

Draft – Version 2

**DPDC DATA ENTRY
INSTRUCTION MANUAL**

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I. INTRODUCTION

The purpose of the DPDC Data Entry Program is to make it as efficient as possible for contributors to enter their data and have it posted on the Diatom Paleolimnology Data Cooperative (DPDC) website (<http://diatom.acnatsci.org/dpdc/>). This manual provides general guidelines and specific instructions for the installation and use of the DPDC Data Entry Program.

We recommend the following steps for contributing data sets.

- Read this document
- Read introductory DPDC online material at <http://diatom.acnatsci.org/dpdc/>
- Browse the DPDC website to learn more about how data can be searched and retrieved
- Download and browse the example database
- Assemble data files and other information sources
- Download the DPDC Data Entry Application; Enter data
- Email the completed DPDC Data Entry Application to the DPDC representative at the Academy of Natural Sciences (ANSP)

When the DPDC administrator receives a completed application database, he or she will run a program that automatically adds the contribution to the DPDC database so it will be available on the DPDC website. All data sets added to the DPDC will be publicly available.

A. MINIMUM DATA REQUIRED

The DPDC is designed to contain the wide variety of data related to diatom paleolimnological studies that you and other researchers might want to contribute. Most contributors have data sets with limited amounts of data, however, and some will have little time to find and prepare supporting data that they did not use in their studies. Therefore, only a minimum amount of data is required for each data set; other data are optional. The appendix and the application data entry screen specify which data are essential. There are a minimum of nine screens requiring data input in order to submit your data contribution (see the Required Information section). Depending on the format and organization of your data (e.g., if most data are already in spreadsheets), you can enter data using the application reasonably quickly and efficiently. And it can be fun, too!

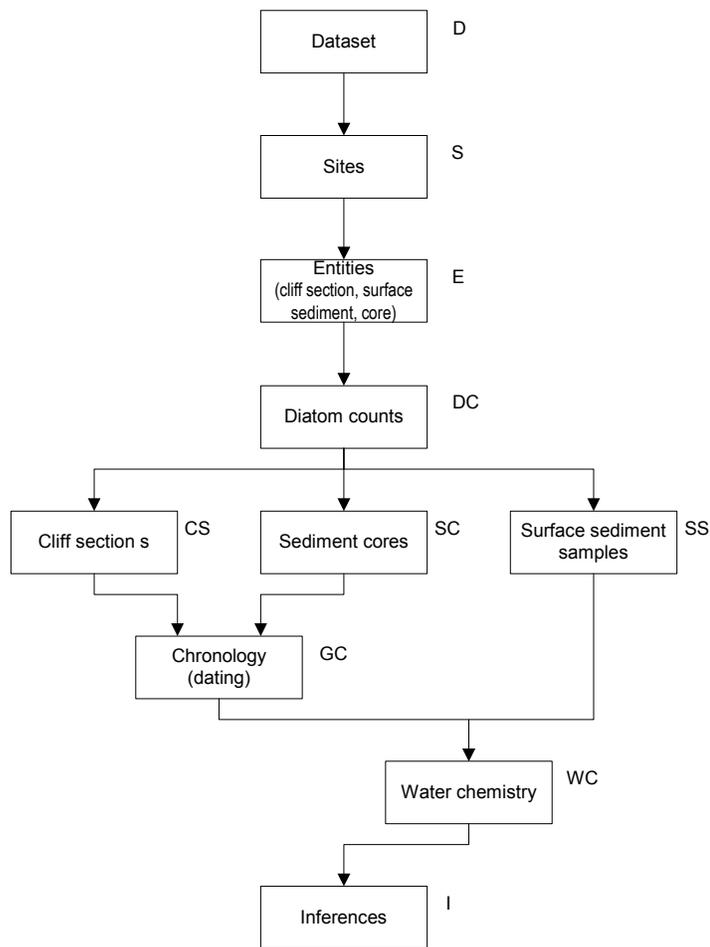
The most time consuming tasks will probably be specifying the list of taxa that you have in your data set, adding names of any new taxa, and modifying and manipulating site, count and water chemistry data in spreadsheets so they can be pasted into data entry application screens.

B. THE DATA ENTRY PROCESS

The application functions as a “wizard” by guiding you through a series of data entry screens. Special instructions on each screen specify what data to enter and the appropriate procedure to follow. You can move backwards and forwards through the screens. At key points, you will be asked to answer questions about your data set (e.g., is it for a sediment core or calibration set?) and the “wizard” will adjust the course of the data entry program accordingly.

You do not need to enter all information at one time. You can close the application at any point. When you re-open an “in-progress” DPDC Data Entry Program, you will be returned to the screen that you last visited. Because the underlying database uses Microsoft Access 2000, you can use most of the Access data entry and navigation procedures. Knowledge of Access is not required to run the application, however. In addition, you can copy and paste data from Microsoft Excel spreadsheets into DPDC Data Entry screens (explained in more detail in the Tips and Tricks section).

The diagram on the following page represents the basic order in which data must be input into the DPDC Data Entry Program. This order is necessary so that proper linkages and relationships can be established among the various types of data. It also shows the different paths of the data entry process for different kinds of data sets. The letters to the right of the boxes correspond with those appearing on the data entry screens associated with each box (see Appendix A for more detailed information).



C. DOCUMENTATION AND HELP

There are useful sources of information that you can consult for help while you are entering data.

- This manual, including Appendix A which has detailed documentation about specific fields encountered in each of the data entry screens and an example for each
- The example application database
- The “?” button on each data entry screen; clicking this button brings up detailed information on each field (the same information as in Appendix A, but conveniently available from the screen)
- The DPDC administrator at phycology@acnatsci.org

D. SUBMITTING YOUR CONTRIBUTION

Please email your finalized DPDC Data Entry program to phycology@acnatsci.org. The data will be loaded into the DPDC database and made available to download from the website.

E. MINIMUM HARDWARE AND SOFTWARE REQUIREMENTS

The minimum requirements for the application is a PC running Windows 98 or later or Windows NT 4 or later, with 166-MHz or higher processor, and at least 32 MB of system memory. The screen area in your display properties must be set to at least 800 by 600 pixels. The DPDC Data Entry application was created using Microsoft Access 2000. It has been tested on Windows 98, NT, and 2000.

II. GUIDELINES

A. SCOPE

One DPDC Data Entry program should be completed for each set of logically related data (identified in the DPDC as a data set). A user accessing your data from the DPDC website should be able to download and work with a coherent set of data that you have grouped together by entering it all in a single DPDC Data Entry application. Additionally, all of the information provided in the data set must be for a single type of sample (e.g., all cores, all surfaces samples, or all cliff sections). For example, if there are both calibration and core samples for a set of sites, the calibration information should be provided in one DPDC Data Entry program and the core information should be provided in a second.

B. DATA SET CONSISTENCY

If you will be submitting multiple, interrelated data sets using some of the same basic information (sites, taxonomic systems, publications, etc.), the information that is provided for these items should be identical in each DPDC Data Entry program that is completed. Many of the common options for data entry fields (e.g., coring devices) are already populated in the DPDC Data Entry application and can be selected from look-up lists, thereby helping to ensure consistency. For those items that are not already in look-up lists, the information must be entered. In those instances, if the information differs in any way at all between different DPDC Data Entry applications (even an additional space or comma) there will be multiple entries in the Diatom Paleolimnology Data Cooperative database rather than just one. To prevent these duplicated items, we suggest that you copy the “duplicated” information from one DPDC Data Entry program and paste it to another.

C. NAVIGATING THE DATA ENTRY SCREENS

The names and numbers of the data entry screens are shown both in the blue bar at the top of the screen and as the title line of the screen. Each screen has “Previous” and “Next” buttons that are used to move forward and backward through the “wizard”.

D. DATA INPUT ON DATA ENTRY SCREENS

The “Notes” box at the top of each screen contains data entry guidelines; more guidance, including detailed definitions of each field and examples can be obtained either by clicking on the question mark “Help” button on each screen or by consulting Appendix A. There are three ways to enter information directly into the application. The data can be typed, selected from a look-up list, or copied and pasted into the fields. For information on how to copy and paste data into the screens, see the section entitled “Copying data from an Excel spreadsheet to the DPDC”.

E. REQUIRED INFORMATION

Screens

At an absolute minimum, data must be provided for all of the screens listed below. All other screens are optional. To skip the optional screens, click the “Next” button without entering any information.

- DT1. Data Set Information
- S1. Sites
- E1. Diatom Entities
- DC1. Diatom Sample (Sediment Interval Subsample)
- DC2. Diatom Count Information
- DC3. Diatom Taxonomy
- DC6. Select Diatom Taxa
- DC7. Taxa Codes
- DC8. Diatom Counts (and DC9, if applicable).

