DRAFT

MERCI

Management and Evaluation of River Catch Information

User's Guide

Prepared for

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Acknowledgements

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MERCI 2.0 was developed for the Fraser River Division by a project team from ESSA Technologies Ltd and Nobility Environmental Software. Clint Alexander (ESSA) managed the project and led model design and development with programming support from Peter Whiteside (Nobility).

We thank the contract authority, Bridget Ennevor, Fraser River Division for her vision and leadership in recognizing the importance of improving catch estimation methods on the Fraser River. Bridget is also thanked for her patience and realistic expectations over the course of the development of MERCI (especially during the aggressive deployment schedule of version 1.0a).

We are also grateful to Natalie Vivian, Terry Robertson, and Cynthia Desabrais who assisted in many ways during interviews and numerous phone conversations about the survey design of the Fraser River Native creel surveys and its fisheries.

We also acknowledge the contributions of Drs. Lyman and Trent McDonald of Western EcoSystems Inc. for their helpful assistance during the initial stages of the review process.[1]

We thank Kelly Robson and Gwen Diaz of ESSA Technologies for their assistance in preparing this users guide.

[1] McDonald, T.L. and L.L. McDonald. 1998. Review of sockeye catch estimation procedures on the Fraser River between Sawmill Creek and Kelly Creek. WEST Technical Report No. 98-1, Dated May 20, 1998. WEST Inc., 2003 Central Avenue, Cheyenne, Wyoming 82001.

Note from the Developer

This manual is not a guide on catch estimation methods. This manual is designed to describe how to properly use the MERCI system to enter survey data and to generate catch estimates. In other words, this manual illustrates ***how*** to do things and explains the available options but does not tell you ***when*** or ***why*** you should do them.

Survey design and other statistical considerations associated with catch estimation for the Fraser River Native fishery are topics discussed in detail in:

> **Alexander, C. A. D.** 1999. 1998 Native Catch Estimates on the Upper Fraser River. Prepared by ESSA Technologies Ltd., Vancouver, BC for the Department of Fisheries and Oceans, Fraser River Division, Annacis Island, New Westminster, BC. 68 pp. and appendices.

> **Alexander, C. A. D.** 1998. 1998 Catch Estimates on the Lower Fraser River. Prepared by ESSA Technologies Ltd., Vancouver, BC for the Department of Fisheries and Oceans, Fraser River Division, Annacis Island, New Westminster, BC. 52 pp.

Table of Contents

CHAPTER 1

Before You Start

1.1 Introducing MERCI

Welcome to **MERCI** version 2.0 – a tool for **M**anagement and **E**valuation of **R**iver **C**atch and effort **I**nformation. With this tool, you will be able to generate weekly catch estimates that can be used on a real time basis to assist in-river fisheries management decisions. This section introduces the major concepts underlying the creel survey design supported by MERCI, and the major steps required to use MERCI for analysis purposes.

This section also describes the system requirements, installation instructions, and other important information you need to get started.

1.2 Using this Guide

This User's Guide has all the information you need to work with MERCI. The chapters are arranged

Chapter	Describes
Chapter 1 Before You Start	Describes MERCI and highlights some new features in version 2.0. It also outlines the conventions used in the Guide.
Chapter 2 Getting Started	Describes how to install, start up and navigate through MERCI.
Chapter 3 General Features	Provides instruction on how to access the general features that are the building blocks of the data entry forms.
Chapter 4 Data Entry	Provides instruction on how to fill out the data entry forms.

Chapter	Describes
Chapter 5 Estimation	Provides options for aggregating survey data over both space and time.
Chapter 6 Runs	Describes how to define catch estimation scenarios and execute the catch estimation algorithm.
Chapter 7 Model Output	Describes the on-screen output options available in MERCI.
Chapter 8 The Database	Describes the MERCI database and how to explore it.
Chapter 9 File Management	Describes File Management features such as importing and exporting records between different databases.

1.2.1 Document Conventions

The Guide uses the following typographical conventions.

Example	Description
drive_letter	Italic type indicates a place holder for information you must provide, as well as names/text appearing on the screen such as the names of fields in dialog boxes.
setup	Bold type indicates text you must type exactly as shown. Bold type also emphasises menu options and buttons you must choose.
CLOSE	Small caps emphasize menus and the names of dialog boxes.

1.3 Highlights of MERCI 2.0

MERCI v.2.0 was preceded by two major releases–version 1.0a and 1.1. MERCI v.2.0 represents a considerable advance over these previous versions in a number of areas.

Feature	MERCI 1	MERCI 2
Normalised Access database	✗	✓
Integrated estimation scenario-output management	✗	✓
Standard error and confidence limit algorithms	✗	✓
Streamlined user interface	n/a	✓
Database to database Import/Export (raw survey data only)	✗	✓
Survey component updating (e.g., support for management unit additions)	24-hour access sites only	✓ (except gear types)
Password protected data deletion/updates	✗	✓
Comprehensive estimation options	some	✓
Robust error checking	✓	✓
Robust error handling	✗	✓
Output graphics	some	more
Survey data explorer	✓	✓

1.4 Getting Help

Many of your questions about MERCI can be answered by consulting the table of contents of this User's Guide. Technical support questions can also be addresses to Clint Alexander at the Vancouver office of ESSA Technologies Ltd.:

Telephone: 604.733.2996
Fax: 604.733.4657
E-mail: calexander@essa.com

We are very interested in your comments and feedback.

Additional information about the creel survey design supported by MERCI can be found in the following documents:

Alexander, C. A. D. 1999. 1998 Native Catch Estimates on the Upper Fraser River. Prepared by ESSA Technologies Ltd., Vancouver, BC for the Department of Fisheries and Oceans, Fraser River Division, Annacis Island, New Westminster, BC. 68 pp. and appendices.

Alexander, C. A. D. 1998. 1998 Catch Estimates on the Lower Fraser River. Prepared by ESSA Technologies Ltd., Vancouver, BC for the Department of Fisheries and Oceans, Fraser River Division, Annacis Island, New Westminster, BC. 52 pp.

CHAPTER 2

Getting Started

This chapter outlines the minimum system requirements to operate MERCI and describes how to install MERCI on your computer. It also provides information on how to start up and navigate the main MERCI window. It includes the following topics:

- System Requirements
- Installation Instructions
- Running MERCI
- MERCI Menus
- Viewing the toolbar and status bar

2.1 System Requirements

The recommended system requirements for running MERCI are:

- Pentium class processor, 200 MHz or better strongly recommended
- A monitor capable of 1024 x 768 resolution or better
- 64+ MB RAM (128 MB is ideal)
- Hard-disk space:
  - 100 MB hard-disk space for intra-season survey data entry (when starting with a 'fresh' database)
  - 1+ gigabyte(s) for performing, storing, and evaluating results of alternative catch estimation scenarios with bootstrap confidence limits (i.e., master database).
- CD-ROM drive

The program runs under a 32-bit operating system such as Windows NT (4.0) or Windows 95/98. Access to, and familiarity with Microsoft Access 97, will significantly improve analysis flexibility.

2.2 Installation Instructions

To install MERCI on your computer:

1. Remove any previous installations of MERCI from your computer (being sure **not** to delete the associated MERCI database files).
2. Place the MERCI2 installation CD in your CD-ROM drive.
3. In Windows NT or 95/98 CONTROL PANEL choose **Add/Remove Programs**,

   OR

   from the START MENU select **Run** and then type **drive:\setupex.exe**.

   OR

   Using Windows NT or 95/98 EXPLORER, navigate to the MERCI2 CD and double click **setupex.exe**
4. If prompted, click **Install**, otherwise simply follow the on-screen instructions.
5. Read the "ReadMe.txt" file once set-up is complete.

During installation, MERCI copies a default database to the directory you choose to install the model ("MERCI data entry template.mdb"). This database file, and a copy of the master database as of June 7, 1999 ("Fraser River Native Catch Database (master).mdb") can also be copied directly from the MERCI2 CD. The MERCI2 CD also contains a copy of the 1998 post-season review of the upper Fraser River Native catch estimation program.

Note: MERCI v.2.0 will not function correctly with the MERCI v.1+ database format (non-normalised). MERCI v.1+ survey information can be imported into the new database format (normalised) as described in chapter 9.2.

2.3 Running MERCI

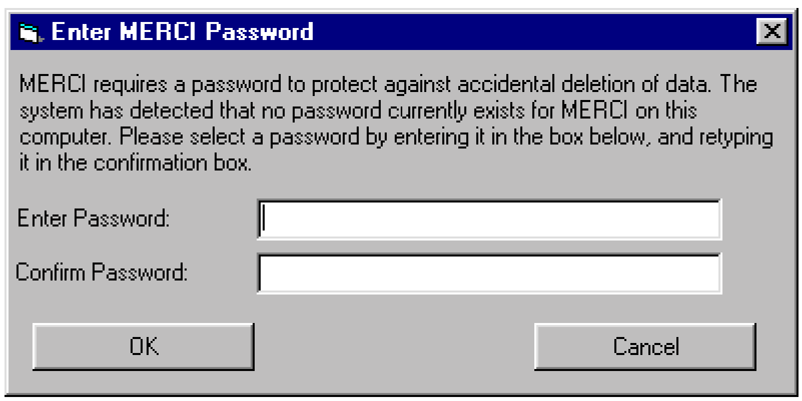
2.3.1 Starting MERCI

MERCI is installed to run from the Windows NT or 95/98 START MENU.

To start running MERCI:

1. From the START MENU select **Programs**.
2. Select Merci.
3. Select MERCI_2.

The first time you run MERCI after installation you are prompted to enter a password. MERCI requires a password as a safeguard to prevent the user from accidentally modifying or deleting data. Be sure to write down the password in a secure location in case you forget it. This password can be changed later.



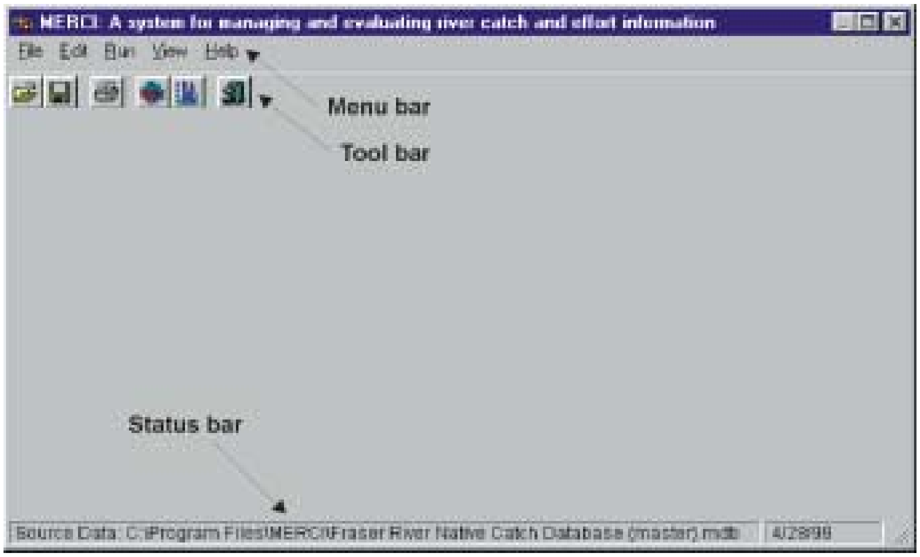
To enter a password:

1. Type a minimum five-character *password* in the *Enter Password* field.
2. Retype the *password* in the *Confirm Password* field to confirm.
3. Click on the **OK** button to add the password or click on the **Cancel** button.

2.3.2 Navigating the MERCI Screen

The MERCI Window

The MERCI window is your workplace. The menu bar and toolbar are located at the top of the window, below the title bar. The status bar is at the bottom of the window.



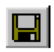
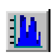
You operate MERCI by choosing options from the menus in the menu bar. You can also access some of the most frequently used menu options by clicking buttons in the toolbar. The menu options and toolbar buttons are described in more detail below.

MERCI Menus

Menu	What you can do
File	Open, save, import and export databases and exit MERCI.
Edit	Access the General Features, Data Entry forms and Estimation options required for generating catch estimates.
Run	Allows you to define a catch estimation scenario.
View	Allows you to view basic catch estimation output and explore the MERCI database.
Help	Provides you with the version of MERCI and how to obtain technical support.

Viewing the Toolbar

The toolbar, displayed below the menu bar in the MERCI window, provides quick access to the dialog boxes you use most often. These are the tools in the toolbar:

Button	Name	What You Can Do
	Open Database	Opens the LOCATION OF FRASER RIVER CATCH DATABASE dialog box to allow you to select the database to open.
	Save Database	Saves the open database
	Print	Allows you to print the current view
	Explore Database	Takes you to the CATCH AND EFFORT EXPLORER where you can browse through the database
	Update Graphs	Takes you to the OUTPUT OPTIONS dialog
	Exit Application	Allows you to exit the program.

You can display or hide the toolbar by doing one of the following:

To	Do this
Display the toolbar	From the **View** menu, choose **Toolbar**
Hide the toolbar	From the **View** menu, choose **Toolbar**

Viewing the Status Bar

The status bar, displayed at the bottom of the MERCI window, provides the pathway and name of the database that is open and the current date. As with the toolbar, you can display or hide the status bar by doing one of the following:

To	Do this
Display the status bar	From the **View** menu, choose **Status Bar**
Hide the status bar	From the **View** menu, choose **Status Bar**

2.3.3 Open Database

The first step in operating MERCI is to open up the database. There are two ways to open a database and a shortcut from the **File** menu.

To open a database:

1. From the **File** menu, choose **Open Database**, or click on the  button.
2. Select the database and click on **Open.**

Tip: MERCI provides a most recently used database file list under the **File** menu as a shortcut to opening the database.

2.3.4 Exiting MERCI

To exit from MERCI:

- From the **File** menu, choose **Exit**; or
- Click on the  button.

CHAPTER 3

General Features

This chapter provides information on the general features of the creel survey under the EDIT - GENERAL menu. The features of the survey over which the user has limited to full control includes:

- Management Units
- 24 Hour Access Sites
- Gear Types
- Observation Modes
- Observation Methods
- Harvesters
- Native Bands
- Permit Numbers
- Observers
- Observation Conditions
- Passwords

Note: when modifying these elements, it is important to keep in mind the legacy of the survey program so that the MERCI system remains compatible with previous years data.

3.1 Management Units

A Management Unit is a pre-defined area of the Fraser River used to stratify the collection of catch and effort data. These strata typically correspond with the traditional fishing areas of the different Native communities and with river morphology (e.g., demarcated by more significant tributaries confluencing with the Fraser River). As of the release of version 2.0 of the model, there were the following 18 Management units in use on the Fraser River between 1996 and 1998:

1. C-L1 – Port Mann Bridge to Mission
2. C-L2 – Mission to Harrison

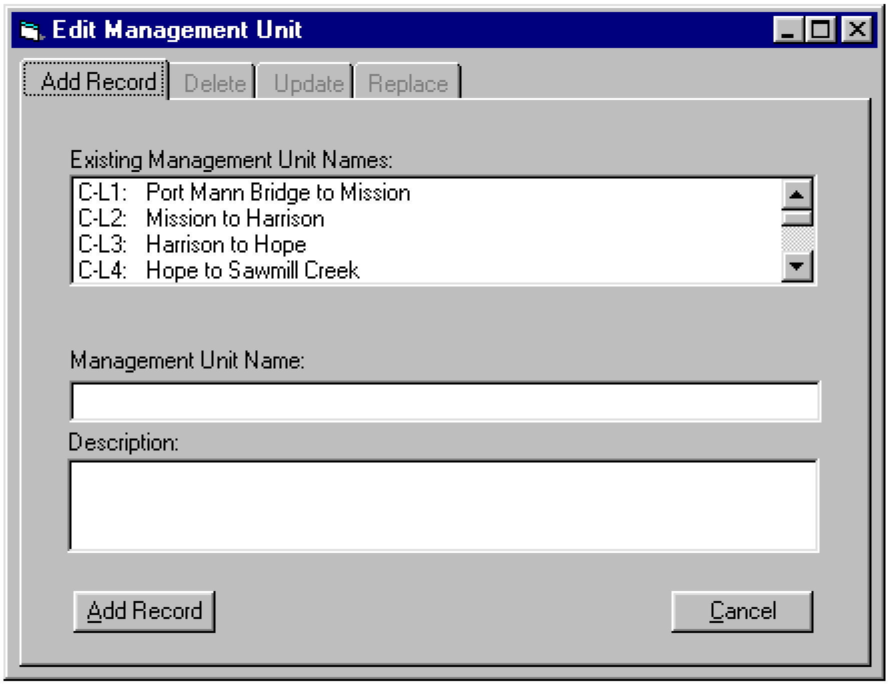
3. C-L3 – Harrison to Hope
4. C-L4 – Hope to Sawmill Creek
5. D-01 – Sawmill Creek to Hell's Gate
6. D-02 – Hell's Gate to Sam Adams
7. D-03 – Sam Adams to Siwash Creek
8. D-04 – Siwash Creek to Piglog Creek
9. D-05 – Piglog Creek to Pooeyelth Creek
10. D-06 – Pooeyelth Creek to Saw Creek (Skuppah)
11. D-07 – Saw Creek to Stein River
12. D-08 – Stein River to Texas Creek
13. D-09 – Texas Creek to Lillooet (Old Bridge)
14. D-10 – Thompson River to Bonaparte Confluence
15. D-11 – Lillooet to Pavillion Creek
16. D-12 – Pavillion Creek to Kelly Creek
17. D-13 – Kelly Creek to Barney Creek
18. D-14 – Barney Creek to Deadman Creek

MERCI allows you to add, delete, update or replace Management Units.

> **Warning!**
>
> Care is required when deleting, updating, or replacing Management Units because this can lead to the loss of historical information or an inappropriate change in the meaning of the data (e.g., the misrepresentation of the data's true spatial interpretation).

To get to the EDIT MANAGEMENT UNIT dialog box:

1. From the **Edit** Menu, choose **General**.
2. Click on **Management Units**.



To add a new management unit:

1. Go to the EDIT MANAGEMENT UNIT dialog box. The ADD RECORD TAB will appear.
2. Type the *name* of the new unit in the existing *Management Unit Name* field. When adding a new Management Unit you must provide the first five characters in either of the following formats: D-??: or C-L?:, where ? can be either a letter or a number.
3. Type in a *description* in the *Description* field (optional)
4. Click on the **Add Record** button. To cancel adding the new Management Unit, click on the **Cancel** button.

The DELETE, UPDATE and REPLACE tabs are disabled here. To perform any of these functions, you must have a "current" management unit selected from one of the data entry forms. Specifically, DELETE, UPDATE and REPLACE are accessible from the MU GEAR COUNTS or CATCH INTERVIEWS data entry forms described in Sections 4.2 and 4.3, respectively.

Warning!

Replacing and Updating may change the meaning of pre-existing data. Use Update to change names (e.g., correct spelling errors). Replace should be used only to correct a data entry error in the current season's database file. Use caution.

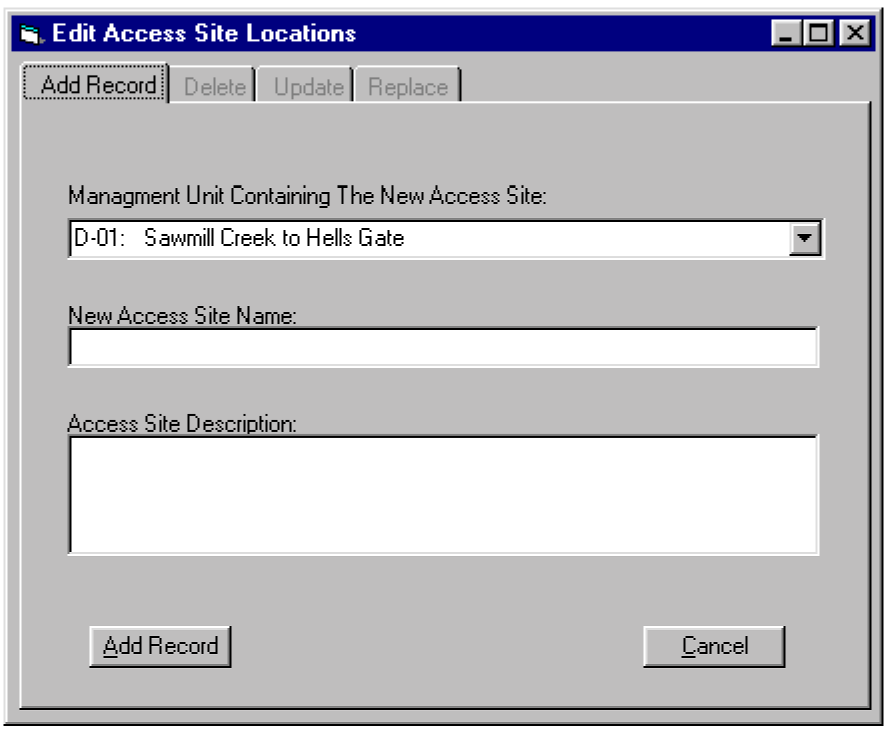
3.2 24-hour Access Sites

24 Hour Access Sites are locations along the Fraser River where survey agents monitor effort around the clock tracking the number of actively fishing gill and dip nets in small subsections of selected strata. Every hour on the hour catch monitors observe fishers setting and pulling nets to produce a "24-hour count" of the number of nets actively fishing in the pre-defined area surrounding the access site. This is requisite information for estimating total effort as the survey data permits an estimate of the proportion of nets fishing in the time period(s) during which instantaneous effort counts were made.

MERCI allows you to add, delete, update or replace 24-hour Access Sites in any Management Unit.

To get to the EDIT ACCESS SITE LOCATIONS dialog box:

1. From the **Edit** Menu, choose **General.**
2. Click on **24hr Access Sites.**



As you can see, the EDIT ACCESS SITE LOCATIONS dialog box looks similar to the EDIT MANAGEMENT UNIT dialog box. This design is carried out throughout the model to facilitate ease of use.

To add a new Access Site:

1. Go to the EDIT ACCESS SITE LOCATIONS dialog box as described above. The ADD RECORD TAB will appear.
2. Select the **Management Unit** from the pick list in the *Management Unit Containing The New Access Site* field.
3. Type in the *name* of the new site in the *New Access Site Name* field.
4. Type in a *description* in the *Description* field (optional).
5. Click on the **Add Record** button. To cancel adding the new access site, click on the **Cancel** button.

Note: As with the EDIT MANAGEMENT UNIT dialog box, the DELETE, UPDATE and REPLACE tabs are disabled. To perform any of these functions, you must have a current 24-hour Access Unit selected from within the 24-HOUR EFFORT SURVEY data entry form described in Section 4.4.

3.3 Gear Types

Unfortunately, Editing of Gear Types is currently not supported in version 2.0 of MERCI. This design decision was motivated by an interest in maintaining compatibility with the legacy database design (database design inherited from DFO during development of MERCI 1). The legacy database is non-normalised and without referential integrity. As well as having many other inefficiencies and design induced error susceptibilities, this legacy design had information on the gear type built into the actual field names in some key tables. This made it impossible to perform gear type additions, deletions, or updates without making MERCI v.2.0 unable to support legacy database information.

