



**STRATEGIES FOR TRAWL FISHERIES  
BYCATCH MANAGEMENT  
(REBYC-II CTI; GCP /RAS/269/GFF)**

**REPORT ON**

**DEVELOP, UPDATE AND MANAGE A DATABASE  
FOR TRAWL FISHERY IN VIETNAM**

**Hà Nội, 2014**

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## 1. Review existing databases for Vietnamese fisheries

### 1.1. Database development history

Since 1996 under the support project “Assessment of Living Marine Resources in Vietnam” funded by the Danish Government, the Research Institute for Marine Fisheries of Vietnam has established several databases for data entry of fisheries in general and for trawl fisheries in particular. These are the survey database, logbook database, observer database and enumerator database (Figure 1). These databases were developed in Microsoft Access 1995, 1997 and 2000 integrated with Mapinfo 6.0 for mapping.



Figure 1. Existing databases for fisheries in Vietnam

### 1.2. Database structure

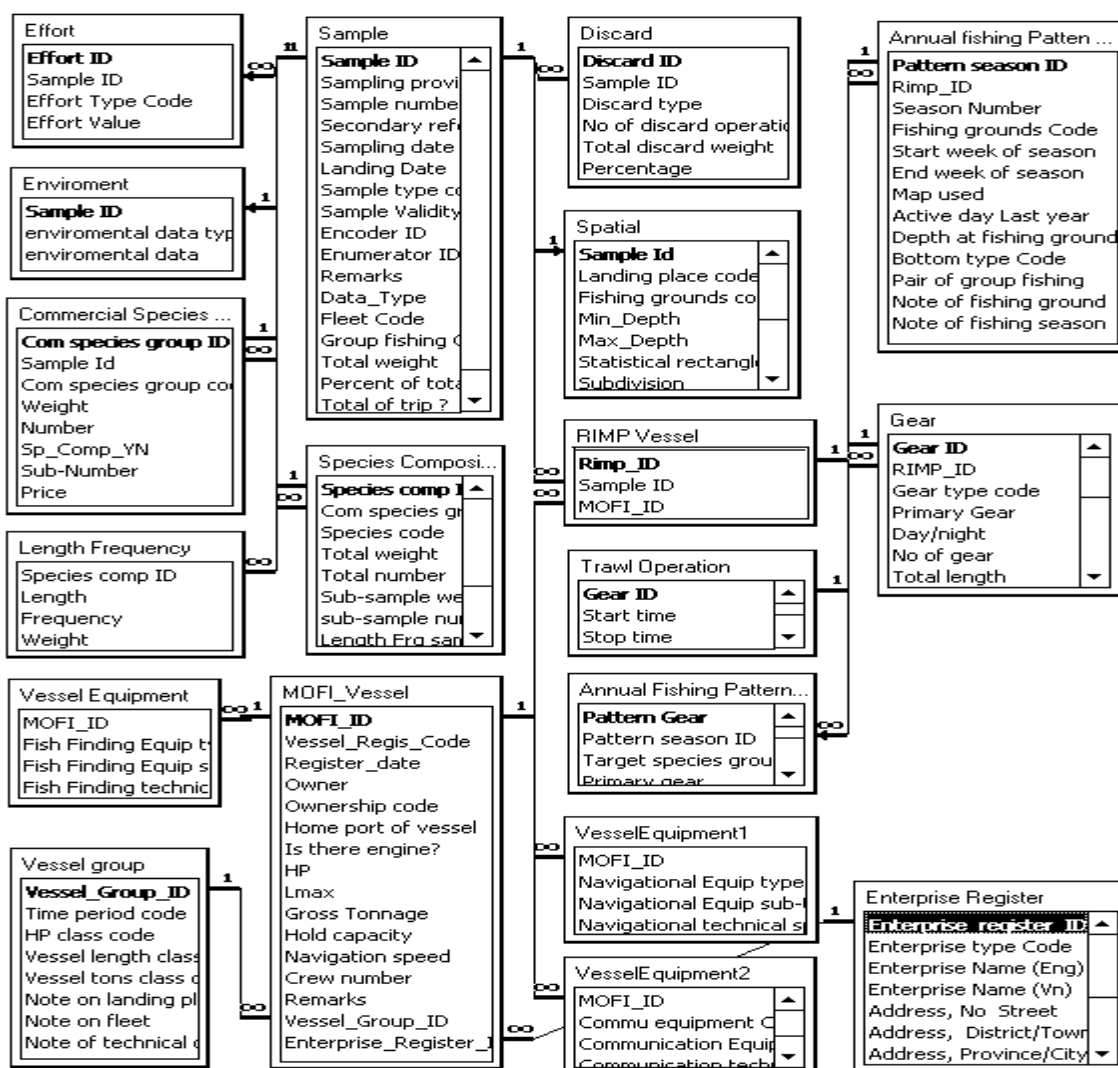
#### 1.2.1. Enumerator database and survey (VIETFISHBase)

The VIETFISHBase has initiatively been developed to store and process for both data from the comercial marine fisheries as well as from research surveys of Viet Nam in the frame of the project of “Assessment of the Living Marine Resources in Viet Nam” (ALMRV) funded by Danish and Vietnamese governments. The first version called VietFishBase was run on Microsoft Access 95 and was created by Per Johan Sparre, a project chief technical adviser.

Since August 1997, a database development team consisting of some Vietnamese technical staffs from different institutes has further developed the VIETFISHBase using Microsoft Access 97. The VIETFISHBase can be used to enter and store three data types including (1) from fishermen in landing sites and/or from processing plants collected by enumerators (interview data), (2) from research surveys and (3) from vessel registration systems registered by local authorities.

The VIETFISHBase was developed for use on personal computers (PC) with minimum requirements on technical specification of an AT 486 processor or later versions with 32-bit operating systems like Windows 95, Windows NT. The software for running VIETFISHBase is Microsoft Access 97 (a component of the Microsoft Office 97 package) to be installed in a computer with the minimum requirement of space on hard disk of 5 MB before using the database.

A general structure of the VIETFISHBase can be seen as in Figure 2. The VIETFISHBase consists of 81 tables including 58 "Look up" tables. "Look up" tables are to store ready filled-in data for the other tables. Generally, the "Look up" tables were fixed, but with VIETFISHBase, some forms were made available for users to fill in for some types of data such as vessels, fleets, and fishing gears, that had not been clearly identified previously.



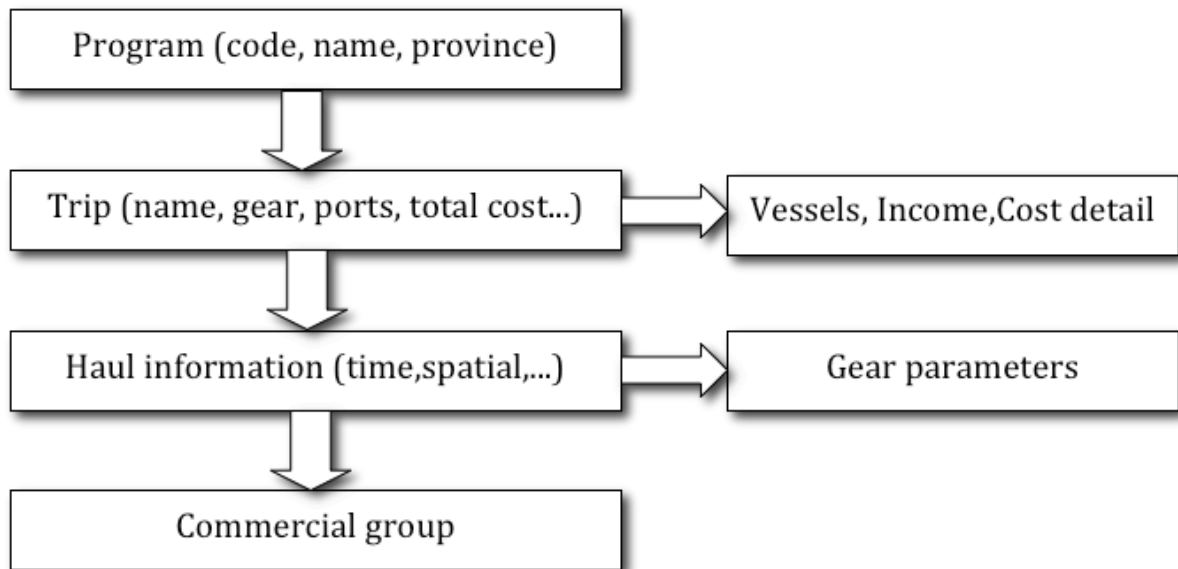
**Figure 2.** Relationships between tables in the VIETFISHBase

1.2.2. *Logbook and observer databases*

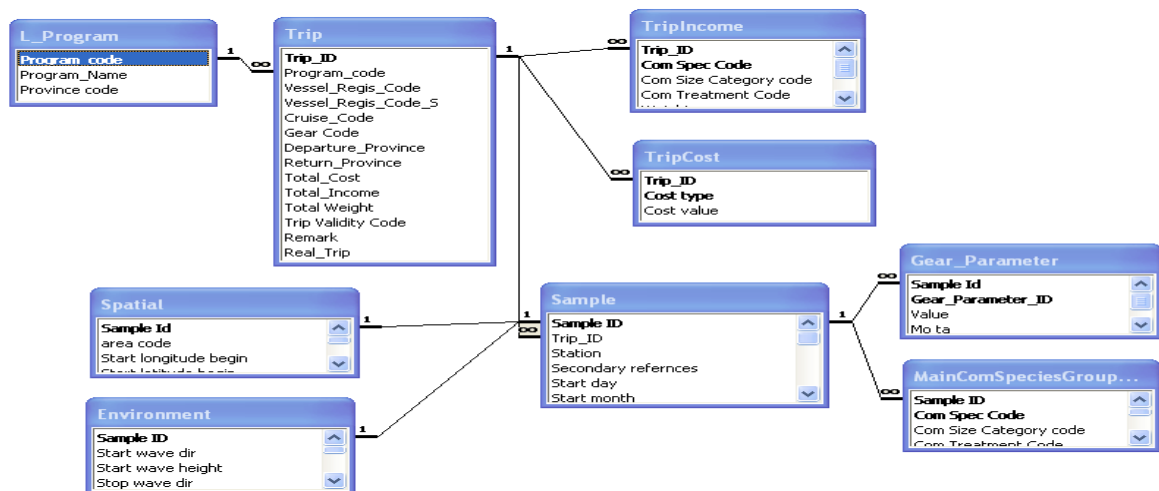
Similar to the VIETFISHBase, the logbook and observer databases were initiatedly developed under the framework of the ALMRV project funded by Danish Government since 1995. However, after development of the databases, there were several updated versions to improve reporting and checking tools.

The logbook and observer databases were developed in Microsoft Access for the use of personal computers (PC) of using window operational system.

A general structure of tables in the logbook and observer databases can be seen in Figure 3. The first table “Program” includes code, name and province Then trip information was indicated in the “Trip” table including information fields such as name, gear, fishing cost, etc. Haul information is also included to indicate spatio-temporal scales of a fishing batch. Finally, detailed information on commercial groups in the haul was included. A detailed relationship between the various tables in the databases is indicated in Figure 4.



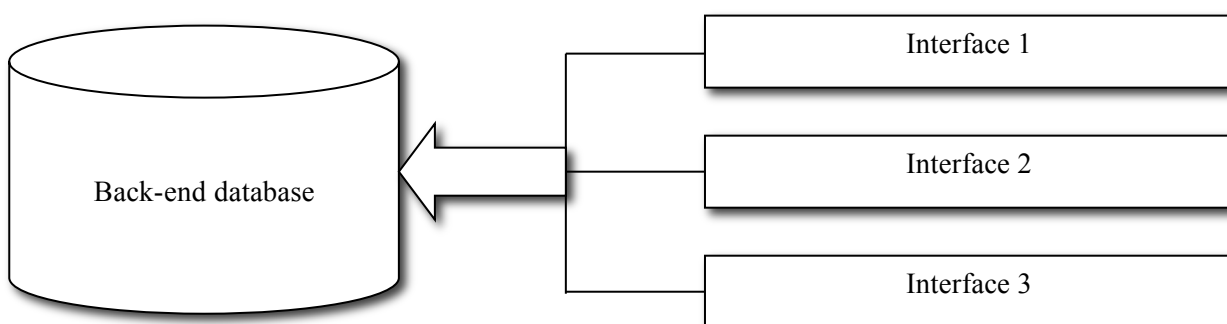
**Figure 3.** Overview of table in the logbook and observer database



**Figure 4.** Relationships between tables in the logbook and observer databases

The logbook and observer databases were designed to have two separate sections ‘back end’ and ‘interface’ (Figure 5). This is to limit unnecessary access from users without authorized to change the database.

1. Back end database: This is to store all components and data entered in the database. However, the encoders cannot directly open to change the database. In order to change database, the encoders must be authorized as an administrator. The back-end database is usually installed in a server with high capacity.
2. The interface: This is a section to store database objects excluding the tables. This section is to install in the encoders’ computers. By using this interface the encoders can design queries, form to analyze and process the entered data. Then the back-end and the interface was connected each other using the linking tables.



**Figure 5.** The back-end and interface database in the logbook and observer databases

### 1.2.3. Vnfishbase

Vnfishbase is a web database developed in 2000 to allow users to access the database through a website using the username and password to log in (Figure 6). The database therefore, is convenient for management and monitoring purposes. Another advantage of the VNfishbase is that it allows local authorities to enter fisheries data at local offices and then responsible staffs at the central level can synchronize and extract these data in their offices without requiring hard copies of the collected data. Management of vessel licensing, tasked at central level is also convenient for central fisheries management staff because they can know how many vessels have been licensed during monitoring periods. However, this database is currently inactive due to some conflicting problems. For instance, if there was the conflict in information between the registered vessels and sampled vessels. There have also been problems on technical compatibility from the central to local levels and Internet connections are not always available at local offices. In addition, because of complexity of its use, local staff have some problems on how to use the database if they have not been trained.

The database include interfaces to enter vessel information registered from vessel registration systems and to enter collected fisheries data such as information on catch, effort, trip, etc.



**Figure 6.** An interface to log in to the Vnfishbase by the HTML address.

### ***1.3. Constraints of the existing databases***

One of the biggest problems of the above mentioned databases is that they do not sufficiently have reporting tools that users can easily use to extract and analyze the data entered. Another problem is that they were separately developed from each other so that crosschecking and management processes of different data types is impossible. In addition, almost of these databases were developed in English and thus causing difficulties for users without knowledge of English. This is particularly problematic for local management staffs. Therefore, there is a strong need to develop a new integrated database for trawl fisheries that can resolve the above-mentioned problems for trawl fisheries data entry and management in Vietnam.

## **2. Description of the developed trawl fisheries database**

The source code of the database is developed in Access Microsoft version 2010 but it can be used in lower or higher version of Microsoft Access software. The database executable is available for only Windows platform. Language used in the database is Vietnamese so that local people who are not good in English can easily use it for entering and analyzing the collected fisheries data.

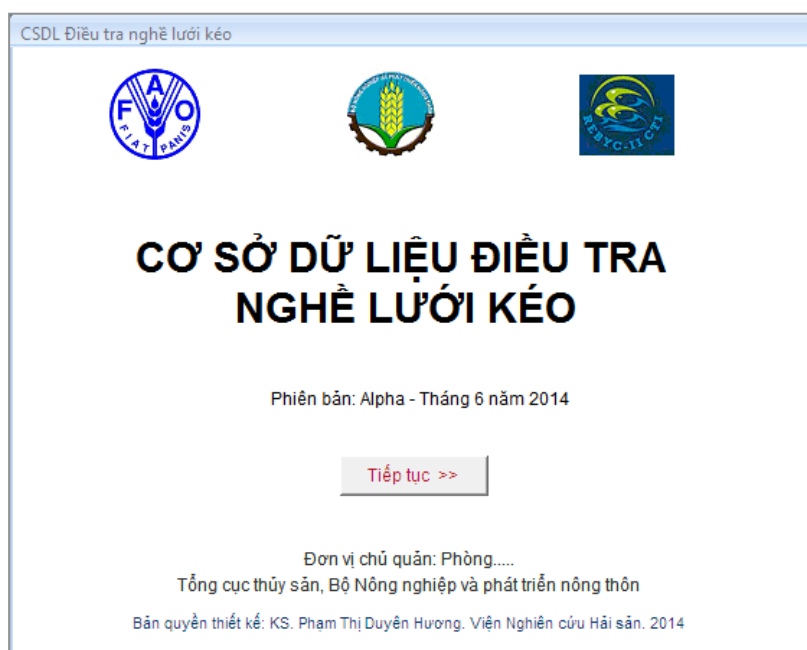
There are three main modules developed in the present database including “Data Entry”, “Data Look up” and “Data Processing”. The database allows analysing and processing entered data to directly extract into reports using reporting tools. The database allows users to enter several collected data types into one database. These data types include logbook data, landing data, effort data. Therefore, the database allows users to cross check each others entered trawl data.



