

APPENDIX E – Glacier Bay Intertidal Monitoring Access Database

ACCESS GENERAL INFORMATION

Getting Started with Access

Access is a relational database. This means that you can store information in multiple tables and relate the tables to each other. In other words, if your database had one table with names and addresses and another table with names and phone numbers, you could type in the phone number and Access would give you address of that person (or vice versa). Thus, Access could also tell you at which sites certain species were found or all the sites that contain a certain percentage of a particular substrate.

Database Objects

There are six types of objects in Access: Tables, Queries, Forms, Reports, Macros and Modules (fig. E1). In the figure below, each of these objects will resemble the tab of a hanging file or a manila folder. Objects consist of the data and the tools you will need in Access. In order to work with one of these objects, click once on the “tab” and a list of all existing files for the database will appear.

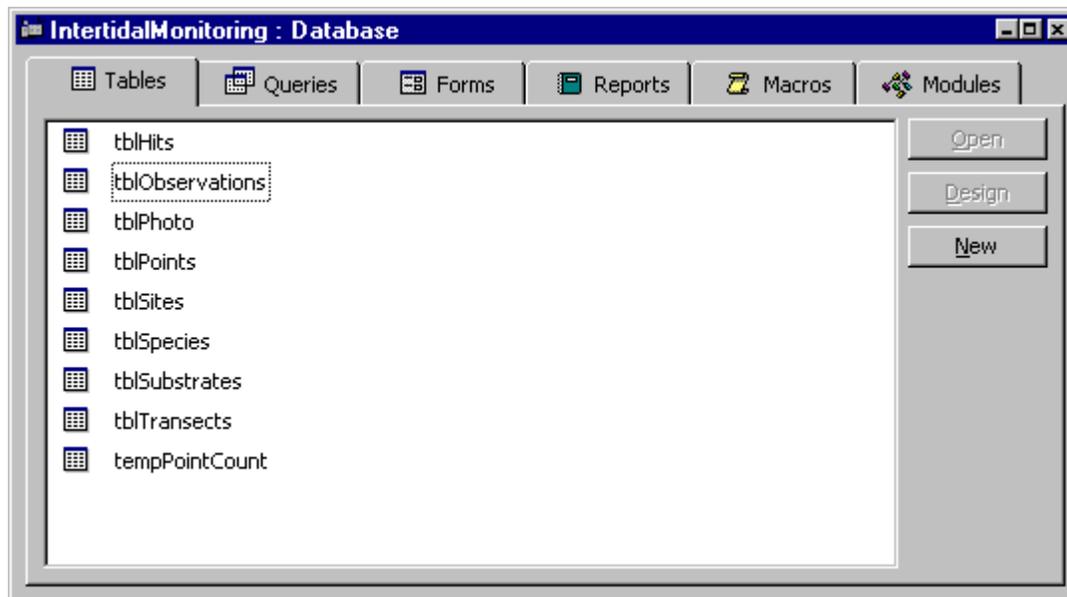


Figure E1. Illustration of the six types of objects found in Access: Tables, Queries, Forms, Reports, Macros and Modules.

Tables

Raw data are stored in tables. Any changes made within a table will directly affect the data stored in that table. Because it is possible to permanently change the entire data set when working in table view, it is strongly recommended that you do not work directly in a table unless absolutely necessary. A better alternative is to work with forms and queries.

Forms

Forms show raw data from tables organized in a more “presentable” or customized format. Generally this means that the data presented in Forms mimics the layout of the datasheets used in the field, facilitating the data entry process.

The data shown in Forms are still raw data and any changes to the data made in Forms will be permanently saved. Although the integrity of the data can still be compromised when using Forms, it is preferable to perform data entry or changes to the data in Forms view. The possibilities of altering large portions of data are greatly reduced.

Queries

Queries are questions that you ask the database and they are used to extract information (e.g. At what sites can *Nucella* be found?). Queries are very flexible and by designing exactly what you need you can search, sort and retrieve specific data. Access has many types of queries, but generally the most commonly used queries are: Select, Update, Append and Delete Queries.