3.4 Observation Modes

MERCI comes with a list of modes of observation used for the 1996 through 1998 seasons. Roving boat, roving foot and roving vehicle, and access site are all modes used to contact and interview fishers. Both helicopters and fixed wing aircraft are used to count nets throughout the study area. An observation mode titled "confounded" exists to support legacy data were it is not possible to determine whether catch interviews were conducted at stationary access sites or via a roving method of contact.

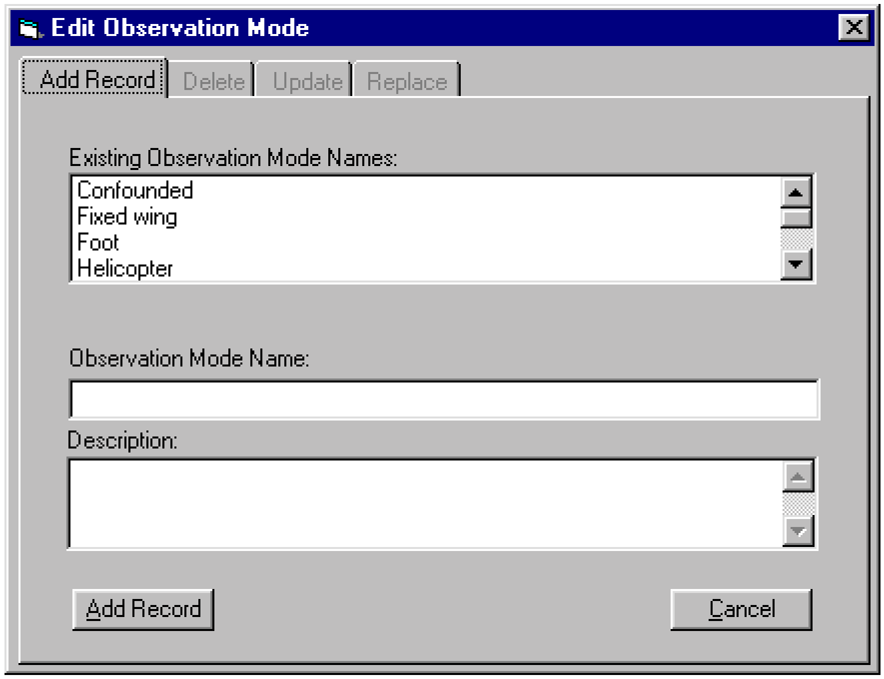
- Access site – fishers come to the survey agent at a defined site at the end of their trips. Best results are obtained when survey agents are present for the full duration of the fishery. This information is used to estimate Cpue. These or other access sites are also used to produce 24-hour net counts used in estimating total effort.

- Confounded – not possible to distinguish whether the catch interview was conducted at an access site or by a roving mode of contact.
- Fixed Wing – fixed wing air craft flies over the fishery to obtain a relatively instantaneous net count.
- Helicopter – helicopter overflights are conducted to obtain a relatively instantaneous net count.
- Roving boat – boat patrols are conducted to obtain catch interview information for Cpue estimation, and to collect gear counts to supplement helicopter overflight data. Boat patrols are able to obtain catch data in areas that may have otherwise been missed by vehicle patrols.
- Roving foot – conducted to obtain catch interview information for Cpue estimation. Scheduled to cover areas that patrol boat did not have access to.
- Roving vehicle – conducted to obtain catch interview information for Cpue estimation. The distinction between roving foot and roving vehicle is sometimes arbitrary (i.e., drive to a site via vehicle, and then walk down to the river edge to conduct the interview).

MERCI allows you to add, delete, update or replace Observation Modes.

To get to the EDIT OBSERVATION MODE dialog box:

1. From the **Edit** Menu, choose **General.**
2. Click on **Observation Modes.**



To add a new Observation Mode:

1. Go to the OBSERVATION MODE dialog box as described above. The ADD RECORD TAB will appear.
2. Scroll through the existing Modes in the *Existing Observation Mode Names* field to ensure you aren't creating a duplicate.
3. Type in the *name* of the new Mode in the *Observation Mode Name* field.
4. Type in a *description* in the *Description* field (optional).
5. Click on the **Add Record** button. To cancel adding the new access site, click on the **Cancel** button.

As with the other dialog boxes, the DELETE, UPDATE and REPLACE tabs are disabled. To perform any of these functions, you must have selected a current Observation Mode from the MU GEAR COUNTS or CATCH INTERVIEW data entry forms described in Sections 4.2 and 4.3.

3.5 Observation Methods

MERCI comes with two methods of observation of fishing activities:

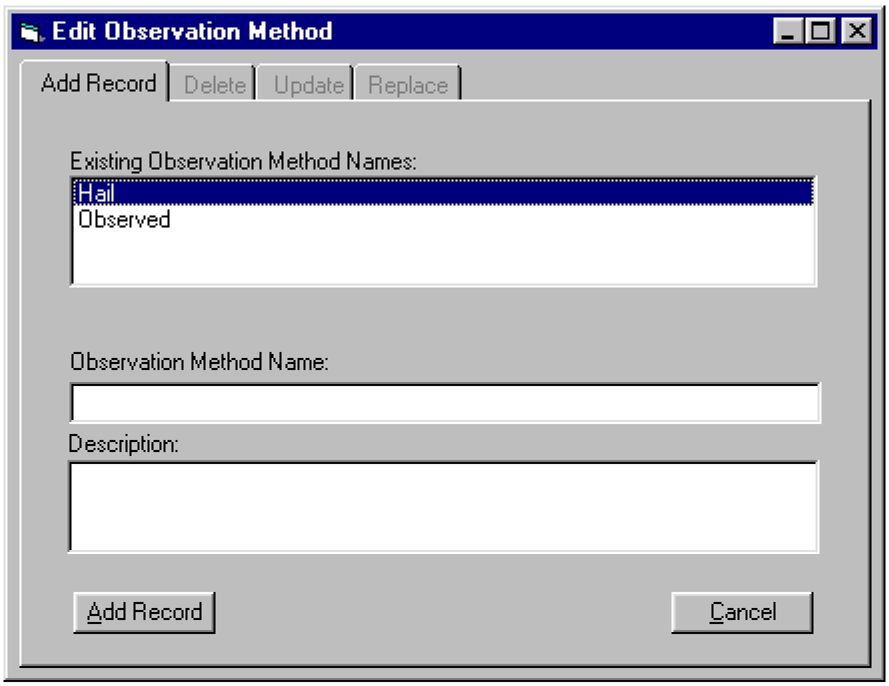
- Hail
- Observed

The Hail method is used when the interviewer obtains the numbers of fish caught from the fisher. These data are not independently verified. The Observed method is used when an interviewer handles and counts the number of fish caught themselves.

MERCI allows you to add, delete, update or replace an Observation Method.

To get to the EDIT OBSERVATION METHOD dialog box:

1. From the **Edit** Menu, choose **General.**
2. Click on **Observation Methods.**



To add a new Observation Method:

1. Go to the EDIT OBSERVATION METHOD dialog box. The ADD RECORD TAB will appear.
2. Scroll through the existing Methods in the *Existing Observation Method Names* field to ensure you aren't creating a duplicate.
3. Type in the name of the new Method in the *Observation Method Name* field.
4. Type in a *description* in the *Description* field (optional).
5. Click on the **Add Record** button. To cancel adding the new access site, click on the **Cancel** button.

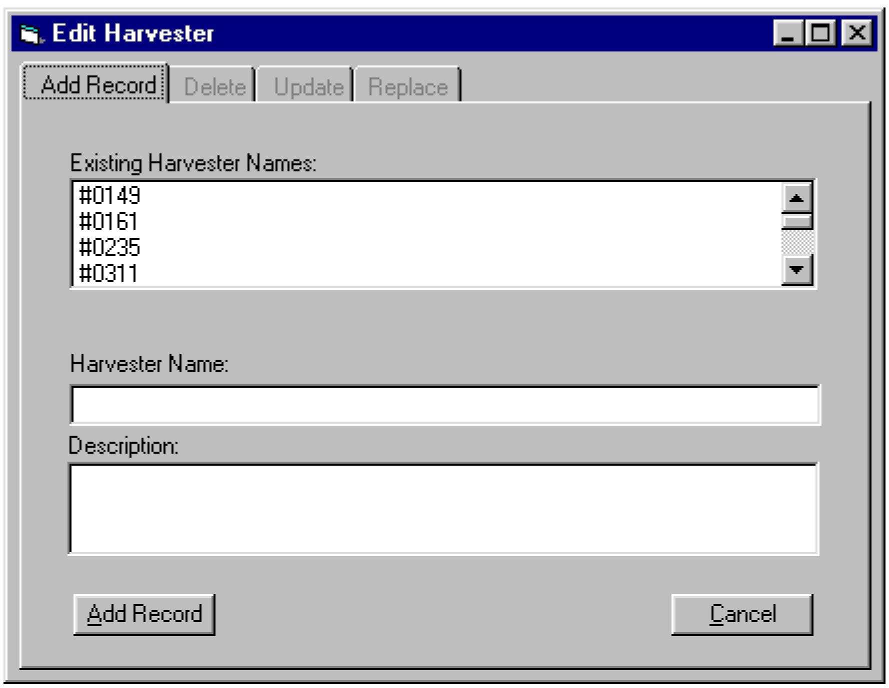
Note: As with the other dialog boxes, the DELETE, UPDATE and REPLACE tabs are disabled. To perform any of these functions, you must have a current Observation Method selected from the CATCH INTERVIEW data entry form described in Section 4.3.

3.6 Harvesters

MERCI provides a list of harvester names that have been carried over from the previous non-normalised version of the MERCI database. The MERCI v.1+ data entry system required users to manually type in the name of harvesters. This led to a wide range of variations in names for the same individuals (e.g., different numbers of spaces, variations in capitalisation, abbreviations, etc.). A more user friendly data entry system has been provided in version 2.0 that allows you to add, delete, update and/or replace new names to the system as time goes on.

To get to the EDIT HARVESTER dialog box:

1. From the **Edit** Menu, choose **General.**
2. Click on **Harvesters.**



To add a new Harvester:

1. Go to the EDIT HARVESTER dialog box. The ADD RECORD TAB will appear.
2. Scroll through the existing Names in the *Existing Harvester Names* field to ensure you aren't creating a duplicate.
   - *Tip*: If the list of fishers is long. To quickly find a name – click once in the *Existing Harvester Names* field, type the *first letter* of the person's first name.
3. Type in the *name* of the new Harvester in the *Harvester Name* field.
4. Type in a *description* in the *Description* field (optional).
5. Click on the **Add Record** button. *Note:* To cancel adding the new access site, click on the **Cancel** button.

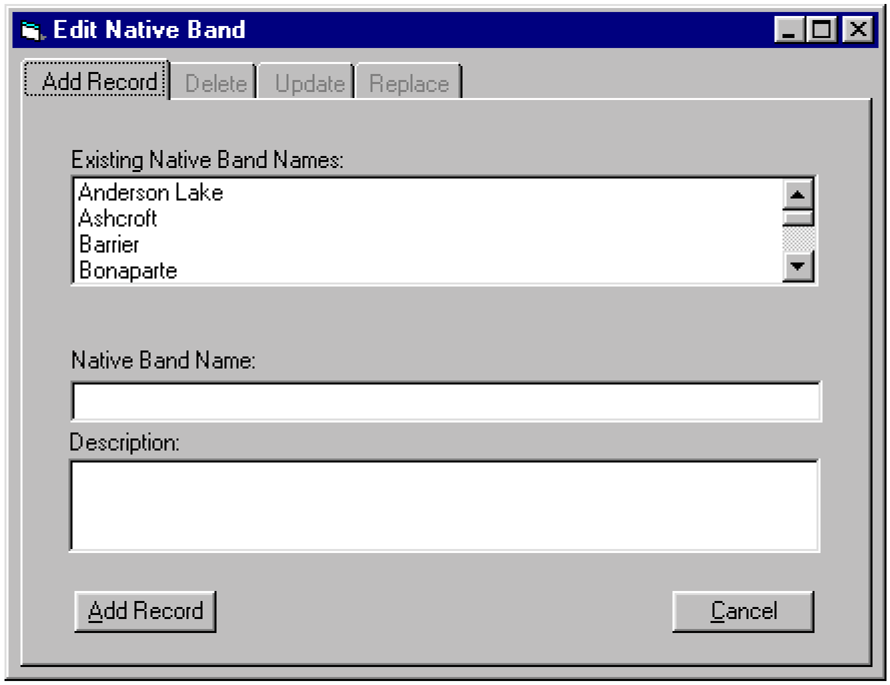
Note: As with the other dialog boxes, the DELETE, UPDATE and REPLACE tabs are disabled. To perform any of these functions, you must have a current Harvester selected from the CATCH INTERVIEW data entry form described in Chapter 4.3.

3.7 Native Bands

MERCI provides a list of existing Native band names that have been carried over from the 1996 to 1998 survey seasons. You may need to add, delete, update and/or replace the names in the system.

To get to the EDIT NATIVE BAND dialog box:

1. From the **Edit** Menu, choose **General.**
2. Click on **Native Bands.**



To add a new Native Band Name:

1. Go to the Edit Native Band dialog box. The Add Record Tab will appear.
2. Scroll through the existing Names in the *Existing Native Band Names* field to ensure you aren't creating a duplicate.
   - *Tip*: As with fishers – to quickly find a name – click in the field and type in the first letter of the band name.
3. Type in the *name* of the new Band in the *Native Band Name* field.
4. Type in a *description* in the *Description* field (optional).
5. Click on the **Add Record** button. *Note:* To cancel adding the new access site, click on the **Cancel** button.

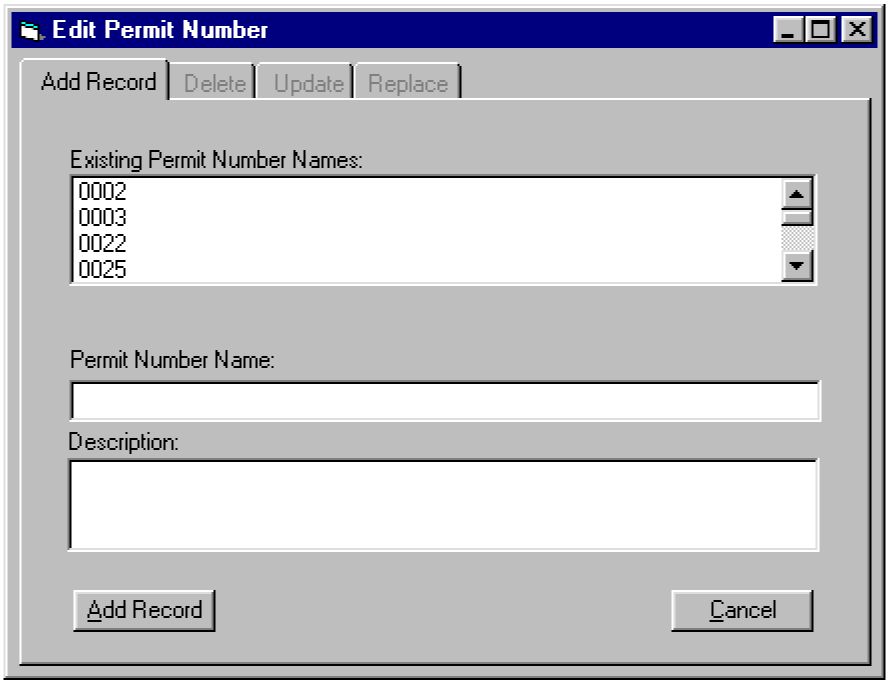
Note: As with the other dialog boxes, the Delete, Update and Replace tabs are disabled. To perform any of these functions, you must have a current Native Band selected from the Catch Interviews data entry form described in Section 4.3.

3.8 Permit Numbers

MERCI provides a list of permit numbers that have been carried over from the 1996 to 1998 survey seasons. You may need to add, delete, update or replace permit numbers in the system.

To get to the EDIT PERMIT NUMBER dialog box:

1. From the **Edit** Menu, choose **General.**
2. Click on **Permit Numbers.**



To add a new Permit Number:

1. Go to the EDIT PERMIT NUMBER dialog box. The ADD RECORD TAB will appear.
2. Scroll through the existing Numbers in the *Existing Permit Number Names* field to ensure you aren't creating a duplicate.
3. Type in the *Number* of the new Permit in the *Permit Number Name* field.
4. Type in a *description* in the *Description* field (optional).
5. Click on the **Add Record** button. *Note:* To cancel adding the new access site, click on the **Cancel** button.

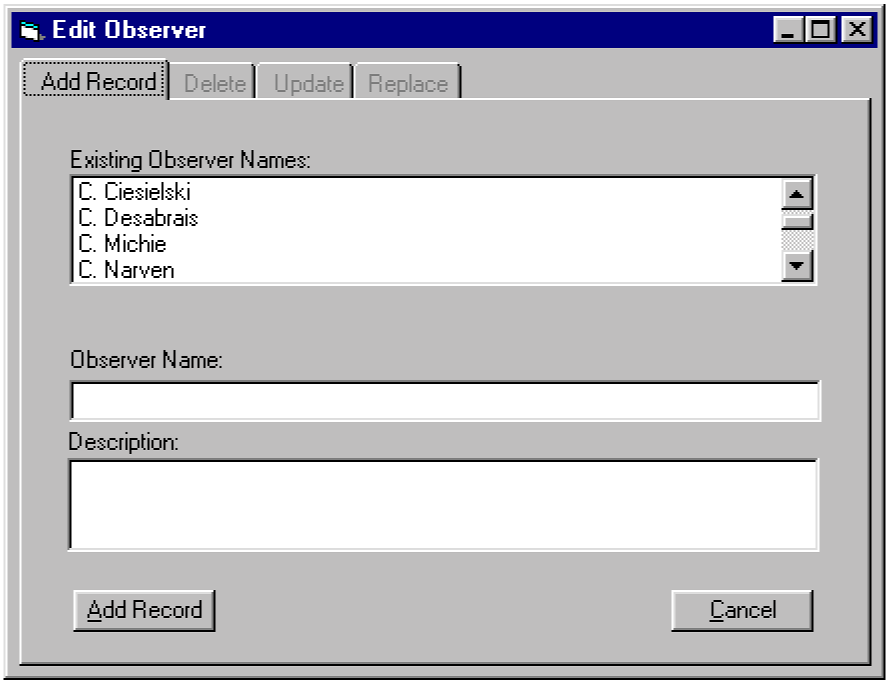
Note: As with the other dialog boxes, the DELETE, UPDATE and REPLACE tabs are disabled. To perform any of these functions, you must have a current Permit number selected from the CATCH INTERVIEW data entry form described in Section 4.3.

3.9 Observers

As with Harvesters, MERCI provides a list of Observers names that have been carried over from the 1996 to 1998 survey seasons. You may need to add, delete, update and replace names to the system as time goes on.

To get to the EDIT OBSERVER dialog box:

1. From the **Edit** Menu, choose **General.**
2. Click on **Observers.**



To add a new Observer:

1. Go to the EDIT OBSERVER dialog box. The ADD RECORD TAB will appear.
2. Scroll through the existing Names in the *Existing Observer Names* field to ensure you aren't creating a duplicate.
3. Type in the name of the new Observer in the *Observer Name* field.
4. Type in a *description* in the *Description* field (optional).
5. Click on the **Add Record** button. *Note:* To cancel adding the new access site, click on the **Cancel** button.

Note: As with the other dialog boxes, the DELETE, UPDATE and REPLACE tabs are disabled. To perform any of these functions, you must have selected a current Observer from within the MU GEAR COUNT, CATCH INTERVIEWS or 24-HOUR EFFORT PROFILES data entry forms described in Sections 4.3 and 4.4.

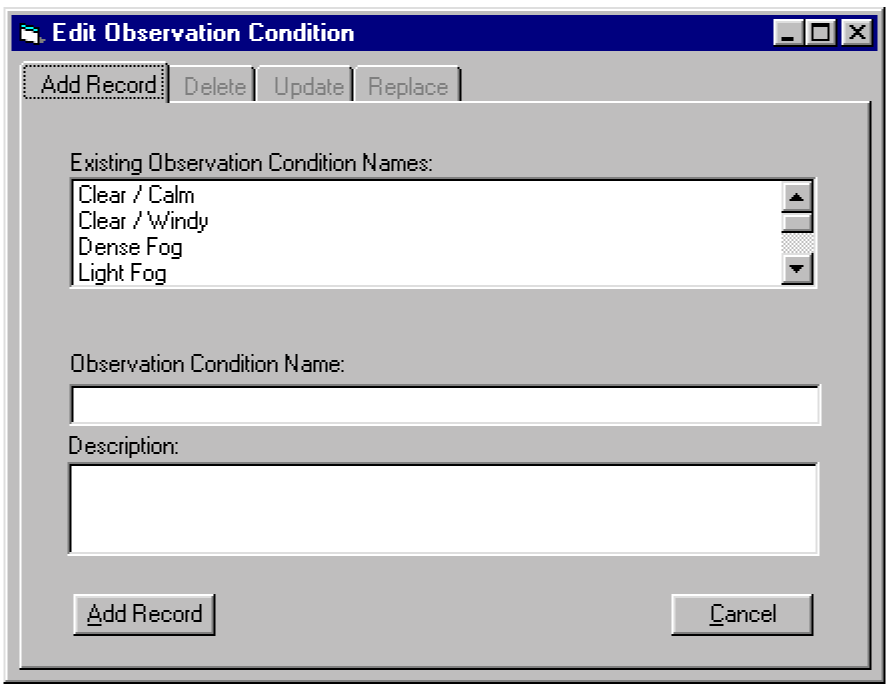
3.10 Observation Conditions

MERCI provides a list of Observation Conditions that have been defined for use during the 1998 survey season.

MERCI allows you to add, delete, update or replace Observation Conditions.

To get to the EDIT OBSERVATION CONDITION dialog box:

1. From the **Edit** Menu, choose **General.**
2. Click on **Observation Condition.**



To add a new Observation Condition:

1. Go to the EDIT OBSERVATION CONDITION dialog box. The ADD RECORD TAB will appear.
2. Scroll through the existing Names in the *Existing Observation Conditions* field to ensure you aren't creating a duplicate.
3. Type in the *name* of the new Condition in the *Observation Condition Name* field.

4. Type in a *description* in the *Description* field (optional).
5. Click on the **Add Record** button. *Note:* To cancel adding the new observation condition, click on the **Cancel** button.

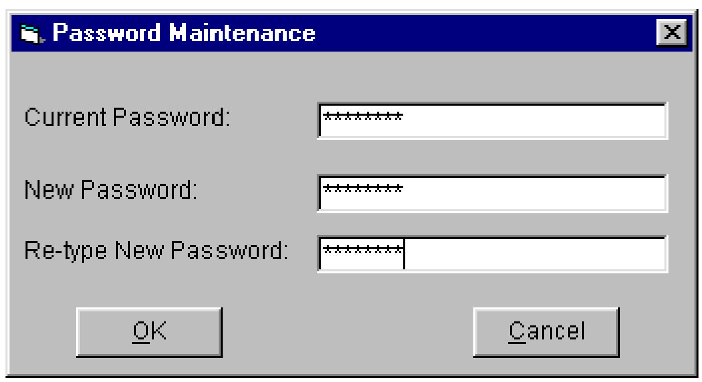
Note: As with the other dialog boxes, the Delete, Update and Replace tabs are disabled. To perform any of these functions, you must have selected a current Observation Condition from the MU Gear Counts or 24-Hour Effort Surveys data entry forms described in Sections 4.2 and 4.4.