Data on Screens

For each screen on which you decide to enter data, asterisks (*) identify the fields that require data. All of the information marked by an asterisk must be filled in or no information in that row will be saved.

III. TIPS AND TRICKS

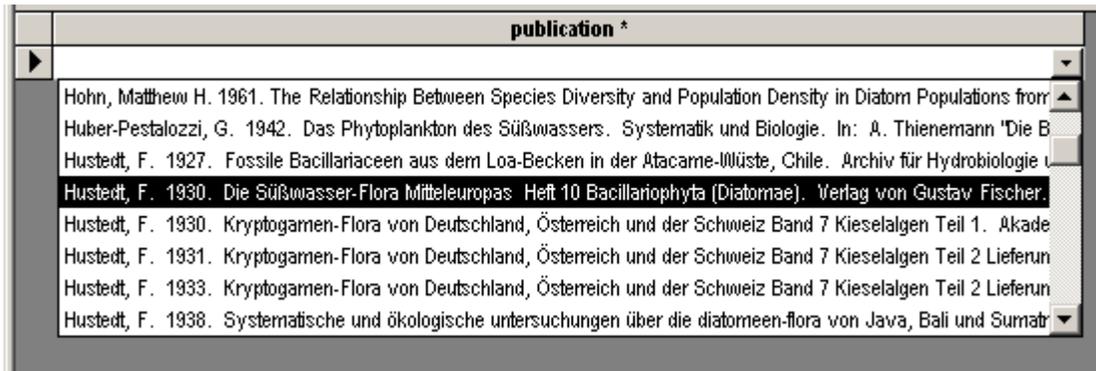
A. WORKING WITH DATASHEETS

Entering data into datasheets (the spreadsheet-style screens) is exactly like working with Microsoft Access, so any Access tricks are relevant to the DPDC Data Entry application. Knowledge of Access is not required, however. The following section details some key Access skills required to navigate through this database. Additional navigational help can be obtained in the Access section of Microsoft's website <http://office.microsoft.com/assistance/offhelp/off2000/access/>.

Selecting an Item from a Look-up List

A look-up list contains a list of items that can be selected. The figure below, for example, shows a look-up list of taxonomic publications. When identifying the publications for a set of taxon names, only the publications in the list can be selected. Following are the step-by-step instructions for selecting an item from a look-up list.

- Click on the gray arrow on the right of the text box. This brings up the contents of the list box.
- If there are only a few items in the list box, you can see all of the values in the list. Otherwise, there is a scroll bar that you can use to scroll through all the values in the list.
- When you find the value you want, click on it to select it.



Adding New Information to a Datasheet

Information is added to a datasheet in units called records. A record is a set of related information. For users familiar with Microsoft Excel, a record can be thought of as a row in a spreadsheet. A record can also be thought of as a row in a table; all the information in that row relates to one thing. Following are step-by-step instructions for adding a new record to a datasheet.

- Click in the last record in the datasheet. This record is empty and the indicator column along the left of the datasheet has an asterisk (*) indicating that it is an empty record.
- Type information or select values from look-up lists for all the required cells.
- The new record is automatically saved.



Changing Information in a Datasheet

The information that you have already entered into a datasheet can be modified easily.

- Click in the cell that you want to update.
- Type new information or select a different value from the look-up list to change the information.
- The updated record is automatically saved.

Deleting a Record from a Datasheet

The information that you have already entered into a datasheet can be deleted, providing that you have not selected the data from a look-up list at other points in the DPDC Data Entry application. For example, you cannot delete a diatom sample if you have entered diatom counts for that sample. In that situation, see the section entitled “Modifying / Adding / Removing Information Before Submission to ANSP” for instructions.

- Select the record you want to delete. To do this,
 - Put your mouse over the indicator column to the left of the record you want to delete.
 - When your mouse pointer turns into an arrow, click once to select the entire record. At this point, the record should be highlighted. (If you want to delete multiple records, you can click and drag to highlight the records you want to delete.)
- Press **Delete** on your keyboard to delete the highlighted record(s).



Copying a Range, or Block, of Cells

At some point, you may want to copy a range, or block, of cells from a DPDC datasheet into a program like Microsoft Excel or another DPDC Data Entry application. The following step-by-step instructions detail how to highlight and copy cells from a datasheet.

- Highlight the cells you want to copy. There are multiple ways to do this. A few key methods are provided below.
 - To highlight entire records:
 - Put your mouse over the gray column to the left of the first record you want to copy.
 - When your mouse pointer turns into an arrow, click to highlight the first record and drag to highlight additional records (while still holding down the mouse button).
 - Release the mouse once you have highlighted the records you want to copy.
 - To highlight entire columns:
 - Put your mouse pointer over the column label of the left-most column you want to copy.
 - When your mouse pointer turns into an arrow, click to highlight the first column and drag to the right to highlight additional columns (while still holding down the mouse button).
 - Release the mouse once you have highlighted the columns you want to copy.
 - To highlight a block of cells:
 - Put your mouse in the left corner of the cell you want to copy.
 - When your mouse pointer turns into a cross, click to highlight the current cell and drag to highlight additional cells (while still holding down the mouse button).
 - Release the mouse once you have highlighted the cells you want to copy.
- Copy the highlighted cells by selecting **Edit | Copy** from the menu.

Pasting Over the Top of a Range of Cells

You may find it convenient to paste over a block of cells. The following step-by-step instructions detail how to paste data over a range of cells.

- Copy the block of cells containing the “replacement” data. This range of replacement cells most often comes from another DPDC Data Entry screen or Microsoft Excel. See the previous section entitled “Copying a Range, or Block, of Cells” for instructions on copying data from a datasheet.
- Highlight the range of cells that you want to replace. See the first step of the section entitled “Copying a Range, or Block, of Cells” for instructions on highlighting a range of cells.
- Paste over the highlighted cells by selecting **Edit | Paste** from the menu.

Pasting New Records at the End of a Datasheet

You may find it convenient to add a number of complete, new records to the end of a datasheet. Adhering to the following rules prevents common problems.

1. The number, type, and order of columns must be the same between the datasheet and the data you are adding. For example, if the datasheet’s columns are sample count, taxon, and number the data you are adding must consist of all three columns **in the same order**.
2. The columns that are marked as required in the datasheet must be completed in the data you are adding.
3. The columns that are populated from look-up lists must be either
 - a. Empty, if it is not a required field, or
 - b. The specific data item to be added must already exist in the look-up list.

To paste valid records to the end of a datasheet, follow these step-by-step instructions.

- Copy the range of cells containing the new data. Ensure that the new data adhere to the rules detailed above.
- Click anywhere in the datasheet.
- Add the new records to the end of the datasheet by selecting **Edit | Paste Append** from the menu.

B. ERROR MESSAGE HINTS

Some of the common errors you may encounter are listed below. There are also instructions about how to resolve the problem that is causing the error message.

Title Bar	Error Message	Resolution
Add To List?	That item is not in the list. Would you like to add it? (Often the error message indicates specifically the kind of information that is not in the list.)	This error message occurs when you have typed a value into a text box that is associated with a look-up list and the value doesn't match anything in the look-up list. When you get this error message, click "Yes" to open the "Add..." form and add the value. You can also click "No" to return to the text box so you can select an item from the look-up list.
Fill In Required Field	There is a required field that is empty. All required fields are marked with an asterisk (*). Please fill in some information for the required fields or press the Escape key to cancel.	Fill in information for all the required fields (scroll to the right to see all the fields for some screens) or press the Escape key (or Ctrl-Z) repeatedly to undo changes to the point where the error message no longer appears.
Information Required	Please fill in information about (the name of a screen).	This error message occurs after clicking the "Next" button on a screen with no information filled out and where information must be entered before moving on. Fill in information about at least one item before clicking the "Next" button.
Limit Entity Types	You can only enter entities of one type. Please select one type for all your entities.	This error message occurs if you have identified more than one type of entity (e.g., you have identified both a core and a surface sample). All entities in one DPDC Data Entry application must be of the same type. You must either remove the offending entities or update the "entity type" field so that each record has the same value before clicking the "Next" button again.
Missing Information	Please fill in all missing values for the following fields: (a list of fields).	This error message occurs after clicking the "Next" button on a screen without filling in information for all the required fields. If even one record on the screen is missing a required field, this error message appears. Make sure that there is information for all the fields listed before clicking the "Next" button again.
Remove Duplicated Information	You cannot have two records with the same information. Please change the information to prevent duplication or press the Escape key to cancel.	This error message occurs when the fields that make a record unique are duplicated. The unique records are always some subset of the required fields. Either change the information in one of the duplicated records or press the Escape key (or Ctrl-Z) repeatedly to undo changes to the point where the error message no longer appears.
Taxa Code Matching	You must fill in a contributor taxon code for all taxa in the list.	This error message occurs in the Taxa Codes (DC7) screen after clicking the "Next" button without entering a contributor taxon code for every taxon in the taxon field. To resolve this, either add a contributor taxon code for all the taxa without one or go back one screen to the Select Diatom Taxa screen (DC6) and remove the taxa causing the error from the "Selected" list.