Select Queries

A select query, as you might guess, selects information from one or more tables based on criteria that you specify. Once the query has run, the specific information that you asked for is displayed in a table.

Update, Append, and Delete Queries

All of these queries are action queries. Action queries allow you to change the data in existing tables and you can change many records with a single operation. **Be very careful when using action queries!!** The best method when using an action query is to design your query as a select query, run the query and look at the records that you have selected. If your query selected the records that you want to act upon, then change the query to an action query. To change the type of query, click on the Query pull down menu and select the type of query you need (fig. E2). Next you can use the Query Design Pane to specify what you need updated, deleted or appended.

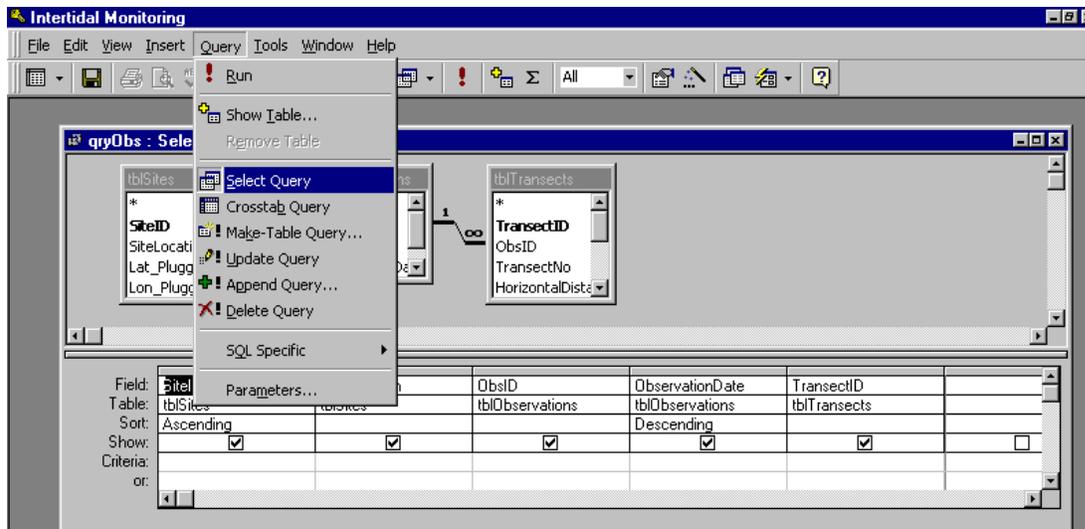


Figure E2. Showing the procedure to change the type of query.

Saving Queries and Naming Queries

Since queries are frequently used, it is easy to end up with too many of them saved into the database, therefore it is important to only save the queries that will be regularly used. If you create a query that will be used only once do not save it. Attempt to give the queries that you save a very specific or informative name ...so that it is easy to tell what they do when you look at them later (e.g., fig. E3).