3.11 Passwords

Certain features in MERCI, such as editing Registered Users and deleting or updating database records, require a password to prevent the accidental modification or deleting of data. MERCI allows the user to change this password.

To change the password:

1. From the **Edit** Menu, choose **General.**
2. Click on **Password** to get to the Password Maintenance dialog box.



1. Type your *current password* in the *Current Password* field.
2. Type your *new password* in the *New Password* field.
3. Re-type your *new password* in the *Re-type New Password* field.
4. Click on the **OK** button.

Warning!
Do not forget this password. Write it down in a secure place.

CHAPTER 4

Data Entry

This chapter provides information on the survey data entry features found under the EDIT – DATA ENTRY menu. There are four data entry forms in MERCI that allow you to enter in the information obtained from the various surveys conducted. This chapter includes the following topics:

- Fishery Openings
- Gear Counts
- Catch Interviews
- 24-hour Effort Surveys

4.1 Fishery Openings

The FRASER RIVER FISHERY OPENINGS dialog box provides a form for the entry of information on the number of days that a specific fishery was legally open. If fishing occurred within the week outside of legal open times, then the number of days that the fishery was 'fished' should be supplied instead. You can add a new record to the database, view existing records, delete a record or update a record.

To open the FRASER RIVER FISHERY OPENINGS dialog box:

1. From the **Edit** Menu, choose **Data Entry.**
2. Click on **Fishery Openings.**

Or:

1. From the MERCI window, hold down the **Ctrl** key and press the **F** key. This brings you directly to the dialog box.

There are two different views to this dialog box; the ADD NEW MODE view and the VIEW AND MODIFY MODE view. The ADD NEW MODE is the default view and discussed in Section 4.1.1 while the VIEW AND MODIFY MODE will be discussed in Section 4.1.2.

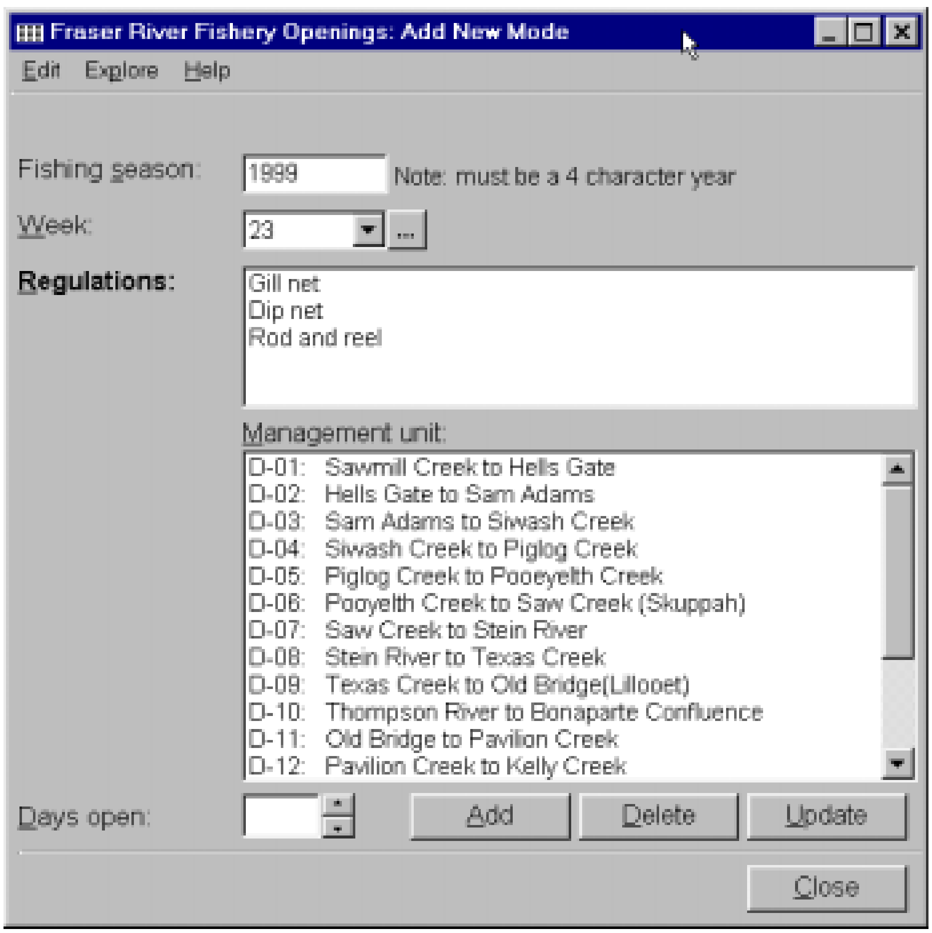
To switch between the different views of the dialog box:

1. Select **Add New** or **View or Modify Existing** from the **Edit** Menu.

4.1.1 Fraser River Fishery Openings: Add New Mode

The FRASER RIVER FISHERY OPENINGS: ADD NEW MODE dialog box requires you to enter information on the following:

- Calendar year of the fishing season;
- The week of the year;
- The gear type (gill net, dip net or rod and reel);
- The Management Unit; and
- The length of time (in days) that fishing occurred in that week.



To complete the ADD NEW MODE dialog box:

1. Click in the *Fishing season* field and type in the *year* (the current year is the default).
2. Pick the *week* number from the dropdown list by clicking on the button (the default is the current week).
   - If you do not know the number of the week, click on the ... button to bring up the MANAGEMENT WEEK FINDER dialog box.

   This dialog box will provide you with the week number of the fishing period of interest. To get the week number:
   - Select the **month** and **year** of the fishing period from drop down list.
   - Click on the **day** of the month if the fishing period is one day, or the first day of the month or week of interest. Please ensure that the day button is depressed as in the above figure.

   The week number appears in the *Management Week* field.
   - Click on the **OK** button. *Note:* To cancel adding the week number, click on the **Cancel** button.

   The week number now appears in the *Week* field of the ADD NEW MODE dialog box.
3. Select the gear type by clicking on the appropriate option in the *Regulations* list.
   - *Note:* If choosing more than one, hold the **Shift** or **Ctrl** key and click on the appropriate Regulation to select or deselect.

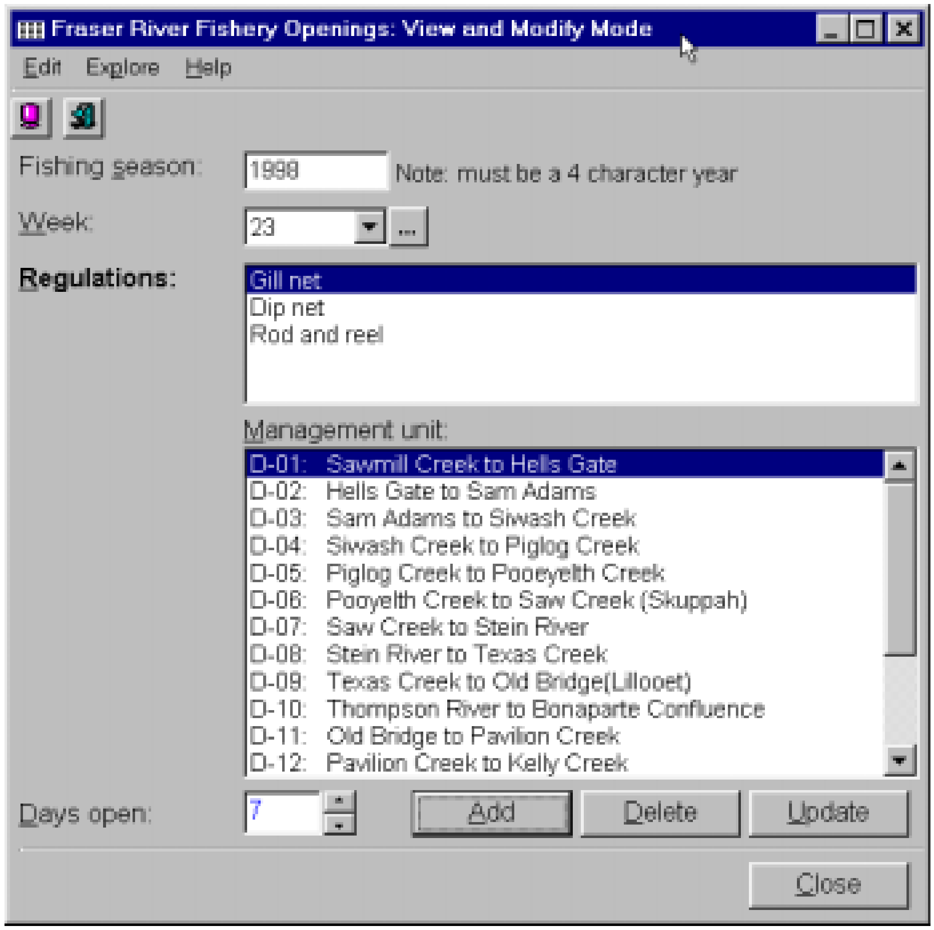
4. Select the Management Unit(s) by clicking on the appropriate one in the *Management Unit* field to select or deselect.
   - *Note:* If choosing more than one, hold the **Shift** or **Ctrl** key and click on the appropriate Units.
5. In the *Days open* field, select the number of days open by either:
   - scrolling through the numbers by clicking on the arrow buttons; or
   - clicking in the field and typing in the number of days.
   - *Note:* For obvious reasons, the maximum number of days allowed per week is seven. Remember you are entering the information for a given week of the year. If the fishing period carries over to the next week you must enter two records.
6. Click on the **Add** button.

You have now added a new record to the database. You can stay in this dialog box and enter in as many new records as you need. When you are done adding new records you have three options:

To	Do this
View, delete, or update an existing record	Go to the VIEW AND MODIFY MODE dialog box (Section 4.1.2)
Explore the database	Go to the CATCH AND EFFORT EXPLORER (See Section 8.1)
Exit	Click on the **Close** button

4.1.2 Fraser River Fishery Openings: View and Modify Mode

The FRASER RIVER FISHERY OPENINGS: VIEW AND MODIFY MODE dialog box allows you to search for a record to view, delete or update it. MERCI only allows you to update the number of days of the fishery opening. When searching for the number of days a fishery was open, all supporting fields must be supplied before executing the search.



To locate an existing Fraser River Fishery Opening record:

1. Enter the required information by following steps 1 through 5 in Section 4.1.1.

2. Click on the  button on the toolbar to search through the records.

If there are existing records, MERCI will indicate this by changing the colour of the *Days open* field from grey to blue. If there are no records, a message will appear indicating that there are no records. You now have two options:

To	Do this
Add the record you are looking for	Click **Yes** to go to the ADD NEW MODE dialog box
Resume your search	Click **No** to return to the VIEW AND MODIFY MODE dialog box

You can also use the CATCH AND EFFORT EXPLORER to easily find a record in the database when working with a fresh data entry template for a new survey season. You can then jump back to this dialog box to modify or delete the data. See Section 8.1 for further information.

To Delete an existing Fraser River Fishery Opening record:

1. Locate an existing record as described in steps 1 to 2 above.
2. Click on the **Delete** button.
3. Type in your *password*.
4. Press **Enter** on your keyboard or click on the **OK** button. *Note:* To cancel deleting the record, click on the **Cancel** button.

> **Warning!**
>
> You will not be asked to confirm this deletion.

To Update an existing Fraser River Fishery Opening record:

1. Locate an existing record as described in steps 1 to 2 above.
2. In the *Days open* field, change the number of days open by either:
   - scrolling through the numbers by clicking on the arrow buttons; or
   - clicking in the field and typing in the *number of days*.
   - Remember: The maximum number of days allowed is seven.
3. Click on the **Update** button.
4. Type in your *password*.
5. Press **Enter** on your keyboard or click on the **OK** button. *Note:* To cancel deleting the record, click on the **Cancel** button.

> **Warning!**
>
> You will not be asked to confirm the replace.

When you are done viewing or editing records you have three options:

To	Do this
Add a new record	Go to the ADD NEW MODE dialog box (Section 4.1.1)
Explore the database	Go to the CATCH AND EFFORT EXPLORER (See Section 8.1)
Exit	Click on the **Close** button; or click on the  button.

4.2 Gear Counts

The MU GEAR COUNTS dialog box provides a form for the entry of information on instantaneous counts of fishing effort within each Management Unit. As with the Fishery Openings, you can add a new record to the database, view existing records, delete a record or update a record.

To open the MU GEAR COUNTS dialog box:

1. From the **Edit** Menu, choose **Data Entry.**
2. Click on **Gear Counts.**

Or:

1. From the MERCI window, hold down the **Ctrl** key and press the **G** key. This brings you directly to the dialog box.

There are two different views to this dialog box; the ADD NEW MODE view and the EDIT/DELETE EXISTING MODE view. The ADD NEW MODE is the default view and discussed in Section 4.2.1 while the EDIT/DELETE EXISTING MODE will be discussed in Section 4.2.2.

To switch between the different views of the dialog box:

1. Select **Add New** or **Edit or Delete Existing** from the **Edit** Menu.

4.2.1 MU Gear Counts: Add New Mode

The MU GEAR COUNTS: ADD NEW MODE dialog box requires you to enter information on the following:

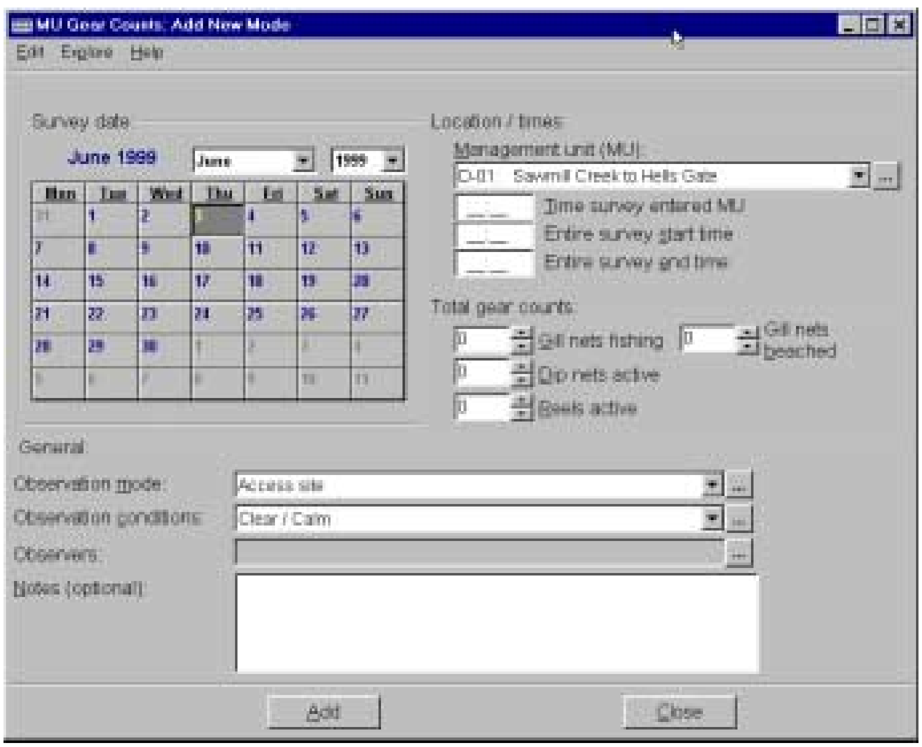
- Date of the survey
- The time the survey enters each Management Unit
- The gear counts (gill net, dip net or reels)
- The Observation Mode

- The Observation Conditions
- The Observers
- Field notes.

It also allows you to add new, or delete, update and replace existing Management Units, Observation Modes, and Observation Conditions. This is discussed in more detail in Section 4.2.3.

The MU GEAR COUNTS: ADD NEW MODE dialog box is broken up into four boxes illustrated below:

- Survey date;
- Location / times;
- Total gear counts; and
- General.



To complete the ADD NEW MODE dialog box:

1. In the SURVEY DATE box, select the **month** and **year** of the interview from drop down lists and click on the **day** of the month of the survey. Please ensure that the day button is depressed as in the above figure.
2. In the LOCATION / TIMES box, select the appropriate **Management Unit** by clicking on the  button and then

clicking on the **Management Unit.** The ... button takes you to the EDIT MANAGEMENT UNITS dialog box where you can delete, update or replace MUs. This is described in more detail in Section 4.2.3.

3. In the LOCATION / TIMES box, type in the time in 24-hour format (hh:mm) for the *Time the survey entered the MU*, the *Entire survey start time* (i.e., the time when the aircraft lifted off) and *The entire survey end time* (i.e., the time when the aircraft touched down) fields.

4. In the TOTAL GEAR COUNTS box, select the number of each of the four gear types listed by:
   - scrolling through the numbers by clicking on the **arrow** buttons; or
   - clicking in the field and typing in the *number*.

5. In the GENERAL box, select the Observation mode used by clicking on ▼ button in the *Observation mode* field and clicking on the mode used. The ... button takes you to the EDIT OBSERVATION MODE dialog box where you can delete, update or replace observation modes. How to do this is described in Section 4.2.3.

6. In the GENERAL box, select the Observation conditions used by clicking on ▼ button in the *Observation condition* field and clicking on the appropriate condition. The ... button takes you to the EDIT OBSERVATION CONDITIONS dialog box where you can delete, update or replace observation conditions. How to do this is described in Section 4.2.3.

7. In the GENERAL box, select the Observers by clicking on ... button in the *Observers* field.

To	Do this
Add an Observer Name	Click on the Observer in **the All Observer Names** list on the left and click on the **Add** button or double-click on the Observer name
Remove an Observer Name	Click on the Observer Selected Observers list on the right and click on the **Remove** button or double-click on the Observer name

The ... button takes you to the EDIT OBSERVER dialog box, where you can delete, update or replace observation methods. This is described in more detail in Section 4.2.3.

8. In the GENERAL box, type any *notes,* directly into the *Notes* field (optional).
9. Click on the **Add** button. *Note:* To cancel adding the survey record, click on the **Close** button.
10. A confirmation message will appear. To continue adding the record, click on the **Yes** button, to cancel, click on the **No** button.

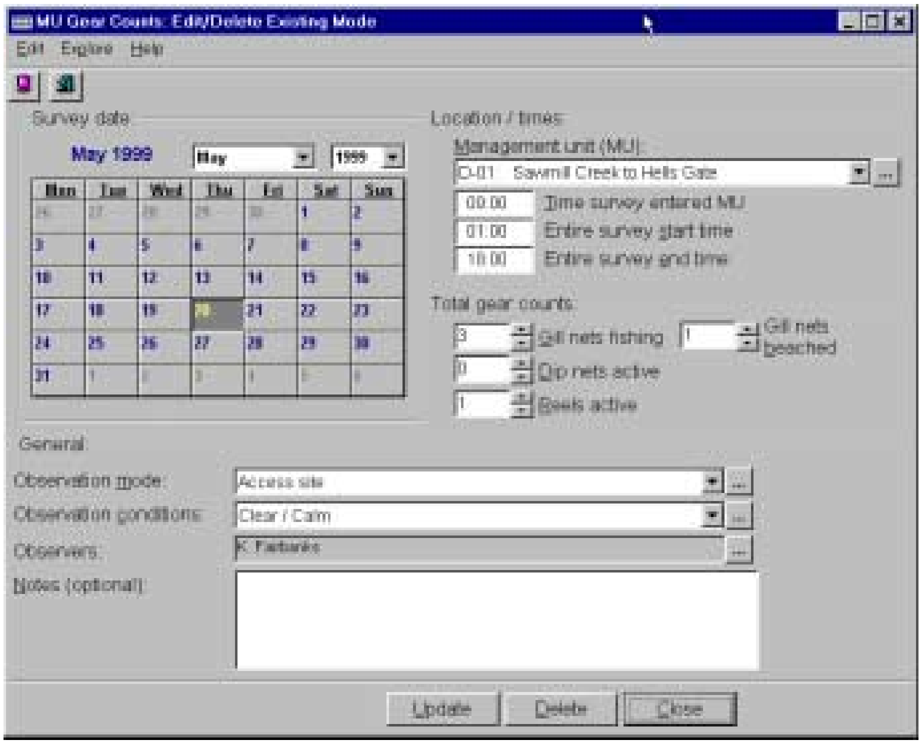
You have now added a new record to the database. You can stay in this dialog box and enter in as many new records as you need. When you are done adding new records you have three options:

To	Do this
View, delete, or update an existing record	Go to the EDIT/DELETE dialog box (Section 4.2.2)
Explore the database	Go to the CATCH AND EFFORT EXPLORER (See Section 8.1)
Exit	Click on the **Close** button

4.2.2 MU Gear Counts: Edit/Delete Existing Mode

The MU GEAR COUNTS: EDIT/DELETE EXISTING MODE dialog box allows you to search for a record to view it, delete it or update it. MERCI allows you to modify all fields for the existing record. The following is the minimum information required to perform a search:

- Survey date; and
- Time survey entered the MU.



To locate an existing MU Gear Count record:

1. Enter the required information above by following steps 1 through 2 in Section 4.2.1.
2. In the LOCATION / TIMES box, type in the time in 24-hour format (hh:mm) for the *Time the survey entered the MU*. You do not need to enter the Entire survey start or end time.
3. Click on the  button on the toolbar to search through the records.

If there is an existing record, MERCI will indicate this by updating or filling in the information in the fields. If there are no records, a message will appear indicating that there are no records. You now have two options:

To	Do this
Add the record you are looking for	Click **Yes** to go to the ADD NEW MODE dialog box
Resume your search	Click **No** to return to the EDIT/DELETE EXISTING MODE dialog box

You can also use the CATCH AND EFFORT EXPLORER to easily find a record in the database. You can then jump back to this dialog box to modify or delete the data. For further information, please see Section 8.1.

To Delete an existing MU Gear Count record:

1. Locate an existing record as described in steps 1 to 3 above.
2. Click on the Delete button.
3. A confirmation message will appear. To delete the record, click on the **Yes** button, to cancel and preserve the record, click on the **No** button.

To Update an existing MU Gear Count record:

1. Locate an existing record as described in steps 1 to 3 above.
2. As appropriate, make changes to any of the fields.
3. Click on the **Update** button.
4. A confirmation message will appear. To continue updating the record, click on the **Yes** button, to cancel, click on the **No** button.

When you are done viewing or editing records you have three options:

To	Do this
Add a new record	Go to the ADD NEW MODE dialog box (Section 4.2.1)
Explore the database	Go to the CATCH AND EFFORT EXPLORER (See Section 8.1)
Exit	Click on the **Close** button; or click on the  button.

4.2.3 MU Gear Counts: Editing General Features

There are four general features that you are able to edit from the MU GEAR COUNTS dialog box:

- Management Units
- Observation Modes
- Observation Conditions
- Observers

Delete, Update or Replace Management Units

MERCI allows the user to delete, update or replace existing Management Units from the MU GEAR COUNTS dialog box. You can also access this function from the INTERVIEW LOCATION/DATE AND REPORTED FISHING DURATION tab of the CATCH INTERVIEWS: ADD NEW MODE dialog box.

