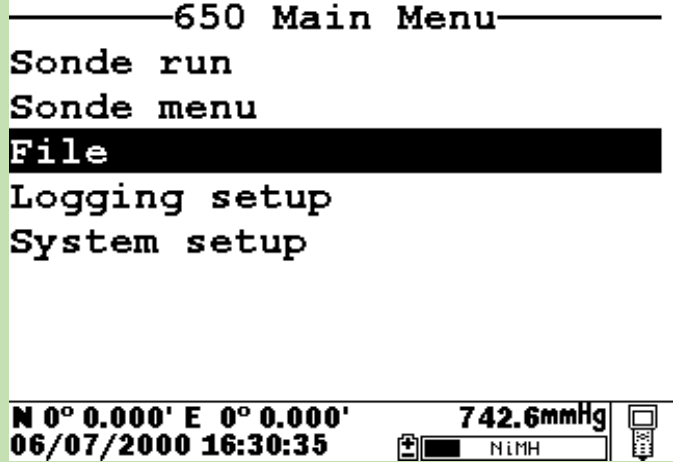
To accomplish data transfer, the following items are required:

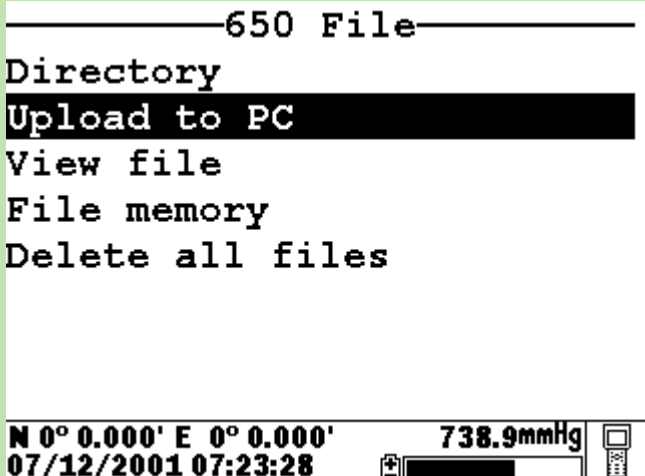
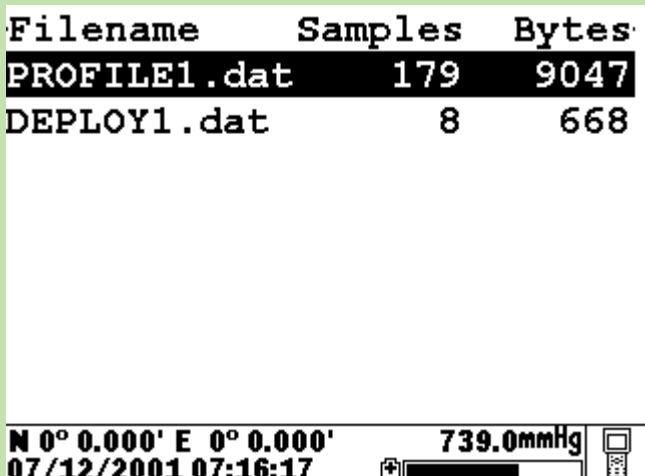
1. 650 handheld unit
2. YSI serial interface cable
3. A desktop (or laptop) physically connected to the NPS network and having a 9-pin serial port (USB is not supported by YSI)
4. EcoWatch software installed on the workstation
5. NPS login credentials permitted to write new files to a place on network file servers, and to create/modify files on the “C:\Program Files\EcoWin” directory on the workstation.

These are the typical steps:

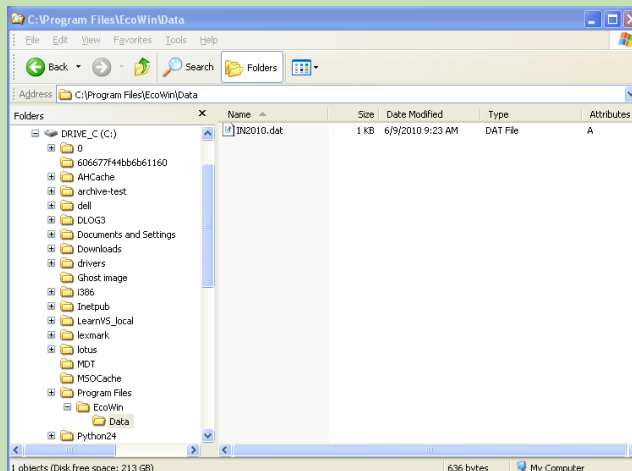
Connect the 650 to a serial port of your computer using the PC interface cable. Turn the 650 power on.