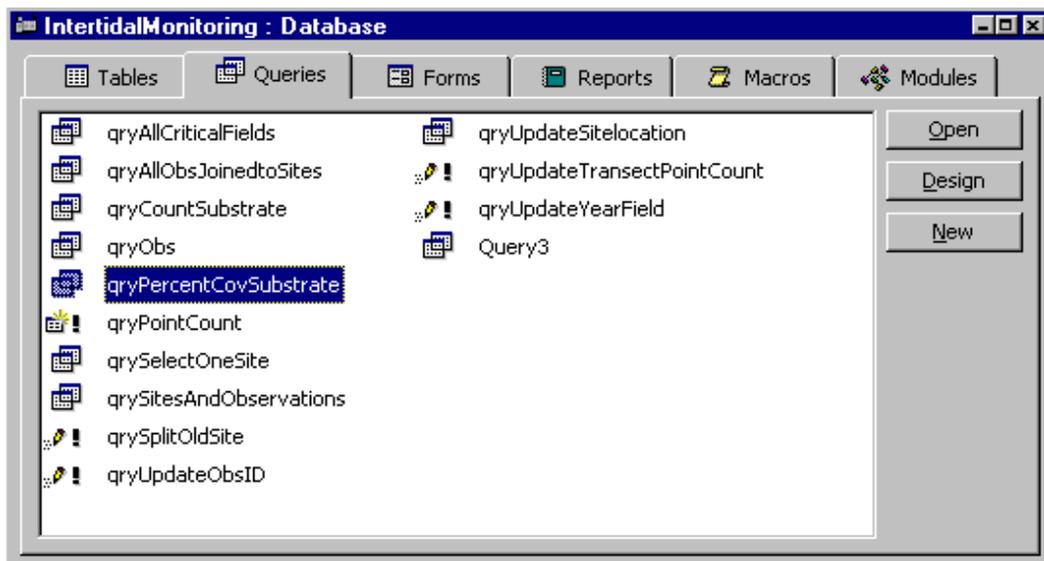


Figure E3. Some of the queries in the intertidal monitoring database. Note that the names begin with “qry.”

DATA ENTRY PROCEDURES

Upon opening the Intertidal Monitoring database you see the screen displayed in figure E4. Select the “Edit Data” button to begin data entry.

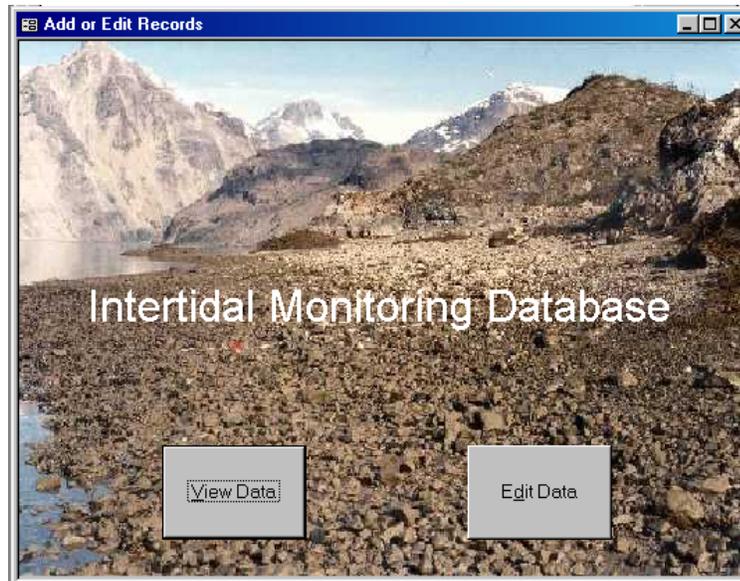


Figure E4. Screen displayed upon opening Intertidal Monitoring database.

The screen should now appear as shown in figure E5. To add observation photos, click on “The Add Observation Photos” button. If you wish to begin data entry for a new site, click the “Enter Data for New Site and Year” button. If you have already begun data entry for a site or if you wish to edit data for a previously entered site, click the “Edit Data for an Existing Site and Year” button.

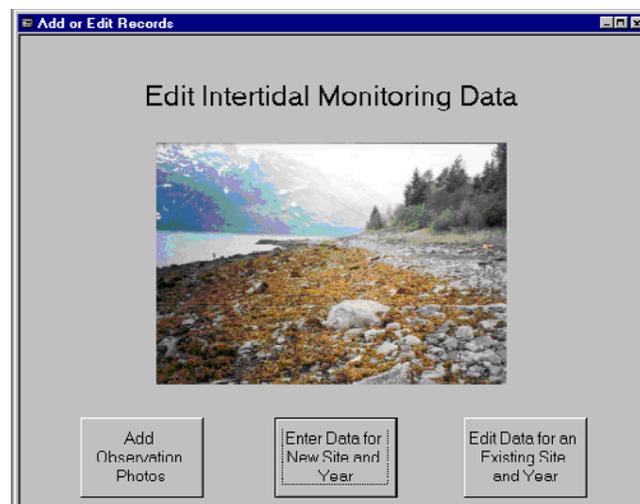


Figure E5. The form that routes you to various ways to edit and enter data.

a) **Edit Data for a New Site and Year**

After you click the button (shown in fig. E5) Access will prompt you for the SiteID. There is a pull-down menu (fig. E6) or you can type in the 3-digit site number. Next Access will ask you for the Observation Date (fig. E6), simply type the date the transects were run.