To get to the EDIT MANAGEMENT UNITS dialog box:

1. Open the MU GEAR COUNTS dialog box as described at the beginning of Section 4.2.
2. Select the **Management Unit** you want to edit by clicking on the button and then clicking on the **Management Unit**.
3. Click on the ... button next to the Management Unit (MU) field to bring up the EDIT MANAGEMENT UNITS dialog box. The *Add Record* tab is the default.

To Delete a Management Unit:

1. Click on the **Delete** tab. The name of the Management Unit you want to delete will appear greyed out.
2. Click on the **Delete** button.
3. Type in your *password*.
4. Press **Enter** on your keyboard or click on the **OK** button. *Note:* To cancel deleting the Management Unit, click on the **Cancel** button.

> **Warning!**
>
> If there are any Effort Profile, Catch Survey or Gear Count records for this Management Unit in the database they will also be deleted!

5. If you are sure you want to delete the MU and all associated information, Click on the **Yes** button. If you aren't sure, click on the **No** button.

To Update a Management Unit's Name or Description:

1. Click on the **Update** tab. The name of the Management Unit you want to update will appear greyed out.
2. Type in the *new name* for the MU in the *Enter the new name for the Management Unit* field.
3. Type in the *new description* for the MU in the *Management Unit Description* field if applicable.
4. Click on the **Update** button.
5. Type in your *password*.
6. Press **Enter** on your keyboard or click on the **OK** button. *Note:* To cancel updating the Management Unit, click on the **Cancel** button.

Warning!

If the new Management Unit name changes the physical interpretation of the river section from which the data were collected, this operation should not be performed.

7. If you are sure you want to replace name and description of the MU, Click on the **Yes** button. If you aren't sure, click on the **No** button.

To replace one MU with another:

1. Click on the **Replace** tab. The name of the Management Unit you want to update will appear greyed out.
2. Select the **Management Unit** you want to replace your current one by clicking on the button and then clicking on the **Management Unit.**
3. Click on the **Replace** button.
4. Type in your *password*.
5. Press **Enter** on your keyboard or click on the **OK** button. *Note:* To cancel deleting the Management Unit, click on the **Cancel** button.
6. If you are sure you want to replace name and description of the MU, Click on the **Yes** button. If you aren't sure, click on the **No** button.

Delete, Update or Replace Observation Modes

MERCI allows the user to delete, update or replace existing Observation Modes from the MU GEAR COUNTS dialog box. You can also access this function from the general tab of the CATCH INTERVIEWS: ADD NEW MODE dialog box.

To get to the EDIT OBSERVATION MODE dialog box:

1. Open the MU GEAR COUNTS dialog box as described at the beginning of Section 4.2.
2. Select the **Observation Mode** you want to edit by clicking on the button and then clicking on the **Observation Mode**;
3. Click on the ... button next to the *Observation Mode* field to bring up the EDIT OBSERVATION MODE dialog box. The *Add Record* tab is the default.

To Delete an Observation Mode:

1. Click on the **Delete** tab. The name of the Observation Mode you want to delete will appear greyed out.
2. Click on the **Delete** button.
3. Type in your *password.*
4. Press **Enter** on your keyboard or click on the **OK** button. *Note:* To cancel deleting the Observation Mode, click on the **Cancel** button.

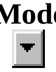
> **Warning!**
>
> If there are any Effort Profile, Catch Survey or Gear Count records tagged with this Observation Mode they will all be deleted!

5. If you are sure you want to delete the Observation Mode, Click on the **Yes** button. If you aren't sure, click on the **No** button.

To Update a Observation Mode Name or Description:

1. Click on the **Update** tab. The name of the Observation Mode you want to update will appear greyed out.
2. Type in the *new name* in the *New Observation Mode Name* field.
3. Type in the new *description* in the *Description* field if applicable.
4. Click on the **Update** button.
5. Type in your *password*.
6. Press **Enter** on your keyboard or click on the **OK** button. *Note:* To cancel updating the Observation Mode, click on the **Cancel** button.
7. If you are sure you want to replace name and description of the Observation Mode, click on the **Yes** button. If you aren't sure, click on the **No** button.

To Replace one Observation Mode with another:

1. Click on the **Replace** tab. The name of the Observation Mode you want to update will appear greyed out.
2. Select the **Observation Mode** you want to replace your current one by clicking on the  button and then clicking on the **Observation Mode** in the *With Observation Mode Name* field.
3. Click on the **Replace** button.

4. Type in your *password*.
5. Press **Enter** on your keyboard or click on the **OK** button. *Note:* To cancel deleting the Observation Mode, click on the **Cancel** button.
6. If you are sure you want to replace name and description of the Observation Mode, Click on the **Yes** button. If you aren't sure, click on the **No** button.

Delete, Update or Replace Observation Conditions

MERCI allows the user to delete, update or replace existing Observation Conditions from the MU GEAR COUNTS dialog box. You can also access this function from the 24-HOUR EFFORT PROFILES dialog box.

To get to the EDIT OBSERVATION CONDITIONS dialog box:

1. Open the MU GEAR COUNTS dialog box as described at the beginning of Section 4.2.
2. Select the **Observation Condition** you want to edit by clicking on the button and then clicking on the **Observation Condition.**
3. Click on the ... button next to the *Observation conditions* field to bring up the EDIT OBSERVATION CONDITION dialog box. The *Add Record* tab is the default.

To Delete an Observation Condition:

> **Warning!**
>
> If there are any Effort Profile, Catch Survey or Gear Count records tagged with this Observation Condition they will all be deleted!

1. Click on the **Delete** tab. The name of the Observation Condition you want to delete will appear greyed out.
2. Click on the **Delete** button.
3. Type in your *password.*
4. Press **Enter** on your keyboard or click on the **OK** button. *Note:* To cancel deleting the Observation Condition, click on the **Cancel** button.
5. If you are sure you want to delete the Observation Condition, Click on the **Yes** button. If you aren't sure, click on the **No** button.

To Update a Observation Condition Name or Description:

1. Click on the **Update** tab. The name of the Observation Condition you want to update will appear greyed out.
2. Type in the *new name* in the *New Observation Condition Name* field.
3. Type in the *new description* in the *Description* field if applicable.
4. Click on the **Update** button.
5. Type in your *password*.
6. Press **Enter** on your keyboard or click on the **OK** button. *Note:* To cancel updating the Observation Condition, click on the **Cancel** button.
7. If you are sure you want to replace name and description of the Observation Condition, click on the **Yes** button. If you aren't sure, click on the **No** button.

To Replace one Observation Condition with another:

1. Click on the **Replace** tab. The name of the Observation Condition you want to update will appear greyed out.
2. Select the **Observation** Condition you want to replace your current one by clicking on the  button and then clicking on the **Observation** Condition in the *With Observation Conditions Name* field.
3. Click on the **Replace** button.
4. Type in your *password*.
5. Press **Enter** on your keyboard or click on the **OK** button. *Note:* To cancel deleting the Observation Mode, click on the **Cancel** button.
6. If you are sure you want to replace name and description of the Observation Mode, Click on the **Yes** button. If you aren't sure, click on the **No** button.

Delete, Update or Replace Observers

MERCI allows the user to delete, update or replace existing Observers from the MU GEAR COUNTS dialog box. You can also access this function from the GENERAL tab of the CATCH INTERVIEWS or the 24-HOUR EFFORT PROFILES dialog box.

To get to the EDIT OBSERVER dialog box:

1. Open MU GEAR COUNTS dialog box as described at the beginning of Section 4.2.
2. Open the EDIT OBSERVERS FOR THE CURRENT GEAR COUNT dialog box by clicking on the ... button next to the *Observers* field.
3. Select the **Observer** you want to edit by clicking on the Observer in **the All Observer Names** list on the left.
4. Click on the ... button to the bottom right of the Observer name list to bring up the EDIT OBSERVER dialog box. The *Add Record* tab is the default.

To Delete an Observer:

1. Click on the **Delete** tab. The name of the Observer you want to delete will appear greyed out.
2. Click on the **Delete** button.
3. Type in your *password.*
4. Press **Enter** on your keyboard or click on the **OK** button. *Note:* To cancel deleting the Observer, click on the **Cancel** button.
5. If you are sure you want to delete the Observer, Click on the **Yes** button. If you aren’t sure, click on the **No** button.

To Update a Observer Name or Description:

1. Click on the **Update** tab. The name of the Observer you want to update will appear greyed out.
2. Type in the *new name* in the *New Observer Name* field.
3. Type in the *new description* in the *Description* field if applicable.
4. Click on the **Update** button.
5. Type in your *password*.
6. Press **Enter** on your keyboard or click on the **OK** button. *Note:* To cancel updating the Observer, click on the **Cancel** button.
7. If you are sure you want to replace name and description of the Observer, click on the **Yes** button. If you aren’t sure, click on the **No** button.

To Replace one Observer with Another:

1. Click on the **Replace** tab. The name of the Observeryou want to update will appear greyed out.
2. Select the **Observer** you want to replace your current one by clicking on the  button and then clicking on the **Observer** in the *With Observer Name* field.
3. Click on the **Replace** button.
4. Type in your *password*.
5. Press **Enter** on your keyboard or click on the **OK** button. *Note:* To cancel deleting the Harvester, click on the **Cancel** button.
6. If you are sure you want to replace name and description of the Harvester, Click on the **Yes** button. If you aren't sure, click on the **No** button.

4.3 Catch Interviews

The CATCH INTERVIEW dialog box provides a form for the entry of information from interviews with fishers on their catch and the length of time their net was fishing. This information is used to calculate the Catch Per Unit Effort (Cpue). You can add a new record to the database, view existing records, delete a record or update a record.

To open the CATCH INTERVIEW dialog box:

1. From the **Edit** Menu, choose **Data Entry.**
2. Click on **Catch Interviews.**

Or:

1. From the MERCI window, hold down the **Ctrl** key and press the **C** key. This brings you directly to the dialog box.

There are two different views to this dialog box; the ADD NEW MODE view and the EDIT/DELETE EXISTING MODE view. The ADD NEW MODE is the default view and discussed in Section 4.3.1 while the EDIT/DELETE EXISTING MODE will be discussed in Section 4.3.2.

To switch between the different views of the dialog box:

- Select **Add New** or **Edit or Delete Existing** from the **Edit** Menu.

4.3.1 Catch Interviews: Add New Mode

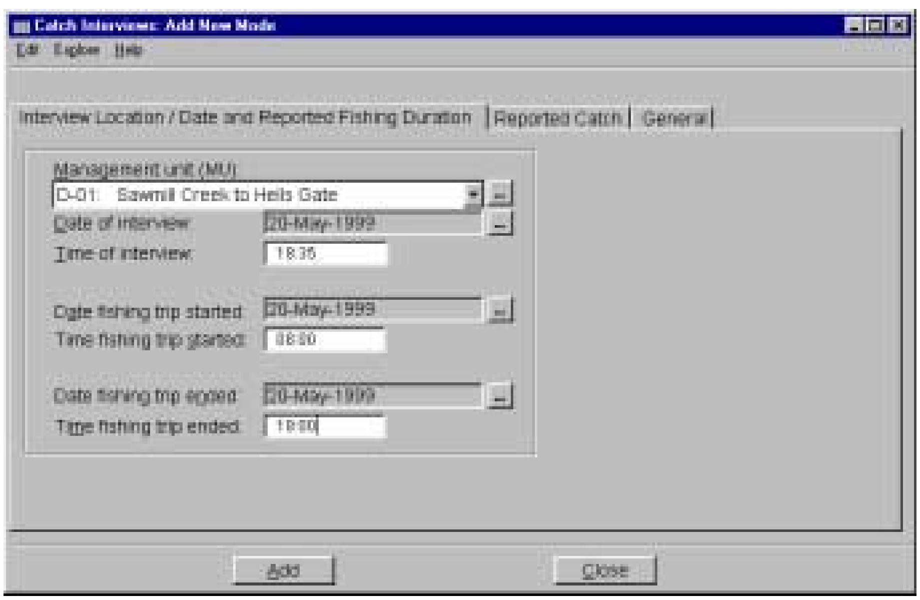
The CATCH INTERVIEWS: ADD NEW MODE dialog box is split up into the following tabs:

- Interview Location/Date and Reported Fishing Duration
- Reported Catch
- General

Click on the tabs to access the different information components.

Add New Interview Location/Date and Reported Fishing Duration

This tab allows you to enter the Management Unit, the Date and Time of the Interview and the duration of the trip (or soak time). It also allows you to add a new Management Unit or delete, update or replace an existing MU. This is discussed in more detail in Section 4.2.3.



To complete the Interview Location/Date and Reported Fishing Duration tab:

1. Open the CATCH INTERVIEWS: ADD NEW MODE dialog box as directed at the beginning of Section 3.1.
2. Click on the **Interview Location/Date and Reported Fishing Duration** tab.
3. Select the appropriate **Management Unit** by clicking on the  button and then clicking on the **Management Unit.** The 

button takes you to the EDIT MANAGEMENT UNITS dialog box, where you can delete, update, or replace MUs. This is described in more detail in Section 4.2.3.

4. Enter the date of the interview by clicking on the  button next to the *Date of Interview* field. This brings up the MANAGEMENT WEEK FINDER dialog box.

- Select the **month** and **year** of the interview from drop down lists.
- Click on the **day** of the month of the interview. Please ensure that the day button is depressed as in the above figure.
- Click on the **OK** button. *Note:* To cancel adding the interview date, click on the **Cancel** button.

5. Type in the *time of the interview* in 24-hour clock format (hh:mm) in the *Time of interview* field.

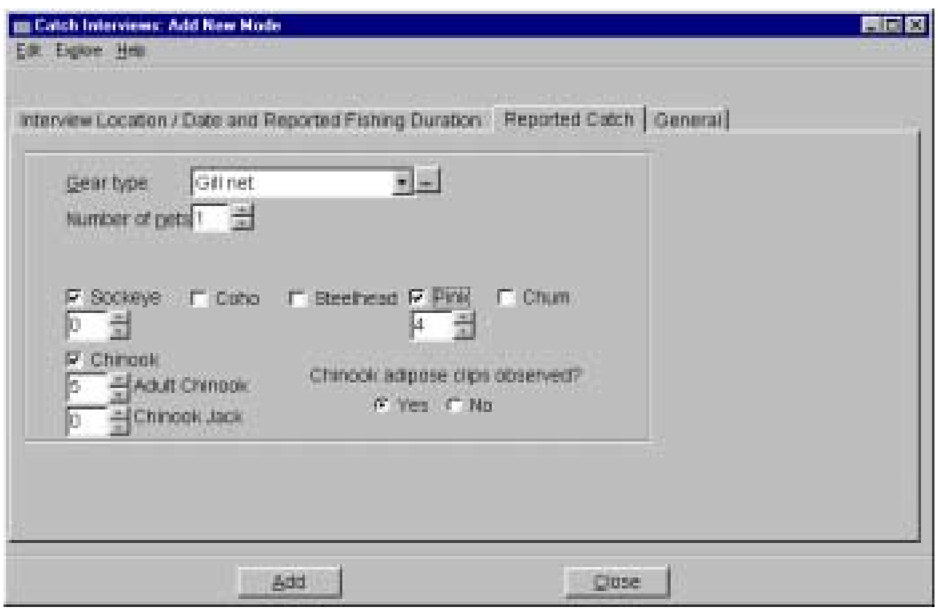
6. Repeat steps 4 and 5 for the *Date* and *Time* that the fishing trip started and ended.

You are done completing this tab. You now have three choices.

To	Do this
Finish completing the information	Click on either the REPORTED CATCH tab or the GENERAL tab. For information on how to fill out these tabs, see below.
Cancel adding the information	Click on the **Close** button
Add the record to the database	Click on the **Add** button.

Add New Reported Catch

This tab is used to specify the type of fishing gear used, the number of nets fished by the fisher or party (if net specific information could not be obtained) and the number of fish caught.



To complete the REPORTED CATCH tab:

1. Open the CATCH INTERVIEWS: ADD NEW MODE dialog box as directed above.
2. Click on the **Reported Catch** tab.
3. Select the type of fishing gear used by clicking on  button in the *Gear type* field and clicking on the *type of gear* used. You can only choose one type of gear.

4. Choose the number of nets used by either:
   - clicking on the arrow buttons to scroll up and down the list of numbers; or
   - clicking in the number box and typing the number of nets directly.

   Note: This number will only be greater than 1 when net specific catch information could not be obtained.

5. For each type of fish caught, click in the box next to the name of the fish. The field for entering the number of fish only appears for those species that you have selected. Enter the number of fish caught by either:
   - clicking on the arrow buttons to scroll up and down the list of numbers; or
   - clicking in the number box and typing the number of fish directly.

   Note: For Chinook, please specify the number of adult and jacks caught. Please also note if any adipose clips were observed by clicking in the *Yes* or *No* field.

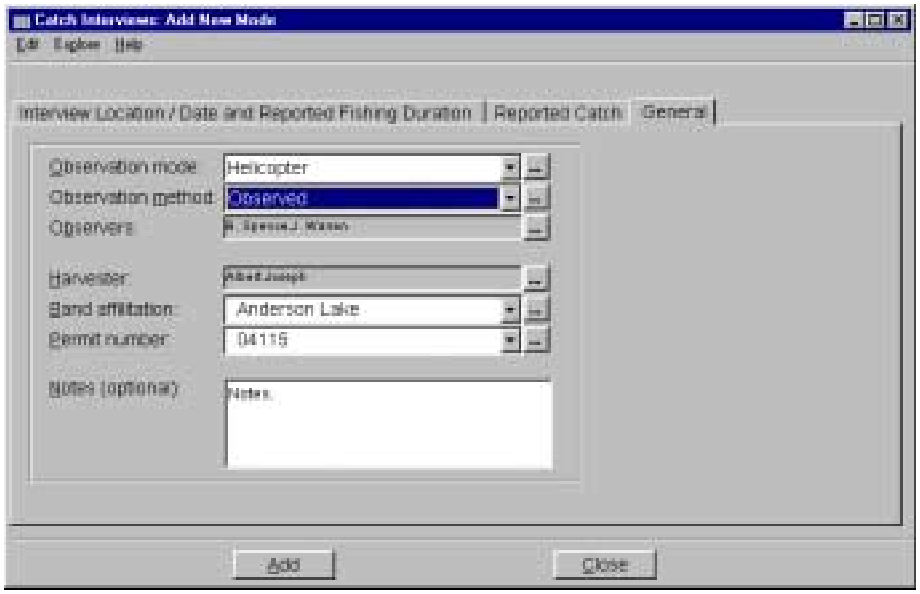
6. Click on the **Add** button.

You are done completing this tab. You now have three choices.

To	Do this
Finish completing the information	Click on either the INTERVIEW LOCATION… tab or the GENERAL tab. For information on how to fill out the former tab, see above – the latter tab, see below.
Cancel adding the information	Click on the **Close** button
Add the record to the database	Click on the **Add** button.

Add New General Features

This tab allows the user to enter the mode of observation along with supporting information about the harvester, observers and weather conditions. It also allows you to add new, or delete, update and replace existing Observation Modes, Observation Methods, Observers, Harvesters, Band affiliations, and Permit Numbers. This is discussed in more detail in Section 4.3.3.



To complete the GENERAL tab:

1. Open the CATCH INTERVIEWS: ADD NEW MODE dialog box as directed above.
2. Click on the **General** tab.
3. Select the Observation mode used by clicking on button in the *Observation mode* field and clicking on the mode used. The ... button takes you to the EDIT OBSERVATION MODES dialog box, where you can delete, update or replace observation modes. This is described in more detail in Section 4.2.3.
4. Select the Observation method used by clicking on button in the *Observation method* field and clicking on the method used. The ... button takes you to the EDIT OBSERVATION METHOD dialog box, where you can delete, update or replace observation methods. This is described in more detail in Section 4.3.3.
5. To select the Observers, click on ... button in the *Observers* field.

To	Do this
Add an Observer Name	Click on the Observer in **the All Observer Names** list on the left and click on the **Add** button or double-click on the Observer name
Remove an Observer Name	Click on the Observer Selected Observers list on the right and click on the **Remove** button or double-click on the Observer name

The ... button takes you to the EDIT OBSERVER dialog box, where you can delete, update or replace observation methods. This is described in more detail in Section 4.2.3.

6. To select the Harvesters, click on ... button next to the *Harvesters* field.

To	Do this
Add an Harvester Name	Click on the Harvester in **the All Harvester Names** list on the left and click on the **Add** button or double-click on the Harvester name
Remove an Harvester Name	Click on the Harvester Selected Harvester list on the right and click on the **Remove** button or double-click on the Harvester name

The ... button takes you to the EDIT HARVESTER dialog box, where you can delete, update or replace observation methods. This is described in more detail in Section 4.3.3.

7. Select the Native Band by clicking on ▼ button in the *Band affiliation* field and clicking on the Band name. The ... button takes you to the NATIVE BAND dialog box, where you can delete, update or replace Native Bands. This is described in more detail in Section 4.3.3.

8. Select the Permit Number by clicking on ▼ button in the *Permit number* field and clicking on the number. The ... button takes you to the PERMIT NUMBER dialog box, where you can delete, update or replace Permit numbers. This is described further in Section 4.3.3.

9. Type any *notes*, directly into the Notes field (optional).

10. Click on the **OK** button. *Note:* To cancel adding the record, click on the **Cancel** button.

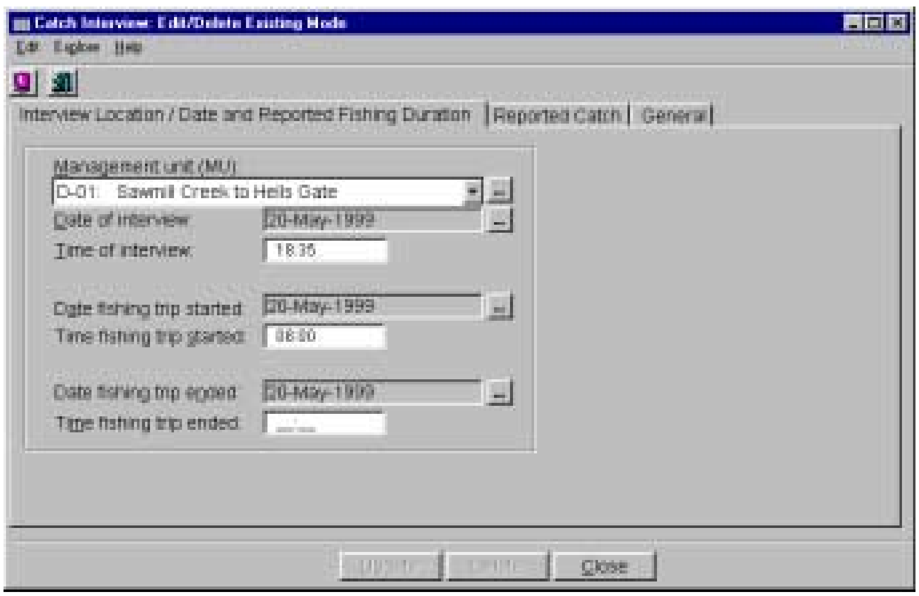
You are done completing this tab. You now have three choices.

To	Do this
Finish completing the information	Click on either the INTERVIEW LOCATION… tab or the REPORTED CATCH tab. For information on how to fill out these tabs, see above.
Cancel adding the information	Click on the **Close** button
Add the record to the database	Click on the **Add** button.