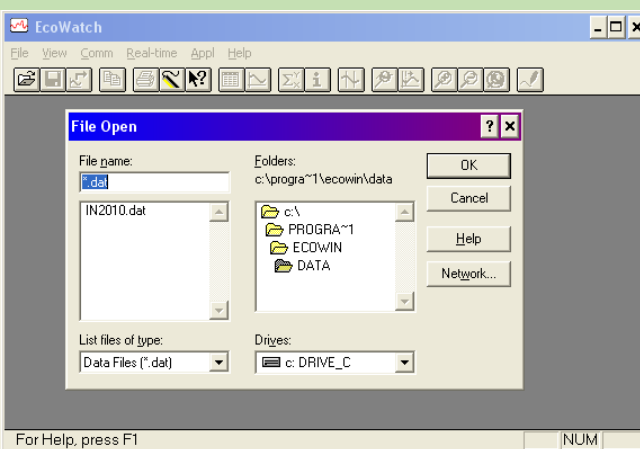
Start up the EcoWatch program on the computer. Select the menu item COMM SONDE... Click on the “com port” button corresponding to the one the 650 was plugged into and press OK. If you don’t know which port, try each until one is recognized by EcoWatch.	
After pressing OK, an empty sonde window should appear inside EcoWatch. If the correct port was used, one or more pound signs (#) should be the only contents in the window. If there is no pound sign, the 650 is not found by the PC – typically due to being powered off or plugged into a different com port.	
Now turn attention to the powered-on 650. From the startup “650 Main Menu” select File and press Enter.	

Select Upload to PC followed by Enter.	 650 File Directory Upload to PC View file File memory Delete all files N 0° 0.000' E 0° 0.000' 738.9mmHg 07/12/2001 07:23:28									
Select the .dat file of interest (typically there is only one .dat file present). Press enter and the file contents will be sent to a file on the PC EcoWatch runs on.	 <table><thead><tr><th>Filename</th><th>Samples</th><th>Bytes</th></tr></thead><tbody><tr><td>PROFILE1.dat</td><td>179</td><td>9047</td></tr><tr><td>DEPLOY1.dat</td><td>8</td><td>668</td></tr></tbody></table> N 0° 0.000' E 0° 0.000' 739.0mmHg 07/12/2001 07:16:17	Filename	Samples	Bytes	PROFILE1.dat	179	9047	DEPLOY1.dat	8	668
Filename	Samples	Bytes								
PROFILE1.dat	179	9047								
DEPLOY1.dat	8	668								
The 650 will flash a progress screen showing how many bytes have been sent. Both the 650 and the EcoWatch screens will announce when the transfer has completed. At that point, the 650 may be powered off, disconnected, and stored. But leave EcoWatch running for the next step.	 Bytes sent: 2827 30% N 0° 0.000' E 0° 0.000' 739.2mmHg 07/12/2001 07:32:18									

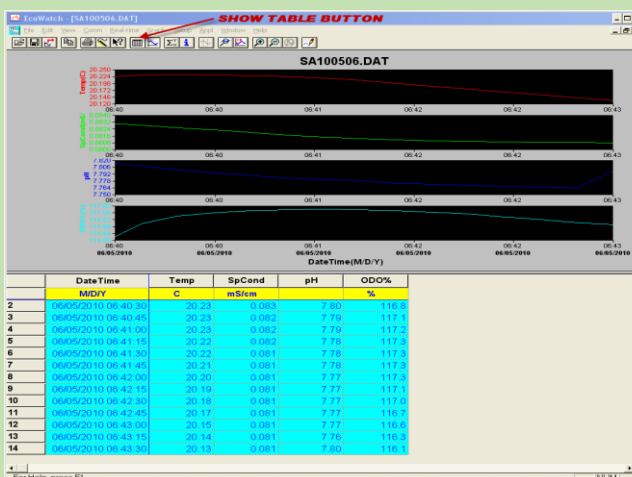
The data file is always stored with the same name as the 650 copy in a directory that also houses the EcoWatch executable software. This is usually at C:\Program Files\EcoWin\Data.