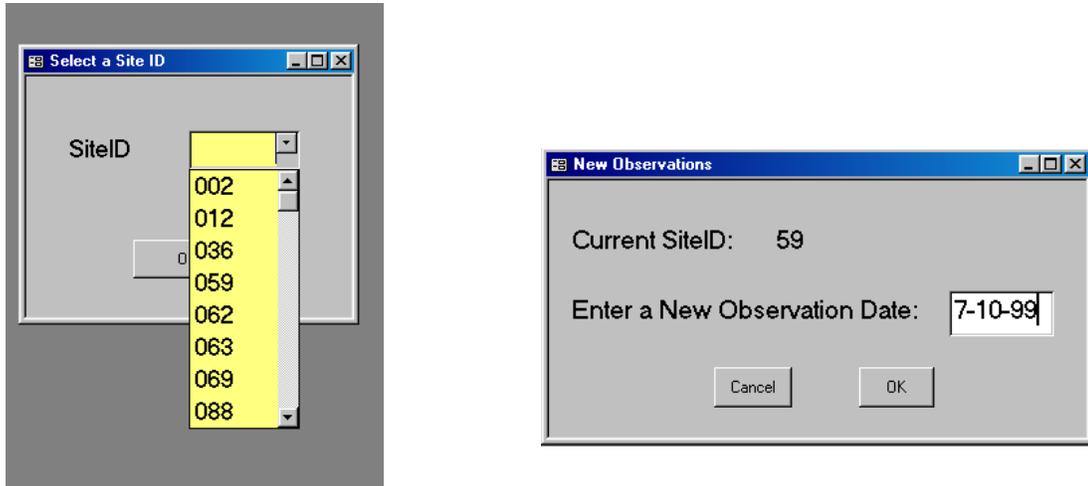


Figure E6. As you enter data for a new site and year, Access will ask for the SiteID and then the Observation Date.

Next the data entry form will appear (fig. E7). The form automatically opens to transect 1. Enter the transect length, the horizontal distance, and the slope.

Figure E7. The data entry form.

Then you begin entering data. Each point must have a substrate. Type in any species that were found on that point. You can type in the species code or use the pull-down menu to select a species (Note: Access will not let you type in a species that is not in the pull-down menu. This will hopefully avoid data entry errors from typos). If there were multiple species (or multiple hits of the same species) each hit needs to be entered. For example, figure E8 shows the data entry form for: FU³, LSI, FU, BG / BO on meter mark 2.6.

Once you have entered the species and substrate for a point, click the “Add Point” button. A new point will be added, the meter mark will automatically be 0.2 cm more and the point will have the same slope and the same substrate as the previous point.

It is often easier to do data entry without using the mouse and these shortcuts may be helpful:

- If the cursor is in Species Code: “Ctrl” and “Tab” (at the same time) will take you to Substrate
- If the cursor is in Substrate: “Enter” once takes you to Add Point, “Enter” again, adds a new point and puts your cursor in Substrate of the new point.

You can move between points or transects by using the arrows shown in figure E8.

To add another transect at the same site, click the “New Transect” button. Access will automatically add 1 to the transect number. Begin data entry.