4.3.2 Catch Interviews: Edit/Delete Existing Mode

The CATCH INTERVIEWS: EDIT/DELETE EXISTING MODE dialog box allows you to search for a record to view it, delete it or update it. Once a record has been identified, all of its fields can be updated. The following information is required to search for a catch interview record:

- Management Unit;
- Date and time of the Interview;
- The date and time the fishing trip started; and,
- The date and time the fishing trip ended.



To locate an existing Catch Interview record:

1. Open the CATCH INTERVIEWS: ADD NEW MODE dialog box as directed at the beginning of Section 3.1.
2. Click on the **Interview Location/Date and Reported Fishing Duration** tab.
3. Select the appropriate **Management Unit** by clicking on the button and then clicking on the **Management Unit.**
4. Enter the date of the interview by clicking on the ... button next to the *Date of Interview* field. This brings up the MANAGEMENT WEEK FINDER dialog box.
   - Select the month and year of the interview from drop down lists.

- Click on the day of the month of the interview. Please ensure that the day button is depressed as in the above figure.
- Click on the OK button. *Note:* To cancel adding the interview date, click on the Cancel button.

5. Type in the *time of the interview* in 24-hour clock format (hh:mm) in the *Time of interview* field.
6. Repeat steps 4 and 5 for the *Date* and *Time* that the fishing trip started and ended.
7. Click on the  button on the toolbar to search through the records.

If there is an existing record, MERCI will indicate this by filling in the information in the blank fields. If there are no records, a message will appear indicating that there are no records. You now have two options:

To	Do this
Add the record you are looking for	Click **Yes** to go to the ADD NEW MODE dialog box
Resume your search	Click **No** to return to the EDIT/DELETE EXISTING MODE dialog box

You can also use the CATCH AND EFFORT EXPLORER to easily find a record in the database. You can then jump back to this dialog box to modify or delete the data. For further information, please see Section 8.1.

To Delete an existing Catch Interview record:

1. Locate an existing record as described in steps 1 to 7 above.
2. Click on the **Delete** button.
3. A confirmation message will appear. To continue deleting the record, click on the **Yes** button, to cancel, click on the **No** button.

To Update an existing Catch Interview record:

1. Locate an existing record as described in steps 1 to 7 above.
2. Make changes to the appropriate fields.
3. Click on the **Update** button.
4. A confirmation message will appear. To continue deleting the record, click on the **Yes** button, to cancel, click on the **No** button.

When you are done viewing or editing records you have three options:

To	Do this
Add a new record	Go to the ADD NEW MODE dialog box (Section 4.3.1)
Explore the database	Go to the CATCH AND EFFORT EXPLORER (See Section 8.1)
Exit	Click on the **Close** button; or click on the button.

4.3.3 Catch Interviews: Editing General Features

There are six general features that you are able to edit from the GENERAL tab of the CATCH INTERVIEWS dialog box:

- Observation Modes (see Section 4.2.3)
- Observation Methods
- Observers (see Section 4.2.3)
- Harvesters
- Band Affiliations
- Permit Numbers

Delete, Update or Replace Observation Methods

MERCI allows the user to delete, update or replace existing Observation Methods from the GENERAL tab of the CATCH INTERVIEWS dialog box. You can also access this function from the INTERVIEW LOCATION/DATE AND REPORTED FISHING DURATION tab of the CATCH INTERVIEWS: ADD NEW MODE dialog box.

To get to the EDIT OBSERVATION METHODS dialog box:

1. Open the CATCH INTERVIEWS dialog box as described at the beginning of Section 4.3 and click on the GENERAL tab.
2. Select the **Observation Method** you want to edit by clicking on the button and then clicking on the **Observation Method.**
3. Click on the button next to the *Observation Method* field to bring up the EDIT OBSERVATION METHOD dialog box. The *Add Record* tab is the default.

To Delete an Observation Method:

Warning!

If there are any existing Catch Survey records tagged with this Observation Method they will all be deleted!

1. Click on the **Delete** tab. The name of the Observation Method you want to delete will appear greyed out.
2. Click on the **Delete** button.
3. Type in your *password.*
4. Press **Enter** on your keyboard or click on the **OK** button. *Note:* To cancel deleting the Observation Method (and associated records), click on the **Cancel** button.
5. If you are sure you want to delete the Observation Method (and associated records), Click on the **Yes** button. If you aren't sure, click on the **No** button.

To Update a Observation Method Name or Description:

1. Click on the **Update** tab. The name of the Observation Method you want to update will appear greyed out.
2. Type in the *new name* in the *New Observation Method Name* field.
3. Type in the *new description* in the *Description* field if applicable.
4. Click on the **Update** button.
5. Type in your *password*.
6. Press **Enter** on your keyboard or click on the **OK** button. *Note:* To cancel updating the Observation Method, click on the **Cancel** button.
7. If you are sure you want to replace name and description of the Observation Method, click on the **Yes** button. If you aren't sure, click on the **No** button.

To Replace one Observation Method with another:

1. Click on the **Replace** tab. The name of the Observation Method you want to update will appear greyed out.
2. Select the **Observation Method** you want to replace your current one by clicking on the  button and then clicking on the **Observation Method** in the *With Observation Method Name* field.
3. Click on the **Replace** button.

4. Type in your *password*.
5. Press **Enter** on your keyboard or click on the **OK** button. *Note:* To cancel deleting the Observation Method, click on the **Cancel** button.
6. If you are sure you want to replace name and description of the Observation Method, Click on the **Yes** button. If you aren't sure, click on the **No** button.

Delete, Update or Replace Harvesters

MERCI allows the user to delete, update or replace existing Harvesters from the GENERAL tab of the CATCH INTERVIEWS dialog box. You can also access this function from the INTERVIEW LOCATION/DATE AND REPORTED FISHING DURATION tab of the CATCH INTERVIEWS: ADD NEW MODE dialog box

To get to the EDIT HARVESTER dialog box:

1. Open the CATCH INTERVIEWS dialog box as described at the beginning of Section 4.3 and click on the GENERAL tab.
2. Open the EDIT CATCH SURVEY HARVESTER NAMES dialog box by clicking on the ... button next to the *Harvesters* field.
3. Select the **Harvester** you want to edit by clicking on the Harvester in the **All Harvester Names** list on the left.
4. Click on the ... button to the bottom right of the Harvester name list to bring up the EDIT HARVESTER dialog box. The *Add Record* tab is the default.

To Delete a Harvester:

1. Click on the **Delete** tab. The name of the Harvester you want to delete will appear greyed out.
2. Click on the **Delete** button.
3. Type in your *password.*
4. Press **Enter** on your keyboard or click on the **OK** button. *Note:* To cancel deleting the Harvester, click on the **Cancel** button.
5. If you are sure you want to delete the Harvester, Click on the **Yes** button. If you aren't sure, click on the **No** button.

To Update a Harvester Name or Description:

1. Click on the **Update** tab. The name of the Harvester you want to update will appear greyed out.
2. Type in the *new name* in the *New Harvester Name* field.
3. Type in the *new description* in the *Description* field if applicable.

4. Click on the **Update** button.
5. Type in your *password*.
6. Press **Enter** on your keyboard or click on the **OK** button. *Note:* To cancel updating the Harvester, click on the **Cancel** button.
7. If you are sure you want to replace name and description of the Harvester, click on the **Yes** button. If you aren't sure, click on the **No** button.

To Replace one Harvester with another:

1. Click on the **Replace** tab. The name of the Harvester you want to update will appear greyed out.
2. Select the **Harvester** you want to replace your current one by clicking on the button and then clicking on the **Harvester** in the *With Harvester Name* field.
3. Click on the **Replace** button.
4. Type in your *password*.
5. Press **Enter** on your keyboard or click on the **OK** button. *Note:* To cancel deleting the Harvester, click on the **Cancel** button.
6. If you are sure you want to replace name and description of the Harvester, Click on the **Yes** button. If you aren't sure, click on the **No** button.

Delete, Update or Replace Band Affiliations

MERCI allows the user to delete, update or replace existing Band Affiliations from the GENERAL tab of the CATCH INTERVIEWS dialog box.

To get to the EDIT NATIVE BAND dialog box:

1. Open the CATCH INTERVIEWS dialog box as described at the beginning of Section 4.3 and click on the GENERAL tab.
2. Select the **Native Band** you want to edit by clicking on the button next to the *Band affiliation* field and then clicking on the **Native Band.**
3. Click on the ... button next to the *Band affiliation* field to bring up the EDIT NATIVE BAND dialog box. The *Add Record* tab is the default.

To Delete a Native Band:

1. Click on the **Delete** tab. The name of the Native Band you want to delete will appear greyed out.
2. Click on the **Delete** button.

3. Type in your *password.*
4. Press **Enter** on your keyboard or click on the **OK** button. *Note:* To cancel deleting the Native Band, click on the **Cancel** button.

> **Warning!**
>
> If there are any existing Catch Survey records tagged with this Native Band they will also be deleted.

5. If you are sure you want to delete the Native Band, Click on the **Yes** button. If you aren't sure, click on the **No** button.

To Update a Native Band Name or Description:

1. Click on the **Update** tab. The name of the Native Band you want to update will appear greyed out.
2. Type in the *new name* in the *New Native Band Name* field.
3. Type in the *new description* in the *Description* field if applicable.
4. Click on the **Update** button.
5. Type in your *password*.
6. Press **Enter** on your keyboard or click on the **OK** button. *Note:* To cancel updating the Native Band, click on the **Cancel** button.
7. If you are sure you want to replace name and description of the Native Band, click on the **Yes** button. If you aren't sure, click on the **No** button.

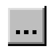
To Replace one Native Band with another:

1. Click on the **Replace** tab. The name of the Native Band you want to update will appear greyed out.
2. Select the Native Band you want to replace your current one by clicking on the ▼ button and then clicking on the Native Band in the *With Native Band Name* field.
3. Click on the **Replace** button.
4. Type in your *password*.
5. Press **Enter** on your keyboard or click on the **OK** button. *Note:* To cancel deleting the Native Band, click on the **Cancel** button.
6. If you are sure you want to replace name and description of the Native Band, click on the **Yes** button. If you aren't sure, click on the **No** button.

Delete, Update or Replace Permit Numbers

MERCI allows the user to delete, update or replace existing Permit Numbers from the GENERAL tab of the CATCH INTERVIEWS dialog box.

To get to the EDIT PERMIT NUMBER dialog box:

1. Open the CATCH INTERVIEWS dialog box as described at the beginning of Section 4.3 and click on the GENERAL tab.
2. Select the **Permit Numbers** you want to edit by clicking on the  button and then clicking on the **Permit Numbers**.
3. Click on the  button next to the *Permit number* field to bring up the EDIT PERMIT NUMBER dialog box. The *Add Record* tab is the default.

To Delete a Permit Number:

1. Click on the **Delete** tab. The name of the Permit Number you want to delete will appear greyed out.
2. Click on the **Delete** button.
3. Type in your *password*.
4. Press **Enter** on your keyboard or click on the **OK** button. *Note:* To cancel deleting the Permit Number, click on the **Cancel** button.

> **Warning!**
>
> If there are any Catch Survey records with this Permit Number they will also be deleted.

5. If you are sure you want to delete the Permit Number, Click on the **Yes** button. If you aren't sure, click on the **No** button.

To Update a Permit Number Name or Description:

1. Click on the **Update** tab. The name of the Permit Number you want to update will appear greyed out.
2. Type in the *new name* in the *New Permit Number Name* field.
3. Type in the *new description* in the *Description* field if applicable.
4. Click on the **Update** button.
5. Type in your *password*.

6. Press **Enter** on your keyboard or click on the **OK** button. *Note:* To cancel updating the Permit Number, click on the **Cancel** button.
7. If you are sure you want to replace name and description of the Permit Number, click on the **Yes** button. If you aren't sure, click on the **No** button.

To replace one Permit Number with another:

1. Click on the **Replace** tab. The name of the Permit Number you want to update will appear greyed out.
2. Select the **Permit Number** you want to replace your current one by clicking on the button and then clicking on the **Permit Number** in the *With Permit Number Name* field.
3. Click on the **Replace** button.
4. Type in your *password*.
5. Press **Enter** on your keyboard or click on the **OK** button. *Note:* To cancel deleting the Permit Number, click on the **Cancel** button.
6. If you are sure you want to replace name and description of the Permit Number, Click on the **Yes** button. If you aren't sure, click on the **No** button.

4.4 24-hour Effort Surveys

The 24-HOUR EFFORT SURVEYS dialog box provides a form for the entry of information on the 24-hour harvesting activity pattern for each gear type. Gear counts are done on the hour every hour over 24-hours for each shift. The survey information is used in conjunction with instantaneous gear counts to estimate effort. You can either add a new record to the database, view existing records, delete a record or update a record.

To open the 24-HOUR EFFORT SURVEYS dialog box:

1. From the **Edit** Menu, choose **Data Entry**.
2. Click on **24-hour Effort Surveys.**

Or:

1. From the MERCI window, hold down the **Ctrl** key and press the **U** key. This brings you directly to the dialog box.

There are two different views to this dialog box; the ADD NEW MODE view and the EDIT/DELETE EXISTING MODE view. The ADD NEW MODE is the default view and discussed in Section 4.4.1 while the EDIT/DELETE EXISTING MODE will be discussed in Section 4.4.2.

To switch between the different views of the dialog box:

- Select **Add New** or **Edit or Delete Existing** from the **Edit** Menu.

4.4.1 24-hour Effort Surveys: Add New Mode

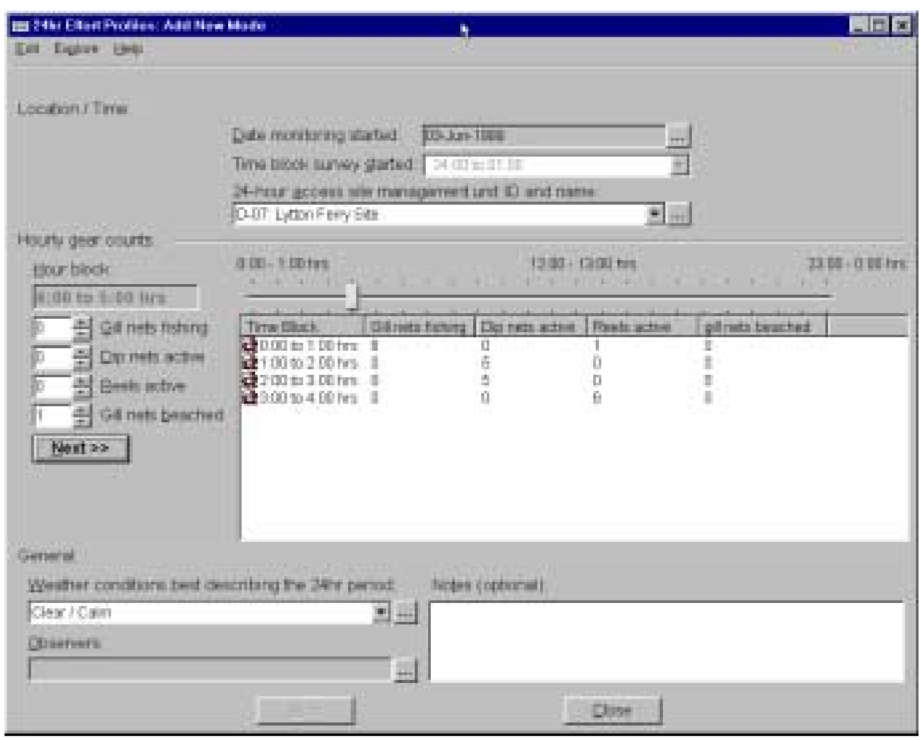
The 24-HOUR EFFORT PROFILES: ADD NEW MODE dialog box requires you to enter information on the following:

- The location
- The date and time
- Hourly gear counts
- Weather conditions
- Observers
- Notes (optional)

The dialog box is broken up into three sections:

- The location and time
- The hourly gear counts
- General information

The date, starting time block, and access site apply to all 24 hourly time block records.



To fill out the dialog box:

1. Enter the date monitoring started by clicking on the button next to the *Date monitoring started* field. This brings up the MANAGEMENT WEEK FINDER dialog box.
   - Select the **month** and **year** of the interview from drop down lists;
   - Click on the **day** of the month of the interview. Please ensure that the day button is depressed as in the above figure.
   - Click on the **OK** button. *Note:* To cancel adding the 24-hour effort survey date, click on the **Cancel** button.
2. Select the appropriate **Time block** by clicking on the button and then clicking on the **Time block**. This refers to the hour block in which the entire 24-hour effort survey started on the said date.
3. Select the appropriate **Access Site** by clicking on the button and then clicking on the **name**. The button takes you to the ACCESS SITES dialog box, where you can delete, update or replace observation methods. This is described in more detail in Section 4.4.3.
4. Select the number of *Gill nets fishing* by either:
   - clicking on the arrow buttons to scroll up and down the list of numbers; or
   - clicking in the number box and typing the number of nets directly.
5. Repeat step 4 for the number of *Dip nets active*, the *Reels Active* and the *Gill nets active*.
6. Click on the **Next>>** button to add the time block records to the list box to the right of the button. *Note*: these records are not added to the database until the **Add** button is clicked. The Add button is only enabled when 24 records are shown in the list box.
7. Repeat steps 4 through 6 for each time block.
8. Select the **Weather conditions** by clicking on the button and then clicking on the **weather condition**. The button takes you to the OBSERVATION CONDITIONS dialog box, where you can delete, update or replace observation methods. This is described in more detail in Section 4.2.3.

9. To select the Observers, click on ... button in the Observers field.

To	Do this
Add an Observer Name	Click on the Observer in **the All Observer Names** list on the left and click on the **Add** button or double-click on the Observer name
Remove an Observer Name	Click on the Observer Selected Observers list on the right and click on the **Remove** button or double-click on the Observer name

The ... button takes you to the EDIT OBSERVER dialog box, where you can delete, update or replace observation methods. This is described in more detail in Section 4.2.3.

10. Type any notes directly into the Notes box (optional).

You must enter in information for all 24 time blocks. The **Add** button will remain greyed out until you do so.

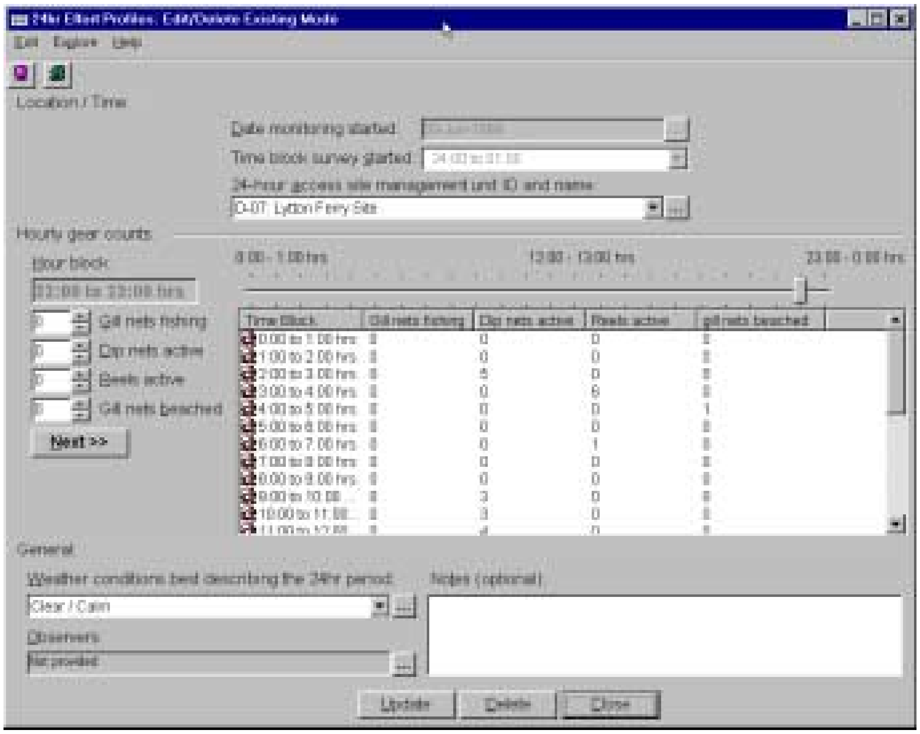
To add the record, click on the **Add** button. *Note:* To cancel adding the records click on the **Cancel** button.

You have now added a new record to the database. You can stay in this dialog box and enter in as many new records as you need. When you are done adding new records you have three options:

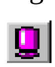
To	Do this
View, delete, or update an existing record	Go to the VIEW AND MODIFY MODE dialog box (Section 4.4.2)
Explore the database	Go to the CATCH AND EFFORT EXPLORER (See Section 8.1)
Exit	Click on the **Close** button

4.4.2 24-hour Effort Surveys: Edit/Delete Existing Mode

The 24-HOUR EFFORT SURVEYS: EDIT/DELETE EXISTING MODE dialog box allows you to search for a record to view it, delete it or update it. The Date monitoring started, the Access Site name, and the starting time block are the minimum information required to perform a search.



To locate an existing 24-hour Effort Surveys record:

1. Select the **Date monitoring started** (you may have to toggle between ADD NEW and EDIT/DELETE EXISTING modes to change the date).
2. Select the **Time block survey started** (you may have to toggle between ADD NEW and EDIT/DELETE EXISTING modes to change the starting time block).
3. Select the appropriate **Access Site** by clicking on the ... button and then clicking on the **Access Site** button.
4. Click on the  on the toolbar to search through the existing records.

If there is an existing record, MERCI will indicate this by filling in the information in the blank fields. If there are no records, a message will appear indicating that there are no records. You now have two options:

To	Do this
Add the record you are looking for	Click **Yes** to go to the ADD NEW MODE dialog box
Resume your search	Click **No** to return to the EDIT/DELETE EXISTING MODE dialog box

You can also use the CATCH AND EFFORT EXPLORER to easily find a record in the database. You can then jump back to this dialog box to modify or delete the data. For further information, please see Section 8.1.

To Delete an existing 24-hour Effort Surveys record:

1. Locate an existing record as described in steps 1 to 2 above.
2. Click on the **Delete** button.
3. A confirmation message will appear. To continue deleting the record, click on the **Yes** button, to cancel, click on the **No** button.

To Update an existing 24-hour Effort Surveys record:

1. Locate an existing record as described in steps 1 to 2 above.
2. Make changes to the appropriate fields.
3. Click on the **Update** button.
4. A confirmation message will appear. To continue deleting the record, click on the **Yes** button, to cancel, click on the **No** button.

When you are done viewing or editing records you have three options:

To	Do this
Add a new record	Go to the ADD NEW MODE dialog box (Section 4.4.1)
Explore the database	Go to the CATCH AND EFFORT EXPLORER (See Section 8.8.1)
Exit	Click on the **Close** button; or click on the  button.

4.4.3 24-hour Catch Interviews: Editing General Features

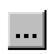
There are three general features that you are able to edit from the 24HR EFFORT PROFILES dialog box:

- Access Sites
- Observation Conditions (Section 4.2.3)
- Observers (Section 4.2.3)

Delete, Update or Replace Access Sites

MERCI allows the user to delete or replace existing Access Sites from the 24HR EFFORT PROFILES dialog box.