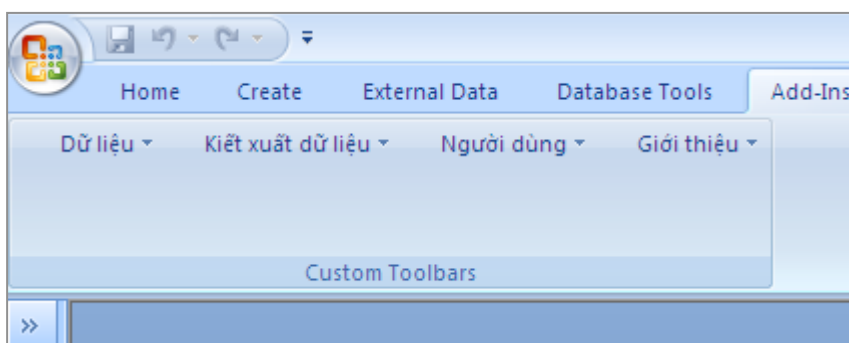
### 3. User manual on trawl fisheries database

#### 3.1. Starting the database

When starting database, a startup window will appear as below to notify the user that the database has been opened:

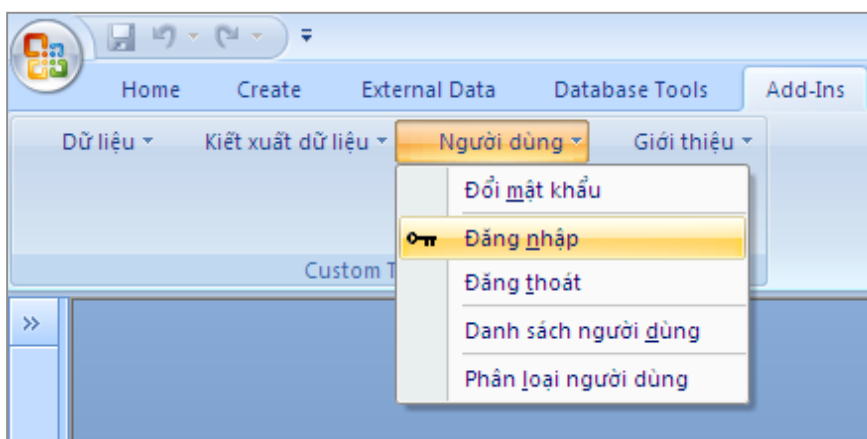


When the user enters “tiếp tục, continue” button, this window will automatically be shut down and a working window of the database will open. The user can use the top menu of the working window to start working on the database.

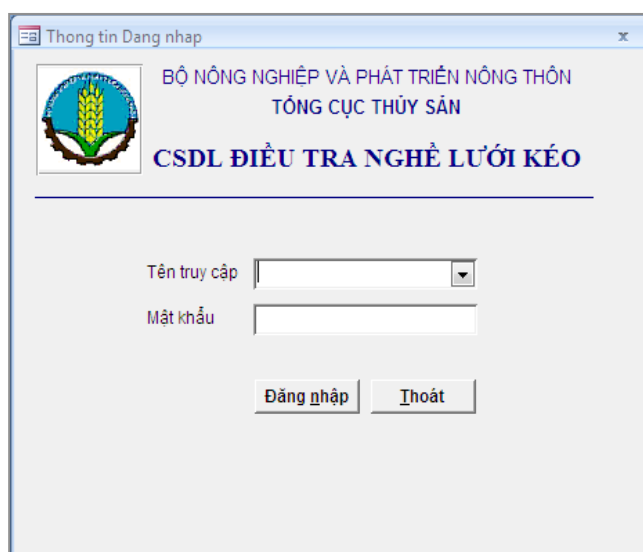


#### 3.2. User login

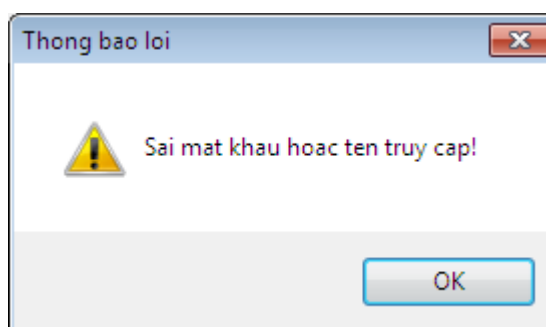
In order to log in, users have to click the user’s login button in the menu bar and select: Log in “Đăng nhập”.



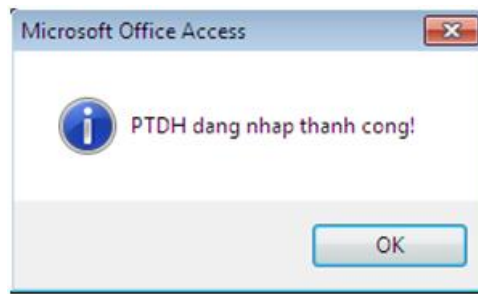
Then a log in window (indicated below) will appear so that user can enter the user's name and password in order to access the database for encoding or data extraction:



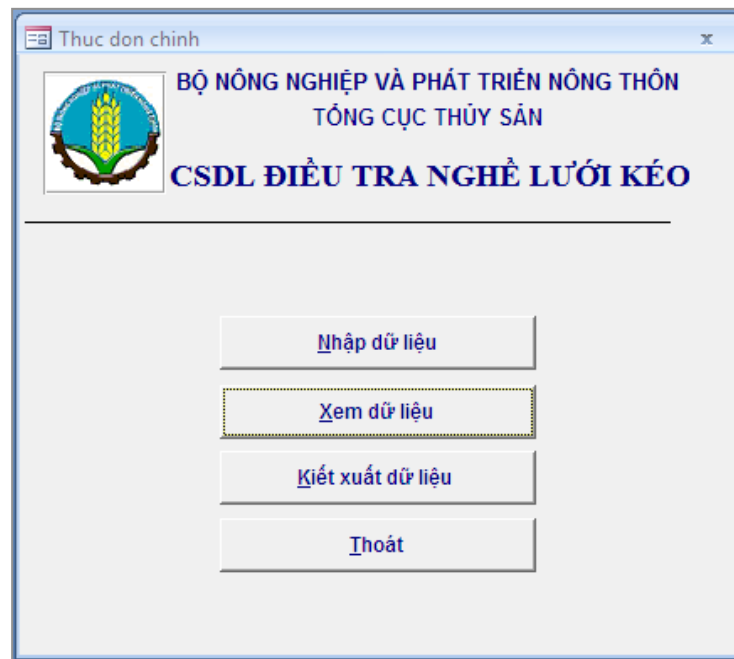
If the user's name and password is incorrectly entered, there will appear an error window as follows:



The user can press "OK" to re-enter. Once the user's name and password are correctly entered, the database will open a window to notify that user that they can use the database as indicated below:



The User can then press “OK” to start working with the database. A main option window (including “data entry”, “data review”, “data integration” and “database exist” will appear so that the user can select which options they want. The main option window indicated is as follows:

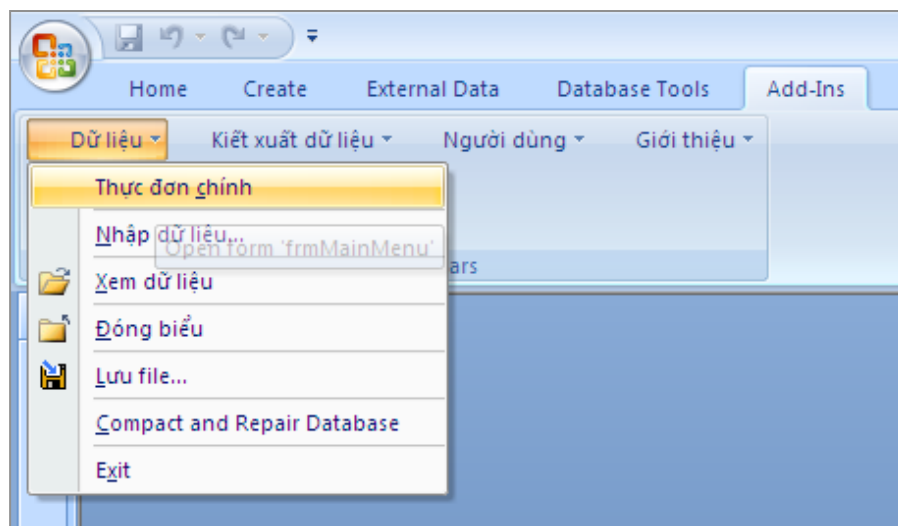


### ***3.3. Data entry***

In the main option window, the user can select “Data entry” option to start entering data and then a data entry window will appear so that user can enter what kind of data they want to enter. Data types can be entered including “Logsheet data”, “Catch by trip”, “Boast active efficiency”.



In another way, to enter data, the user can use the main menu and select “**Dữ liệu/Thực đơn chính**” “**Data/Main menu**” to open the main menu and then start to work with this. The window will appear as follow:



If “**Dữ liệu/Thực đơn chính**” “**Data/Main menu**” is selected then a **Dữ liệu/Thực đơn chính** “**Data/Main menu**” will appear.

If “**Dữ liệu/Nhập dữ liệu**” “**Data/data entry**” is selected then a data entry window will appear for entering data.

This database is included three trawl fisheries data types:

- Logbook database
- Landing database
- Boat active efficiency database

Each type of database will have a different data entry interface depending on the selection of the data encoder. Once the user has successfully accessed the database, he/she can edit records (delete, edit, create new record) on each form entered by himself/herself but he/she will not be able to edit records entered by other users.

### 3.3.1. Logbook data interface

Once the user selects “logbook” option, a logbook data interface will open so that the user can enter logbook data. The interface appears as follows:

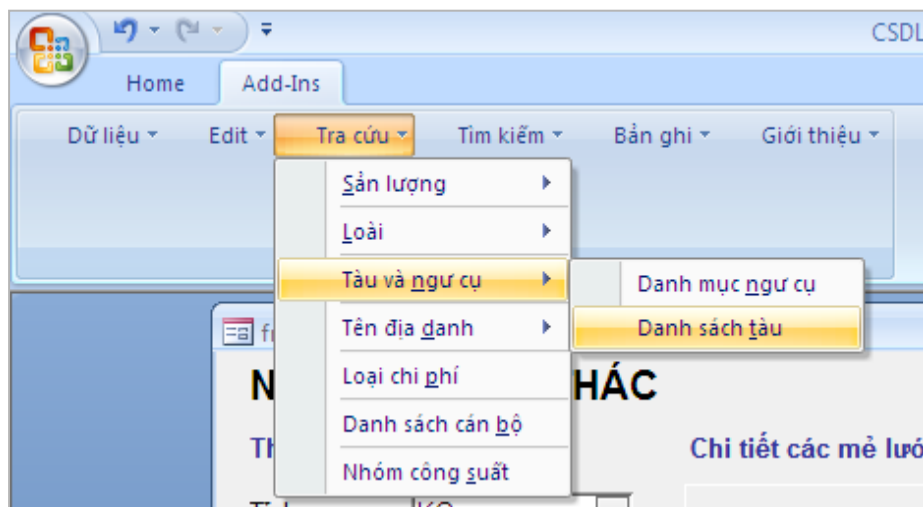
The logbook form is divided into two parts: “**General information**” and “**Haul detail**”. The Encoder will enter data in both these parts.

#### **General information:**


Once the window is opened, the cursor will automatically appear in the first field “**Province name**”. The Encoder can use the ‘tab’ button to move the cursor to the next field. “**Province name**” is encoded by two capital letters as abbreviations.

The next field is “**Vessel registration number**” and the name of sampled vessel. The Encoder can enter the vessel registration number or select from the list. Note: when entering the vessel registration number, it is necessary to cross check if there is consistency between the vessel registration number and the capacity of the vessel, in the database.

In case, the vessel is not in the list in the database, then the encoder must create new vessel data on the database. In this case on the menu bar of the database, the user has to select: **Search/Vessel and gear/List of vessel** to open a window for entering a new record of the vessel. This procedure can be described below:



Then window to enter vessel information is as follows:

The User can press the sign  to open a new record to enter vessel information:

- **Vessel registration number/Số Đăng ký tàu** is used to enter the vessel registration number. The vessel registration number normally includes a province code where the vessel is registered and a number. The vessel registration number is unique and must be the same as on the vessel list of the local authorities. In case the vessel registration number overlaps with other vessels (the other vessels are defined as vessels with the same registration number but different capacities) and which is already in the list of the database, then the encoder must enter the vessel registration number recorded in the data collection form together with a capital A, B, C...at the end of the vessel registration number to make sure this vessel is unique in the database.

- The next field is **name of captain/Thuyền trưởng** for entering the name of the vessel captain.

- The next field is **Engine? /Gắn máy?** to click on if the vessel installed with an engine (i.e. capacity higher than 0). This field is automatically ticked as a default. In the case of a vessel without engine, the encoder can unclick this field.
- The next field is **Capacity/Mã lực (CV)** to enter vessel capacity
- The next field is **Length/Chiều dài (m)** to enter length of the vessel
- The next field is **Note/Ghi chú** to enter some notes on the vessel
- Press **Close/Đóng biểu** to close the **Vessel General Information** and return to haul detail information.
- Then encoder can select a vessel from the list or enter the name of the vessel into the field of **Vessel registration number/Số ĐK tàu.**
- **Gear/Nghề** is used to enter fishing gear of the sampled vessel. Similarly the encoder can select from the list or enter directly a code for the corresponding gears, in this field.

**NHẬT KÝ KHAI THÁC**

**Thông tin chung**                      **Chi tiết các mẻ lưới**

Tỉnh: KG

Số ĐK tàu: BD 40730 TS

Nghề: A120

Ngày đi: 1 / 1 / 2014

Ngày về: 1 / 1 / 2014

Ghi chú:

Người nhập: C000

Ngày nhập: D310

Mã số	Ô lư
Mê số: 1	Ô lư
Ngày: 1 / 1 / 2014	Kinh
Nơi trườ	Vĩ đ
A120	lưới kéo đơn
A220	lưới kéo đôi
B120	Rê ghe
B130	Rê chuẩn
B140	Rê sửa
B150	Rê chim
B160	Rê cá trích
B210	Rê tầng mặt ( rê trôi)
B230	Rê tầng đáy ( rê đáy)
B240	Rê hỗn hợp
B251	Rê
C000	Te, xiệc
D300	Vây tự do (vây)
D310	Vây cá cơm
D320	Vây cá ngừ
D330	Vây ánh sáng
	Bottom Otter trawl
	Bottom pair trawl
	Trammel net - Small
	Trammel net - Big me
	Rê sửa
	Rê chim
	Rê cá trích
	Drift gill net
	Bottom Gill net
	Gill net all
	Tuna-Mackerel Gill ne
	Push net
	Purse seine
	Anchovies purse sein
	Anchovies
	Luring purse seine

- Next, the encoder enters data on **Departure date/Ngày đi** and **Arrival date/Ngày về** for the fishing trip. This field is formatted as a date field -day/month/year.

**Thông tin chung**

Tỉnh: KG  
Số ĐK tàu: BD 40730 TS  
Nghề: A120  
Ngày đi: 1 / 1 / 2014  
Ngày về: 1 / 1 / 2014  
Ghi chú:  
Người nhập: PTDH  
Ngày nhập: 04-Jun-14

**Chi tiết các mẻ lưới**

Mẻ số: 1 Ô biển: H10 SL (kg): 55  
Ngày: 1 / 1 / 2014 Kinh độ: 111:11 Ghi chú: xxxxx  
Ngư trường: Quanh đảo Thổ chu Vĩ độ: 11:11  
Độ sâu (m): 45

**Sản lượng mẻ lưới**

Tên nhóm cá	Cỡ	H.thức bảo quản	Sản lượng (kg)	Giá (1000 đ)	Thành tiền (1000 đ)
Cá cam, cu cam	0	WW	15	6	90
Cá tin	0	WW	40	7	280
*	0	WW			
<b>Tổng cộng</b>			<b>55</b>		<b>370</b>

Record: 1 of 1 No Filter Search

The next field is **Note/Ghi chú**, used to enter any notes of the sampled trip.

The **Encoders name/Người nhập**, **Entered date/Ngày nhập** are set up as default fields corresponding to the login user in the database and data entry date.

This is end of General Information and the encoder can move to Detail Haul Information.

#### **Detail Haul Information/Chi tiết các mẻ lưới:**

Detail Haul Information field describes haul information and the catch from the haul.

**Haul No./Mẻ số** is used to enter the order of the haul in the trip

**Date/Ngày tháng** is used to enter day-month-year of the haul into corresponding fields as indicated in the below figure.

**Fishing ground/Ngư trường** is used to enter general fishing location of the trip.

**Fishing area/Ô biển** indicates the grid where the catch was taken. This area is defaulted.

**Longitude, latitude/Kinh độ, Vĩ độ** is used to enter exact location by longitude and latitude where the catch came from.

**Depth/Độ sâu (m)** is used to enter fishing depth.

**Catch/Ô SL (Kg)** is used to enter the total catch of a haul.

**Note/Ghi chú** is used to enter specific notes on the haul.

#### **Catch by haul:**

Catch by haul is shown in a form in a data table consisting of rows and columns. Each line shows information about a catch group. The Encoder will enter line by line, starting with the first column, second column and to the last column and then move to the second line to continue entering.





Sản lượng mẻ lưới							
	Tên nhóm cá	Cỡ	H.thức bảo quản	Sản lượng (kg)	Giá (1000 đ)	Thành tiền (1000 đ)	
▶	Cá cam, cu cam	0	WW	15	6	90	
	Cá tín	0	FP				đông lạnh và đóng gói
*		0	FR				đông lạnh
			HE				bỏ đầu
			HP				bỏ đầu và bóc vỏ
			ND				không xác định được
			NK				không biết
			NL				không có trong Bảng Look_up
			PE				làm đông và đóng gói để XK
			PP				đã sơ chế (mổ, xẻ . . .) (trừ tôm)
			SA				ướp muối
			TF				cá tạp ướp muối để làm mắm
			W0				Tươi, không ướp đá
			WA				Còn sống
			WB				kém phẩm chất: nát, vỡ, hỏng. . .
			WQ				Tươi, chất lượng cao
			WW				Tươi, ướp đá

Record: 1 of 1

Tổng

If a means of preservation is not indicated in the collected form then the database will default as WW (Wet weight).