The screenshot shows a software window titled "Data Entry". At the top, it displays "SiteID: 59" and "Observation Date: 7/10/99". Below this are buttons for "Add an Observation" and "Edit an Existing Observation". The main form area contains fields for "TransectNo" (1), "Length" (45.2), and "HorizontalDistance" (10), with a "New Transect" button to the right. A larger section contains "MeterMark" (2.6), "Slope" (5), and "Substrate" (BO). A list of "SpeciesCode" entries is shown: FU, FU, FU, LSI, FU, BG, and an asterisk. Arrows are visible on the list and at the bottom of the window. A callout box points to the arrows on the list, stating "Use these arrows to move between points on the same transects." Another callout box points to the bottom navigation arrows, stating "Use these arrows to move between transects at the same site." The bottom of the window shows "Record: 14 of 14" and "Record: 1 of 1".

Figure E8. Data entry form after data for meter mark 2.6 (FU³, LSI, FU, BG / BO) have been entered.

b) Edit Data for an Existing Site and Year

Use this option if you have already entered some data for a site (for example one transect, or part of a transect) and you would like to continue entering data for that site or you would like to edit the data that has already been entered.

At the Edit Data prompt (fig. E5) click on the button to edit data for an existing site and year. A form will appear (fig. E9) where you can use a pull-down menu to choose the observation data and site number that you wish to edit.

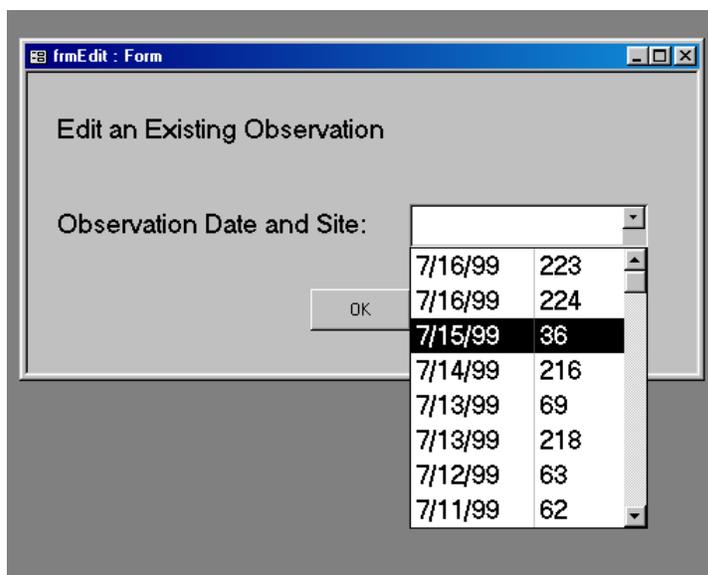


Figure E9. The prompt to edit data for a site and observation date that already exist in the database.

When you click “OK” the data entry form will appear (fig. E8) and you can make the changes that need to be made. Remember you can move between transects and points using the arrows shown in figure E8.

EXPORTING DATA

NOTE: It is very easy to export any table from Access, however, since Access is a relational database all the information you may want to export may be spread out in several tables. In order to export information from multiple tables, you need to write or use a select query. The select query will create a custom table with all the information that you need so that it can be exported.

To Export a table:

Go to the Intertidal Database window (fig. E1). If you cannot see this window, use the Window pull-down menu at the top of the screen and choose “Intertidal Monitoring: Database.” In the Intertidal Database window, click on the Tables tab. List of all the tables in the database will appear. To export a table, click on it to highlight it. Next, use the File pull down-menu at the top of the screen and choose Save As/Export.

To Export from a Query:

Go to the Intertidal Database window (fig. E1). If you cannot see this window, use the Window pull-down menu at the top of the screen and choose “Intertidal Monitoring: Database.” In the Intertidal Database window, click on the Queries tab. If the query you want already exists, simply double click on the query, wait for Access to run the query and create a table. Then from the File pull-down menu choose Save As/Export to export the table. You could also write a new query and export the table that you create.

For example to export all of the data for the entire database: Go to the Intertidal Database window (fig. E1). If you cannot see this window, use the Window pull-down menu at the top of the screen and choose “Intertidal Monitoring: Database.” In the Intertidal Database window, click on the Queries tab. Double click on the “qryAllCriticalFields” query. It will take Access a moment to run. A table will show all the data that will be created. Use the File pull down menu and chose Save As/Export.