To get to the Edit Access Site Locations dialog box:

1. Open the 24HR EFFORT PROFILES dialog box as described at the beginning of Section 4.4.
2. Select the **Access Site** you want to edit by clicking on the  button next to the *24-hour access site management unit ID and name* field and then clicking on the **Access Site;**
3. Click on the  button next to the *24-hour access site management unit ID and name* field to bring up the EDIT ACCESS SITE LOCATIONS dialog box. The *Add Record* tab is the default.

To Delete an Access Site:

Warning!

If there are any 24-Hour Effort Survey records for this Access Site they will also all be deleted.

1. Click on the **Delete** tab. The name of the Access Sites you want to delete will appear greyed out.
2. Click on the **Delete** button.
3. Type in your *password.*
4. Press **Enter** on your keyboard or click on the **OK** button. *Note:* To cancel deleting the Access Sites, click on the **Cancel** button.
5. If you are sure you want to delete the Access Sites, Click on the **Yes** button. If you aren't sure, click on the **No** button.

To Replace one Access Site with another:

1. Click on the **Replace** tab. The name of the Access Sites you want to update will appear greyed out.
2. Select the **Access Sites** you want to replace your current one by clicking on the button and then clicking on the **Access Sites;**
3. Click on the **Replace** button.
4. Type in your *password*.
5. Press **Enter** on your keyboard or click on the **OK** button. *Note:* To cancel deleting the Access Sites, click on the **Cancel** button.
6. If you are sure you want to replace name and description of the Access Sites, Click on the **Yes** button. If you aren’t sure, click on the **No** button.

CHAPTER 5

Estimation

MERCI was designed to provide weekly estimates of catch for each species, gear type, and management unit (MU). MERCI estimates catch as (subscripts pertaining to the gear type, species, MU, and week of interest are not indicated for ease of notation),

$$\hat{C} = f \bullet \hat{C}pue \bullet \hat{E} \qquad [\mathbf{1}]$$

where, $\hat{C}$ was the catch estimate, f was the number of days a particular fishery was legally open in a given MU and week, $\hat{C}pue$ was the estimated average catch.(net hour)$^{-1}$ for the fishery in that week, and $\hat{E}$ was the average total daily effort (net hours.day^{-1}) in the fishery in that week. This equation provides an accurate estimate of catch so long as each component is estimated independently without bias.

$\hat{C}pue$ can be estimated using the **ratio of means estimator**,

$$\hat{C}pue = \sum_{i=1}^{i=n_c} C_i \Bigg/ \sum_{i=1}^{i=n_c} L_i = \frac{C_T}{L_T} \qquad [\mathbf{2}]$$

where, C_i is the catch of the species of interest by the gear of interest reported during interview i, L_i, is the trip length (the length of time the gear was fished to obtain C_i) and n_c is the number of interviews (obtained from particular modes of contact) done during the week of interest in the area of interest, for the gear of interest. An estimate of $\hat{C}pue$ can also be obtained via the **mean of ratios estimator**,

$$\hat{C}pue = \sum_{i=1}^{i=n_i} \frac{C_i}{L_i} \Bigg/ n \qquad [\mathbf{3}]$$

where, C_i is the catch of the species of interest by the gear of interest reported during interview i, L_i, is the trip length (the length of time the gear was fished to obtain C_i) and n_i is the number of interviews (obtained from particular modes of contact) done during the week of interest in the area of interest, for the gear of interest.

$\hat{E}$ was estimated by,

$$\hat{E} = \frac{\frac{1}{n_o}\sum_{i=1}^{i=n_o} I_i}{\overline{P}} = \frac{\bar{I}}{\overline{P}} \qquad [\mathbf{4}]$$

where, I_i is the instantaneous count of actively fishing nets seen during overflight[2] i, n_o was the number of overflights made during the week of interest, and $\overline{P}$ was the estimated proportion of nets fishing in the time period(s) during which the overflights occurred. Thus, $\overline{P}$ approximates the probability of observing nets at different times of the day for a particular week and MU (e.g., if effort were constant over 24 hours, the probability of observing gear in a particular hour block would simply be 1/24 = 0.04167). $\overline{P}$ was needed to inflate the instantaneous net counts to obtain the desired units of effort for estimating total catch – net hours.day^{-1}.

Knowing the time block(s) when the overflight counts were made, the 24-hour effort surveys were used to estimate the proportion of nets fishing in the time period(s) during which the overflights occurred, $\overline{P}$ as,

$$\overline{P} = \frac{\sum_{i=1}^{n_a}\sum_{j\in t_f}\sum_{k=1}^{n_{p_i}} e_{ijk} \Big/ \left(n_t n_{p_i}\right)}{\sum_{i=1}^{n_a}\sum_{j=1}^{j=24}\sum_{k=1}^{n_{p_i}} e_{ijk} \Big/ n_{p_i}} = \frac{e_t}{e_T} \qquad [\mathbf{5}]$$

where, e_{ijk} was the net count during the i-th time block in the j-th 24-hour effort survey at access point k, n_{p_i} was the number of 24-hour effort surveys done at access site i, n_a was the number of access sites used to construct the effort profile in the area of interest, t_f was the set of hourly 24-hour survey times which occurred at the same time of day as that the overflights were conducted, and n_t was the size of the set t_f. The numerator e_t was *the* <u>*sum*</u> *of the average* number of nets seen at each site during the time of day that the overflight counts were conducted (in units of nets). The denominator e_T was *the* <u>*sum*</u> *of the average* number of nets observed over 24-hours at all the

[2] Other observation modes could be used.

access sites used (in units of net hours.day^{-1}); (McDonald and McDonald 1998[3]).

The Estimation chapter provides options for estimating each of the components in Equation **1**. This chapter describes these options which are found under the EDIT – ESTIMATION menu. This chapter includes the following topics:

- Users
- Ibar Observation Mode Scenarios
- Pbar Aggregation Scenarios
- Cpue Estimator Definitions
- Contact Method – Cpue Estimator Definitions
- Cpue Aggregation Scenarios
- Confidence Intervals

The Ibar and Pbar Scenarios are control options that relate to catch effort estimation (Equations **4** and **5**). The next three control options are related to Cpue estimation (Equations **2** and **3**).

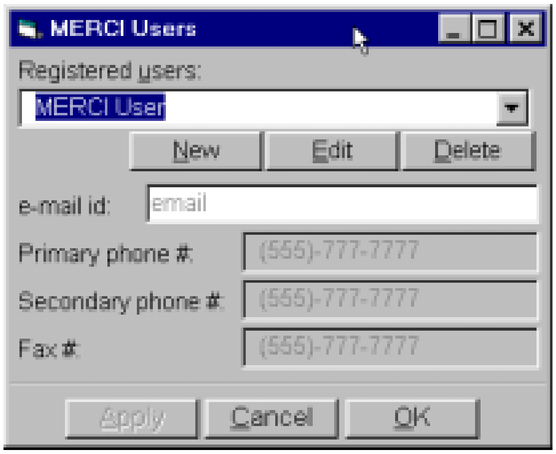
5.1 Users

All users who are running catch estimates must be a Registered User of MERCI. One of the properties of a catch estimation scenario is a user name. This allows the generator of the estimates to be tracked if there are any questions about the rationale for the scenario. You can create a new user, edit a user or delete a user. MERCI requests information on the user's name, e-mail address, phone number and fax number.

To open the MERCI USERS dialog box:

1. From the **Edit** menu, choose **Estimation.**
2. Click on **Users**.
3. Type your *password* in the *Password* field.
4. Click on the **OK** button. *Note:* To cancel, click on the **Cancel** button.

[3] McDonald, T.L. and L.L. McDonald. 1998. Review of sockeye catch estimation procedures on the Fraser River between Sawmill Creek and Kelly Creek. WEST Technical Report No. 98-1, Dated May 20, 1998. WEST Inc., 2003 Central Avenue, Cheyenne, Wyoming 82001.



To add a New User:

1. Open the MERCI USERS dialog box as directed above.
2. Click on the **New** button. The fields should now be blank.
3. Type in the *user name* in the *Registered users* field.
4. Type in the *user e-mail* in the *e-mail id* field.
5. Type in the *user's primary phone number* in the *primary phone # field*. Type in a *secondary number* in the *secondary phone #* field if applicable.
6. Type in the *User's fax number* in the *fax #* field.
7. Click on the **Apply** button. *Note:* To cancel adding the user, click on the **Cancel** button.

You have added a new user to the database. You can stay in this dialog box and enter in as many new users as you need. When you are done adding new user's you have three options:

To	Do this
Edit a User	See below
Delete a User	See below
Exit the MERCI USERS dialog box	Click on the **OK** button

MERCI allows you to edit any of the information for a user except the user's name.

To edit a User:

1. Open the MERCI USERS dialog box as directed above.
2. Select the **User** you want to edit by clicking on the button and then clicking on the **User's name**.
3. Click on the **Edit** button.
4. Type in the information you want to change in the appropriate fields.
5. Click on the **Apply** button. *Note:* To cancel editing the user, click on the **Cancel** button.

You have edited a user in the database. You can stay in this dialog box and edit in as many users as you need. When you are done editing you have three options:

To	Do this
Add a New User	See above
Delete a User	See below
Exit the MERCI USERS dialog box	Click on the **OK** button

MERCI also allows you to delete a user.

To delete a User:

1. Open the MERCI USERS dialog box as directed above.
2. Select the **User** you want to delete by clicking on the button and then clicking on the **User's name**.
3. Click on the **Delete** button.
4. A confirmation message will appear. To continue deleting the user, click on the **Yes** button, to cancel, click on the **No** button.

You have deleted a user from the database. You can stay in this dialog box and delete as many users as you need. When you are done deleting you have three options:

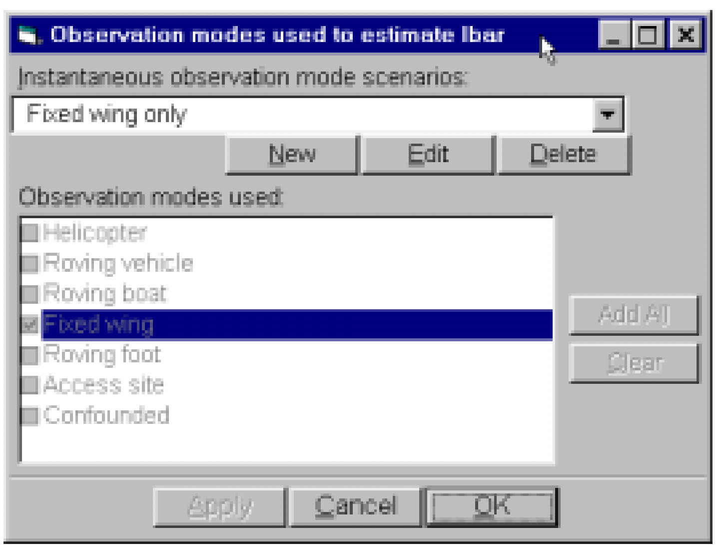
To	Do this
Add a New User	See above
Edit a User	See above
Exit the MERCI USERS dialog box	Click on the **OK** button

5.2 Ibar Observation Mode Scenarios

A variety of different observation modes can be employed to estimate Ibar (numerator in Equation **4**). Relatively instantaneous modes of observation are preferable. MERCI allows you to create, edit, or delete instantaneous observation mode scenarios. These scenarios indicate which modes of observation will be pooled to generate a particular management units Ibar estimate.

To open the OBSERVATION MODES USED TO ESTIMATE IBAR dialog box:

1. From the **Edit** menu, choose **Estimation**.
2. Click on **Ibar Observation Mode Scenarios**.



To add a New Instantaneous Observation Mode Scenario:

1. Open the OBSERVATION MODES USED TO ESTIMATE IBAR dialog box as directed above.
2. Click on the **New** button.
3. Type in the *Observation mode* scenario name in the *Instantaneous observation mode scenarios* field.

   Tip: When creating a new scenario, it is a very good idea indicate the observation modes used in the name of the scenario.
4. Select the **Observation mode(s)** used by clicking in the box next to the name of the mode in the *Observation modes used* field. The modes included in the scenario will have a check mark in the box.
5. Click on the **Apply** button. *Note:* To cancel adding the scenario, click on the **Cancel** button.

You will have added a new scenario to the database. You can stay in this dialog box and enter in as many new scenarios as you need. When you are done adding new scenarios you have three options:

To	Do this
Edit a Scenario	See below
Delete a Scenario	See below
Exit	Click on the **OK** button

MERCI allows you to edit the observation modes in an Instantaneous Observation Mode Scenario. You can not edit the name of the mode. Should this be required, simply delete the scenario and then create a new scenario with the appropriate name and observation mode(s).

To edit an Instantaneous Observation Mode Scenario:

1. Open the OBSERVATION MODES USED TO ESTIMATE IBAR dialog box as directed above.
2. Select the **Scenario** you want to edit by clicking on the  button in the *Instantaneous Observation mode scenarios* field and then clicking on the **Scenario**.
3. Click on the **Edit** button.

4. Click in the boxes next to the names of the modes you want to include or remove in the *Observation modes used* field.
5. Click on the **Apply** button. *Note:* To cancel editing the scenario, click on the **Cancel** button.

You have edited an Instantaneous Observation Mode Scenario in the database. You can stay in this dialog box and edit as many Scenarios as you need. When you are done editing you have three options:

To	Do this
Add a Scenario	See above
Delete a Scenario	See below
Exit	Click on the **OK** button

MERCI also allows you to delete an Instantaneous Observation Mode Scenario.

To delete an Instantaneous Observation Mode Scenario:

1. Open the OBSERVATION MODES USED TO ESTIMATE IBAR dialog box as directed above.
2. Select the **Scenario** you want to delete by clicking on the  button and then clicking on the **Scenario**.
3. Click on the **Delete** button.
4. A confirmation message will appear. To continue deleting, click on the **Yes** button, to cancel, click on the **No** button.

You have deleted a scenario from the database. You can stay in this dialog box and delete as many scenarios as you need. When you are done deleting you have three options:

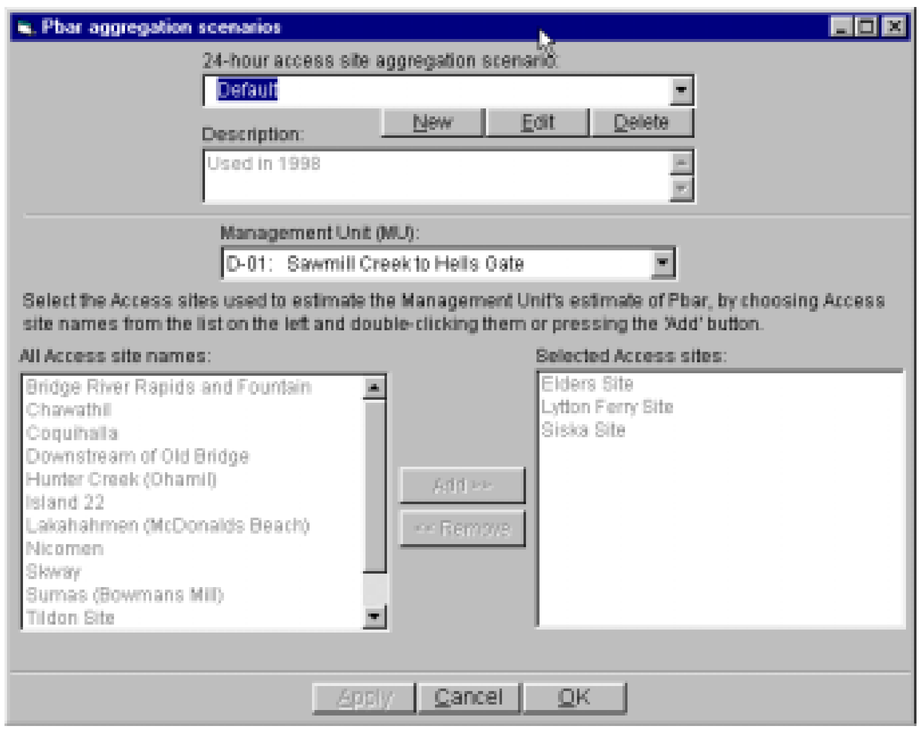
To	Do this
Add a New Scenario	See above
Edit a Scenario	See above
Exit	Click on the **OK** button

5.3 Pbar Aggregation Scenarios

A variety of data aggregation options can be employed when estimating Pbar - the proportion of nets fishing in the time period(s) during which instantaneous gear observations were made (Equation **5**). The information from 24-hour access site effort monitoring surveys are used to calculate Pbar for each Management Unit. You can create a new Pbar Aggregation Scenario and edit or delete an existing Scenario.

To open the PBAR AGGREGATION SCENARIOS dialog box:

1. From the **Edit** menu, choose **Estimation**.
2. Click on **Pbar Aggregation Scenarios**.



To add a New Aggregation Scenario:

1. Open the PBAR AGGREGATION SCENARIOS dialog box as directed above.
2. Click on the **New** button.
3. Type in the *aggregation scenario* name in the *24-hour access site aggregation scenario* field.
4. Type in a *description* name in the *Description* field.
5. Select the **Management Unit** you want to use by clicking on the ▼ button and then clicking on the **Management Unit**.

6. The next step is to select the Access Sites that will be used to produce the estimate of Pbar for the selected Management Unit.

To	**Do this**
Add an Access Site Name	Click on the Access Site in the **All Access site name:** list on the left and click on the **Add** button or double-click on the site name
Remove an Access Site Name	Click on the **Selected Access sites** list on the right and click on the **Remove** button or double-click on the site name

7. Click on the **Apply** button. *Note:* To cancel adding the scenario, click on the **Cancel** button.

You have added a new scenario to the database. You can stay in this dialog box and enter in as many new scenarios as you need. When you are done adding new scenarios you have three options:

To	**Do this**
Edit a Scenario	See below
Delete a Scenario	See below
Exit	Click on the **OK** button

MERCI allows you to edit a scenario. You can edit the name of the scenario, the description, the Management Unit and the access sites included in the scenario. However, once output is associated with the scenario, you will not be able to edit the scenario (this allows you to determine the assumptions associated with the output in the database).

To edit a Pbar Aggregation Scenario:

1. Open the PBAR AGGREGATION SCENARIOS dialog box as directed above.
2. Select the **Scenario** you want to edit by clicking on the  button in the *24-hour access site aggregation scenario* field and then clicking on the **Scenario**.
3. Click on the **Edit** button.
4. Type in the information you want to change in the appropriate fields.
5. Click on the **Apply** button. *Note:* To cancel editing the scenario, click on the **Cancel** button.

You have edited an Aggregation Scenario in the database. You can stay in this dialog box and edit as many Scenarios as you need. When you are done editing you have three options:

To	Do this
Add a New Scenario	See above
Delete a Scenario	See below
Exit	Click on the **OK** button

MERCI also allows you to delete an Aggregation Scenario. Again, once output is associated with the scenario, you will not be able to delete the scenario.

1. Open the PBAR AGGREGATION SCENARIOS dialog box as directed above.
2. Select the **Scenario** you want to delete by clicking on the ▼ button in the *24-hour access site aggregation scenario* field and then clicking on the **Scenario**.
3. Click on the **Delete** button.
4. A confirmation message will appear. To continue deleting, click on the **Yes** button, to cancel, click on the **No** button.

You have deleted a scenario from the database. You can stay in this dialog box and delete as many scenarios as you need. When you are done deleting you have three options:

To	Do this
Add a New Scenario	See above
Edit a Scenario	See above
Exit	Click on the **OK** button

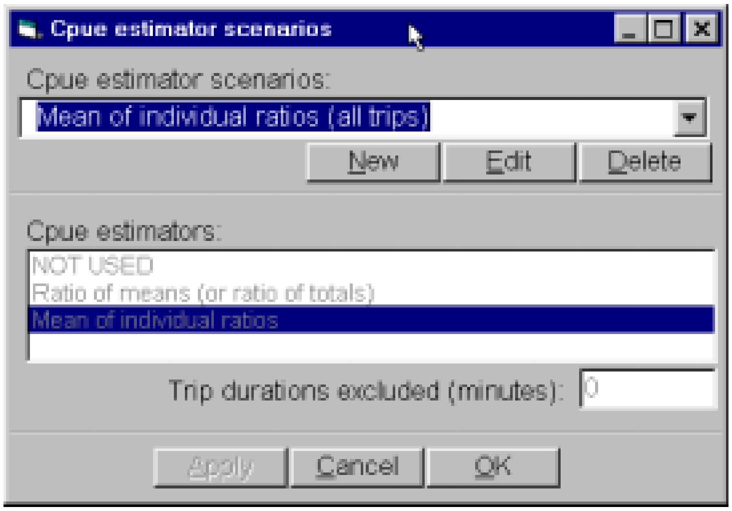
5.4 Cpue Estimator Definitions

The CPUE ESTIMATOR SCENARIOS dialog box allows you to add, edit or delete Cpue estimator scenarios available to the model. There are two Cpue estimators – the ratio of means (Equation **2**) and the mean of individual ratios (Equation **3**). You can also exclude interviews from the catch estimation where the reported trip length is less than a specified duration. This is often recommended when applying Equation **3** to roving survey information.

These estimator definitions (or scenarios) form the list of available Cpue estimators for association with the different modes of contact used in the creel survey.

To open the CPUE ESTIMATOR SCENARIOS dialog box:

1. From the **Edit** menu, choose **Estimation**.
2. Click on **Cpue Estimator Definitions**.



To add a New Cpue Estimator Scenario:

1. Open the CPUE ESTIMATOR SCENARIOS dialog box as directed above.
2. Click on the **New** button.
3. Type in the *Cpue Estimator Scenario* name in the *Cpue estimator scenarios* field.
4. Click on the desired *Cpue Estimator* in the *Cpue estimators* field.
5. Type in the minimum *trip length* that you would like excluded (in units of minutes) in the *Trip durations excluded (minutes)* field.
6. Click on the **Apply** button. *Note:* To cancel adding the scenario, click on the **Cancel** button.

You have added a new scenario to the database. You can stay in this dialog box and enter in as many new scenarios as you need. When you are done adding new scenarios you have three options:

To	Do this
Edit a Scenario	See below
Delete a Scenario	See below
Exit	Click on the **OK** button

To edit a Cpue Estimator Scenario:

1. Open the CPUE ESTIMATOR SCENARIOS dialog box as directed above.
2. Select the **Scenario** you want to edit by clicking on the button in the *Cpue estimator scenarios* field and then clicking on the **Scenario**.
3. Click on the **Edit** button.
4. Change the information in the appropriate fields.
5. Click on the **Apply** button. *Note:* To cancel editing the scenario, click on the **Cancel** button.

You have edited a Cpue Estimator Scenario in the database. You can stay in this dialog box and edit as many Scenarios as you need. When you are done editing you have three options:

To	Do this
Add a New Scenario	See above
Delete a Scenario	See below
Exit	Click on the **OK** button

MERCI also allows you to delete a scenario. Once you have defined a scenario and generated output, you will not be able to delete the scenario.

To delete a Cpue Estimator Scenario:

1. Open the CPUE ESTIMATOR SCENARIOS dialog box as directed above.
2. Select the **Scenario** you want to edit by clicking on the button in the *Cpue estimator scenarios* field and then clicking on the **Scenario**.
3. Click on the **Delete** button.
4. A confirmation message will appear. To continue deleting, click on the **Yes** button, to cancel, click on the **No** button.