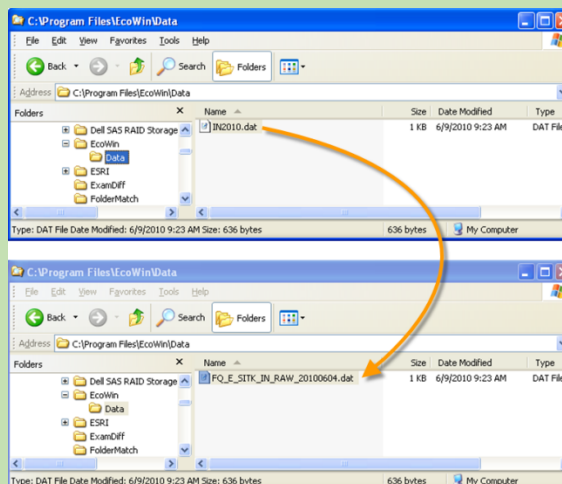
Verify the downloaded file is complete by using the EcoWatch menu selection FILE | OPEN... The software uses antiquated file concepts which display truncated directory and file names; awkward but usable with practice. Select the downloaded file and press OK.



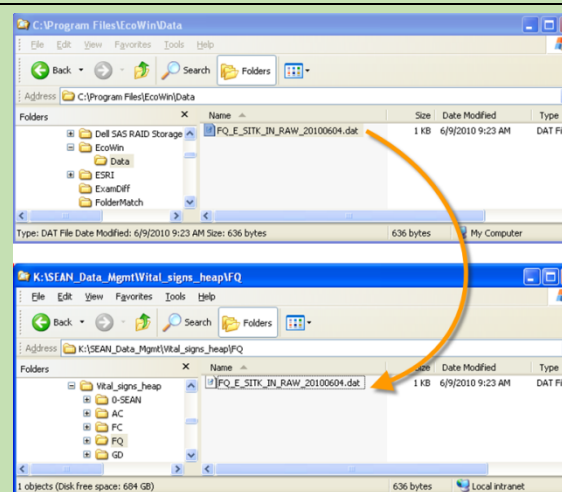
EcoWatch displays the content as a graph and table. (If the table does not appear by default, press the button as illustrated on the left.) Scroll to the end of the table and verify the last date and time are consistent with when the data was copied from the sonde in the field. If the data rows end significantly before the field site visit, or if the plots display flat lines or no lines, consult with the Project Leader on possible remedial actions. Otherwise, close the EcoWatch program.



Using Windows Explorer, rename this file to distinguish it from others acquired during the season. Use the form “FQ_E_4-letter park code_2-letter site code_RAW_8-digit date.dat”. The 8-digit date reflects the site visit date as YYYYMMDD. For example:
FQ_E_SITK_IN_RAW_20100604.dat