**Price/Giá (1000 VND):** is used to enter data on prices of the catch group with units of 1,000 VND.

**Amount/Thành tiền (1000 VND):** is used to enter data by value for the catch group with a unit of 1,000 VND. This field is automatically updated according to a following formula:

$$\text{Amount (1000VND)} = \text{Catch (kg)} \times \text{Price (1000VND/kg)}$$


The total catch data and the total catch value is automatically updated in two yellow data boxes on the lower right screen, as indicated below:

Sản lượng mẻ lưới							
	Tên nhóm cá	Cỡ	H.thức bảo quản	Sản lượng (kg)	Giá (1000 đ)	Thành tiền (1000 đ)	
▶	Cá cam, cu cam	0	WW	15	6	90	
	Cá tín	0	WW	40	7	280	
*		0	WW				
<b>Tổng cộng</b>				55		370	

Information is entered to the last catch by each haul and then moved to another haul.


Note:

To avoid information omissions, the encoder should note to cross check total catches for each haul in the yellow box, with the total catch of the haul recorded in the data collection form so that they are the same, before going to the new haul.

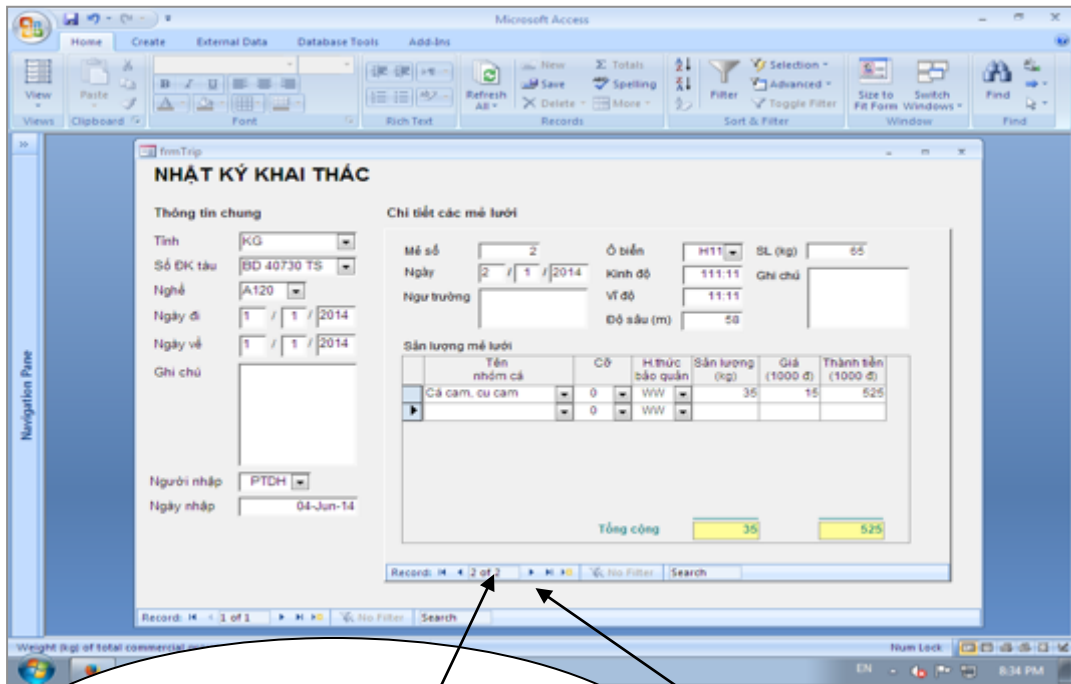
To move to the next haul, the encoder presses the  button in the lowest line of database to create a new record as indicated in the below figure:

The first haul of trip is entered. This number allows users know he/she is dealing with which hauls and how many hauls for each trip.

This is to create a new record to enter a new haul

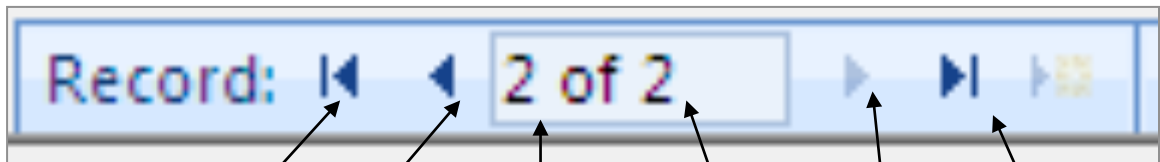
Once the encoder has pressed  a new record will appear to enter information for the next haul as indicated below and entry procedures are repeated as above.

There is currently opening a second record to enter a second haul of trip.



Currently, user is entering in a second haul of trip. This box allow user to know total of hauls entered of 2

This allow to move to next records



Move to the first record

Move to previous record

The second record opening

There are currently 2 records entered

Move to the next record

Move to the end record

frmTrip

## NHẬT KÝ KHAI THÁC

### Thông tin chung

Tỉnh:

Số ĐK tàu:

Nghề:

Ngày đi:  /  /

Ngày về:  /  /

Ghi chú:

Người nhập:

Ngày nhập:

### Chi tiết các mẻ lưới

Mê số:  Ô biển:  SL (kg):

Ngày:  /  /  Kinh độ:  Ghi chú:

Ngư trường:  Vĩ độ:

Độ sâu (m):

#### Sản lượng mẻ lưới

Tên nhóm cá	Cỡ	H.thức bảo quản	Sản lượng (kg)	Giá (1000 đ)	Thành tiền (1000 đ)
Cá cam, cu cam	0	WW	35	15	525
Cá cơm trắng	0	WW	15		
Cá mè	0	WW	30		
*	0	WW			
<b>Tổng cộng</b>			<input type="text" value="80"/>	<input type="text" value="525"/>	

Record:   2 of 2  No Filter

Record:   1 of 1  No Filter

To create a new record

### 3.3.2. Landing data interface

Once the user presses **Landing data/Sản lượng chuyển biển** it means that he/she has chosen to enter landing data by trip of fishery.

Danh mục nguồn dữ liệu

## NGUỒN DỮ LIỆU

The landing data interface will be opened so that user can start to enter data:

The landing data interface is divided into three parts: **General information/Thông tin chung**; **Vessel-Gear-Effort-Cost/Tàu-Nghề-Cường lực-Chi phí**; and **Catch by groups/Các nhóm sản lượng**. The encoder will enter data for each part step-by-step from general information to catch by group.

The encoder can use the tab button to move the cursor through the information field.

\* **General information/Thông tin chung:**

Once the landing data interface opened, the cursor will be placed in the first cell of Sample No. as indicated in the data collection form.

In the **Province/Tinh** the encoder can code the name of province or select the province code by a list as shown below. In this database, the box is set as the defaulted code KG (Kien Giang).

## NHẬT KÝ KHAI THÁC

### Thông tin chung

Tỉnh:

Số ĐK tàu:

Nghề:

Ngày đi:

Ngày về:

Ghi chú:

Người nhập:

Ngày nhập:

### Chi tiết các mẻ lưới

Mê số:

Ngày:  /  /

Nơi trường:

Mê số	Mô tả	Tên
A120	lưới kéo đơn	Bottom Otter trawl
A220	lưới kéo đôi	Bottom pair trawl
B120	Rê ghe	Trammel net - Small
B130	Rê chuồn	Trammel net - Big mesh
B140	Rê sứa	Rê sứa
B150	Rê chim	Rê chim
B160	Rê cá trích	Rê cá trích
B210	Rê tầng mặt ( rê trôi)	Drift gill net
B230	Rê tầng đáy (rê đáy)	Bottom Gill net
B240	Rê hỗn hợp	Gill net all
B251	Rê	Tuna-Mackerel Gill net
C000	Te, xiệc	Push net
D300	Vây tự do (vây)	Purse seine
D310	Vây cá cơm	Anchovies purse seine
D320	Vây cá nù	Anchovies
D330	Vây ánh sáng	Luring purse seine

Then the user can continue to input data into the **sample collection date** for the fishing trip. This is the date type data and the user enters the information of date/ month/ year into the corresponding box.

Next is the field **Landing site** is where the catch of the fishing trip was landed. The user can select a name from the list or type the code of the Landing site. A list of landing sites is displayed by province code i.e. if the province code is KG (Kien Giang province), the list would show landing sites of Kien Giang province, as shown in the graphic.

**Thông tin chung**

Mẫu số:  Tỉnh:

Nghề:

Ngày thu mẫu:  /  /

Điểm lên cá:

Người thu thập:

Người cung cấp:

Tỉnh/Thành phố:

Huyện/Quận:

Xã/Phường:

Số nhà:

Ngày đi:

Ngày cập bến:

K. vực đánh bắt:

Tổng SL (kg):

Bán trên biển(kg):

Người nhập:

Ngày nhập:

The box **Collector** is used to enter the code of the collector who collected data being inputed.

The box **Provider**: is used for entering the name of the person providing the information.

Người thu thập:

Người cung cấp:  Cao Van Hung

Tỉnh/Thành phố:  Phạm Duyen Huong

Phạm Việt Anh

frmSample

## SẢN LƯỢNG CHUYỂN BIỂN TẠI ĐIỂM LÊN CÁ

**Thông tin chung**

Mẫu số: 1 Tỉnh: KG

Nghề: A120

Ngày thu mẫu: 1 / 1 / 2014

Điểm lên cá: Chau Thanh district

Người thu thập: PVA

Người cung cấp: xxx

Tỉnh/Thành phố: KG

Huyện/Quận: TX. Rach Gia

Xã/Phường: An Hoa

Số nhà: 111

Ngày đi: 1 / 1 / 2014

Ngày cập bến: 1 / 1 / 2014

K. vực đánh bắt: Thổ Chu - Hòn Mát - Hòn Ối

Tổng SL (kg): 100

Bán trên biển(kg): 50

Người nhập: PTDH

Ngày nhập: 22-05-2014

**Tàu-Nghề-Cường lực-Chi phí** **Các nhóm sản lượng**

**Tàu**

Số hiệu tàu: BD 40544 TS

**Ngư trường**

Ô biển: H10 Độ sâu (m): 15

**Cường lực**

Số thuyền viên: 15

Số ngày/chuyến: 20

Số ngày KT: 15

TG khai thác: ngày đêm

Số ngày HB trong tháng:

**Chi phí chuyển biển**

Loại chi phí	Giá trị (triệu đ)
Nhiên liệu	15
Muối, đá	5
Chi phí khác (Tổng số)	3

Tổng cộng: 23

Đóng biểu

Record: 1 of 2 No Filter Search

The box **Province/City**: is used for entering province/city code of the address of the person who providing information.

The box **District/county**: is used for entering district/county code of the address of the person who providing information.

The box **Commune/Precint**: is used for entering commune/precint code of the address of the person who providing information.

The box **House No.**: is used for entering house number of the address of the person who providing information.

The boxes **Departure date, Arrival Date**: are used for entering data of starting and landing dates of the fishing trip. This is the date type data and user enters the information of date/ month/ year into the corresponding box.

The box **Fishing Ground**: is used to enter the information about main fishing ground of the fishing trip where its catch was collected.

The box **Total Catch (Kg)**: is used to enter data of the catch of the fishing trip.

The box **Selling at the sea (Kg)**: is used to enter data of the weight of the part of the catch sold at the sea before landing.

The box **User, Input Date** are default on the date when data was entered and user logs in to the Database.

After finishing entering data into General Information, the user starts to enter data of **Vessel-Gear-Effort-Cost**.



\* **Vessel-Gear-Effort-Cost:**


The screenshot shows a software interface with two tabs: 'Tàu-Nghề-Cường lực-Chi phí' and 'Các nhóm sản lượng'. The 'Tàu-Nghề-Cường lực-Chi phí' tab is active and contains four main sections:

- Tàu (Vessel):** Includes a dropdown for 'Số hiệu tàu' (Vessel Number) with 'BD 40544 TS' selected, and a field for 'Số hiệu tàu' with an asterisk icon.
- Ngư trường (Fishing Ground):** Includes a dropdown for 'Ô biển' (Sea Area) with 'H10' selected and a text field for 'Độ sâu (m)' (Depth) with '15' entered.
- Cường lực (Effort):** Includes text fields for 'Số thuyền viên' (15), 'Số ngày/chuyến' (20), 'Số ngày KT' (15), a dropdown for 'TG khai thác' (ngày đêm), and a text field for 'Số ngày HĐ trong tháng'.
- Chi phí chuyển biển (Cost):** A table with columns 'Loại chi phí' and 'Giá trị (triệu đ)'. It lists 'Nhiên liệu' (15), 'Muối, đá' (5), and 'Chi phí khác (Tổng số)' (3). A 'Tổng cộng' (Total) field shows '23'.

A 'Đóng biểu' (Close) button is located at the bottom right of the form.

The screenshot shows a smaller 'Tàu' form with a dropdown for 'Số hiệu tàu' (Vessel Number) with 'BD 40544 TS' selected, and a field for 'Số hiệu tàu' with an asterisk icon.

In the box **Vessel Number**, as in above instruction, the user can either type in the registration number indicated on the sampling form or select directly from the list of vessels.

If the vessel is not included in the list, the user can click on the command button  to open a new form for entering information on a new vessel into the Database. Data input procedure is as instructed earlier.

Under **Effort**: the box **Number of skippers**: is used to enter the number of skippers on board during the fishing trip.

The box **Number of days/trip**: is used to enter the total number of days of the fishing trip.

The box **Number of fishing days**: is used to enter the number of fishing days among total days of the fishing trip.

The box **Fishing time**: is used to enter the time fishing operations were taking place (daytime/night time/all day and night).

The box **Number of operation days per month**: is used to enter total number of fishing days during sampling month

Under **Fishing ground**: the box **Sea area**: is used to enter the code for the fishing zone where the catch was collected

The box **Depth (m)**: is used to enter the average depth where the catch was collected

Under **Cost** the box **Type of cost**: is used to enter

This close-up shows the 'Cường lực' section with the following fields:

- Số thuyền viên: 15
- Số ngày/chuyến: 20
- Số ngày KT: 15
- TG khai thác: ngày đêm
- Số ngày HĐ trong tháng: [empty]

This close-up shows the 'Chi phí chuyển biển' section with the following table:

Loại chi phí	Giá trị (triệu đ)
Nhiên liệu	15
Muối, đá	5
Chi phí khác (Tổng số)	3
*	

Tổng cộng: 23

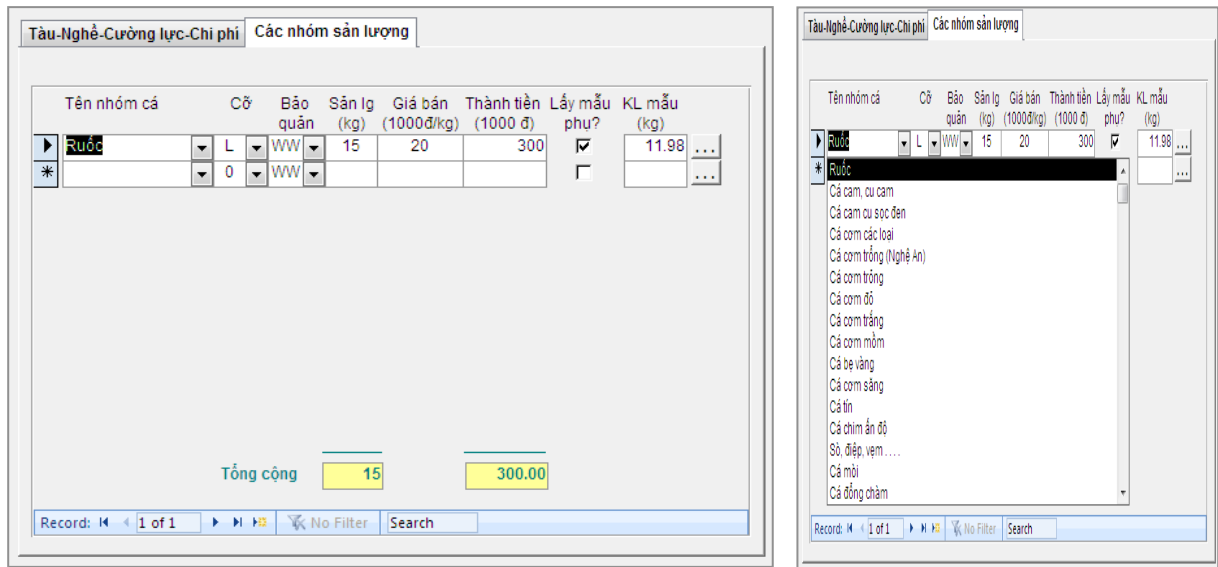
the type of the costs for the fishing trip or being selected from the list

The box **Value (million VND)**: is used to enter the expense of respective type of costs (unit: million VND).

Catch categories:

Data of the catch is displayed in a form in the data table including columns and rows. Each row shows information about a catch category. The User will enter the data into each row from first to second and the last column before moving to the next row.

The column **Name of fish group**: is used to enter the name of the catch category. The User can type the name of the catch category or select a category from the list.



The column **Size**: is used to enter the size of catch category.