You have now deleted a scenario from the database. You can stay in this dialog box and delete as many scenarios as you need. When you are done deleting you have three options:

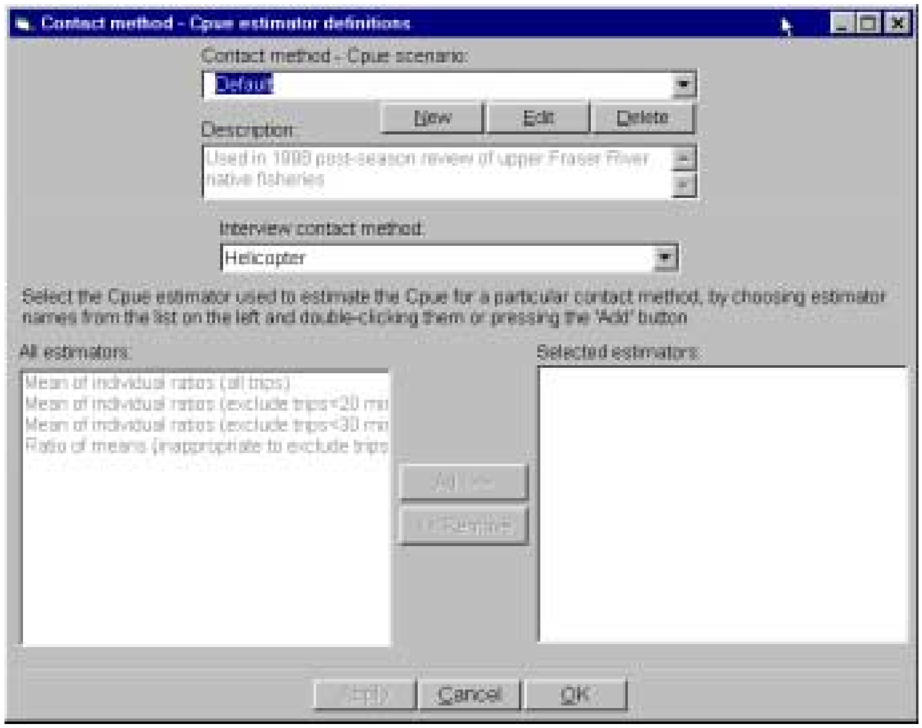
To	Do this
Add a New Scenario	See above
Edit a Scenario	See above
Exit	Click on the **OK** button

5.5 Contact Method – Cpue Estimator Definitions

Considerable debate often surrounds the appropriate ratio estimators for Cpue. A key issue is whether the probability of encountering fishers is equal or unequal. Different modes of contacting fishers can effect this sampling probability. For this reason, MERCI gives you the flexibility to associate different Cpue estimators with the different modes of contact used in the creel survey.

To open the CONTACT METHOD – CPUE ESTIMATOR DEFINITIONS dialog box:

1. From the **Edit** menu, choose **Estimation**.
2. Click on **Contact Method – Cpue Estimator Definitions**.



To add a New Contact method – Cpue estimator scenario:

1. Open the CONTACT METHOD – CPUE ESTIMATOR DEFINITIONS dialog box as directed above.
2. Click on the **New** button.
3. Type in the *Cpue scenario* name in the *Contact method – Cpue scenario* field.
4. Type in a *description* name in the *Description* field.
5. Select the different **Interview Contact Methods** by clicking on the  button and then clicking on the Method.
6. The next step is to select the Cpue Estimator used to estimate the Cpue for the chosen contact method.

To	Do this
Add a Cpue Estimator	Click on the Estimator in the **All Estimators:** list on the left and click on the **Add** button or double-click on the Estimator
Remove a Cpue Estimator	Click on the **Selected Estimators** list on the right and click on the **Remove** button or double-click on the estimator

7. Click on the **Apply** button. *Note:* To cancel adding the estimator, click on the **Cancel** button.

You have added a new scenario to the database. You can stay in this dialog box and enter in as many new scenarios as you need. When you are done adding new scenarios you have three options:

To	Do this
Edit a Scenario	See below
Delete a Scenario	See below
Exit	Click on the **OK** button

MERCI allows you to edit a scenario. You can edit the name of the scenario, the description, the interview contact method and the estimators. Once you have generated output using a scenario, you will not be able to make changes to it.

To edit a Contact method – Cpue estimator scenario:

1. Open the CONTACT METHOD – CPUE ESTIMATOR DEFINITIONS dialog box as directed above.
2. Select the **Scenario** you want to edit by clicking on the button in the *Contact method – Cpue scenario* field and then clicking on the **Scenario**.
3. Click on the **Edit** button.
4. Type in the information you want to change in the appropriate fields.
5. Click on the **Apply** button. *Note:* To cancel editing the scenario, click on the **Cancel** button.

You have now edited a Scenario in the database. You can stay in this dialog box and edit as many Scenarios as you need. When you are done editing you have three options:

To	Do this
Add a New Scenario	See above
Delete a Scenario	See below
Exit	Click on the **OK** button

MERCI also allows you to delete a Scenario. Once you have defined a scenario and generated output, you will not be able to delete the scenario.

To delete a Contact method – Cpue estimator scenario:

1. Open the CONTACT METHOD – CPUE ESTIMATOR DEFINITIONS dialog box as directed above.
2. Select the **Scenario** you want to edit by clicking on the  button in the *Contact method – Cpue scenario* field and then clicking on the **Scenario**.
3. Click on the **Delete** button.
4. A confirmation message will appear. To continue deleting, click on the **Yes** button, to cancel, click on the **No** button.

You have deleted a scenario from the database. You can stay in this dialog box and delete as many users as you need. When you are done deleting you have three options:

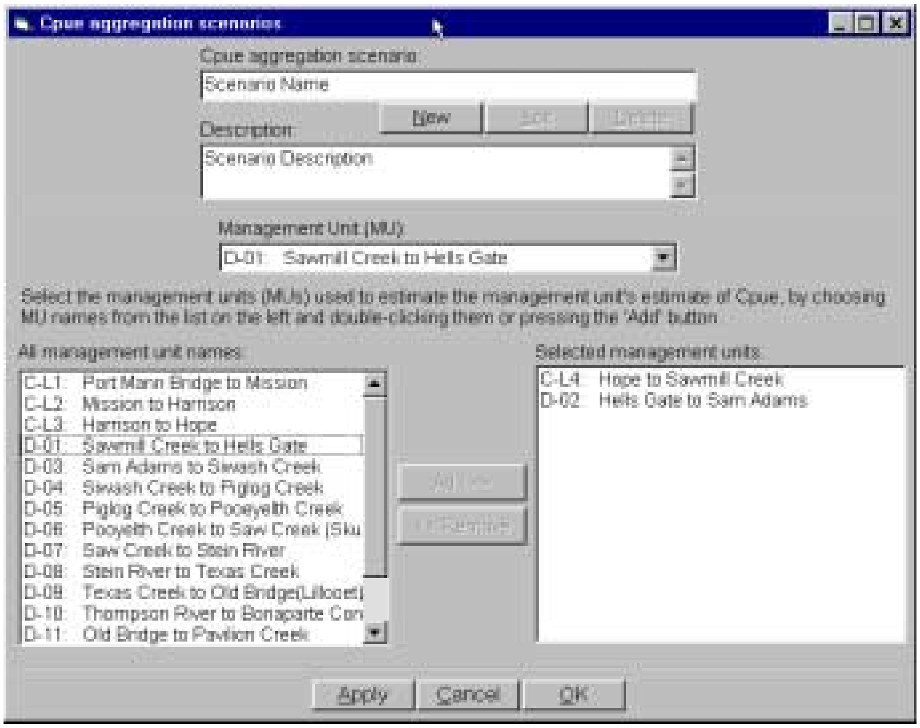
To	**Do this**
Add a New Scenario	See above
Edit a Scenario	See above
Exit	Click on the **OK** button

5.6 Cpue Aggregation Scenarios

Cpue Aggregation Scenarios are equivalent to the Pbar Aggregation Scenarios except they control the rules for pooling of catch interviews among Management Units (e.g., use catch interviews from MU x, y, and z when computing MU x's catch rate vs. only use catch interviews from MU x when computing MU x's catch rate). Spatial pooling of catch interviews is often required when there is not enough information obtained from within individual Management Unit's to produce its Cpue estimate. You can create a new Cpue Aggregation Scenario and edit or delete an existing Scenario.

To open the CPUE AGGREGATION SCENARIOS dialog box:

1. From the **Edit** menu, choose **Estimation**.
2. Click on **Cpue Aggregation Scenarios**.



To add a New Aggregation Scenario:

1. Open the CPUE AGGREGATION SCENARIOS dialog box as directed above.
2. Click on the **New** button.
3. Type in the *aggregation scenario* name in the *Cpue aggregation scenario* field.
4. Type in a *description n*ame in the *Description* field.
5. Select the primary **Management Unit** you want to use by clicking on the ▼ button and then clicking on the **Management Unit**.
6. The next step is to select additional Management Units for the scenario.

To	Do this
Add a Management Unit	Click on the Management Unit in the **All management unit names:** list on the left and click on the **Add** button or double-click on the name
Remove a Management Unit	Click on the **Selected management units** list on the right and click on the **Remove** button or double-click on the site name

7. Click on the **Apply** button. *Note:* To cancel adding the scenario, click on the **Cancel** button.

You have added a new scenario to the database. You can stay in this dialog box and enter in as many new scenarios as you need. When you are done adding new scenarios you have three options:

To	Do this
Edit a Scenario	See below
Delete a Scenario	See below
Exit	Click on the **OK** button

MERCI allows you to edit a scenario. You can edit the name of the scenario, the description, the scenario and the Management Units that are a part of the scenario. Once you have defined a scenario and generated output, you will not be able to edit the scenario.

To edit an Aggregation Scenario:

1. Open the CPUE AGGREGATION SCENARIOS dialog box as directed above.
2. Select the **Scenario** you want to edit by clicking on the  button in the *Cpue aggregation scenario* field and then clicking on the **Scenario**.
3. Click on the **Edit** button.
4. Type in the information you want to change in the appropriate fields.
5. Click on the **Apply** button. *Note:* To cancel editing the scenario, click on the **Cancel** button.

You have edited an Aggregation Scenario in the database. You can stay in this dialog box and edit as many Scenarios as you need. When you are done editing you have three options:

To	Do this
Add a New Scenario	See above
Delete a Scenario	See below
Exit	Click on the **OK** button

MERCI also allows you to delete an Aggregation Scenario. Once you have defined a scenario and generated output, you will not be able to delete the scenario.

To delete an Aggregation Scenario:

1. Open the CPUE AGGREGATION SCENARIOS dialog box as directed above.
2. Select the **Scenario** you want to delete by clicking on the  button in the *Cpue aggregation scenario* field and then clicking on the **Scenario**.
3. Click on the **Delete** button.
4. A confirmation message will appear. To continue deleting, click on the **Yes** button, to cancel, click on the **No** button.

You have deleted a scenario from the database. You can stay in this dialog box and delete as many scenarios as you need. When you are done deleting you have three options:

To	Do this
Add a New Scenario	See above
Edit a Scenario	See above
Exit	Click on the **OK** button

5.7 Confidence Intervals

Bias corrected, log-transformed Bootstrap confidence intervals are produced by MERCI by selecting the Bootstrap estimate type on the ESTIMATOR DEFINITIONS dialog box (described in section Chapter 6). With additional resources, future versions of MERCI may also provide Taylor Series approximations under this menu.

Resources were not available to provide a write-up of the bootstrap algorithm that was used. This can be provided at a future date if desired.

CHAPTER 6

Runs

The Runs chapter provides information on the features found under the RUN – ESTIMATE menu. This menu item allows you to initiate the algorithms of the model used to estimate catch. This is where you specify the combination of scenarios described in Chapter 5, that will be used to estimate the components of Equation **1** and where you define the scope of the run (i.e., number of gear types, species, and weeks to estimate catch for).

You can also choose the type of estimate – point (no standard error and confidence limit estimates) or bootstrap (provides standard error and bias corrected confidence limit estimates). The bootstrap estimation method should be used when you want confidence intervals for the weekly catch estimates. The point estimate method is used when you simply want to generate the best estimate of the catch (considerably less run time). You can also choose to use the scenarios that were defined in Chapter 5.

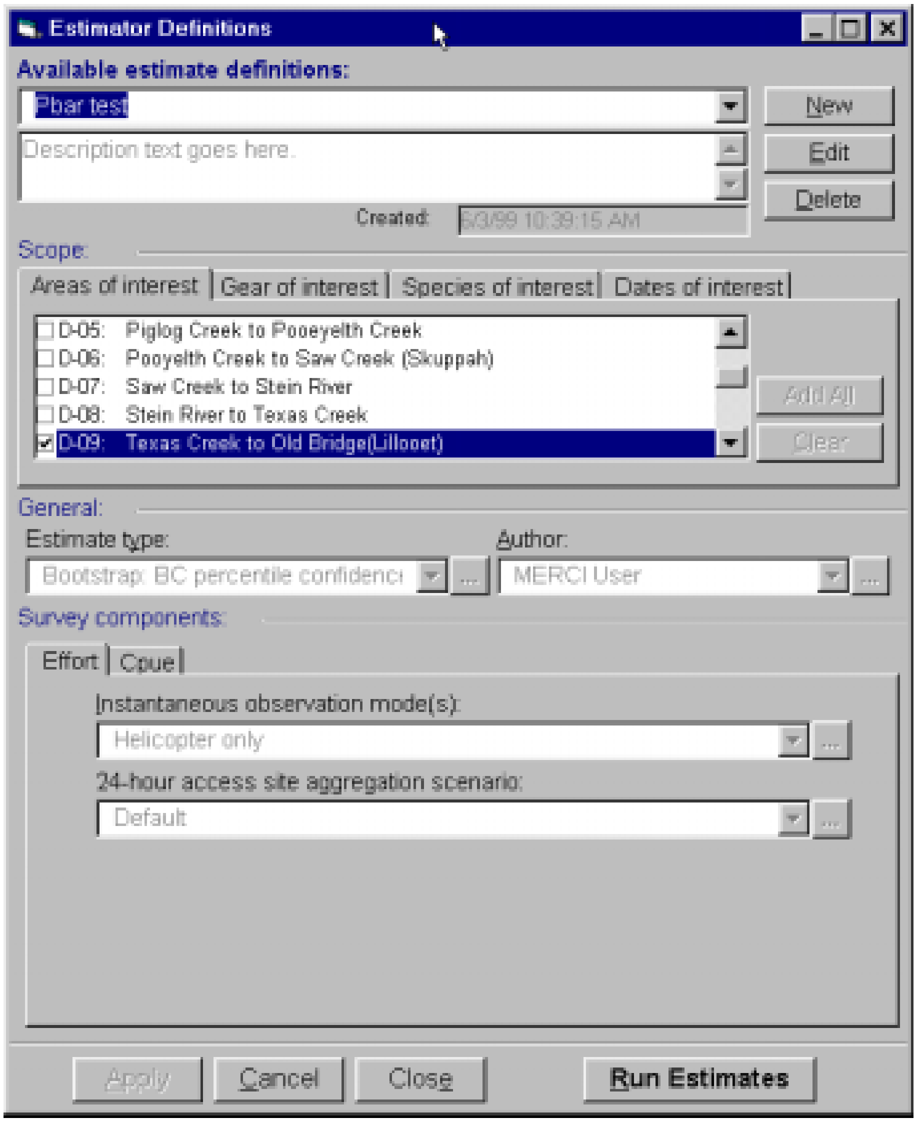
The ESTIMATOR DEFINITIONS dialog box allows you to create a new estimate definition and edit or delete exiting estimate definitions.

To open the ESTIMATOR DEFINITIONS dialog box:

- From the **File** menu, choose **Estimation.**

Or

- Press F5 from the MERCI Window.



To add a new estimate definition:

1. Open the ESTIMATOR DEFINITIONS dialog box as directed above.
2. Click on the **New** button.
3. Type in the *estimate definition name* in the *Available estimate definitions* field.
4. Type in the *description* in the field below the *Available estimate definitions* field.
5. Click on the **Areas of interest** tab.
6. Click in the boxes next to the names of the **Management Units** you want to include or remove in the **Areas of interest** tab. The Management Units included will have a check mark in the box.
7. Click on the **Gear of interest** tab.

8. Click in the boxes next to the names of the **gear types** you want to include or remove.
9. Click on the **Species of interest** tab.
10. Click in the boxes next to the names of the **fish species** you want to include or remove.
11. Click on the **Dates of interest** tab.
12. To enter the time frame for the estimate, click on the ... button next to the *week ending* field to bring up the MANAGEMENT WEEK FINDER dialog box.
    - Select the **month** and **year** of the fishing period from drop down list.
    - Click on the last day (**Sunday**) of the week of interest. Please ensure that the day button is depressed.
    - Click on the **OK** button. *Note:* To cancel, click on the **Cancel** button.
    - Repeat for the *to* field.
    - *Note:* The calendar year will automatically appear.
13. Choose **Weekly estimates** or **Aggregate survey data over time** by clicking in the appropriate circle next to the text.
14. Select the **Estimate type** you want to use by clicking on the ▼ button in the *Estimate type* field and then clicking on the **Estimate name**. The bootstrap estimate method is used when you want standard error and confidence interval estimates for the statistics in Equation **1**. The point estimate method is used when you want to generate the best estimate of the catch.
15. If you chose the Bootstrap option, go to step 16. If you chose the Point Estimates option, go to step 19.
16. Click on the ... button to get to the BOOTSTRAP REPLICATIONS dialog box.
17. Type in the number of bootstrap replications.
18. Click on the **OK** button. *Note:* To cancel, click on the **Cancel** button.
19. Select the **User** by clicking on the ▼ button in the *Author* field and then clicking on the **User name**. The ... button takes you to the MERCI USERS dialog box where you can add a new user, edit or delete an existing user. This is described in more detail in Section 5.1.
20. Click on the **Effort** tab.

21. Select the **Instantaneous observation mode scenario** by clicking on the button in the *Instantaneous observation mode(s)* field and then clicking on the **scenario**. The button takes you to the OBSERVATION MODES USED TO ESTIMATE IBAR dialog box where you can add a new scenario, edit or delete an existing scenario. This is described in more detail in Section 5.2.

22. Select the **Pbar aggregation scenario** by clicking on the button in the *24-hour access site aggregation scenario* field and then clicking on the **scenario**. The button takes you to the PBAR AGGREGATION SCENARIOS dialog box where you can add a new scenario, edit or delete an existing scenario. This is described in more detail in Section 5.3.

23. Click on the **Cpue** tab.

24. Select the **approach** by clicking on the button in the *Multi-estimator approach* field and then clicking on the **approach name**.

    These two different estimation approaches are described in detail in:

    > **Alexander, C. A. D.** 1999. 1998 Native Catch Estimates on the Upper Fraser River. Prepared by ESSA Technologies Ltd., Vancouver, BC for the Department of Fisheries and Oceans, Fraser River Division, Annacis Island, New Westminster, BC. 68 pp. and appendices.

    This report can be found on the MERCI installation CD.

25. Select the **Contact method –estimator definition** by clicking on the button in the *Contact method –estimator definition* field and then clicking on the **definition**. The button takes you to the CONTACT METHOD – CPUE ESTIMATOR SCENARIOS dialog box where you can add a new scenario, edit or delete an existing scenario. This is described in more detail in Section 5.5.

26. Select the **Catch interview aggregation scenario** by clicking on the button in the *Catch interview aggregation scenario* field and then clicking on the **scenario**. The button takes you to the CPUE AGGREGATION SCENARIOS dialog box where you can add a new scenario, edit or delete an existing scenario. This is described in more detail in Section 5.6.

27. Choose **Off** or **On** in the *Override pooling of survey data among MUs* by clicking in the appropriate circle next to the text. If you choose **On**, type in the threshold number of interviewers you would use to turn off aggregation (**n**). If **On** and MERCI finds at least **n** or more interviews were obtained from within the target Management Unit, catch interviews from other Management Units will not be used to compute the said Management Unit's Cpue.
28. Choose **Ratio of Means** or **Mean of Ratios** in the *Preferred Cpue Estimator* by clicking in the appropriate circle next to the text. When using the hierarchical method of estimation (HM method), this tells MERCI which Cpue estimate to use in calculating the catch when a Cpue estimate is available from the ratio of means and mean of ratios estimators.
29. Click on the **Apply** button. *Note:* To cancel adding the estimate definition, click on the **Cancel** button.

You have added a new estimate definition to the database. You can stay in this dialog box and enter in as many new definitions as you need. When you are done adding new definitions you have four options:

To	Do this
Edit a Definition	See below
Delete a Definition	See below
Run an Estimate	See below
Exit	Click on the **Close** button

To edit an estimate definition:

1. Open the ESTIMATOR DEFINITIONS dialog box as directed above.
2. Select the **Definition** you want to edit by clicking on the  button in the *Available estimate definitions* field and then clicking on the **Definition**.
3. Click on the **Edit** button.
4. Change the information in the appropriate fields.
5. Click on the **Apply** button. *Note:* To cancel editing, click on the **Cancel** button.

You have edited an Estimate Definition in the database. You can stay in this dialog box and edit as many definitions as you need. When you are done editing you have four options:

To	Do this
Add a Definition	See above
Delete a Definition	See below
Run an Estimate	See below
Exit	Click on the **Close** button

MERCI also allows you to delete an Estimate Definition *and all of its associated output*.

To delete an estimate definition:

1. Open the ESTIMATOR DEFINITIONS dialog box as directed above.
2. Select the **Definition** you want to edit by clicking on the button in the *Available estimate definitions* field and then clicking on the **Definition**.
3. Click on the **Delete** button.
4. A confirmation message will appear. To continue deleting, click on the **Yes** button, to cancel, click on the **No** button.

You have deleted an Estimate Definition and associated output from the database. You can stay in this dialog box and delete as many Estimate Definitions as you need. When you are done deleting you have four options:

To	Do this
Add a New Definition	See above
Edit a Definition	See above
Run an Estimate	See below
Exit	Click on the **Close** button

To run an estimate:

1. Open the ESTIMATOR DEFINITIONS dialog box as directed above.
2. Select the **Definition** you want to edit by clicking on the button in the *Available estimate definitions* field and then clicking on the **Definition**.

3. Click on the **Run Estimates** button. The run may take some time depending upon the estimate definition chosen. A message will appear indicating how many catch estimates are remaining.
4. A message will appear indicating that the estimates are complete. Click on the **OK** button.

Another message will appear indicating to click on *View | Output for Output options* when MERCI has finished all of the catch calculations. This is discussed in further detail in Chapter 7 – Model Output.

CHAPTER 7

Model Output

The Model Output chapter provides information on the features found under the VIEW – OUTPUT GRAPHS menu. This menu item allows you to query the output tables in the database to obtain printable on-screen graphs. Using the OUTPUT OPTIONS dialog box, you can also compare results between multiple estimation scenarios for any of six key statistics:

- Catch;
- Cpue;
- Effort;
- Ibar; and,
- Pbar.

Results are provided on a species by species basis, for any combination of gear types, weeks, and management units. The OUTPUT OPTIONS dialog box also allows you to specify the alpha level for showing confidence limits on weekly estimates for these 6 statistics.