C. SHORT-CUT KEYS

The following table lists some useful keyboard shortcuts for common data entry practices in the DPDC Data Entry application.

Action	Keyboard Combination	Notes
Undo	Ctrl - Z or Esc	Allows the user to undo the last few actions. Especially useful to undo the addition of a new record when there are look-up or duplicate entry problems.
Copy	Ctrl - C	Copies the currently-highlighted text or range of cells
Paste	Ctrl - V	Pastes the contents of the clipboard to the cursor location or currently-highlighted text or range of cells
Go to next field	Tab	Moves to the next cell in the row
Go to previous field	Shift - Tab	Moves to the previous cell in the row
Go to next record	Down arrow	Moves to the next row
Go to previous record	Up arrow	Moves the previous row
Go to next screen	Alt - N	Moves to the next screen
Go to previous screen	Alt - P	Moves to the previous screen
View look-up list contents	Alt - down arrow	Displays the contents of the look-up list associated with the current cell
Zoom	Shift - F2	Expands a cell to make it easier to edit

D. COPYING DATA FROM A MICROSOFT EXCEL SPREADSHEET TO A DPDC DATASHEET

There are two strategies for entering data into datasheets in the DPDC Data Entry application. Information can be entered row by row through the selection of values from look-up lists and / or the direct data entry of values. Alternatively, the datasheet can first be recreated in Microsoft Excel, the Excel spreadsheet completed, and then pasted back into the DPDC program. This second process is addressed here.

Copying and pasting between Excel and the DPDC Data Entry application can save considerable time, particularly if large amounts of data need to be added to a datasheet. Situations where one might consider copying and pasting between Excel and the DPDC include:

- The data are not currently stored in an Excel spreadsheet, but there are hundreds of records to be entered one row at a time. Repeated values are easier to enter in Excel. The time that is required to complete the procedure to copy between Excel and DPDC is likely to be less than the time required to type in each row individually.
- The data required on a screen are already stored in an Excel spreadsheet. Minimal formatting changes are required to put rows and columns in the Excel spreadsheet in the same order and format as those in the DPDC datasheet.

Understanding a few key points will make the process of copying and pasting data between Excel spreadsheets and DPDC datasheets much easier.

- Learn the technical skills of copying, pasting, and selecting data in the DPDC Data Entry application. The skills that are required are covered in detail in the Tips and Tricks section entitled “Working with Datasheets” (beginning on page 6).
- Columns marked with an asterisk (*) are required. All cells in that column must have information when pasting data from an Excel spreadsheet into a DPDC datasheet. If required values are missing, the attempt to paste will fail for those records.
- Cells with look-up lists must be filled in with one of the values already in the look-up list. Pasting data into a look-up list cell that does not occur in the look-up list will result in errors. To prevent this occurrence, ensure that all the values for look-up list cells are already in the look-up list (new values can be added using a “Add New...” button on the DPDC screen before attempting to paste the data) or are left blank (if the field is not required).

The steps required for copying and pasting data between Microsoft Excel spreadsheets and DPDC datasheets are:

1. Create the Excel spreadsheet. The number, type, and order of columns in the Excel spreadsheet must match those in the DPDC datasheet.
2. Fill in the data in the Excel spreadsheet.
3. Ensure that the required cells have data; Ensure that the cells with look-up lists have appropriate data.
4. Copy the completed cells from the Excel spreadsheet.
5. Paste the data from the Excel spreadsheet into the DPDC datasheet.

Depending on the circumstances and the data, each step can be completed in a variety of ways. The following section provides details about the most common methods for each step.

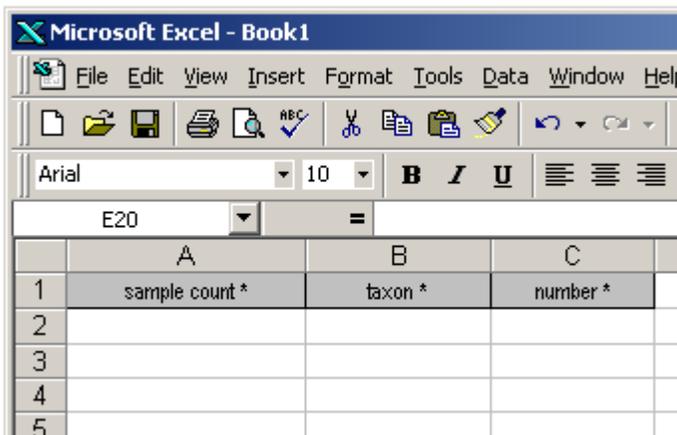
Create the Excel Spreadsheet

Again, the name, order, and number of columns in the Excel spreadsheet must match those in the DPDC datasheet. The easiest way to create the Excel spreadsheet and ensure that the columns match is to copy a record (either blank or populated) from a DPDC datasheet and paste it into an Excel spreadsheet.

- Fill in dummy information for one row in the DPDC datasheet.
- Select the row with dummy information from the DPDC datasheet and copy it (see Tips and Tricks, Copying a Range, or Block, of Cells for details).

	sample count *	taxon *	number *
▶	Moon Lk - 34 - a - 1	1	5
*			

- Open a new worksheet in Microsoft Excel.
- Click in cell A1 and paste the row copied from the DPDC datasheet by selecting **Edit | Paste** from the menu.
- Delete the row with dummy information from the DPDC datasheet (see Tips and Tricks, Deleting a Record from a Datasheet for details).
- Delete the dummy information from the Excel worksheet, leaving the column headers.



Fill in the Data in the Excel Spreadsheet

During this step, it is important to pay special attention to the cells that are required and those that are associated with look-up lists. All of the required cells must be filled out in the Excel spreadsheet before the data can be pasted back into the DPDC datasheet. Additionally, all cells with values selected from a look-up list must either be empty (if it is not required) or contain a value from that list. Both types of cells must be dealt with carefully to prevent errors.

- Identify and complete the cells that are required. The cells that are required have an asterisk (*) after their name.
- Identify the cells that are populated by a look-up list. To do this, click the question mark button on the DPDC screen to view the documentation for the datasheet. The cells that are populated by a look-up list have “pick from list” as their datatype.
- To complete cells that are populated by a look-up list, use your dummy record (or temporarily create a new dummy record) in the DPDC datasheet to select the look-up item you want. Copy the value and paste it into your Excel spreadsheet.

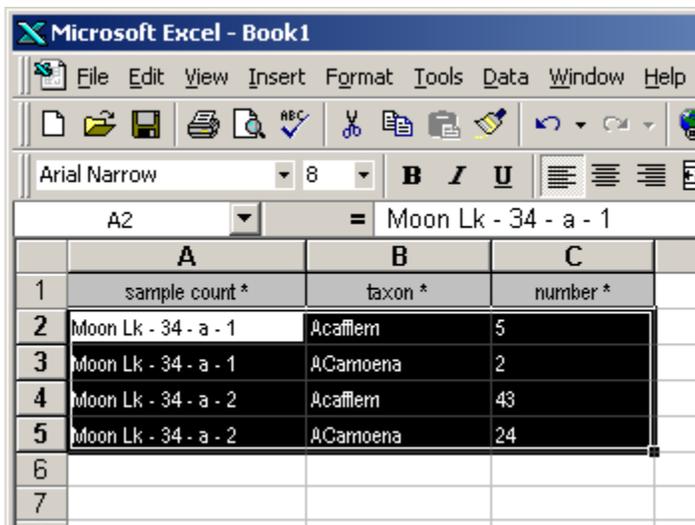
- Tip!** When you paste data copied from the DPDC datasheet into the Excel spreadsheet, the column name is always pasted as well. Be careful not to paste over the top of data with column names.
- Tip!** Some of the screens have a button called “Add All Samples” or “Add All Entities”. Each time you click this button, one of each sample (or entity) is added to the datasheet. You can copy all of these values at once into your Excel spreadsheet so that you don’t have to copy each item individually. Make sure you delete all the records added when you clicked the “Add All...” button after you have copied the values into the Excel spreadsheet.
- Tip!** If an item that you require is not in a DPDC datasheet’s look-up list, add it by clicking the corresponding “Add...” button. Once you add it, you can select it from the look-up list, copy it, and paste it into the Excel spreadsheet.
- Tip!** If many cells of your Excel spreadsheet should have the same value, you can paste the value into multiple cells at one time. To do this, highlight the Excel spreadsheet cell containing the value and select Edit | Copy from menu to copy it. Next, highlight the entire range of cells that should have this value and select Edit | Paste from the menu to simultaneously paste the value into all of the highlighted cells.
- Tip!** If you already have the data for a DPDC datasheet in an Excel workbook but the values in look-up list cells do not match, use the Excel’s Replace function to replace your values with the values from the look-up list by selecting Edit | Replace... from the menu.