Fishermen often categorise the catch according to quality and size of the fish. The user will type the code for fish sizes or select from the list.



For catch groups such as trash fish, trash squid... or unavailable size information, the default code of the Database is 0.

For catch groups where sizes were not indicated in the sampling form but are graded, such as Grade 1, Grade 2... data input will be as follows:

Catch Grade I will be input as size L (large)

Catch Grade II will be input as size M (medium)

Catch Grade III will be input as size S (small)

The box **Preservation**: is used to enter the data on methods fishshermen employed to preserve the catch group. The user types the codes of the preservation methods for the catch group or selects it directly from the list.

Tên nhóm cá	Cỡ	Bảo quản	Sản lγ (kg)	Giá bán (1000đ/kg)	Thành tiền (1000 đ)	Lấy mẫu phụ?	KL mẫu (kg)
Ruốc	L	WW	15	20	300	<input checked="" type="checkbox"/>	11.98

FP	Frozen and Packed	đông lạnh và đóng gói
FR	Frozen	đông lạnh
HE	Headed	bỏ đầu
HP	Headed & Peeled	bỏ đầu và bóc vỏ
ND	NOT DEFINED	không xác định được
NK	NOT KNOWN	không biết
NL	NOT IN LOOK-UP-TABLE	không có trong Bảng Look_up
PE	Frozen and packed for expo	làm đông và đóng gói để XK
PP	Pre-processed (not for shrin	đã sơ chế (mổ, xé...) (trừ tôm)
SA	Salted	ướp muối
TF	Salting Trash fish for sauce	cá tạp ướp muối để làm mắm
W0	Wet, not iced	Tươi, không ướp đá
WA	Alive	Còn sống
WB	Bad quality: Damaged...	kém phẩm chất: nát, vỡ, hỏng...
WQ	Fresh high quality	Tươi, chất lượng cao
WW	Wet	Tươi, ướp đá

Catches are usually preserved with ice. If it was not indicated as salted or dried in the sampling form, the default value WW (wet ice) will be selected.

Tên nhóm cá	Cỡ	Bảo quản	Sản lγ (kg)	Giá bán (1000đ/kg)	Thành tiền (1000 đ)	Lấy mẫu phụ?	KL mẫu (kg)
Ruốc	L	WW	15	20	300	<input checked="" type="checkbox"/>	11.98
Cá đồng chậm	0	WW	20	15	300	<input type="checkbox"/>	
	0	WW				<input type="checkbox"/>	

Tổng cộng: 35      600.00

The box **Price (1000 VND)**: is used to enter data on prices of catch groups, unit: 1000VND.


The box **Total amount (1000 đ)**: is used to enter data on the amount of money of catch group value, unit: 1000 VND. This box is automatically updated by the formula:


$$\text{Total amount (1000 VND)} = \text{catch (kg)} \times \text{price (1000 VND/kg)}$$

Data on Total catch and Total value is automatically updated in two yellow boxes at the bottom of the screen.

The box **Sub-sampling?**: is used if the catch group is subjected to sub-sampling for further analysis, this box will be ticked.

The box **Sample weight (kg)**: is used to enter the weight of sub-sample taken from catch group for analysing species and species group composition.


The command button : is the command to open the form for entering data on species composition of sub-samples.

The User should notice that only when the box **Sub-sampling?** is checked, the box **Sample weight (kg)** and the command to open the form for entering data on species composition of sub-samples  are usable.

If the user unchecks the box and information of subsample still exists, an error notification will be displayed as in the graphic.

This means that when user wants to remove the tick mark, it is necessary to open the previous species composition form of catch group and delete all the data recorded previously and the sample weight (kg). If this is done then removal of the tick mark is possible.

At this point the user must be very careful that the data entered should be verified with the original information from the sampling form before the decision is made to remove the tick mark.

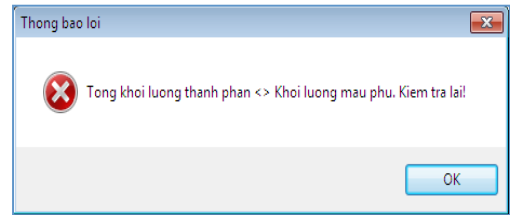
When the user clicks the command button , the data input form for species composition of sub-samples will open. The form will open as in the right graphic.

Data on component catch groups from the fishing trip is displayed in the form of a data table consisting of columns and rows. Each row shows information about a catch group. The user will enter data in each row starting from the first column to the second and the last column and then move to the next row.

The box **Scientific name** is used to enter the scientific name of fish species or groups of fish individuals. The user can either enter or select the name from the list of species names, as shown in the right graphic.

The box **Weight (kg)**: is used to enter the weight of a fish species/ group of species.

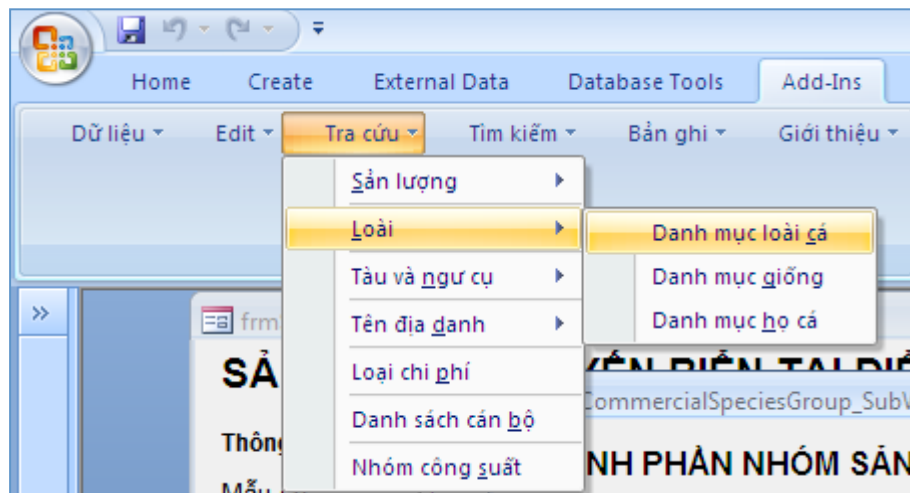
The total weight of component species is updated automatically in the yellow box. The user should check that the data in the yellow box and in the green box, **Sample weight (kg)** in the top right corner of the form, to ensure that they are not different until the two digits after the decimal point. Otherwise, the Database will display an error and user will not be able to close the form.



The box **Sample multiplication coefficient 1**: is used to enter the sample multiplication coefficient 1

The box **Sample multiplication coefficient 2**: is used to enter the sample multiplication coefficient 2

The user should notice that if the scientific name of the fish is not found in the default list, the form for scientific name should be opened to update for a new species. From the menu bar of the Database, **Lookup/Species/List of species** should be chosen as shown in the graphic below:



The List of fish species will be displayed as in the below graphic:


Ten loai

### Danh mục Loài

Mã	Tên khoa học	Tên giống	Tên Tiếng Việt	Tên Tiếng Anh	Đặc điểm
▶ ACRAC00	Acropoma sp.	Acropoma	Sơn phát sáng	Glow-belly	
ACRAC01	Acropoma japonica	Acropoma	Sơn Phát sáng Nhật bản	Glow belly	
ACRSY00	Synagrops sp.	Synagrops	Sơn	Splitfin	
ACRSY02	Synagrops japonicus	Synagrops	Sơn Nhật bản	Japanese splitfin	
ALBAL01	Albula vulpes	Albula	Môi đường	Bonefish	
AMMAA00	AMMODYTIDAE	Not defined	Cát	Sandlances	
AMMBL01	Bleekeria anguillaris	Bleekeria	Cát	Sandlances	
ANRAN00	Antennarius sp.	Antennarius	Lưỡi dong	Frogfin	
ANRAN04	Antennarius striatus	Antennarius	Lưỡi dong 3 răng	Straited frogfin	
ANRAN05	Antennarius hispidus	Antennarius	Lưỡi dong lông	Shaggy angler	
ANTAA00	ANTHIIDAE	Not defined	?	Seaperches	
ANTAN00	Anthias sp.	Anthias	Mú vàng	Seaperch	

Danh mục Giống    Danh mục Họ

Record: 1 of 1085    No Filter    Search

The user should click on the command button  at the bottom of the form to move to a new record and enter a new species as instructed below:

The box **Code**: is used to enter the code of the fish species. The Database employs fish species codes from the NANSYS CODE system with the length of 7 characters, (with a HHHGLL structure), i.e. the 3 first characters are an abbreviation of the fish Family, the next 2 characters are an abbreviation of Genus and the last 2 characters are a number regulated for the fish species.

The box **Scientific name**: is used to enter the scientific name (Latin name) of the fish species

The box **Genus name**: is used to enter the scientific name name (Latin name) of the fish genus or selected from the built-in list

The box **Vietnamese name**: is used to enter the popular name of fish species (as in taxonomical research documents)

The box **English name**: used to enter the popular English name of fish species (as in prestige taxonomical research documents).

The box **Characteristics**: used to enter characteristics or remarks for fish species (if available).

The user should click on the command button 'X' at the top right corner of the form to close the form.

The user should notice that when adding a new species, it is necessary to check its genus to specify an appropriate code because respective genus will have codes for name and family. This leaves a number to be assigned to the species.

If the genus name is not found in the list, the user should click on the command button **List of**


Ten cac giong ca

### Tên các giống cá

Mã	Tên Khoa học	Tên tiếng Việt	Họ cá
478	Pseudocepola		CEPOLIDAE
479	Labeo		CYPRINIDAE
480	Cociella		PLATYCEPHALIDAE
481	Taenioides		GOBIIDAE
482	Tenualosa		CLUPEIDAE
483	Abudefduf		POMACENTRIDAE
484	Anago		CONGRIDAE
485	Heterocarpus	Tôm	
486	Bathycallionymus	Cá đần lia	CALLIONYMIDAE
487	Ariosoma		CONGRIDAE
488	Liachirus	Bon	BOTHIDAE
489	Tosana		SERRANIDAE
490	Ratabulus		PLATYCEPHALIDAE
491	Repomucenus		CALLIONYMIDAE
*	0		BRANCHIOSTEGIDAE (LATILIDAE)

Record: 1 of 478    No Filter    Search

**genus** in the bottom right corner of the form, or open the list from the menu bar following the path: **Lookup/Species/List of genus** which is similar to the opening of the list of fish species.

When the form of **list of genus** is opened, the user should click on the command button  at the bottom of the form to move to a new record and enter the name of the new genus.

Data input instruction is as follows:

The box **Code**: is used to enter the code of genus as a number

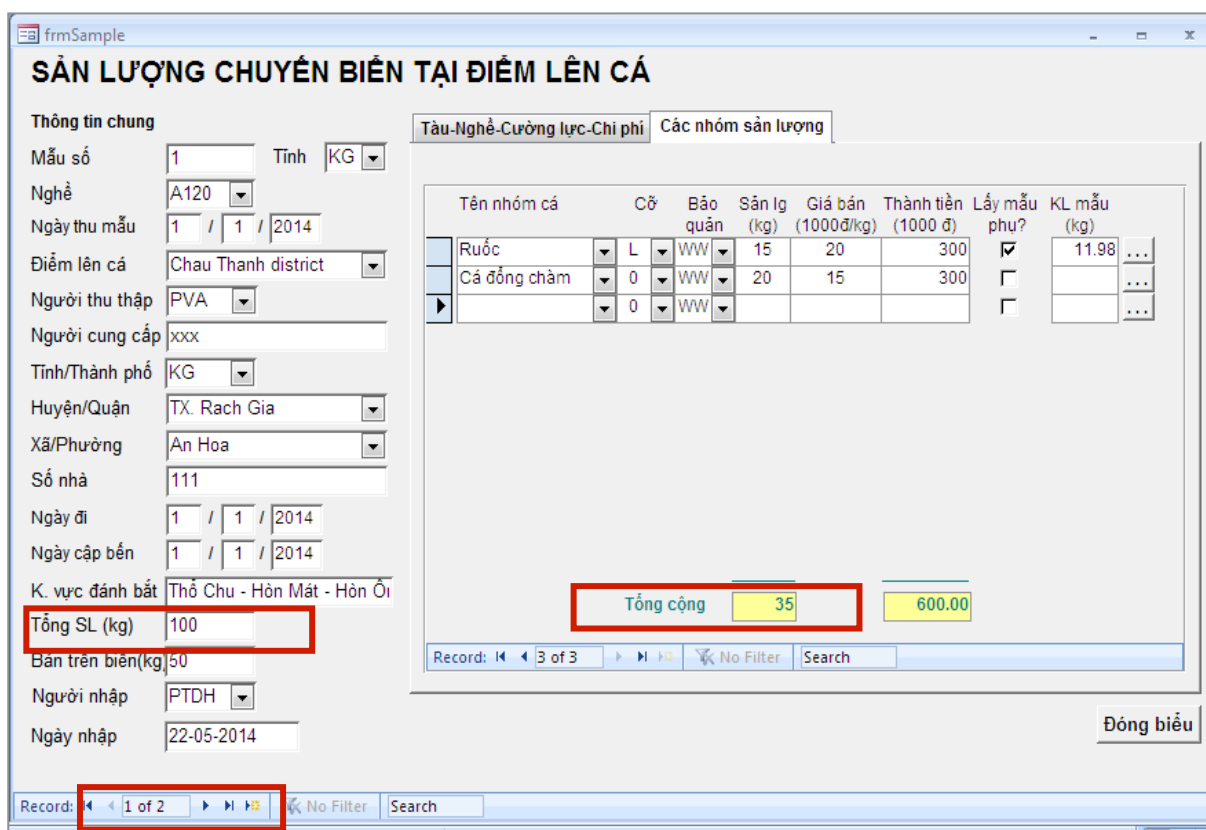
The box **Scientific name**: is used to enter the scientific name (Latin name) of the fish genus.

The box **Vietnamese name**: is used to enter the popular name of fish genus (as in taxonomical research documents)

The box **Fish genus**: is used to enter scientific name (Latin name) of the fish genus or it can be selected from the list.

After completing the data input, the form should be closed by clicking the 'X' command button at the top right corner to return to the catch from the fishing trip.

In order to avoid lost catch information, it is necessary to check the total catch of the batch in the yellow box with the number recorded in the sampling form and with the box **Total catch (kg)** before moving to a new fishing trip.



**SẢN LƯỢNG CHUYÊN BIỂN TẠI ĐIỂM LÊN CÁ**

Thông tin chung

Mẫu số: 1 Tỉnh: KG

Nghề: A120

Ngày thu mẫu: 1 / 1 / 2014

Điểm lên cá: Chau Thanh district

Người thu thập: PVA

Người cung cấp: xxx

Tỉnh/Thành phố: KG

Huyện/Quận: TX. Rach Gia

Xã/Phường: An Hoa

Số nhà: 111

Ngày đi: 1 / 1 / 2014

Ngày cập bến: 1 / 1 / 2014

K. vực đánh bắt: Thổ Chu - Hòn Mát - Hòn Ôi

Tổng SL (kg): 100

Bán trên biển(kg): 50

Người nhập: PTDH


Ngày nhập: 22-05-2014

Tàu-Nghề-Cường lực-Chi phí: Các nhóm sản lượng

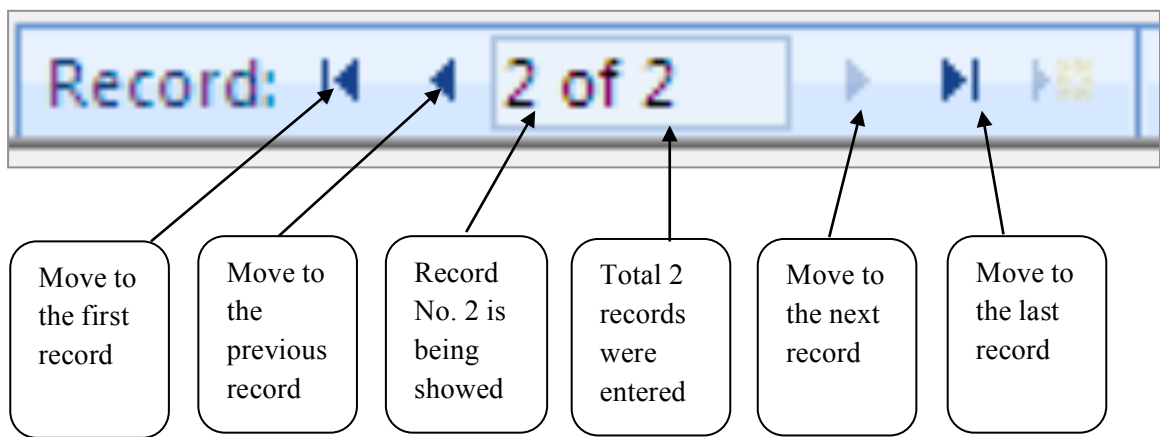
Tên nhóm cá	Cỡ	Bảo quản	Sản lg (kg)	Giá bán (1000đ/kg)	Thành tiền (1000 đ)	Lấy mẫu phụ?	KL mẫu (kg)
Ruốc	L	WW	15	20	300	<input checked="" type="checkbox"/>	11.98
Cá đồng chàm	0	WW	20	15	300	<input type="checkbox"/>	
	0	WW				<input type="checkbox"/>	

Tổng cộng: 35 600.00

Record: 1 of 2

To move to new fishing trip batch the user should click on the command button  at the bottom of the the form, to create a new record.