Unfortunately, resources were not available to provide output tables for automating weekly catch reporting. These features could be made available in a future release of MERCI.

The remainder of this chapter describes the features of:

- the OUTPUT OPTIONS dialog box; and,
- the MERCI OUTPUT GRAPHS viewer.

7.1 Output Options

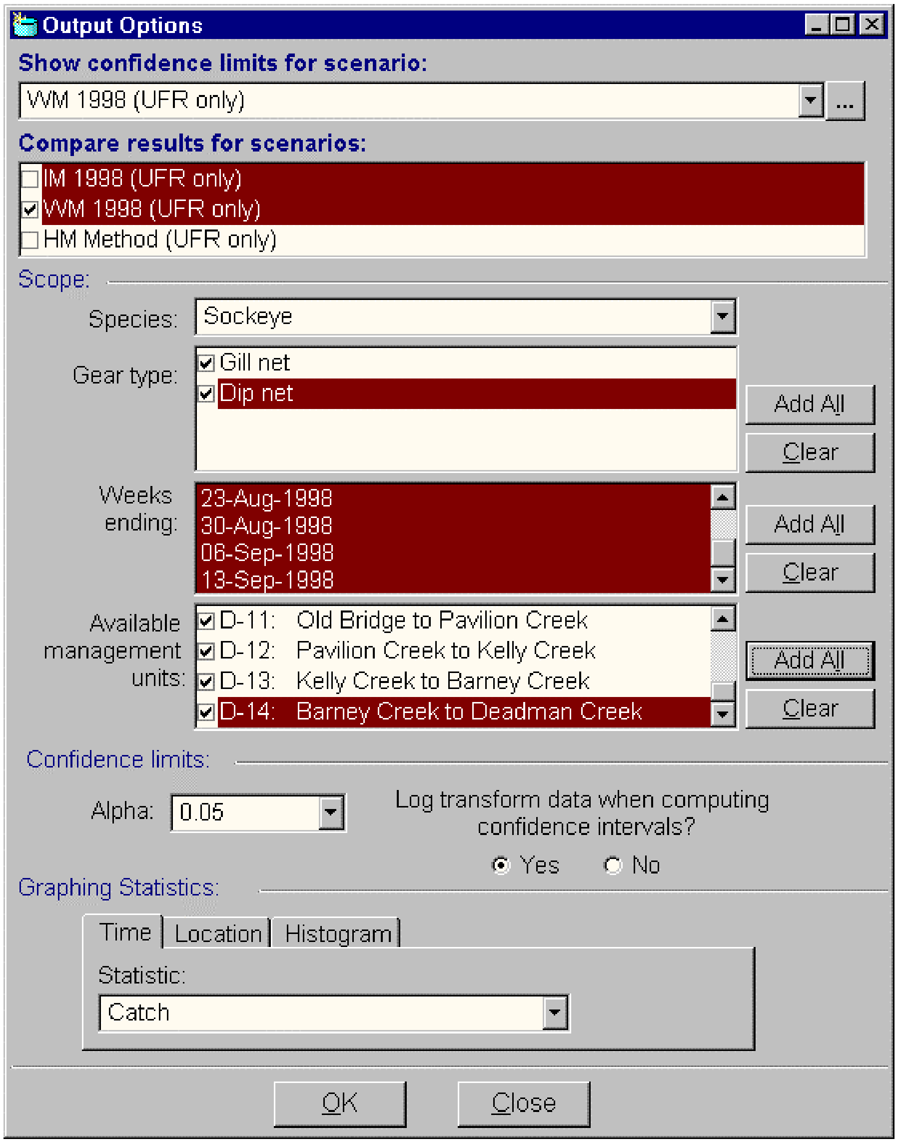
The OUTPUT OPTIONS dialog box is a tool that allows you to query the results of different estimation scenarios. It can be accessed directly from the MERCI Menu or by clicking on the **Output Graphs** button on the MERCI Toolbar.

To open the OUTPUT OPTIONS dialog box:

- From the **View** menu, click on **Output Graphs**

Or

- From the main MERCI screen click on the  button.



This dialog box lets you display output statistics over **Time** (weeks) and by **Location**. You can also compare the results of different estimation scenarios by clicking more than one scenario in the **Compare results for scenarios** list box. You simply have to specify the species, gear types, weeks, and management units from which you would like to see the chosen output statistics.

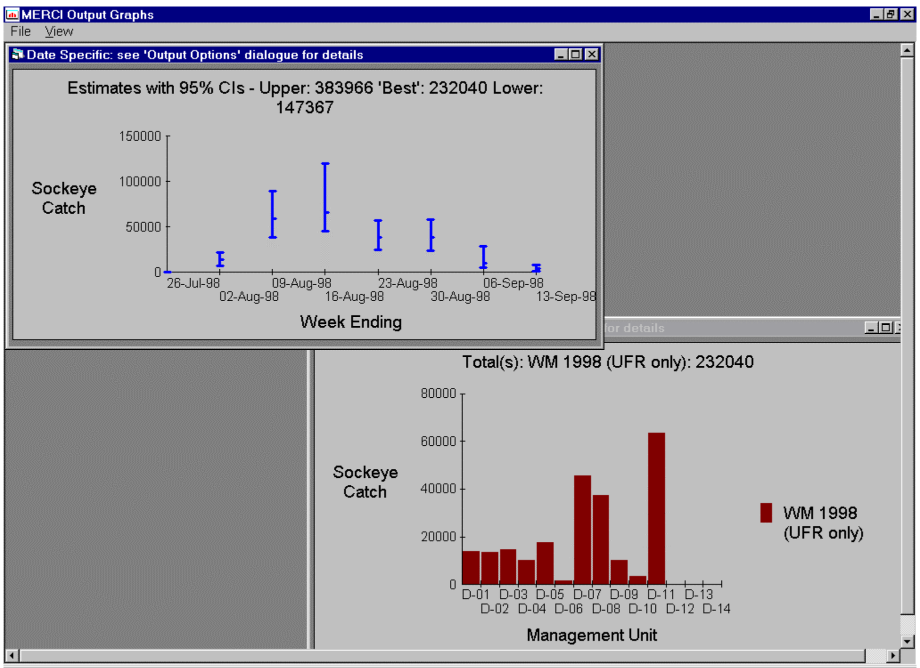
Confidence limits are displayed over time for the estimation scenario identified in the **Show confidence limits for scenario** drop-down list. You set the precision of the confidence limits using the **Alpha** value drop-down list. The **Log transform data when computing confidence intervals?** option allows you to log-transform the values of the statistic chosen on the **Time** tab. This helps to remove a certain form of skewness in the statistics distribution, which improves the accuracy of the endpoints that are found when calculating bootstrap confidence limits[4]. As a general rule, it is a good idea to make this transformation (should result in pseudo BC_a bootstrap confidence interval).

Note, the options under the **Histogram** tab are not enabled in MERCI 2.0.

When you click on the **OK** button, MERCI builds and executes a query to obtain the output. For bootstrap estimates, these queries involve *many* calculations and i/o operations on the database. As a result, they are time consuming, so we recommend you have an analysis plan in mind before committing the query.

7.2 The MERCI Output Graphs Viewer

The results of the query defined with the OUTPUT OPTIONS dialog box are displayed within the MERCI OUTPUT GRAPHS viewer.



The viewer automatically loads the first time you obtain results using the OUTPUT OPTIONS dialog box. Using the viewer, you can resize and print the results, and quickly jump back to OUTPUT OPTIONS dialog box to perform new queries. The **Refresh** option under the **View** menu re-runs the most

[4] BC bootstrap confidence limits are computed following the methods outlined in chapters 13 and 14 of: Efron, B. and R. J. Tibshirani. 1993. *An Introduction to the Bootstrap*. Monographs on Statistics and Applied Probability, 57. Chapman and Hall. 436 p.

recently defined query in the OUTPUT OPTIONS dialog box, in case you accidentally unloaded one of the output graphs.

The **File** menu allows you to print the graphs. You can also quickly jump back to the OUTPUT DIALOG using the *Windows task bar* or by clicking the **View | Output Dialog** menu from within the MERCI OUTPUT GRAPHS viewer.

Notes:

- The **Time** graph cannot be shown for a single week.
- The **Location** graph does not allow you to display data for a single management unit.
- If a scenario name is very long, or multiple scenarios with long names are compared, the **Location** graph may give the error: "String value too long". When this occurs, compare fewer scenarios, or shorten your scenario names.

CHAPTER 8

The Database

One of the major enhancements of MERCI 2.0 is its new, normalised Access 97 database (61 tables) with rules for enforced referential integrity. The non-normalised database for MERCI 1+ (4 tables!) was inherited from the estimation system in place prior to ESSA's involvement. However, the MERCI 2.0 database is compatible (i.e., supports file importing from MERCI 1.0 databases to MERCI 2.0 databases) with the MERCI 1.0 database design. The redesign of the MERCI 1+ database was critical to allow efficient estimation, integration of input and output, give more flexible editing features, and to help reduce data entry and estimation anomalies.

This chapter contains the following sections:

- The Catch and Effort Explorer
- The Structure of the Database

8.1 The Catch and Effort Explorer

The Catch and Effort Explorer is a tool that allows you to explore the survey data that is currently entered in the active MERCI database. The Catch and Effort Explorer can be accessed directly from the MERCI Menu or through any of the four Data Entry dialog boxes.

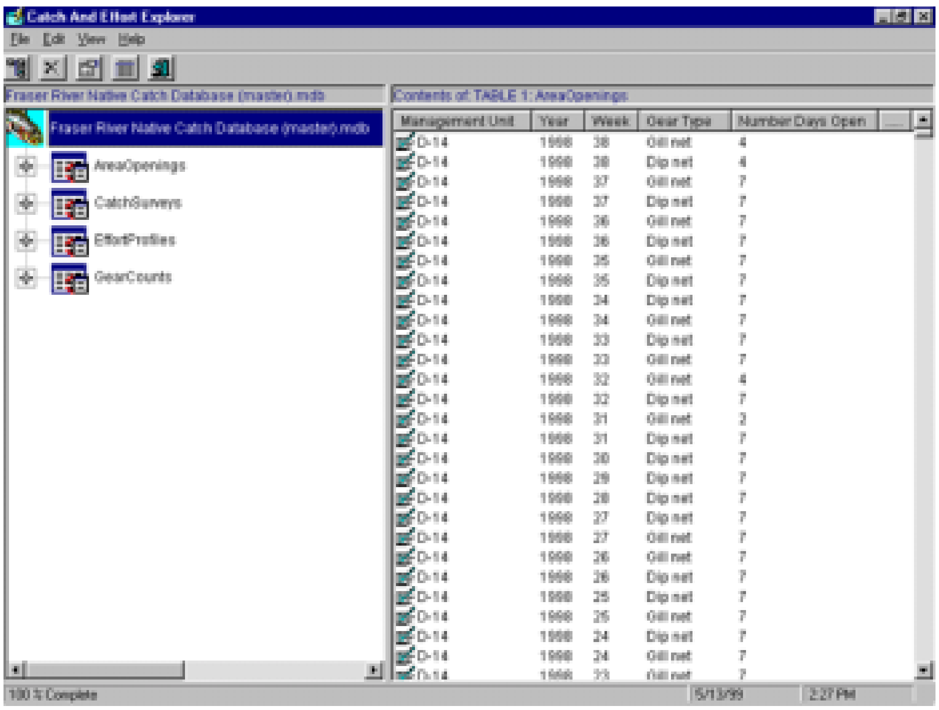
To open the Catch and Effort Explorer from the MERCI Menu:

- From the **View** menu, choose **Open Database** and click on **Explore**; or
- Click on the  button; or
- From the MERCI window, hold down the **Ctrl** key and press the **D** key.

To open the CATCH AND EFFORT EXPLORER from the other dialog boxes:

The FRASER RIVER FISHERY OPENINGS dialog box is used here to demonstrate. Follow the exact same procedure from any of the four DATA ENTRY dialog boxes.

1. From the **Edit** Menu, choose **Data Entry**.
2. Click on **Fishery Openings**.
3. From the **Explore** Menu, choose **Database** or hold down the **Ctrl** key and press the **D** key.



The CATCH AND EFFORT EXPLORER has two panes. The pane on the left displays the name of the database that is open and a list of the legacy tables that are in the database (i.e., the basic tables carried over from the pre-MERCI estimation system). Because these database tables were essentially laid out like a spreadsheet, they can be viewed on screen.

The four legacy tables correspond to the four DATA ENTRY dialog boxes in MERCI.

Table	Dialog Box
AreaOpenings	FRASER RIVER FISHERY OPENINGS
CatchSurveys	CATCH INTERVIEWS
EffortProfiles	24-HOUR EFFORT SURVEYS
GearCounts	MU GEAR COUNTS

There are a number of functions you can perform from the left pane.

To	Do This
View all fields in a table	Click on the **plus sign** beside the table name
Hide all fields in a table	Click on the **minus sign** beside the table name
Populate the right pane with records for that table	Click on the **table name** with the left mouse button
Add a new record	Click on the **table name** with the right mouse button and click on **Add New Record**. This will bring you to the corresponding ADD NEW MODE dialog box. You can add a new record as outlined in Sections 4.1.1, 4.2.1, 4.3.1 and 4.4.1.
Modify an existing record	Click on the **table name** with the right mouse button and click on **Modify Existing Record**. This will bring you to the corresponding EDIT/DELETE EXISTING MODE dialog box. You can now search for the record to modify as outlined in Sections 4.1.2, 4.2.2, 4.3.2 and 4.4.2.

Tip:
To avoid repeated re-population of the database (which may be time consuming), use the EXPLORER to find a record, then jump to that program components data entry form (by choosing **Modify Existing Record**, ***close*** the EXPLORER, then modify or delete from the data entry form.

The pane on the right contains columns that correspond to the list under the tables in the left pane. As with the left pane, there are a number of functions you can perform from the right pane.

To	Do This
Sort alphabetically by column	Click on the **column name title** button (Survey Start Date). If you want to sort in reverse alphabetical order, click once more.
Change the width of the column	Move the cursor to the right side of the **column name title** button until it changes to . Double-click and hold down the left mouse button and then drag the column to the desired width.
Delete a record	Click on the icon with the right mouse button and click on **Delete Record**. This will bring up a confirmation screen for the delete function.
Modify an existing record	Click on the icon with the right mouse button and click on **Modify Existing Record**. This will open the record in the corresponding EDIT/DELETE EXISTING MODE dialog box. You can now modify the record as outlined in Sections 4.1.2, 4.2.2, 4.3.2 and 4.4.2.

Warning!

Deleting *all* of the records in a table using MERCI will cause the application to fail. Delete unwanted entries only when one or more other records exist.

To Switch your Database:

1. From the **File** menu, choose **Switch Database**.
2. Select the required database and click on **Open.**

To Exit the CATCH AND EFFORT EXPLORER:

- From the **File** menu, choose **Close**; or
- Click on the button.

8.2 The Structure of the Database

Resources were not available to complete a write-up for the database. A detailed write-up of the database structure may be provided at a later time if desired.

As a courtesy, the developer offers the following important insights and guidelines:

- **NEVER** delete or rename any of the tables, modules, or queries supplied in the original database.
- **NEVER** delete or modify any of the relationships or referential integrity rules supplied in the original database.
- **NEVER** change the design (i.e., rename or change the position of fields, add fields) of the tables, modules, or queries supplied in the original database.
- **BECOME VERY FAMILIAR WITH "tblOUTPUT_SpecialCasesToReview"**. This table contains a list of cases for which you requested a catch estimate, but for which there was insufficient information to estimated one or more of: Cpue, Ibar, or Pbar. In most cases, random sampling variation or inadequate sampling effort account for the lack of a catch estimate in the strata in question. ***Failure to manually correct for these cases will lead to an <u>underestimate</u> of catch.***
- Do not modify the contents of top-level tables (e.g., tables which do not reference other tables, like "tblManagementUnitDescriptions") unless you are certain of the consequences.
- Do not modify the contents of any table unless you are certain of why you need to do it and you are able to accept the consequences.
- MERCI makes extensive use of cascade delete and cascade update. Therefore, single changes in one table can have large consequences throughout any number of other tables.
- Tables prefixed by "tblOUTPUT…" contain the model's output information. Because MERCI's automated output *viewing* options are limited, users needing to generate output reports will need to become familiar with these tables. The model could automate this process in a future version.
- It is a good idea to become familiar with the structure and contents of table "tblESTIMATE_DEFINITION". This table stores all of the information you specified on the **Estimator Definitions** dialog under RUN – ESTIMATE. It may be more convenient to delete scenarios from this table (which results in a cascade deletion of all associated output information) than from within MERCI when you want to reduce the size of the database. Preceding caveats about being sure of the consequences of your changes definitely remain in effect here.

- As is standard database convention, the MERCI 2.0 database relies on numeric ID's rather than text ID's. You will have to become familiar with these numeric ID's (all of which are defined in top level tables in the database) when implementing your own queries (e.g., species "1" = sockeye; management unit "5" = Piglog Creek to Pooeyelth Creek; gear type "2" = dip nets; 24-hour access site "3" = Elders site).
- Should you need to add any tables to a database, be sure to prefix them with "tbl". This is an internal cue used by MERCI to distinguish between legacy tables (no "tbl" prefix) and new tables ("tbl" prefix).
- When estimating catch, MERCI uses information in: "tblCatchSurveys" not the legacy information in "CatchSurveys"; "tblAreaOpenings" not the legacy information in "AreaOpenings"; "tblEffortProfiles" not the legacy information in "Effort Profiles"; "tblGearCount" not the legacy information in "GearCounts".

CHAPTER 9

File Management

MERCI offers Export and Import functions to enable you and other users to exchange raw survey data between different databases. Output information cannot be exchanged with Import and Export. You must have the database that you are exporting from or importing to open.

To open a database:

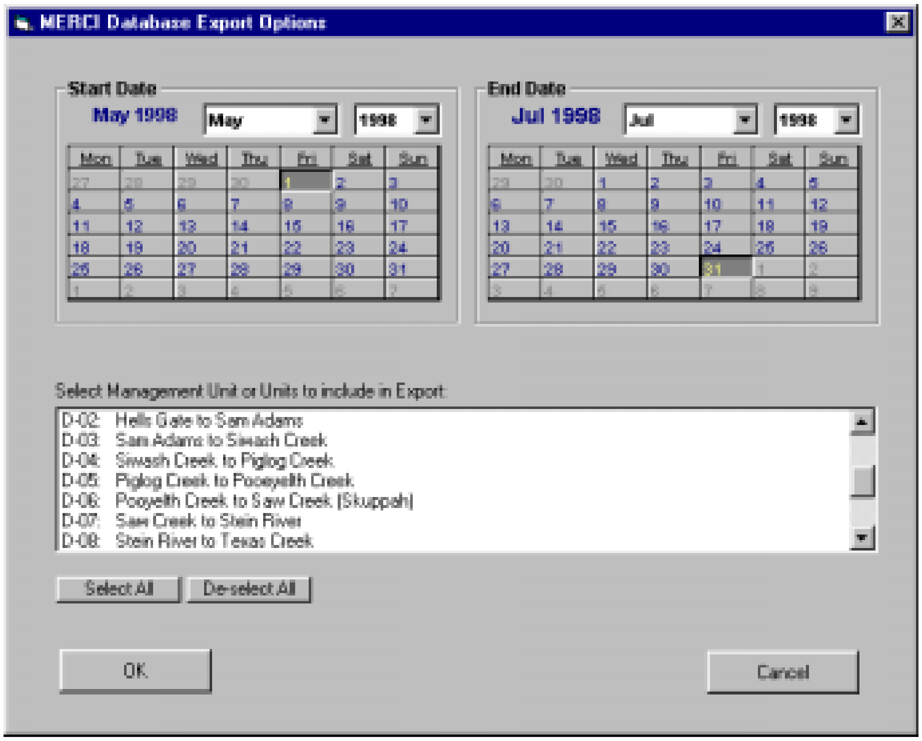
1. From the **File** menu, choose **Open Database** or click on the  button.
2. Select the database and click on **Open.**

9.1 Export

MERCI allows you to export all records associated with one or more Management Units over a given time frame. The following procedure describes how to export a copy of the records into a new database.

To export records:

1. From the **File** menu, choose **Export** or from the MERCI window, hold down the **Ctrl** key and press the **I** key.



2. Select the **month** and **year** of the first day of the export period from drop down lists in the *Start Date* box.
3. Click on the **day** of the month. Please ensure that the day button is depressed as in the above diagram.
4. Select the **month** and **year** of the last day of the export period from drop down lists in the *End Date* box.
5. Click on the **day** of the month.
6. Select one or more Management Units by one of the following:
   - to select all Management Units, click on the **Select All** button
   - to select one Management Unit, click on the appropriate one in the Management Unit list to select or deselect.
7. To multiple select Management Units, hold the **Shift** or **Ctrl** key and click on the appropriate Units.
8. Click on the **OK** button. To cancel exporting these records, click on the **Cancel** button.

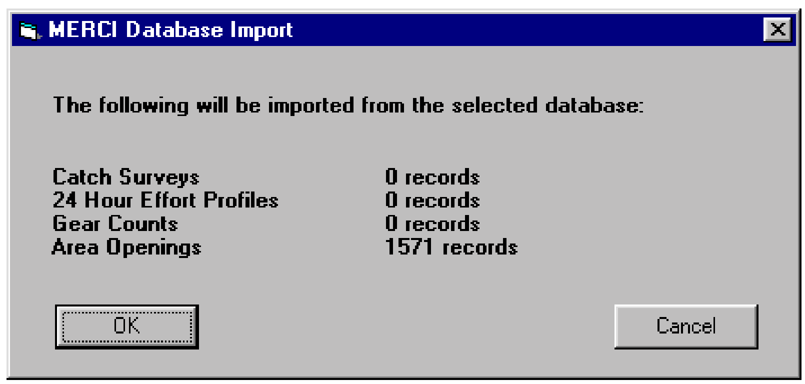
The export could take some time depending on the size of the database, the length of the time period chosen and the number of Management Units. When complete, a dialog box will appear indicating that the export has been successfully completed. Click on **OK** to continue. If you look at your status bar, the database you just exported is now open.

9.2 Import

The following procedure describes how to import a copy of existing records from another database to the database which is currently loaded when you click Import from the File menu.

To import records:

1. From the **File** menu, choose **Import**, or from the MERCI window, hold down the **Ctrl** key and press the **I** key. This brings you directly to the dialog box.
2. Select the database you wish to import records from.
3. Click on the **Open** button. *Note:* To cancel importing, click on the **Cancel** button.
4. The MERCI Database Import dialog box will appear indicating the number of records that will be imported from the selected database. Click on the **OK** button to continue for the **Cancel** button to cancel importing.



The import could take some time depending on the size of the database. When complete, a dialog box will appear indicating that the import has been successfully completed. Click on OK to continue.

9.3 Other File Management Suggestions

1. The Bootstrap estimation method produces a tremendous amount of data which can cause the MERCI database to become fragmented. For this reason, you should compact the database once you have finished any extensive Bootstrap estimation. This must be done by opening Access, and choosing TOOLS|DATABASE UTILITIES|COMPACT DATABASE. This will usually result in a considerable reduction in the size of the .mdb file.
2. Adopt a standard naming convention for you database files among MERCI users.
3. Make frequent back-up copies of your databases.