Ensure that the Data Entered Are Valid

Double-check that all the required Excel spreadsheet cells have data. Also, make sure that the Excel spreadsheet cells associated with look-up lists have values that can be found in the DPDC datasheet look-up lists or are empty (if they are not required).

Copy the Completed Cells from the Excel Spreadsheet

- Highlight the cells in the Excel spreadsheet that you have completed. Do not highlight the column headers.
- Copy the highlighted cells by selecting Edit | Copy from the menu.



Paste the Data from the Excel Spreadsheet to the End of the DPDC Datasheet

Before you paste the data from the Excel spreadsheet to the end of the DPDC Datasheet, make sure that you delete any dummy records that were created when you were obtaining the look-up list data.

Paste the new records from the Excel spreadsheet at the end of the DPDC datasheet using the technique described in the Tips and Tricks section called Pasting New Records at the End of a Datasheet.

	sample count *	taxon *	number *
▶	Moon Lk - 34 - a - 1	Acaflern	5
	Moon Lk - 34 - a - 1	ACarmoena	2
	Moon Lk - 34 - a - 2	Acaflern	43
	Moon Lk - 34 - a - 2	ACarmoena	24
*			

E. ADVANCED CONCEPTS: COPYING DATA FROM EXCEL SPREADSHEETS TO DPDC DATASHEETS

While the instructions in the preceding section, Copying Data from a Microsoft Excel Spreadsheet to a DPDC Datasheet, are sufficient to copy data between Excel spreadsheets and DPDC datasheets, there are additional techniques that can be used. In general, these additional techniques require more advanced technical skills and concepts.

The following section details an advanced technique that might be helpful while copying data between Excel spreadsheets and DPDC datasheets. We do not provide step-by-step instructions. Instead, we provide enough information to give you a sense of the limitless possibilities that you can employ.

Adding Data to DPDC Datasheets Column-by-Column

You can paste individual columns once you have populated all the required fields with data. Then you can go back and paste in the individual columns. The only exception to filling out required fields before pasting individual columns are the "special" screens where you can click "Add All Entities..." or "Add All Samples..." and add individual columns freely.

IV. INSTALLATION INSTRUCTIONS

- Unzip the installation files; the **ReadMe.txt** file contains late-breaking developments on the installation or the DPDC Data Entry application itself.
- Double-click on the **setup.exe** file from the unzipped installation files.
- Follow the on-screen instructions.
 - You may get a message indicating that some of your system files are out of date on your computer. If this occurs, agree to update the suggested files. In most instances, you will be required to reboot your computer.
 - If you do not have Access 2000 on your computer, you will be asked to run the Microsoft Access 2000 Runtime setup program. Follow the instructions to install Microsoft Access 2000 Runtime. You will be required to reboot your computer.
- Once you receive the message that the DPDC Data Entry Setup was completed successfully, you can start the DPDC Data Entry Application by clicking on **DPDC Data Entry** from the **Start | Program Files | DPDC Data Entry** menu.

V. FREQUENTLY ASKED QUESTIONS

A. WHAT IS THE MINIMUM AMOUNT OF WORK THAT I MUST DO TO SUBMIT DATA?

You can fill out the minimum required information on the 9 required screens. Look at the definitions in Appendix A for each of the required screens listed below for details about the exact type of information required on each of the required screens.

- DT1. Data Set Information
- S1. Sites
- E1. Diatom Entities
- DC1. Diatom Sample (Sediment Interval Subsample)
- DC2. Diatom Count Information
- DC3. Diatom Taxonomy
- DC6. Select Diatom Taxa
- DC7. Taxa Codes
- DC8 and DC9. Diatom Counts

B. HOW DO I ADD INFORMATION TO A LOOK-UP LIST?

All look-up lists in the DPDC Data Entry application have one thing in common – you must select an item from the list. However, there are two types of look-up lists. The first type allows new items to be added to the list and the second does not.

How can you tell the difference between these two types of look-up lists? One way to know if you can add new items to a look-up list is if there is an “Add New...” button at the bottom of the page named after your look-up list. Sometimes there is a button with three dots on it (⋮) next to a field name; this also means that you can add new items to the list. Otherwise, you have to select the best existing item from the list.

C. WHY MUST I CHOOSE BETWEEN SUCH A LIMITED SET OF LOOK-UP LIST SELECTIONS?

Choices may often appear limited (e.g., units for water chemistry parameters). It is necessary, however, to restrict options so that the same selection is used for all similar entries in all data sets. This makes searching for data more efficient, and retrieved data easier to work with.

D. HOW DO I SKIP A NON-REQUIRED SCREEN?

Click the “Next” button at the bottom of the page without entering any data.

E. HOW DO I CHANGE THE INFORMATION THAT I’VE ALREADY ENTERED IN THE APPLICATION?

If you have not submitted the “completed” application to the ANSP, then you can modify, add to, or delete information by going back through the “wizard” to the appropriate screen and changing the item in question.

If you have already submitted the “completed” application to the ANSP and it is currently available on the DPDC website, then you need to contact the ANSP DPDC database manager (phycology@acnatsci.org). Modification to data provided to the ANSP after it has been loaded into the DPDC database and made available on the website is difficult and time consuming. Hence, it is highly discouraged. Each situation has a different solution that should be discussed fully with the ANSP DPDC database manager. It is best to submit all data at one time so that repeated additions and updates can be avoided.

F. WHY CAN'T I DELETE A ROW OF DATA?

It will occasionally be impossible to delete an item. Generally, this is because there has been information entered about it on screens later in the sequence. The typical resolution to this problem is to remove all the **related** information for the item from the screens that are located in the sequence after the information in question.

G. WHAT SHOULD I DO IF THE INFORMATION REQUESTED IS NOT APPLICABLE TO MY SITUATION?

If the entire screen is not applicable, just click the "Next" button to move on to the next screen. If you are filling out a screen and a piece of data is not applicable, just don't fill anything into that cell. If the information is required (indicated by an asterisk (*)), fill in the best value or select the best item from the look-up list you can. For example, you might fill in 0 for numbers or "N/A" for text.

H. WHAT SHOULD I DO IF THE INFORMATION REQUESTED IS NOT AVAILABLE?

If the entire screen requires information that is not available to you, just click the "Next" button to move on to the next screen. If you are filling out a screen and a piece of data is not available, just don't fill anything into that cell. If the information is required (indicated by an asterisk (*)), fill in the best value you can. For example, you might fill in 0 for numbers or "N/A" for text.

I. HOW DO I CONVERT LATITUDE AND LONGITUDE FROM DMS TO DECIMAL DEGREES?

Latitude or longitude can be converted to decimal degrees from degrees, minutes, and seconds using the following equation:

$$\text{Decimal Degrees} = \text{DMS Degrees} + (\text{DMS Minutes} / 60) + (\text{DMS Seconds} / 3600)$$

If you have a western longitude, don't forget to make the decimal degrees value for longitude negative.

A conversion tool can be found at <http://www.unn.ac.uk/~evgp1/gary/deg2dec.htm>. An example of how you can convert large sets of DMS latitude and longitude values into decimal degrees by using Microsoft Excel can be found in the first two pages of the document located at <http://www.biology.ualberta.ca/facilities/gis/uploads/instructions/AVXYData.pdf>.

J. I'M DONE! WHERE DO I SEND THE COMPLETED APPLICATION?

Please zip up the file called Dpdc_DataEntry.mde. Unless you changed the default directory during installation, this file will be located at C:\Program Files\Dpdc_DataEntry\DpdcDataEntry.mde. Please email your finalized DPDC Data Entry program to phycology@acnatsci.org. The data will be loaded into the DPDC database and made available to download from the website (<http://diatom.acnatsci.org/dpdc/>).

K. MY QUESTION HASN'T BEEN ANSWERED HERE. HOW CAN I GET MORE HELP?

If you have a question that has not been answered in this document, please contact a DPDC representative by emailing phycology@acnatsci.org.

VI. Appendix A

D1. Data Set Information

The screen used to define the data set. A data set is a related set of data typically grouped by geographical area and time period, taxonomic consistency, "related" investigators, or reported in a single or set of related publications. Each completed DPDC Data Entry Application contains one data set.