Instructions for using the toolbar to move over different records is in the graphic below:



### 3.3.3. Data input for Fleet operation parameters

From the data source menu, the user should click on the command **Fleet** to enter data of the fleet operational parameters. The screen below shows the form for data input as follows:

The screenshot shows a form titled "THÔNG TIN HỆ SỐ HOẠT ĐỘNG ĐỘI TÀU" (Fleet Operation Parameters Information). The form is divided into two main sections:

- General Information:**
  - Tỉnh: KG (dropdown)
  - Ngày thu mẫu: 1 / 1 / 2014
  - Nghề: A120 (dropdown)
  - Mã lực: 2: 20-<45 (dropdown)
  - Người thu thập: PTDH (dropdown)
  - Người nhập: PTDH (dropdown)
  - Ngày nhập: 03-06-2014
- Fleet operation information:**
  - Số đăng ký tàu: BD 40544 TS (dropdown)
  - Hoạt động?:
  - BD10864TS (dropdown)
  - BD-8689TS (dropdown)
  - \* (dropdown)

At the bottom of the form, there is a record navigation bar showing "Record: 1 of 1" and a "Đóng biểu" (Close) button.

The form is divided into 2 parts: **General Information** and **Fleet operation information**. The user should enter data from item General information to Fleet operation information.

The user should use the Tab button to move easily between the data boxes.

#### General Information:

When the form is opened, the cursor will appear in the first data box which is the box: **Province**, to enter the code of the province where the sampling took place.

In the box **Province**, the user can either type the province code or select an appropriate code from the list, as shown in the below graphic. In the Database, the box **Province** is setup with the default code of KG (Kiên Giang).



The box **Sampling date:** consists of small boxes to enter data of sampling date. This is date type data and the user enters the information of date/ month/ year into the corresponding box.

The box **Gear:** is used to enter the names of fishing gears that the vessel carried on board for catching the catch during the fishing trip. The user can either enter the code of fishing gears or select from the list.

The box **Power:** is used to enter the power groups of the fishing fleet. The user can either enter the power group of the fishing fleet or select from the list.


The box **Collector:** is used to enter the code of the collector who is entering the data from the sampling form.

The box **Input Date, Input Person** is defaulted on the date of entering data and the user code of the person who logged into the Database.

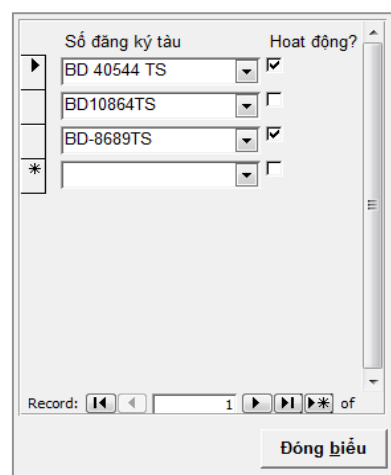
#### Fleet operation parameters:

The box **Vessel Number:** The user can type the vessel registration number recorded in the sampling form or select from the list of vessels as instructed above.

If the vessel is not included in the built-in list, the user can

click on the command button  to open a form for entering a new vessel record into the Database. Data input is carried out similarly to the above instruction.

In the box **Operation**, the user should check this box to indicate that the vessels are in operation or leave it blank as recorded in the sampling form.



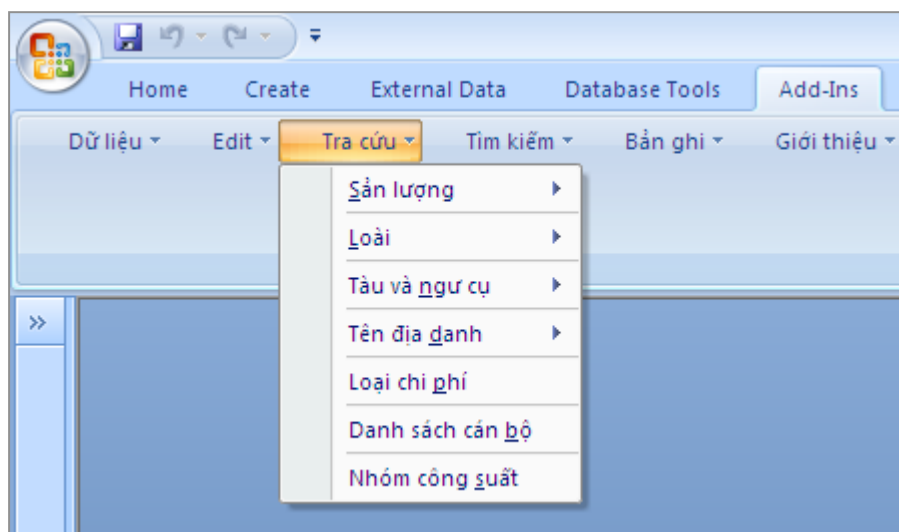
Số đăng ký tàu	Hoạt động?
BD 40544 TS	<input checked="" type="checkbox"/>
BD10864TS	<input type="checkbox"/>
BD-8689TS	<input checked="" type="checkbox"/>
*	<input type="checkbox"/>

Record: 1 of

Đồng biểu

### 3.4. Input lookup data

A lookup on menu bar of the Database is used to access the lookup lists in the Database.

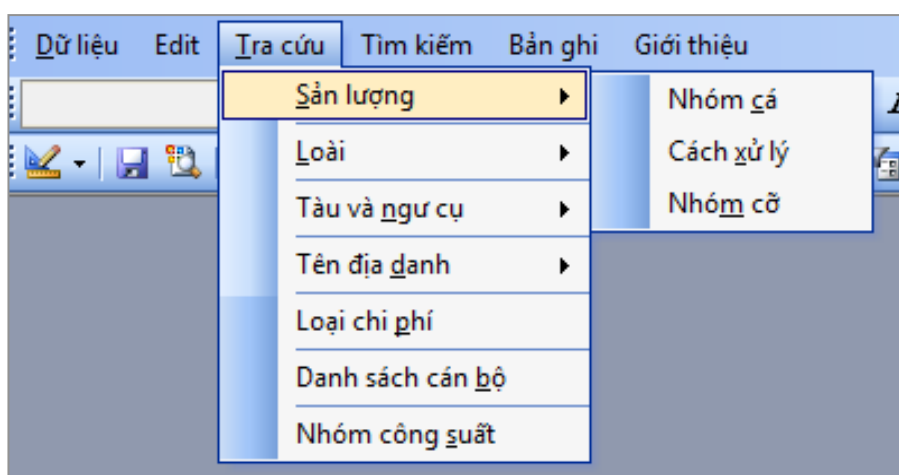


The lookup lists of the Database comprise of seven main information groups as in below graphic Instruction for handling each group is as followings.

#### 3.4.1. Catch

This group is divided into 3 main lookup data components: Fish group, Processing, Size group.

From the menubar user choose **Lookup/Species** and the screen will appear as in the graphic below:



### 3.4.1.1. Fish group

The Fish group is the list of catches that fishermen graded on board immediately after the fish were caught from the sea and before being preserved. The list is in table format with column and rows.

The box **Code**: is used to enter the code of the **Catch Group**, which comprises of 5 characters derived from the English name of fish group. If an English name is not available, Latin or Vietnamese names can be used.

The box **Vietnamese name**: can be used for the catch group.

The box **English name**: can also be used for the catch group.

The screenshot shows a window titled 'Fish Groups' with a table titled 'Danh sách nhóm cá'. The table has four columns: 'Mã', 'Tên Tiếng Việt', 'Tên Tiếng Anh', and 'Chú thích (Tên địa phương)'. The table lists various fish groups with their corresponding codes, names in Vietnamese and English, and local names in parentheses. At the bottom, there is a 'Thoát' button and a record indicator showing 'Record: 1 of 282'.


Mã	Tên Tiếng Việt	Tên Tiếng Anh	Chú thích (Tên địa phương)
TIGTH	Cá cằng	Tiger fish	Therapon sp. (Cá ong=Cá cằng giải vản)
TLF__	Cá hồng đào	Tile fish	Branchiostegus spp.
TLFRE	Cá đồng quê	Red tilefish	Cá quê, cá đầu vuông: Branchiostegus japonicus = Latilus j.
TNG__	Cá bơn cát, bơn lưỡi	Tongue soles	Cá bơn cát, cá bơn lưỡi: Cynoglossus spp.
TRE__	Cá khế	Carangids	Cá quýt, cá ét: CARANGIDAE
TRECL	Cá bao áo	Cleftbelly trevally	Atropus atropus
TREFA	Cá vạng mỡ	False trevally	Lactarius lactarius
TRG__	Cá bò da	Triggerfishes	BALISTIDAE
TRTAA	Cá rô	Atlantic tripletail	Lobotes surinamensis
TUN__	Cá ngừ	Tuna	
TUNEL	Cá ngừ chấm	Eastern little tuna	Cá ngừ bông, ngừ hoa: Euthynnus affinis
TUNLT	Cá ngừ bò	Longtail tuna	Thunnus tonggol
TUNSB	Cá ngừ sọc mướp	Striped bonito	Cá sọc mướp (K. Hoà): Sarda orientalis
TUNSK	Cá ngừ sọc dưa	Skipjack tuna	Cá ngừ vằn, cá dưa gang
TUNTH	Cá ngừ chủ	Thynoid tuna	Auxis rochei
TUNYL	Cá ngừ vây vàng	Yellowfin tuna	Cá bò gù, cá ngừ đại dương: Thunnus albacares
TURBO	Cá bơn ngó	Turbots	Cá ngó, cá bơn chó: Psettodes spp.
WHTBU	Cá chàm (1 loài)	Butterfly whiptail	Pentapodus setosus
WRS__	Cá mó, bần chải	Wrasses (Hog-and Razorfish)	Cá mặt trắng: LABRIDAE
WWHER	Cá rựa	Whitefin wolf-herring	Cá rựa, cá dao, cá lanh: Chirocentrus spp.
YESTR	Cá chỉ vàng	Yellow Striped travelly	Cá chỉ, cá chỉ cồn, cá ngân chỉ

The box **Remarks**: is used for remarks relating to the catch group characteristics and can include local names of the catch group.

The user should notice that a catch may have many different names in different localities. This list was composed from data from the commercial fishery sampling of Research Institute

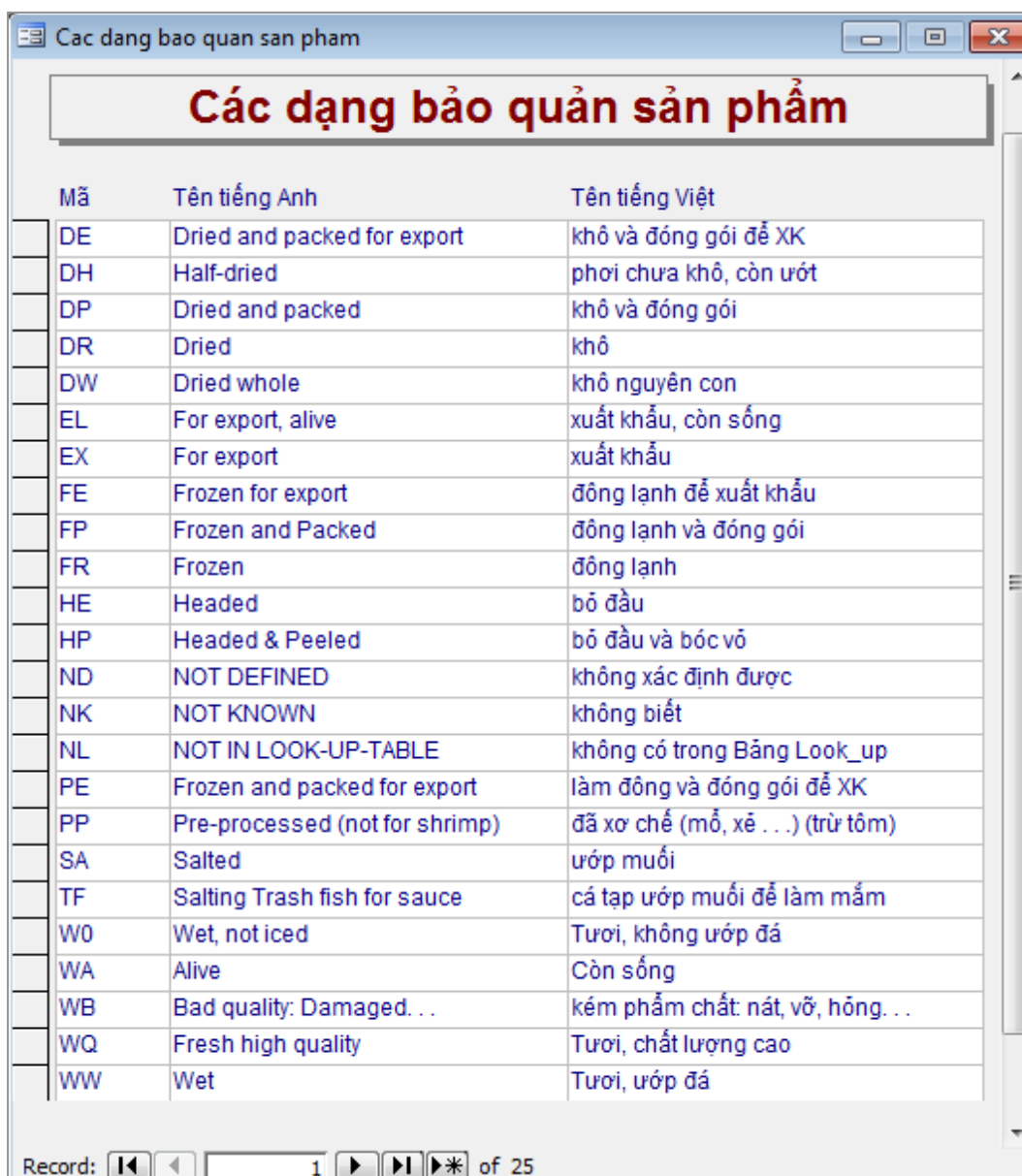
of Marine Fisheries during period from 1996 to 2005. When searching for data entry, the user may have some difficulties choosing catch group names recorded in the sampling form and group names from the list. To avoid errors, it is necessary to request the sample collector or a professional to verify the form content before transferring to the data input division. This control procedure should be included in sampling procedures to ensure the validity of the data.

The command button **Exit**: is used to close the data form.



The command button  is used to start a new row for data input into the form.

### 3.4.1.2. Processing

A list of processing methods listing preservation methods employed on board by fishermen. is displayed as a table with columns and rows as in the below graphic:




Mã	Tên tiếng Anh	Tên tiếng Việt
DE	Dried and packed for export	khô và đóng gói để XK
DH	Half-dried	phơi chưa khô, còn ướt
DP	Dried and packed	khô và đóng gói
DR	Dried	khô
DW	Dried whole	khô nguyên con
EL	For export, alive	xuất khẩu, còn sống
EX	For export	xuất khẩu
FE	Frozen for export	đông lạnh để xuất khẩu
FP	Frozen and Packed	đông lạnh và đóng gói
FR	Frozen	đông lạnh
HE	Headed	bỏ đầu
HP	Headed & Peeled	bỏ đầu và bóc vỏ
ND	NOT DEFINED	không xác định được
NK	NOT KNOWN	không biết
NL	NOT IN LOOK-UP-TABLE	không có trong Bảng Look_up
PE	Frozen and packed for export	làm đông và đóng gói để XK
PP	Pre-processed (not for shrimp)	đã sơ chế (mổ, xé . . .) (trừ tôm)
SA	Salted	ướp muối
TF	Salting Trash fish for sauce	cá tạp ướp muối để làm mắm
W0	Wet, not iced	Tươi, không ướp đá
WA	Alive	Còn sống
WB	Bad quality: Damaged. . .	kém phẩm chất: nát, vỡ, hỏng. . .
WQ	Fresh high quality	Tươi, chất lượng cao
WW	Wet	Tươi, ướp đá

Record:  1  of 25

The box **Code**: is used to enter the code of **Preservation group**, comprised of 2 characters derived from the English name of the preservation group. Dry preservation, frozen and ice group begins with letter D (dried), F (Frozen), and W (Wet) respectively...

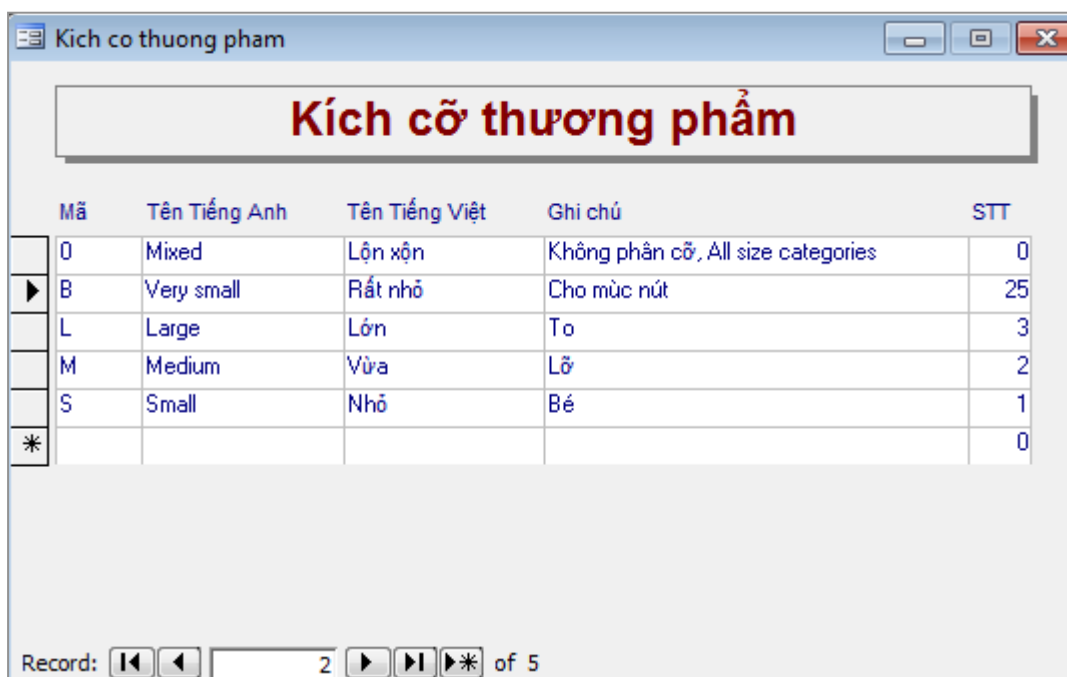
The box **English Name**: is for the English name of the preservation group

The box **Vietnamese Name:** is for the Vietnamese name of the preservation group

The command button  is used to start a new row for data input into the form.