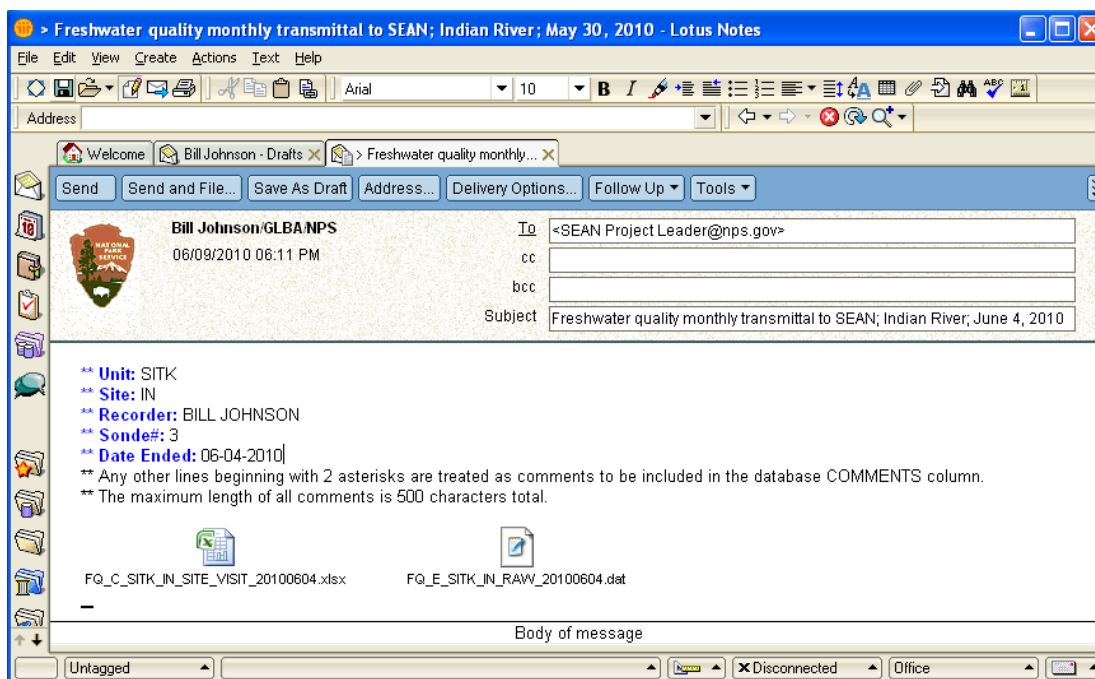


Copy the subject .dat file from the EcoWin directory to an appropriate area on your network file server. This assures the data will be backed up and kept available to others. Since every park has considerably different server organization, it is up to the Park Lead to determine the best location for .dat files.



5.0 Transmitting the Data File to the Project Leader

The data file must be sent electronically to the Project Leader following each monthly data download. The form is an email with specific text and the .dat file attached, as illustrated below. The Site Visit Workbook from SOP 1 should also be available at this point, and that sheet should be attached to this message.



- The addressee should be the Freshwater Water Quality Project Leader, currently: christopher_sergeant@nps.gov
- It helps the Data Manager if the subject line in the example is used, with proper site and date substituted.
- The five first lines in blue are required. Note that these lines must begin with two asterisks and a space.
 - **** Unit:**
 - GLBA, KLGO, or SITK
 - **** Site:**
 - IN for Indian River, SA for Salmon River, or TA for Taiya River
 - **** Recorder:**
 - First and last name of the individual who downloaded and is transmitting the data file
 - **** Sonde#:**
 - 1 (presently deployed in GLBA), 2 (KLGO) , or 3 (SITK)
 - **** Date Ended:**
 - Date of last record in this data file, in MM-DD-YYYY format.

It is very helpful that spelling and punctuation for these prescribed strings be exact, as their content will used examined by a machine to assign values to certain fields in the final database. Once the proper form is created by Park Leads in a message, it might be

helpful to just cut and paste that text in subsequent transmittal emails. Most of the values are static.

- Additional lines may be added to the email text beginning with “** ”. Any such lines present will be considered comments and will be appended to the database COMMENTS column.
- Only one .dat and one .xlsx file should be attached, as the narrative header can apply only to data from one specific visit.

As soon as practical after the message is received the Project Leader will acknowledge receipt with an email reply. The leader stores the attached files in \\INPGLBAFS03\DATA\SEAN_Data\Work_Zone\FQ\yyyy\xx\yyyy-mm-dd\, where yyyy is the calendar year of study, xx represents the first two letters of the subject river and yyyy-mm-dd is the date of the site visit. The text of the email message is also saved in that folder under the name “MailText.txt”. The Project Leader then opens the data file using EcoWatch software and examines the graph. If any sensors appear to be failing, the Project Leader works with the Park Lead to affect repairs.

The Project Leader reviews the site visit workbook using Excel. Any errors, omissions, or suspect calibration readings are noted for further work.

If there is a technical problem with the transmission or contents, the Project Leader will resolve it with the Park Lead while the visit is still fresh in everyone’s mind.

If this is the first data submission from any site for the year, notify the Data Manager. The Data Manager records the first site visit date on the deliverable tracking spreadsheet for the year.

6.0 File Retention

All files in the 650 are retained for the season: nothing is deleted. After the season ends and the FQ_E deliverable is certified, both the sondes and the 650s must have their memories wiped clean.