A data set (and hence the information in one DPDC Data Entry Application) is comprised of one or more "entities" (see Diatom Entity) that must be of the same type. Specifically, all of the "entities" grouped in one data set should be either stratigraphic sediment cores, cliff sections, or surface samples. For example, stratigraphic sediment cores and cliff sections cannot both be submitted in the same data set.

name	required?	datatype	definition	example
Name	Yes	text (50)	formal name for the data set	Northern Great Plains Calibration Set
Handle	Yes	text (8)	short name / abbreviation	NGP
Type	Yes	pick from list	the type of data set, either calibration or stratigraphic	calibration
Description	Yes	text (3000)	description of the data set that is informative to DPDC users browsing data sets; can include its name, the number of sites, cores, the lake region names, the purpose of the study, and the names of contributors	Northern Great Plains calibration

D2. People's Roles

The screen used to identify each person involved in the creation of this data set and his / her specific role(s). In particular, people with the roles of "Dataset contributor" and "Dataset primary contact" should be defined. The person defined as the "Dataset contributor" is the name most visibly associated with this data set on the DPDC website.

name	required?	datatype	definition	example
Person	Yes	pick from list	person associated with data set	Fritz, Sheri
Role	Yes	pick from list	what that person's role is in the context of the data set	Dataset contributor

D3. Publications

The screen used to identify the publications that are associated with this data set.

name	required?	datatype	definition	example
Publication	Yes	pick from list	full citation, in Ecology format	Fritz, S.C., S. Juggins, R.W. Battarbee & D.R. Engstrom. 1991 Reconstruction of past changes in salinity and climate using a diatom-based transfer function. Nature 352: 706-708

D4. Projects

The screen used to enter the projects associated with this data set. If a data set was produced or is associated with a formally named project, select or enter that name here. Many smaller datasets are not associated with projects.

name	required?	datatype	definition	example
Project	Yes	pick from list	project associated with this data set	Paleoecological Investigation of Recent Lake Acidification (PIRLA)

S1. Sites

The screen used to enter information about each study site referenced in this data set.

name	required?	datatype	definition	example
Name	Yes	text (50)	if the site is also a waterbody, the name of the waterbody, otherwise the name of the site	Moon Lake
Handle	Yes	text (8)	name / code used to identify a site; this is the code that is used to refer to the site for the remainder of this data entry process and on the DPDC website	Mn Lk
Contrib site code	No	text (50)	site code as defined by contributors in their data sets	36
Site selection code	No	text (10)	contributor-specific optional variables specific to individual data sets, including any scheme for further subdividing or classifying sites	
Ecoregion	No	pick from list	ecoregion assigned to the site	Blue Mountains (11)
Country	No	pick from list	FIPS (Federal Information Processing Standards) name for a geopolitical entity	United States
State	No	pick from list	FIPS (Federal Information Processing Standards) code for a state or province	North Dakota
County	No	pick from list	FIPS (Federal Information Processing Standards) code for a county	ND Benson
Town	No	text (50)	name of the town	Tokio
Township	No	text (50)	name of the township	Johnes
Latitude (decimal degrees)	No	number	latitude in decimal degrees, following normal conventions of applying negative signs to latitudes south of the equator	46.85000
Longitude (decimal degrees)	No	number	longitude in decimal degrees, following normal conventions of applying negative signs to longitudes west of 0/GMT line and east of the international date line	-98.16666
Elevation (m)	No	number	site elevation in meters	1467
Quad 15	No	text (50)	name of USGS 15 min quadrangle	
Quad 7	No	text (50)	name of USGS 7.5 minute quadrangle	Free People's Lake
Site type	No	pick from list	these are the same categories used in the North American Pollen Database; select a site type to the level of detail known; for example, if you know a Coastal site can be further classified as Estuarine, select Coastal Estuarine rather than Coastal	Lacustrine Natural open water Glacial origin
State waterbody code	No	text (50)	site (waterbody) identifier assigned by a state agency	
Notes	No	text (3000)	any information pertaining to the site, including such things as a description of the location of the site and / or additional identifying information	

S2. Lake Characteristics Measured

The screen used to identify the lake characteristics measured for the sites in this data set. This step creates the spreadsheet-type screen where the measurements for various lake characteristics for the sites in this data set are recorded. A lake characteristic is an aspect of a lake that can be measured (e.g., Mean depth, Lake length, etc.).

name	required?	datatype	definition	example
Lake characteristic	Yes	pick from list	a characteristic of the lake that was measured for a site	Mean depth (m)

S3. Lake Characteristics Values

The spreadsheet-style screen used to enter the values for all the sites in this data set for the selected lake characteristics. The sites are identified along the left and the lake characteristics are listed along the top. Enter the lake characteristic values that you have for the sites in the grid, using the units defined in the Measured Lake Characteristics screen (S2).

name	required?	datatype	definition	example
Parameter	Yes	pick from list	the lake characteristics that you selected on the Measured Lake Characteristics screen are listed along the top of the spreadsheet.	mean depth
Site	Yes	pick from list	the handles for all sites that were entered on the Sites screen are listed along the left of the spreadsheet.	Mn Lk
Value	Yes	number	the value of each cell in the spreadsheet. Do not include the units in the cell. Instead, report the values in the units that were defined on the Measured Lake Characteristics screen. For example, the units for mean depth are defined as meters.	11.5

E1. Diatom Entities

The screen used to define the entities associated with this data set.

An entity is defined as one or more samples that are part of a specific collection made at a single site at one point in time. Specifically, an entity is equal to one core, one surface sample, or one cliff section.

There may be several entities associated with one data set. This is the case for calibration data sets, for example. All related entities should be submitted in the same DPDC Data Entry application. If there are multiple entities associated with one data set, they must be all the same type (e.g., all cores, all surface samples, or all cliff sections).

name	required?	datatype	definition	example
Name	No	text (50)	the name of the entity; could be lake name for calibration sets; number, abbreviation, or interval for a core could also be included	Moon Lake
Handle	Yes	text (8)	DPDC alphanumeric description of the entity; this is the code that is used to refer to the entity for the remainder of the data entry process so it should be easily recognizable	Moon Lk
Site	Yes	pick from list	the handle assigned to a particular site by the contributor on the Sites screen (S1)	Mn Lk
Entity type	Yes	pick from list	type of entity (Core, Section, Surface sample, Periphyton, Plankton)	Surface sample
Contributor code	No	text (50)	contributor's entity identifier; code by which the contributor references the entity	ML00032
C14 depth adj	No	text (50)	Applies to cores and sections only; C14 depth adjustment needed to relate the depth of the dated samples to other samples (necessary because depths cited for samples taken for radiocarbon and other geochronological dates may have been measured from a different datum than those for diatom samples)	
Data source	No	pick from list	source of data for diatom entity; the accepted values are: Database archive, Originator, and Publication	Originator
Data form	No	pick from list	type of data which is entered for diatom entity; the accepted values are : Raw counts, Raw percents, Digitized counts, and Digitized percentages. Please select Raw counts, unless it is impossible to do so. "Digitized" data are those derived from plots because raw data were not available.	Raw counts
Use status	No	pick from list	Published if the results are available in the literature, Unpublished otherwise	Published
Notes	No	text (3000)		

E2. Diatom Entity Sponsors

The screen used to define the sponsors associated with each entity. It is acceptable to have no sponsors associated with an entity. It is also acceptable to have multiple sponsors associated with an entity.

name	required?	datatype	definition	example
Diatom entity	Yes	pick from list	unique identifier (handle) for a diatom entity, recorded in the Diatom Entities screen (E1)	Moon Lk
Sponsor	Yes	pick from list	name of sponsor associated with the entity	U.S. National Science Foundation

E3. Diatom Entity Publications

The screen used to identify publications associated with each entity. It is acceptable to have no publications associated with an entity. It is also acceptable to have multiple publications associated with an entity.

name	required?	datatype	definition	example
Diatom entity	Yes	pick from list	unique identifier (handle) for a diatom entity, recorded in the Diatom Entities screen (E1)	Moon Lk
Publication	Yes	pick from list	publication reference associated with diatom entity	Carvahlo, L., E.J. Cox, S.C. Fritz, S.C. Juggins, P. Sims, F. Gasse, & R.W. Battarbee. 1995. Standardizing the taxonomy of saline lake <i>Cyclotella</i> spp. Diatom Research 10: 229-240

E4. Diatom Entity Contributors

The screen used to identify people associated with an entity and their role(s). In particular, people with the roles of Entity contact, Entity PI, Entity collector, Diatom analyst, Inference contact, Water chemistry contact, and Dating / chronology contact should be defined.

name	required?	datatype	definition	example
Diatom entity	Yes	pick from list	a unique identifier (handle) for a diatom entity, recorded in the Diatom Entities screen (E1)	Moon Lk
Person	Yes	pick from list	the name of the person associated with the diatom entity	Laird, Kathleen
Role	Yes	pick from list	role of the person associated with the diatom entity	Entity Contact

DC1. Diatom Sample (Sediment Interval Subsample)

The screen used to enter information about the individual diatom samples associated with each entity in this dataset. The contributor sample code is the sample identifier used by the contributor; typically this is the code used in publications to refer to the samples.