### 3.4.1.3. Size group

Size groups lists all size groups that fishermen grade fish on board and comprises of 4 main group as in the below graphic:



Mã	Tên Tiếng Anh	Tên Tiếng Việt	Ghi chú	STT
0	Mixed	Lộn xộn	Không phân cỡ, All size categories	0
B	Very small	Rất nhỏ	Cho mục nút	25
L	Large	Lớn	To	3
M	Medium	Vừa	Lỡ	2
S	Small	Nhỏ	Bé	1
*				0

The box **Code:** is used to enter the code of **Size group** comprising of 01 character derived from the English name of size group.

The box **Vietnamese name** can be used for the size group.

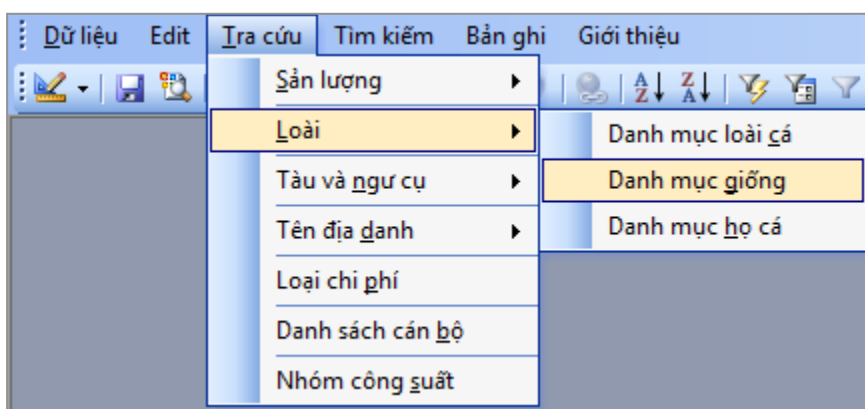
The box **English name:** can also be used for the size group.

The box **Remark:** is used to record information about the size group (if applicable)

The Command button  is used to start a new row for data input in the form.

### 3.4.2. Species

This data item is divided into 3 main lookup data components: List of fish species, List of fish genus, List of fish family. From the menu bar, the user chooses **Lookup/Species** as in the below graphic:



### 3.4.2.1. List of fish species

**List of fish species** is a table listing names of the popular fish species observed in commercial fisheries of Vietnam. This list is displayed as a table with columns and rows as in the below graphic:

Mã	Tên khoa học	Tên giống	Tên Tiếng Việt	Tên Tiếng Anh	Đặc điểm
ACRAC00	Acropoma sp.	Acropoma	Sơn phát sáng	Glow-belly	
ACRAC01	Acropoma japonica	Acropoma	Sơn Phát sáng Nhật bản	Glow belly	
ACRSY00	Synagrops sp.	Synagrops	Sơn	Splitfin	
ACRSY02	Synagrops japonicus	Synagrops	Sơn Nhật bản	Japanese splitfin	
ALBAL01	Albula vulpes	Albula	Mòi đường	Bonefish	
AMMAA00	AMMODYTIDAE	Not defined	Cát	Sandlances	
AMMBL01	Bleekeria anguillaris	Bleekeria	Cát	Sandlances	
ANRAN00	Antennarius sp.	Antennarius	Lưỡi dong	Frogfin	
ANRAN04	Antennarius striatus	Antennarius	Lưỡi dong 3 răng	Straited frogfin	
ANRAN05	Antennarius hispidus	Antennarius	Lưỡi dong lông	Shaggy angler	
ANTAA00	ANTHIIDAE	Not defined	?	Seaperches	
ANTAN00	Anthias sp.	Anthias	Mú vàng	Seaperch	

The box **Code**: is used to enter the code of fish species. The Database employs the fish species code of NANSYS CODE system with the length of 7 characters with a HHHGGLL structure, i.e. the 3 first characters are an abbreviation of fish family, the next 2 characters are an abbreviation of Genus and the last 2 characters are a number regulated for the fish species.

The box **Scientific name**: is used to enter the scientific name (Latin) of the fish species

The box **Genus name**: is used to enter the genus name (Latin) of the fish genus or selected from the built-in list

Ô **Vietnamese name**: is used to enter the popular name of fish species (as in taxonomical research documents)


Ô **English name**: is used to enter popular English name of fish species (as in taxonomical research documents)

Ô **Characteristics**: is used to enter characteristics or remarks for the fish species (if available)

The user should click on the command button 'X' at the top right corner of the form to close the form.

The user should notice that when adding a new species, it is necessary to check the genus to specify an appropriate code because respective genus will have codes for its name and its family. The remaining digits are a number assigned to the species.

If the genus name is not found in the list, the user should click on the command button The list of genus is in the bottom right corner of the form or it can be opened from the list in the menu bar following the path: **Lookup/Species/List of genus** which is similar to the opening of the list of fish species.

When the form of **list of genus** is opened, the user clicks on the command button  at the bottom of the form to move to a new record and enter the name of new genus.

### 3.4.2.2. List of fish genus


**List of fish genus** is a table list of all the popular fish species in the commercial marine fisheries of Vietnam. This Table comprises of columns and rows as in the below graphic.

The box **Code**: is used to enter the code of fish genus which comprises of numbers.


The box **Scientific name**: is used to enter the scientific name (Latin name) of fish genus.

The box **Vietnamese name**: is used to enter the popular name of fish genus (as in prestige taxonomical research documents)

The box **Fish Family**: is used to enter scientific name (Latin name) of fish family (as in taxonomical research documents).

The command button  is used to start a new row for data input in the form.

After completing data input, the form should be closed by clicking the 'X' command button at the top right corner.



Mã	Tên Khoa học	Tên tiếng Việt	Họ cá
478	Pseudocepola		CEPOLIDAE
479	Labeo		CYPRINIDAE
480	Cociella		PLATYCEPHALIDAE
481	Taenioides		GOBIIDAE
482	Tenualosa		CLUPEIDAE
483	Abudefduf		POMACENTRIDAE
484	Anago		CONGRIDAE
485	Heterocarpus	Tôm	
486	Bathycallionymus	Cá đần lia	CALLIONYMIDAE
487	Ariosoma		CONGRIDAE
488	Liachirus	Bơn	BOTHIDAE
489	Tosana		SERRANIDAE
490	Ratabulus		PLATYCEPHALIDAE
491	Repomucenus		CALLIONYMIDAE
*	0		BRANCHIOSTEGIDAE (LATILIDAE)


### 3.4.2.3. List of fish family

The list of fish family is a table list of all popular fish species of commercial marine fisheries of Vietnam. This table comprises of columns and rows as in the below graphic.

The box **Code**: is used to enter the code of fish family which comprises of digits.

The box **Scientific name**: is used to enter the scientific name (Latin name) of the fish family.

The box **Vietnamese name**: is used to enter the popular name of the fish family (as in taxonomical research documents)

The command button  is used to start a new row for data input into the form.

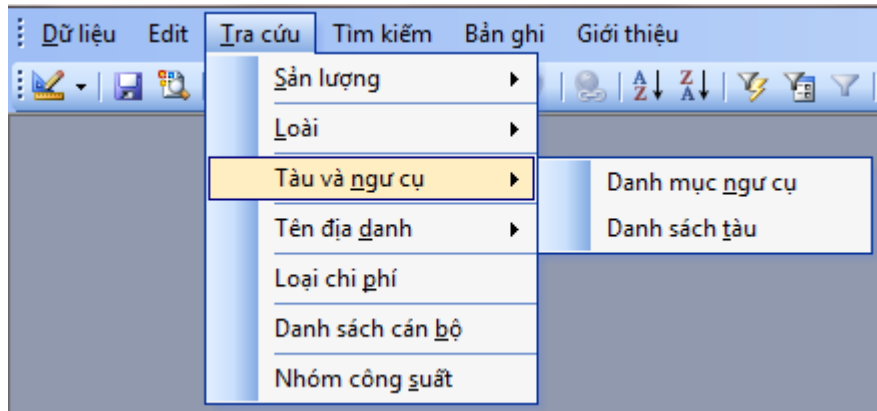
After completing data input, the form should be closed by clicking the 'X' command button at the top right corner.

Tên các họ cá			
Mã	Tên Khoa học	Tên Tiếng Anh	Tên Tiếng Việt
0	BRANCHIOSTEGIDAE (LATIL	Blanquitos	Cá Đầu vuông
1	ACANTHURIDAE	Surgeonfishes	Cá Đuôi gai
2	ALBULIDAE	Bonfishes	Cá Mòi đường
3	ALPOIIDAE	Thresher sharks	Cá Nhám đuôi dài
4	AMMODYTIDAE	Sand lances	Cá Cát
5	ANGUILLIDAE	Eels	Cá Chình biển
6	ANTHENNARIIDAE	Frogfishes	Cá Lưỡi dơng
7	APLOACTINIDAE	Little Velvetfishes	Cá Gầu
8	APOGONIDAE	Cardinal fishes	Cá Sơn
9	ARCIDAE	Ark shells	Sò
10	ARGONAUTIDAE	Argonauts	ốc Anh vũ
11	ARIIDAE	Catfish	Cá úc
12	ATHERINIDAE	Silversides	Cá Suốt
13	AULOSTOMIDAE	Trumpetfishes	Cá Mồm ống
14	BALISTIDAE	Triggerfishes	Cá Bò
15	BELONIDAE	Garpikes, Needlefishes	Cá Nhói
16	BERYCIDAE	Alfonsinos	Cá Tráp mắt vàng
17	BLENNIIDAE	Blennies	Cá Mào gà, Cá Lon

### 3.4.3. Vessels and fishing gears

This data group comprises of two main data components: List of fishing gears and list of fishing vessels.

From the menu bar of the Database, choose **Lookup/Vessels and fishing gears** as illustrated in the below graphic:



#### 3.4.3.1. List of fishing gears

In order to access the List of fishing gears, the user shall choose **Lookup/Vessels and fishing gears/List of fishing gears**.

The **List of fishing gears** appears as a table listing popular fishing gears used in commercial marine fisheries of Vietnam. This table comprises of columns and rows as in the below graphic:

Danh mục các loại ngư lưới cụ

## Loại ngư cụ


Gear Code	English Name	Vietnamese Name
A120	Bottom Otter trawl	lưới kéo đơn
A220	Bottom pair trawl	lưới kéo đôi
B120	Trammel net - Small mesh size	Rê ba lớp mắt lưới nhỏ
B130	Trammel net - Big mesh size	Rê ba lớp mắt lưới to
B200	Gill net	Rê hỗn hợp
B210	Drift gill net	Rê tầng mặt ( rê trôi)
B230	Bottom Gill net	Rê tầng đáy ( rê đáy)
B251	Tuna-Mackerel Gill net	Rê thu ngữ
C000	Push net	Te, xiệc
D300	Purse seine	Vây tự do (vây)
D310	Anchovies purse seine	Vây cá cơm
D320	Anchovies	Vây cá ngữ
D330	Luring purse seine	Vây ánh sáng
E110	Fish hand line	Câu tay cá
E120	Squid hand line	Câu mực
F130	Bottom long line	Câu đáy

Record: 6 of 34

The box **Code**: is used to enter the code of the fishing gear group comprising of 01 Latin letter and followed by 3 digits. The Latin letter indicates the fishing gear group and digits indicate the kind of fishing gear. For example, A is the code of bottom trawl group, B is the code of gillnet group, C is for fix gear group, D is for purse seine group.

The box **English name**: is used to enter the English name of fishing gear.

The box **Vietnamese name**: is used to enter the Vietnamese name of fishing gear.

The command button  is used to start a new row for data input in the form.

After completing data input, the form should be closed by clicking the 'X' command button at the top right corner.

### 3.4.3.2. List of fishing vessels

In order to access the list of fishing gears, the user shall choose **Lookup/Vessels and fishing vessels/List of fishing vessels**. The **List of fishing gears** is showed in the below graphic:



The user should click on the command button  to start a new record for a fishing vessel:

The first data box to be inputted is **Vessel Registration Number**. This box is used to enter the registration number of the fishing vessel. Registration number usually comprises of the code of the province where the vessel is registered and the registered number assigned to the vessel. The register number of a vessel is usually unique and recorded in the registration list under the management of Sub-Department of Capture Fisheries and Fisheries Resource Protection in that province. If there is a duplication of fishing vessel registered numbers (vessels have the same registered number but different engine power) in the list, the user should type exactly the registration number recorded in the sampling form and add letter A, B, C... to the end of registered number of the vessel to ensure that the number is unique in the Database.

The box **Captain** is used to enter the name of the captain

The box **Engine installed?** is for user to tick the checkbox if the vessel is motorised with engine(s) For convenience, this check box is ticked as default. If the boat is unmotorised, tick mark should be removed from this check box.

The box **Horse Power (CV)** is used to enter the total power of the vessel.

The box **Length (m)** is used to enter the length of the vessel.

The box **Remark** is used to enter remarks about the vessel.

The user clicks on the command button **Close** to close the form.

#### 3.4.4. *Power group*

The user can choose **Lookup/Power group** and a list of the power groups will be shown as in the below graphic:

Tuy chọn dat Nhóm công suất

Hãy gõ vào các giá trị giới hạn trên và dưới để đặt các nhóm công suất.  
Nếu giới hạn trên và dưới không xác định thì đặt theo các giá trị mặc định.

Số TT	Giới hạn dưới (CV)	Giới hạn trên (CV)	Mô tả
1	1	19.99	1: <20
2	20	44.999	2: 20-<45
3	45	89.999	3: 45-<90
4	90	139.99	4: 90-<140
5	140	299.99	5: 140-<300
6	300	999999	6: >=300
*	0	999999	

Đặt lại      Đóng biểu

Record: 1 of 6

The box **No.:** is used to enter the order of the vessel power group.

The box **Lower limit (HP):** is used to enter the lower limit of power group and should be higher than 0 since 0 HP power is for unmotorised boats. The lower limit is an integer.

The box **Upper limit (HP):** is used to enter the upper limit of the power group. Data is a number with 2 digits after the decimal point. For example, if the power is < 21, data should be entered as 20.99 and if power is <46, data should be entered as 45.99.

The box **Description:** is used to enter a description of power group or the name of the power group. This box is automatically updated once data is inputted into boxes No., Lower limit and Upper limit.

The command button **Reset:** is used to delete existed records and to create new records for the purpose of re-defining power groups. When this command button is clicked, the Database will ask the user to confirm the reset command before deleting existed records:

Tuy chọn dat Nhóm công suất

Hãy gõ vào các giá trị giới hạn trên và dưới để đặt các nhóm công suất.  
Nếu giới hạn trên và dưới không xác định thì đặt theo các giá trị mặc định.

Thông báo

Bạn thực sự muốn đặt lại các nhóm công suất?


OK      Cancel

6	300	999999	6: >=300
*	0	999999	

Đặt lại      Đóng biểu

Record: 1 of 6

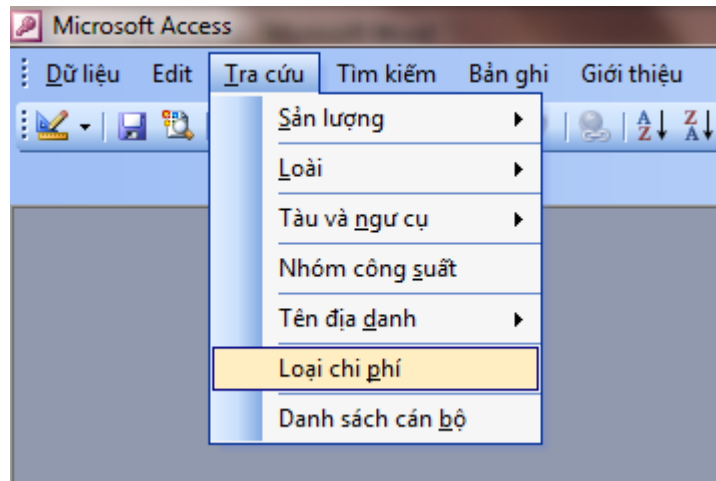
To confirm re-defining of the power group, the user should click the OK button, otherwise click the Cancel button to abort the command.

The command button  is used to start a new row for data input in the form.