name	required?	datatype	definition	example
Diatom entity	Yes	pick from list	unique identifier (handle) for a diatom entity, recorded in the Diatom Entities screen (E1)	Moon Lk
Contrib sample code	Yes	text (50)	contributor's sample identifier, typically the code used in publications to refer to the sample; if the contributor does not have codes identified for samples, lake names or core intervals can be used for surface samples and cores, respectively; this value is used to uniquely identify a sample through the remainder of the DPDC Data Entry application	36
Contrib sample replicate code	No	text (50)	contributor's replicate identifier ("1" is the default); generally refers to a subsample; this value is used to uniquely identify a sample through the remainder of the DPDC Data Entry application	a
Top of interval (cm)	No	number	top of interval in centimeters, where 0 is the lake bottom; required if the sample is a cliff section or sediment	0
Length of interval (cm)	No	number	total length of the interval in centimeters; required if the sample is a cliff section or sediment	1
Concentration	No	number	concentration of diatoms in the sample	540,000
Units	No	pick from list	units in which the concentration is recorded	# / mL

DC2. Diatom Count Information

The screen used to enter general information about the count or counts of a single diatom sample.

name	required?	datatype	definition	example
Diatom sample	Yes	pick from list	identifier for a diatom sample in the format: Entity handle - Contributor sample code - Contributor sample replicate; the values for the diatom sample contributor code and replicate were recorded in the Diatom Samples (Sediment Interval Subsample) screen (DC1)	Moon Lk - 34 - a
Contributor count	No	text (50)	contributor identifier for the count, default value is 1; if a sample is counted more than once, this is the information that differentiates a count from any other count of the same sample; this value is used to uniquely identify the counts for a sample through the remainder of the DPDC Data Entry application	1
Replicate?	Yes	yes / no	Yes if the count is a replicate for a sample, No if not	No
Best rep?	Yes	yes / no	Yes if the replicate is the best or if this is the only count for a sample; No if there is another replicate for this sample that is more "official"	Yes
Contributor slide	No	text (50)	contributor identifier for the slide	high conc
Count type	No	pick from list	the type of count performed on the sample	400 valves (200 cells)
Counter	No	pick from list	the analyst who made the count	Laird, Kathleen
Date finished	No	date	date the count was completed	2/14/1998
Notes	No	text (3000)	description of taxonomic or other issues and problems intrinsic to a single count	Fragilaria often broken in this sample

DC3. Diatom Taxonomy

The screen used to describe the taxonomy (taxonomic system) used for this data set. The term taxonomic system as used here is a set of taxonomic classifications used by one or more persons for one or more entities. If taxonomic data from analyses of more than one entity are similar enough that the data can be reasonably combined for analysis into one taxonomically consistent data set, then each of those entities should be assigned the same taxonomic system.

name	required?	datatype	definition	example
Name	Yes	text (50)	the name of the taxonomic system	Northern Great Plains Calibration Taxonomy
Handle	No	text (8)	the short name / identifier of the taxonomic system (e.g., PIRLA, ANSP)	NGP
Notes	Yes	text (3000)	description / further information about the taxonomic system, including approaches to documenting unknowns, lumping and splitting preferences, names of the people who helped develop this taxonomic system, and the labs in which it is being used	Further information can be found in the reference publications.

DC4. Taxonomic Publications

The screen used to identify the publications used, referenced, or regarding the taxonomic system used for this data set.

name	required?	datatype	definition	example
Publication	Yes	pick from list	publication associated with the taxonomic system	Carvahlo, L., E.J. Cox, S.C. Fritz, S.C. Juggins, P. Sims, F. Gasse, & R.W. Battarbee. 1995. Standardizing the taxonomy of saline lake Cyclotella spp. Diatom Research 10: 229-240

DC5. Taxonomic Contributors

The screen used to define the people who have contributed to developing this taxonomic system.

name	required?	datatype	definition	example
Contributor	Yes	pick from list	person who contributed to development of the taxonomic system	Fritz, Sheri

DC6. Select Diatom Taxa

The screen used to identify all the taxa identified in the counts of the diatom samples for this data set.

name	required?	datatype	definition	example
Diatom Taxa	Yes	pick from list	name and authority of a diatom taxon	Amphora coffeaeformis (Agardh) Kützing

DC7. Taxa Codes

The screen used to define the contributor code for each taxon. Information about non-standard usage of taxa names within the taxonomic system for this data set can also be provided.

name	required?	datatype	definition	example
Taxon	Yes	pick from list	name of diatom taxon	Amphora coffeaeformis (Agardh) Kützing
Contributor taxon code	Yes	text (50)	taxon identifier used in the contributor's taxonomic system	AMcoffea
Notes	No	text (3000)	description of taxon, location of reference slides or photos, details of unique or non-standard identification	

DC8a. Counts (normalized data format)

The screen used to enter diatom taxa raw count data for diatom samples' counts.

name	required?	datatype	definition	example
Sample count	Yes	pick from list	the count in which a taxon has been identified; the sample count is identified using the hierarchy Entity handle - Contributor sample code - Contributor sample replicate - Contributor sample count	Moon Lk - 34 - a - 1
Taxon	Yes	pick from list	contributor taxon code defined in the Taxa Codes (DC7) screen for each particular taxon identified	AMcoffea
Number	Yes	integer	raw count of diatoms; do not use percent of total number counted	2

DC8b. Select Diatom Samples (Counts)

The screen used to identify diatom samples' counts for which there are count data.

name	required?	datatype	definition	example
Sample	Yes	pick from list	the count in which taxa have been identified; the sample count is identified using the hierarchy Entity handle - Contributor sample code - Contributor sample replicate - Contributor sample count	Moon Lk - 34 - a - 1

DC9b. Counts (spreadsheet format)

The spreadsheet-style screen used to enter the raw number counted of diatoms for diatom samples' counts.

name	required?	datatype	definition	example
Taxon	Yes	pick from list	contributor taxon code, defined in the Taxa Codes (DC7) screen; the taxa are listed along the left of the spreadsheet; do not update this field	AMcoffea
Sample / Count	Yes	pick from list	the samples' counts in which a taxon has been identified are listed along the top of the spreadsheet	Moon Lk - 34 - a - 1
Value	Yes	integer	raw count of diatoms are entered in the cells - do not use percent of total number counted	2

SS. Surface Samples

The screen used to enter information specific to a surface sample. A surface sample is a diatom entity. Therefore, information for only one surface sample is allowed per entity.

name	required?	datatype	definition	example
Diatom entity	Yes	pick from list	unique identifier (handle) for a diatom entity, recorded in the Diatom Entities screen (E1)	Moon Lk
Date collected	Yes	date	date lake was sampled	8/28/1974
Top (cm)	Yes	number	top of surface sample in centimeters, where 0 is the sediment surface	0
Length (cm)	Yes	number	total length of surface sample in centimeters	1
Site depth (cm)	No	number	depth of water where the surface sample was taken in centimeters	1150
Diameter (cm)	No	number	diameter of the surface sample in centimeters	2.5
Sample device	Yes	pick from list	device used to collect the surface sample	Surface sample corer - generic
Location description	No	text (3000)	useful if there is more than one surface sample from a single lake	south side of Moon Lake

CS. Cliff Sections

The screen used to enter information related to cliff sections that have been sampled for diatoms in this data set. A cliff section is a diatom entity. Therefore, information for only one section is allowed per entity.

name	required?	datatype	definition	example
Diatom entity	Yes	pick from list	a unique identifier (handle) for a diatom entity, recorded in the Diatom Entities screen (E1)	Fe Ridge
Label	Yes	text (60)	contributor's label or identifier for the cliff section	IrRdg45
Top (cm)	Yes	number	top of the entire section in centimeters	0
Bottom (cm)	Yes	number	bottom of the entire section in centimeters	125

SC1. Cores

The screen used to enter data specific to an entire core. A core is a diatom entity. Therefore, information for only one core is allowed per entity.

name	required?	datatype	definition	example
Diatom entity	Yes	pick from list	unique identifier (handle) for a diatom entity, recorded in the Diatom Entities screen (E1)	Moon Lk
Date cored	Yes	date	date lake was cored	1/31/1986
Annual lamination	No	pick from list	type of lamination observed in core	No laminations
Site depth (cm)	No	number	depth of water in centimeters where core was taken	13200
Sample device	Yes	pick from list	device used to collect the core	Davis-Doyle piston corer
Diameter (cm)	No	number	diameter of the core in centimeters	5.0
Location description	No	text (3000)	useful if there is more than a single core from a single lake	Moon Lake
Top (cm)	Yes	number	top of core in centimeters, where 0 is the lake bottom	0
Length (cm)	Yes	number	total length of core in centimeters	11200
Ice thickness (cm)	No	number	thickness of ice on the lake in centimeters	0