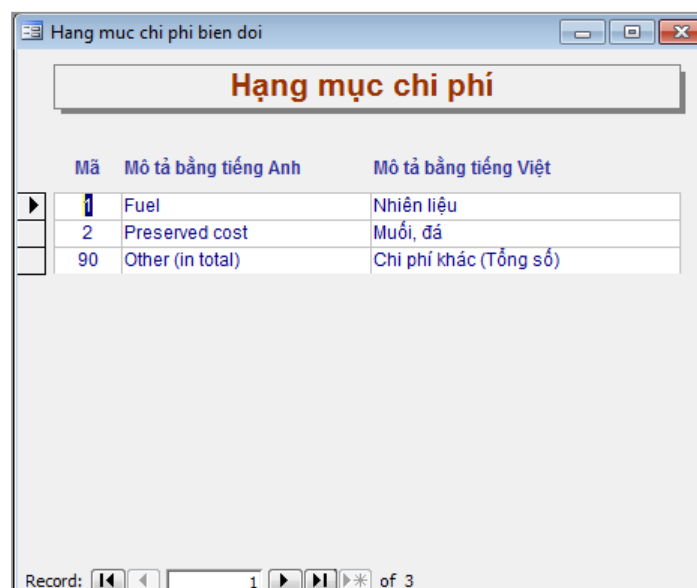
After completing data input, the form should be closed by clicking either the 'X' command button at the top right corner or the Close button.

### 3.4.5. Cost

The user should choose the menu bar **Lookup/List of costs**.



The **List of cost** is shown in as table listing names of costs for the fishing trip. . Danh mục được sắp xếp dạng bảng gồm các hàng và cột, như hình dưới:



The box **Code**: is used to enter the code of costs

The box **Description in English**: is used to enter the English names of costs.

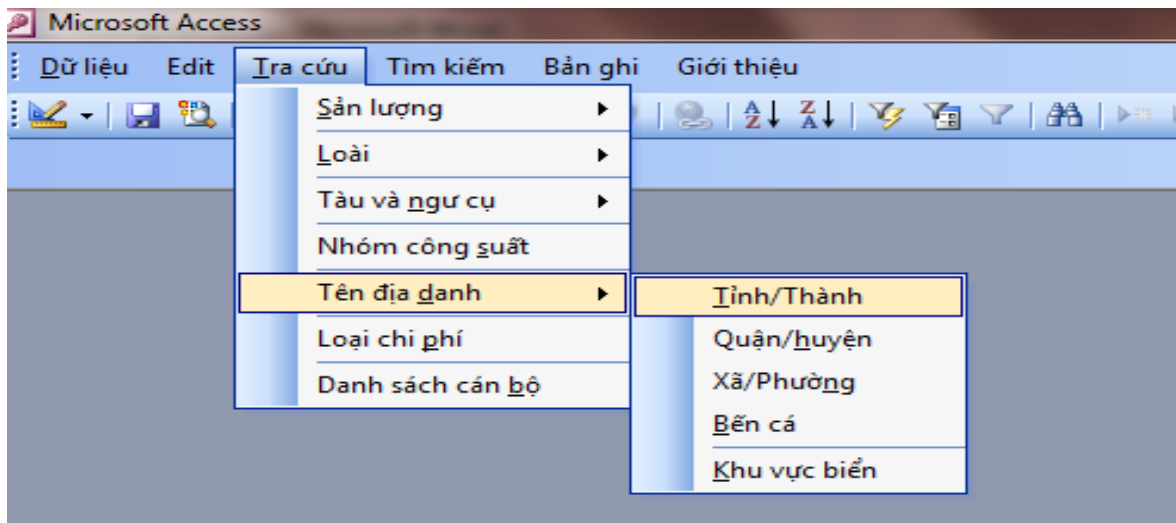
The box **Vietnamese name**: is used to enter the Vietnamese names of costs.

The Command button  is used to start a new row for data input in the form.

After completing data input, the form should be closed by clicking either the 'X' command button at the top right corner.

### 3.4.6. Location name

To open the list of fishing gears, the user should choose **Lookup/Location name**.




#### 3.4.6.1. List of provinces/municipalities

The user should choose from the menu **Lookup/Location name/Province/Municipality** to open a list of provinces/municipalities:

The box **Code**: is used to enter the code of the province or municipality.

The box **Abbreviation**: is used to enter the abbreviation name of province, which usually consists of first letters e.g. HP (Hải Phòng), TB (Thái Bình), KG (Kiên Giang)...

The box **Name of province/ municipality**: is used to enter the name of province or municipality

The command button  is used to start a new row for data input into the form.



After completing the data input, the form should be closed by clicking the 'X' command button at the top right corner.

Mã	Tên tắt	Tên tỉnh/thành phố TW	Mã
103	HP	Hai Phong	1
113	ND	Nam Dinh	1
115	TB	Thai Binh	1
117	NB	Ninh Binh	1
225	QN	Quang Ninh	1
401	TH	Thanh Hoa	1
403	NA	Nghe An	1
405	HT	Ha Tinh	1
407	QB	Quang Binh	1
409	QT	Quang Tri	2
411	TTH	Thua Thien-Hue	2
501	DN	TP. Da Nang	2
503	QNA	Quang Nam	2
505	QNG	Quang Ngai	2
507	BD	Binh Dinh	2
509	PY	Phu Yen	2
511	KH	Khanh Hoa	2


### 3.4.6.2. List of District/County

The user should choose **Lookup/Location name/District/County** to open the list for District/County.

The box **Code of district/county**: is used to enter the code of the district or county. The code consists of 5 digits TTTQQ including the three first digits as province code and last two digits as the district code.

The box **District/County name**: is used to enter the name of the district or county.

The box **Name of province/ municipality**: is used to enter the name of the province or municipality or it can be selected from the list.

The command button  is used to start a new row for data input into the form.

Mã	Tên xã/phường	Mã quận / huyện
1030101	P. Quan Toan	Hong Bang
1030103	P. Hung Vuong	Hong Bang
1030105	P. So Dau	Hong Bang
1030107	P. Thuong Ly	Hong Bang
1030109	P. Trai Chuoi	Hong Bang
1030111	P. Ha Ly	Hong Bang
1030113	Minh Khai	Hong Bang
1030115	P. Quang Trung	Hong Bang
1030117	P. Hoang Van Thu	Hong Bang
1030119	P. Phan Boi Chau	Hong Bang
1030121	P. Pham Hong Thai	Hong Bang
1030301	P. May To	Ngo Quyen
1030303	P. May Chay	Ngo Quyen
1030305	P. Van My	Ngo Quyen
1030307	P. Lac Vien	Ngo Quyen
1030309	P. Cau Tre	Ngo Quyen
1030311	P. Luonn Khanh Thien	Ngo Quyen

After completing data input, the form should be closed by clicking the 'X' command button at the top right corner.


### 3.4.6.3. List of Commune/Ward

The user should open **Lookup/ Location name/Commune/Ward** to see the list for commune/ward.

The box **Code of Commune/Ward**: is used to enter code of the commune or ward. The code consists of 7 digits including the three first digits of province code followed by two digits for the district code and two last digits for the commune code.

The box **Name of Commune/Ward**: is used to enter the name of the commune or ward.

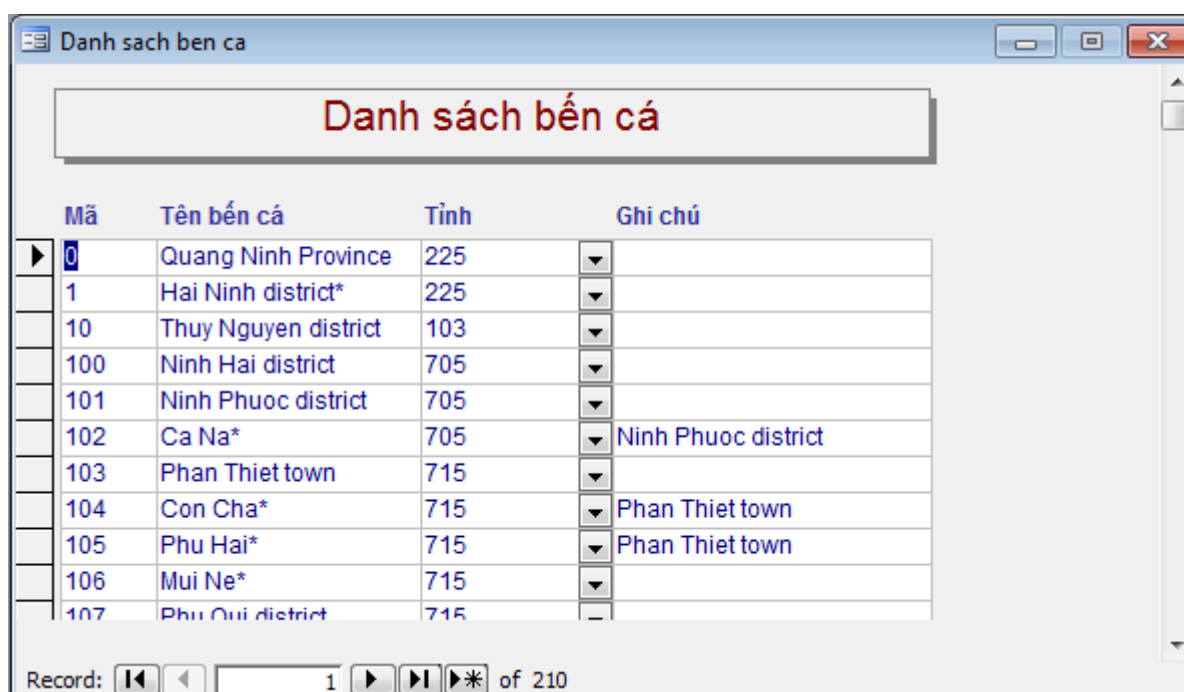
The box **Code of district/county**: is used to enter the code of the district or county or selected from the list.

The command button  is used to start a new row for data input in the form.

After completing data input, the form should be closed by clicking the 'X' command button at the top right corner.

### 3.4.6.4. List of landing sites

The user can use a search menu "**Search/Landing sites**"/"**Tra cứu/Bến cá**" to select a list of landing sites. The list of landing sites will appear as below graphic. The list will show all of the landing sites of all the provinces.



Mã	Tên bến cá	Tỉnh	Ghi chú
0	Quang Ninh Province	225	
1	Hai Ninh district*	225	
10	Thuy Nguyen district	103	
100	Ninh Hai district	705	
101	Ninh Phuoc district	705	
102	Ca Na*	705	Ninh Phuoc district
103	Phan Thiet town	715	
104	Con Cha*	715	Phan Thiet town
105	Phu Hai*	715	Phan Thiet town
106	Mui Ne*	715	
107	Phu Qui district	715	

The box **Code/Mã**: is used to enter the code number of the landing site.

The box "**Name of landing site/Tên bến cá**": is used to enter the name of landing site.

The box "**Province/Tỉnh**": is used to enter the province code or to select from the list.

The user can press  under the database table to move to a new record

### List of fishing grounds


The user can use a "**search menu of fishing ground/Tra cứu/Vùng biển**" to select from a list of fishing grounds. The list of fishing grounds appears as a table with the name of each fishing ground defaulted by different longitudes and latitudes. The list of fishing grounds includes rows and columns as indicated in the graphic below.

L\_StatisticalRectangle

### Danh mục khu ô biển

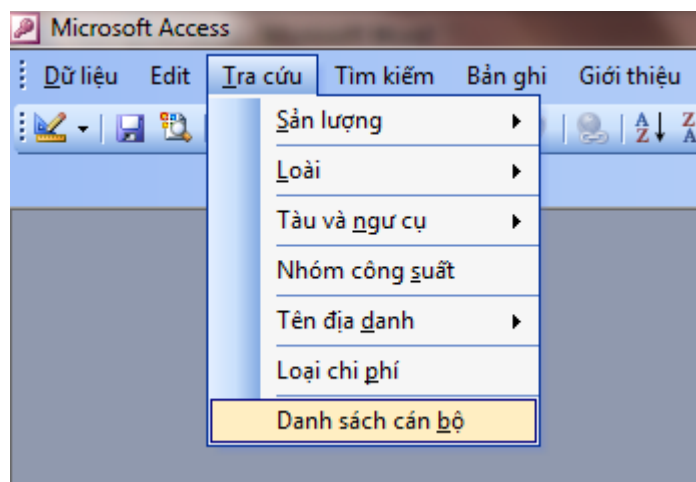
Mã ô biển	Degree West	Minutes West	Degree East	Minutes East	Degree North	Minutes North	Degree South	Minutes South	Main Area Code
▶ 410	105	30	106	0	19	0	18	30	1 ▼
H11	105	30	106	0	18	30	18	0	1 ▼
H8	105	30	106	0	20	0	19	30	1 ▼
H9	105	30	106	0	19	30	19	0	1 ▼
I10	106	0	106	30	19	0	18	30	1 ▼
I11	106	0	106	30	18	30	18	0	1 ▼
I12	106	0	106	30	18	0	17	30	1 ▼
I7	106	0	106	30	20	30	20	0	1 ▼
I8	106	0	106	30	20	0	19	30	1 ▼

Record: 1 of 65

Users can press the symbol  under the database table to move to a new record in order to enter into the new record.

#### 3.4.6.5. List of enumerators and encoders

In the main menu, there is a list of search options that users can use: **Search/List of enumerators/Tra cứu/Danh sách cán bộ**.



The **list of enumerators** appears as a table from which the names of enumerators and encoders can be selected. The list appears as in the graphic below:

Mã	Họ	Tên đệm	Tên	Tên đầy đủ	Giới tính	Địa chỉ/địa phương
CVH	Cao	Van	Hung	Cao Van Hung	Male	
PTDH	Pham	Duyen	Huong	Pham Duyen Huong		
PVA	Phạm	Việt	Anh	Phạm Việt Anh	Male	

Record: 1 of 3

The box **Code/Mã**: is used to enter the code of enumerators/encoders with abbreviations of the first Capital of their full name.

The box **Family/Họ**: is used to enter the family name of the enumerators/encoders.


The box **Middle name/Tên đệm**: is used to enter the middle name of enumerators/encoders

The box **Name/Tên**: is used to enter the first name of the enumerators/encoders

The box **Fullname/Tên đầy đủ**: will automatically generate the full name of enumerators/encoders

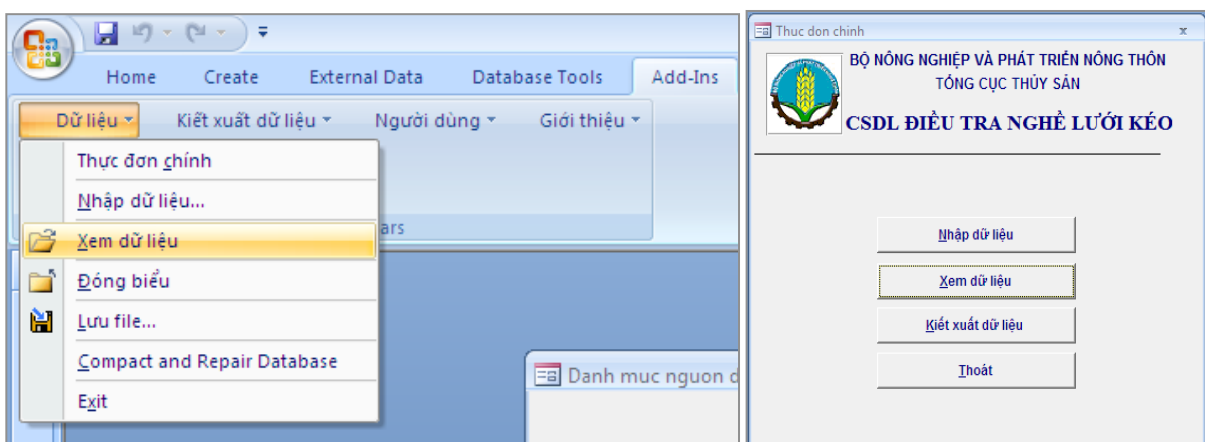
The box **Sex/Giới tính**: is used to enter the sex of enumerators/encoders

The box **address/địa chỉ/địa phương**: is used to enter the place where enumerators/encoders were working

The user can use the symbol  under the database table to move to a new record.

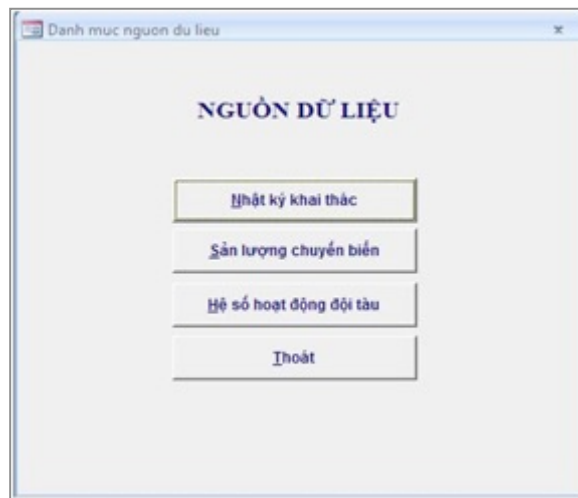
### 3.5. Data V\_look up

In order to look up data, users can select from the main menu/data V\_look up (**Thực đơn chính**) or can open directly from the data menu and use the Data V\_Look up option which appears as follows:





A window will appear, as below so that users can select the data type:



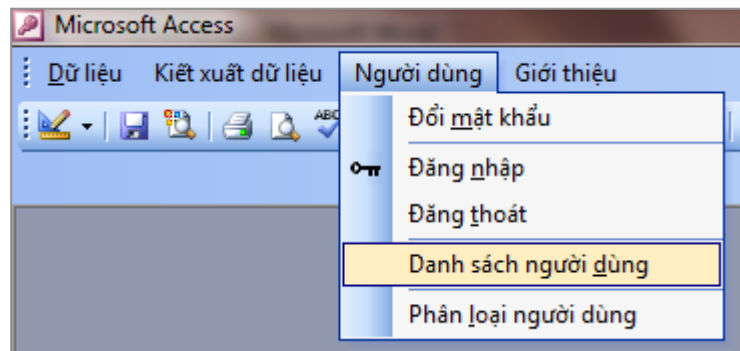
Once the database has been logged into by the encoder, he/she will have right to open all data types which they have entered to delete, edit, or create new records.