SC2. Core Drives

The screen used to enter information about the individual drives of a core. A core drive is sometimes referred to as a section of a core.

name	required?	datatype	definition	example
Dtm entity	Yes	pick from list	unique identifier (handle) for a diatom entity, recorded in the Diatom Entities screen (E1)	Moon Lk
Label	Yes	text (10)	label given to the drive	Drive 2
Top (cm)	Yes	number	depth in centimeters at which drive started	100
Bottom (cm)	Yes	number	depth in centimeters at which drive stopped or bottomed	200
Inferred top (cm)	Yes	number	inferred depth in centimeters of the top core segment, when account is taken of compaction	100
Inferred bottom (cm)	Yes	number	inferred depth in centimeters of the bottom of segment	200
Recovered (cm)	No	number	how much core was actually recovered in centimeters	95

GC1. Geochronology Samples

The screen used to record information about the geochronological samples associated with diatom entities. A geochronology sample is defined as a sample that was used to determine a date.

name	required?	datatype	definition	example
Diatom entity	Yes	pick from list	unique identifier (handle) for a diatom entity, recorded in the Diatom Entities screen (E1)	Moon Lk
Depth (cm)	Yes	number	depth of the geochronology sample in centimeters	110
Thickness (cm)	No	number	thickness of the geochronology sample in centimeters	4
Material dated	No	text (50)	the type of material dated	charcoal flakes
Geochronology method	Yes	pick from list	method used to date the geochronology sample	Carbon14 radiocarbon
Publication	No	pick from list	publication describing the geochronology samples or methodologies used	Laird, K.R., Fritz, S.C., Grimm, E.C. and Mueller, P.G., 1996. Century-scale paleoclimatic reconstruction from Moon Lake, a closed-basin lake in the northern Great Plains. <i>Limnol. & Ocean.</i> , 41(5): 890-902.

GC2. Diatom Chronologies

The screen used to register the chronologies developed for each entity. A chronology is a set of sample ages associated with sample depths. There may be more than one chronology per entity. In that situation, one of them should be defined as preferred. A chronology is derived by using known or estimated dates for intervals and interpolating dates for those diatom samples occurring between dated intervals.

name	required?	datatype	definition	example
Dtm entity	Yes	pick from list	unique identifier (handle) for a diatom entity, recorded in the Diatom Entities screen (E1)	Moon Lk
Default?	Yes	yes / no	Yes if this is the preferred chronology, No if not	Yes
Age bound, upper	Yes	number	upper bound of the core depth in centimeters for which the chronology model is valid	110
Age bound, lower	Yes	number	lower bound of the core depth in centimeters for which the chronology model is valid	1125
Name	Yes	text (20)	name of the chronology	Moon Lake Chronology
Person	Yes	pick from list	person responsible for preparing the chronology	
Prepared on	No	date	date of chronology preparation	
Model	No	text (60)	model used to derive the chronology	bidecadal calibration curve (Stuiver and Pearson, 1993)
Notes	No	text (3000)	notes	

GC3. Diatom Chronology Samples

The screen used to enter information about the age estimates derived from age models defined in the Diatom Chronologies screen (GC2) for the sample depths. The dates are those which are reported in publications.

name	required?	datatype	definition	example
Diatom chronology	Yes	pick from list	name for a particular chronology, as defined in Diatom Chronologies (GC2).	Moon Lake Chronology
Diatom sample	Yes	pick from list	identifier for a diatom sample in the format: Entity handle - Contributor sample code - Contributor sample replicate	Moon Lk - 34 - a
Year	Yes	number	estimated age of the sample	460
Year upper bound	No	number	upper bound for the estimated age	520
Year lower bound	No	number	lower bound for the estimated age	400
Deposition time	No	number	deposition time (yr/cm)	4.6

WC1. Water Chemistry Samples

The screen used to enter information about water chemistry samples for this data set. A water chemistry sample can either represent individual samples or aggregated / averaged samples. Only one set of chemistry values is allowed per corresponding diatom count.

name	required?	datatype	definition	example
Contributor's code	Yes	text (50)	the code used by the contributor to identify the water chemistry sample	Mud Lake - 68
Average?	Yes	yes / no	Yes if averaged, No if not; used when the data are actually from several sampling events that are aggregated and / or averaged	Yes
Site	Yes	pick from list	name of site	Mud Lake
Sample depth (m)	No	number	depth in meters of the water chemistry sample	0.5
Number of observations	No	integer	number of sampling events from which data are derived	2
Year of first sample	No	text (4)	year of the first sample	1989
Year of last sample	No	text (4)	year of the last sample	2000
Sample type	No	pick from list	the type of sample	average of samples from multiple lake locations
Season	No	pick from list	the season of collection for the water chemistry sample	spring only
Sample schedule	No	pick from list	the schedule for the sample	multi-year, single season sampling
Publication	No	pick from list	publication which provides information about the water chemistry for this data set	
Notes	No	text (3000)	notes and comments on the water chemistry samples including problems, cautions, extra data, etc.	

WC2. Water Chemistry Samples of Diatom Entities

The screen used to match the water chemistry samples associated with each diatom entity. Only one water chemistry sample can be associated with a diatom entity. However, it is not required to associate a water chemistry sample with an entity.

name	required?	datatype	definition	example
Diatom entity	Yes	text (8)	unique identifier for a diatom entity as recorded in the Diatom Entities screen (E1); cannot be modified in this screen	Mud Lk
Water chemistry sample	No	pick from list	contributor code for a water chemistry sample associated with each diatom entity, as defined in Water Chemistry Samples (WC1)	Mud Lake - 68

WC3. Measured Water Chemistry Variables

The screen used to identify the measured water chemistry variables.

name	required?	datatype	definition	example
Selected	Yes	pick from list	the set of water chemistry variables measured at least once for the water chemistry samples	Salinity (g/L)

WC4. Below Detection Limit Water Chemistry Variables

The screen used to identify those water chemistry variables with results for at least one sample that are less than the detection limit.

name	required?	datatype	definition	example
Less Than Detection Limit	Yes	pick from list	this list contains the measured water chemistry variables for which at least one measurement in the data set is reported as below the detection limit	Phosphorus Total (ug/L)

WC5. Water Chemistry Sample Results

The spreadsheet-style screen used to enter the values water chemistry values for each sample.

name	required?	datatype	definition	example
wc_sample_id	Yes	pick from list	the water chemistry samples are listed along the left of the spreadsheet under the heading wc_sample_id; do not update	Tule Lake - 12
Less Than Variable	No	pick from list	"<" if the variable is less than the detection limit; enter nothing if not	<
Variable	Yes	pick from list	the name of the measured water chemistry variables are listed along the top of the spreadsheet	Phosphorus Total
Value	Yes	number	values of the variables for water chemistry samples should be entered in the cells where the variables and water chemistry samples intersect; use the units as defined with the water chemistry variable - do not type the units on the spreadsheet.	3.24

I1. Inference Models

The screen used to record information about each inference model (equation, approach, method) used in this data set to predict ecological or chemical values for diatom samples. The validity of the inference model is evaluated by statistical comparison of the values calculated by applying the model against the measured values for a calibration data set.

name	required?	datatype	definition	example
Handle	Yes	text (8)	short name / handle to refer to an inference model; this handle will be used on following DPDC screens and on the DPDC website	salinity
Variable	Yes	pick from list	ecological or chemical variable determined by applying the inference equation; in general, users should pick from the look-up table if at all possible, even if they must convert their data to different units	Salinity (g/L)
Units	Yes	pick from list	units recorded for the variable	g/L
Inference method	Yes	pick from list	the name of the technique / analysis used to develop the inference model	Weighted averaging calibration
Quantitative?	Yes	yes / no	Yes if the variable is quantitative, No if not	yes
Equation	No	text (3000)	equation for models based on ecological categories	
Person	No	pick from list	person responsible for the equation	Laird, Kathleen
Notes	No	text (3000)	notes on the inference	

I2. Inference Model Publications

The screen used to identify the publications about the inference models used for this data set.

name	required?	datatype	definition	example
Inference	Yes	pick from list	inference model handle, as defined in the screen Inference Models (I1)	salinity
Publication	Yes	pick from list	publication associated with inference method	Fritz, S.C., S. Juggins, R.W. Battarbee & D.R. Engstrom. 1991 Reconstruction of past changes in salinity and climate using a diatom-based transfer function. Nature 352: 706-708

13. Inference Model Evaluations

The screen used to record the results of the evaluation of the inference models for this data set. The method (or statistic) used to characterize the accuracy and precision of a diatom inference model is recorded, as well as the value of the error determined by applying the statistic to the calibration data set.

name	required?	datatype	definition	example
Inference	Yes	pick from list	inference model handle, as defined in the screen Inferences (11)	salinity
Statistic	Yes	pick from list	the statistical method used to characterize the accuracy and precision of diatom inference models	RMSE jackknifed (Root Mean Square Error)
Value	Yes	number	value of the error determined by applying the statistic to the calibration data set	1.27

14. Diatom Sample Inference Values

The screen used to enter values inferred for diatom samples through the application of inference models.

name	required?	datatype	definition	example
Inference	Yes	pick from list	inference model handle, as defined in the screen Inference Models (11)	salinity
Diatom sample	Yes	pick from list	identifier for a diatom sample in the format: Entity handle - Contributor sample code - Contributor sample replicate	Moon Lk - 34 - a
Value	Yes	number	value inferred for the sample by applying the inference model	6
Value upper	No	number	highest acceptable value determined by author	
Value lower	No	number	lowest acceptable value determined by author	

Add Authority

The screen used to add new authorities. An authority is the name or abbreviation of a person or persons who described a taxon.

name	required?	datatype	definition	example
Authority	Yes	text (75)	name of person who described the taxon. Do not use abbreviations. To add an analyst as an authority for undescribed taxa, please enter his or her name in all capital letters (e.g., MORALES).	Kützing

Add Authors

The screen used to identify the authors of a publication. This information allows users of the DPDC to search for publications by an author's name.

name	required?	datatype	definition	example
Author	Yes	pick from list	name of author of a publication	Fritz, Sheri

Add Genus

The screen used to add a new genus.

name	required?	datatype	definition	example
Division	No	text (20)	algal division (following Bold & Wynne 1978)	Chrysophycophyta
Class	No	text (25)	algal class	Bacillariophyceae
Order	No	text (50)	algal order (following Bold & Wynne 1978)	Pennales
Family	No	text (25)	algal family	Naviculaceae
Genus	Yes	text (25)	algal genus	Amphora

Add Inference Method

The screen used to enter a new inference method. An inference method is a technique or analysis used to infer environmental characteristics from diatom assemblage data to develop inference models.

name	required?	datatype	definition	example
Method	Yes	text (50)	the name of the technique / analysis used to develop the inference model	Weighted averaging calibration

Add Inference Statistic

The screen used to add a new inference statistical method. An inference statistict is a statistical method used to characterize the accuracy and precision of diatom inference models.

name	required?	datatype	definition	example
Name	Yes	text (50)	name of the statistical method	95% Confidence for prediction of a new value

Add Inference Variable

The screen used to add an ecological or chemical variable for which an inference method has been determined.

name	required?	datatype	definition	example
Variable	Yes	text (100)	the variable for which inferences have been determined	%acidophilic
Type	Yes	pick from list	ecological or chemical	ecological

Add Lake Characteristic

The screen used to enter a new lake characteristic and its associated unit of measurment. A lake characteristic is an aspect of a lake or its watershed that can be measured (e.g., Mean depth, Lake length, etc.).

name	required?	datatype	definition	example
Name	Yes	text (50)	name of the lake characteristic (also called a lake parameter)	Mean depth
Units	Yes	pick from list	unit of measurement in which the lake characteristic is reported	m (meters)

Add Person

The screen used to add information about a person who has contributed to, or whose publications are cited in, the DPDC.

name	required?	datatype	definition	example
Title	No	text (10)	title by which the person would like to be addressed (e.g., Dr, Mr., Ms.)	Dr.
First name	No	text (25)	forename	Surirella
Middle initial	No	text (3)	middle initial	U.
Last name	Yes	text (30)	surname	Doe
Suffix	No	text (10)	any suffix, such as Ph.D. or Jr.	Ph.D.
Address	No	text (3000)	complete mailing address, including the state and zip code. The country does not need to be entered here as long as it is identified in the Country field.	Diatom University 1234 Navicula Way Algaeville, CA 90210
Country	No	pick from list	full name of the country	United States
Telephone	No	text (25)	telephone number, including any country and area codes	215.555.1212
Fax	No	text (25)	fax number, including any country and area codes	215.555.1234
Email	No	text (50)	electronic mail address	sue@diatomu.edu
Initials	No	text (10)	initials as would appear in the citation of a publication	S.C.
Nickname	No	text (25)		Sue
Abbreviation	No	text (25)	initials in the form of first, middle, and last initial	SUD

Add Project

The screen used to add information about a project. If a data set was produced or is associated with a formally named project, enter that name here. Many smaller datasets are not associated with projects

name	required?	datatype	definition	example
Name	Yes	text (100)	the full name of the project	Paleoecological Investigation of Recent Lake Acidification
Handle	Yes	text (8)	short name or acronym for the project	PIRLA

Add Publication

The screen used to add a new publication in the full citation format used in Ecological Society of America publications. The short name and year are in separate fields to allow for independent searches on this information.

name	required?	datatype	definition	example
Short name	No	text (20)	the short name by which to refer to the publication; in the case of taxonomic references, the common taxonomic code	Reimer1961
Year	No	text (4)	year of the publication	1961
Citation	Yes	text (500)	full citation, format used in Ecological Society of America publications (i.e., Ecology)	Reimer, C.W. 1961. Some aspects of the diatom flora of Cabin Creek Raised Bog, Randolph Co., Indiana. Proceedings of the Indiana Academy of Science. 71: 305-319.

Add Sample Device

The screen used to add a new sample device. A sample device is a piece of equipment used to obtain a core, surface sample, or cliff section.

name	required?	datatype	definition	example
Name	Yes	text (50)	the name of the sample device	K-B gravity corer

Add Sponsor

The screen used to add a sponsor. A sponsor is the organization that funded or otherwise supported a particular project. A project can have more than one sponsor.

name	required?	datatype	definition	example
Name	Yes	text (100)	name of the sponsor, as cited in the acknowledgement section of publications	U.S. National Science Foundation

Add Taxon

The screen used to enter information about a new diatom taxon. If the taxon has already been documented in the literature, it is sufficient to identify the genus, species, authority, long and short name, publication and person fields.

If the new taxon has not yet been documented in the literature, "sp." should be entered in the Second taxon name field, the number in the Species field, and data filled in for as many other fields as possible. For new taxa, the analyst's name is typically added to the list of authorities in all capitals and identified as the authority.

name	required?	datatype	definition	example
Genus	Yes	pick from list	name of diatom genera	Amphora
Second taxon name	No	pick from list	used if no species name; the only items that can be selected for this field are: sp., aff., or cf.	sp.
Species	No	text (30)	diatom species name for published taxa (no capitalization) or number for undescribed taxa	6
Third Taxon name	No	pick from list	the only items that can be selected for this field are: var., aff.var., cf. var., or susp.	var.
Variety	No	text (30)	diatom variety, form or subspecies name (no capitalization)	acutiuscula
Fourth taxon name	No	pick from list	the only items that can be selected for this field are: fo., aff. fo., or cf. fo.	fo.
Form	No	text (30)	diatom form or variety name (no capitalization)	minor
Short name	No	text (8)	short abbreviation for taxon, 8 characters	AMcoffea
Long name	No	text (20)	long abbreviation for taxon, 20 characters	Amph coffeaform
Authority	No	pick from list	name of the person who described this taxon; do not use abbreviations	(Agardh) Kützing
Publication	No	pick from list	short name of the publication used as a reference for this taxon	Reimer1966
Person	No	pick from list	name of the person / analyst who made the determination of this taxon	Morales, Eduardo

Add Units

The screen used to add a unit of measurement.

name	required?	datatype	definition	example
Units	Yes	text (8)	the short representation of the unit of measurement; this is the code that is used to refer to the units for the DPDC Data Entry application and website	g/mL
Long Name	Yes	text (25)	the complete textual representation of the unit of measurement	grams per milliliter

Add Water Chemistry Variable

The screen used to add a water chemistry variable. A water chemistry variable is an aspect of water chemistry that can be measured.

name	required?	datatype	definition	example
Name	Yes	text (50)	formal name of the variable	Phosphate
Handle	No	text (15)	common name or handle for the variable	PO4
Units	No	pick from list	the abbreviated representation of the units of the variable	ug/L
Group	Yes	pick from list	general group to which the new water chemistry variable can be assigned, including General, Ions, Trace metals, Trophic state, Aluminum, and Other	Ions
Decimal Places	No	integer	number of decimal places of accuracy used for data output and reporting purposes; the maximum number of decimal places allowed is 5	2

New Project Sponsors and Publications

The screen used to identify any number of sponsors and / or publications associated with a project.

name	required?	datatype	definition	example
Publication(s)	Yes	pick from list	publication that is associated with a project, cited in Ecology format	Carvalho, L.R. & S.C. Fritz. 1995 CASPIA: an update on saline lake diatoms. Proceeding, 13th International Diatom Symposium, Naples, Italy. Bristol: Biopress Ltd. pp. 573-576
Sponsor(s)	Yes	pick from list	sponsor that is associated with a project	U.S. National Science Foundation