Once the database is signed out, other users can open and access the database but only in “read-only” status. He/she cannot edit, delete or create any new record using the user name of others.

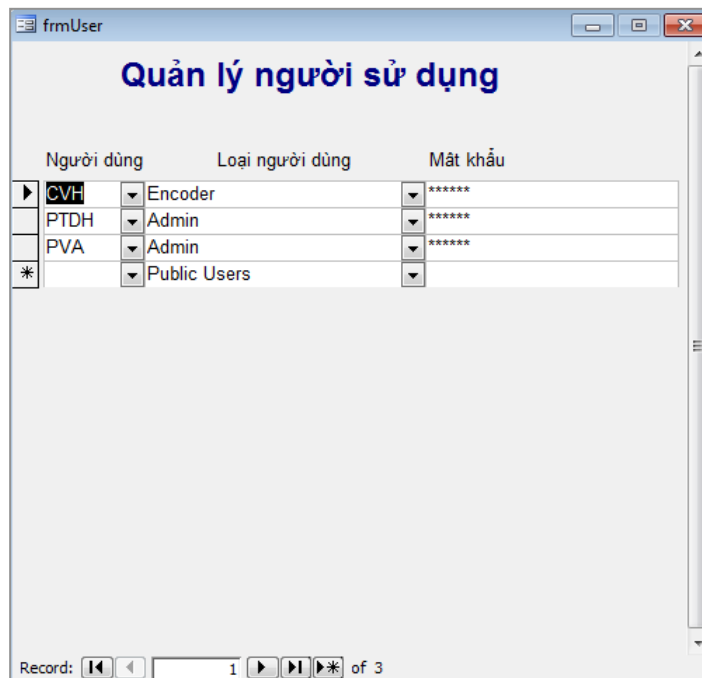
### 3.6. User management

#### 3.6.1. User authorization

When you want to open the list of database users, to add, remove or update, the administrator can select **user/list of database users (Người dùng/Danh sách người dùng)** as shown below.



A **List of database users** appears as a table and lists all the names of users that are authorised to use the database, such as encoder/Admin/Public users:



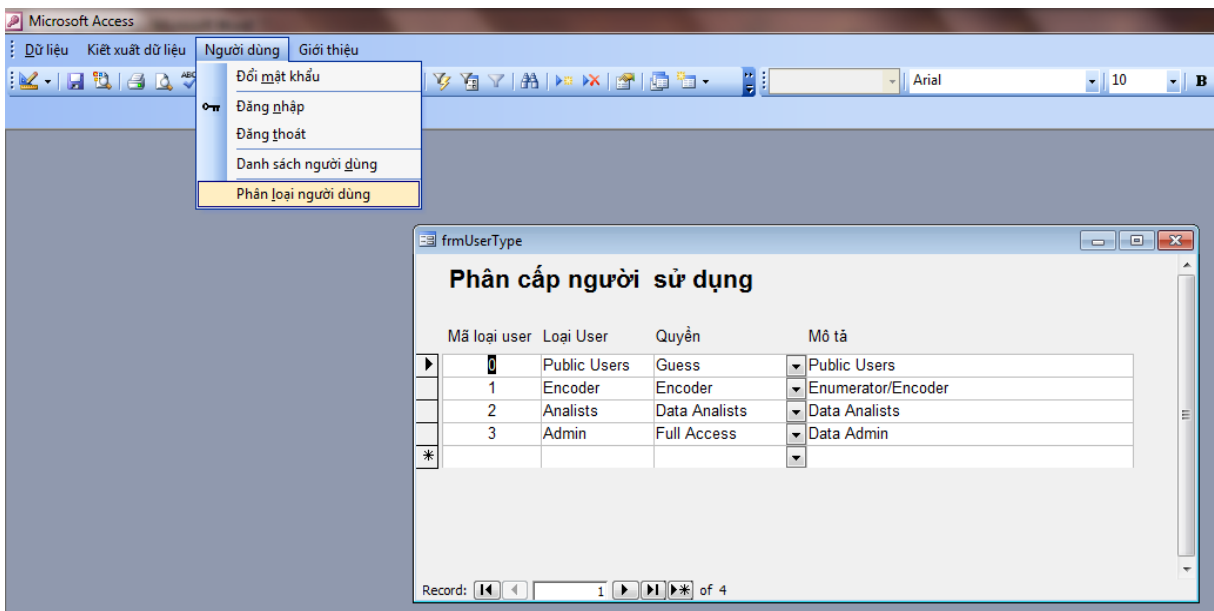
The box User name: is used to enter user codes or it can be selected from the list.

The box user authorized: is used to enter the user rights that are authorized.

The box password: is used for the password of the user

### 3.6.2. User classification

To classify users, the user can select from the main menu/user/use classification that appears as graphic below:



The box **types of user**: is used to classify users, the number of characters used to distinguish users' rights from low to high priority.

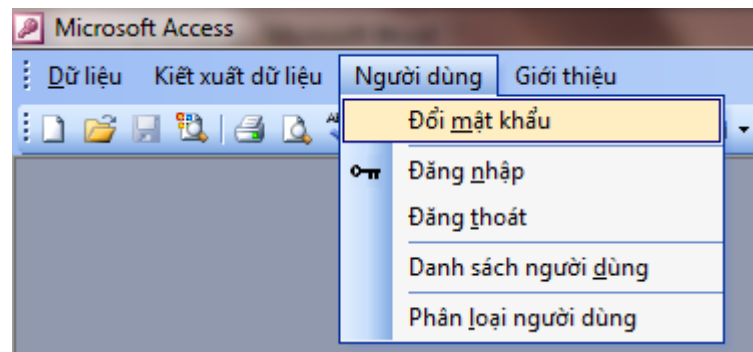
The box user **type classification** is used to enter a user code or select from the list.

The box **Users' right**: is used to enter the user's permission.

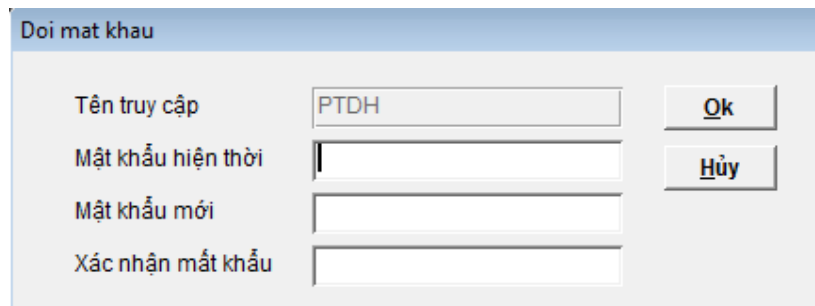
The box **description**: is used to enter descriptive information about a user's permissions

### 3.6.3. Change the password

To change the password, the user should select the menu Users/Change Password



A window appears to allow users to change their password as below:



The box **user name**: will automatically display identification number of users (user names), read-only (read-only).

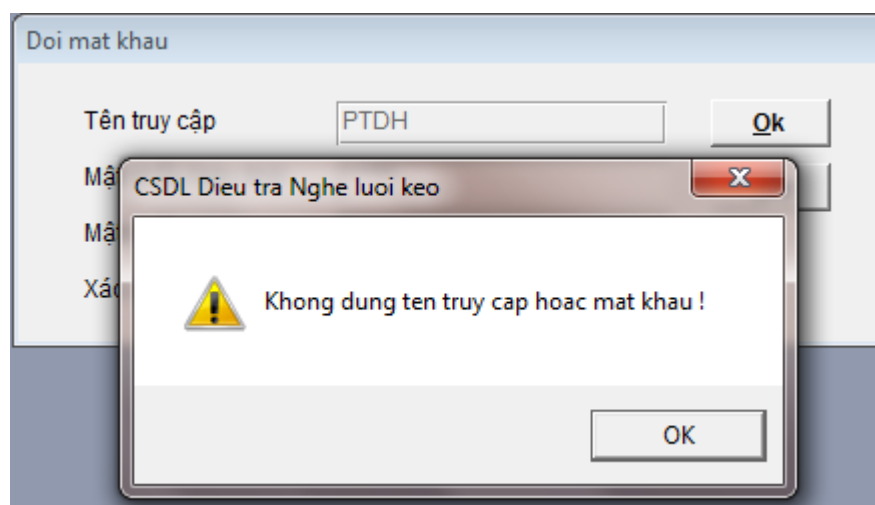
The box **Current Password**: is used by users to enter their current password.

The box **New Password**: is for the user to type in a new password.

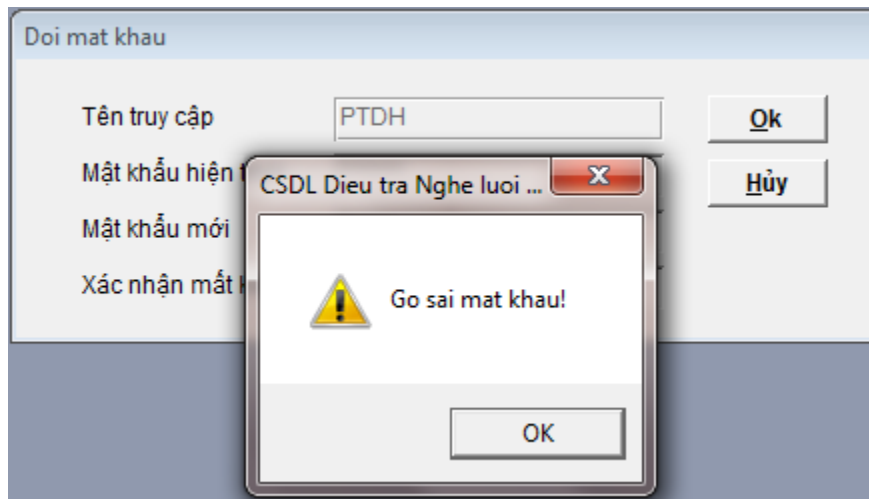
The box **Confirm new password**: is for the user to retype the new password to confirm it.

The user should then press the OK button to request the password to be changed. The Cancel button can be pressed if you do not want to make changes to your current password.

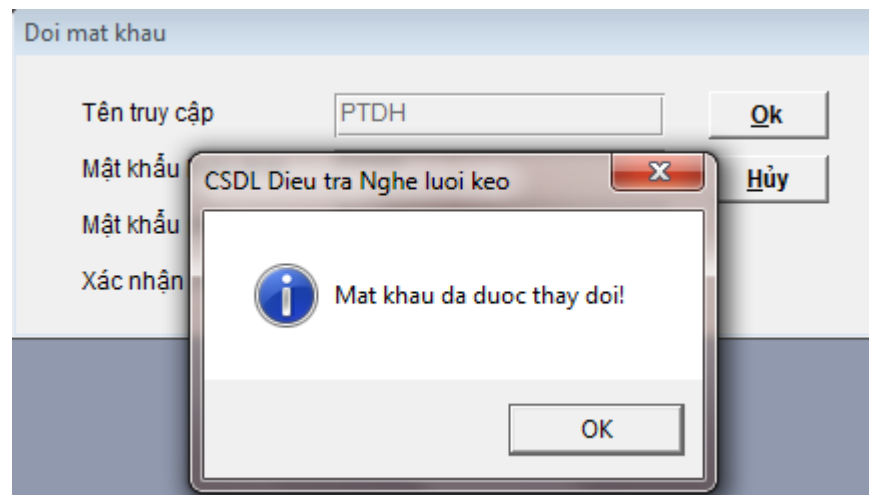
Before the change request is made, the database will check to confirm the identification number and current password match. If they do not match then the database will send an error message as shown below:



If the identification number and current password are defined correctly, but the new password entered twice did not match, the database will send an error message as follow:



If the passwords match, changes will be made and the database will accept the new password and display a confirmation message as follow:

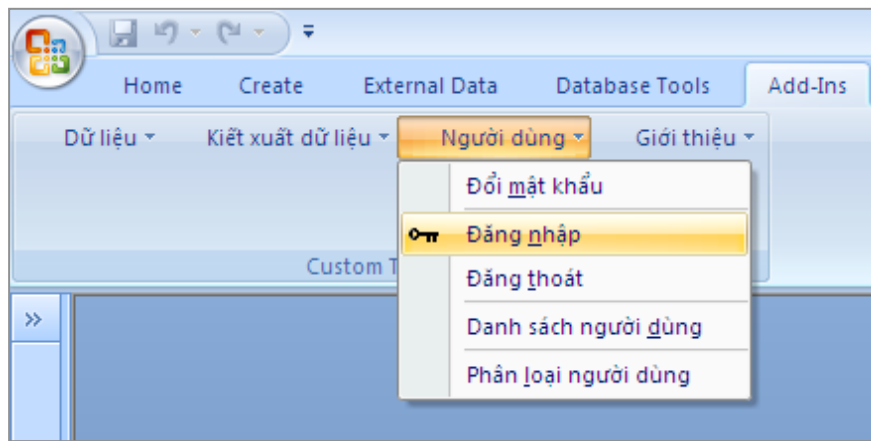


Once confirmation of the change has been seen, users can click the OK button to close the window and move to other operations.

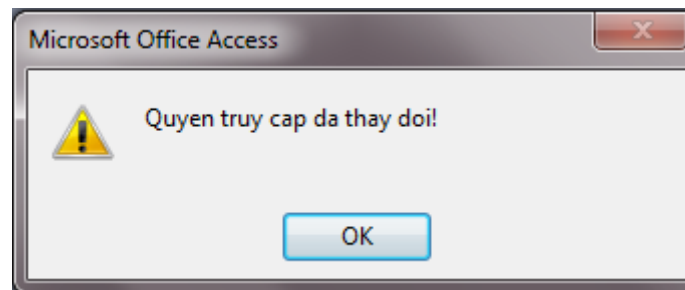
#### 3.6.4. Sign out the database

When the user wants to finish work without closing the database or to leave the database for other users, then the user should sign out of database first to ensure data security.

Users can sign out by selecting Users/Login exit as shown below:



Immediately, the database will confirm with a notification of changing user, as shown below:



## Term of reference: Develop, update and manage Databases for Trawl Fisheries

<b>Job title</b>	DEVELOP, UPDATE & MANAGE A DATABASE FOR TRAWL FISHERY	
<b>Project Number</b>	REBYC-II CTI- <u>Activity 3.1.3.</u>	
<b>Location</b>	Hanoi, Vietnam (with possible internal travel)	
<b>Expected Start Date</b>	1 <sup>st</sup> April 2014	Duration: 29 Days
<b>Reports to</b>	NTO and NPC DECAFIREP	

### GENERAL DESCRIPTION OF TASKS AND OBJECTIVES.

The Southeast Asia is one of the world's most biologically diverse, economically productive and potentially vulnerable marine zones. As a result of increasing populations and exploitation pressures, growing threats from pollution and major ecosystem change are a particular concern in the region. Also – as more widely in the global context – the non-targeted capture of fish and non-fish species, commonly called as bycatch and discards, is an increasing concern. Bycatch includes fish, turtles, corals and other seabed fauna and flora. This part of the catch tends to be poorly monitored and not managed but could have an important impact on fishery resources, habitats and ecosystems. In some fisheries and regions, there is an increasing trend towards retention of the bycatch consisting of juveniles and small-sized fish for use as food for human consumption or for utilization as aquafeed. This is therefore a complex issue, requiring resource and biodiversity aspects to be tackled alongside human needs and involving a mix of policy, technical and community support measures. The project “Strategies for trawl fisheries bycatch management” (REBYC-II CTI) was conceived based on the successes of the 2002-2008 FAO/UNEP/GEF global project “Reduction of Environmental Impact from Tropical Shrimp Trawling through the Introduction of Bycatch Reduction Technologies and Change of Management”. The REBYC-II CTI project intends to focus on multispecies bottom trawling, where bycatch issues are amongst the most serious, with potentially significant effects on ecosystems and livelihoods. The Project aims to address these challenges by promoting sustainable fishing practices and improved trawl management. The REBYC-II CTI project was developed under the leadership of FAO (project implementing agency) in close collaboration with its partners: Southeast Asian Fisheries Development Center (SEAFDEC) and the governments of the participating countries Indonesia, Papua New Guinea, Philippines, Thailand and Viet Nam.

In Vietnam, trawl fisheries data will be collected in the duration of project implementation. However, so far there is not a standard database for data entry and thus it can cause losing or ineffective use of trawl fisheries data. An activity to develop trawl fisheries database is seen as necessary.

### GENERAL TASKS OF THE ASSIGNMENT

- Carry out a review of current national database of Vietnam (Vietfishbase, Trawlbase, TUFMAN) to recommend if there is a need to develop a separate database for trawl fisheries or only make suitable modules to integrate with the existing databases.

- Develop a suitable database (modules) for data entry of trawl fisheries data collected.

## **KEY PERFORMANCE INDICATORS**

<b>Expected outputs</b>	<b>Completion Date:</b>
1. A Review of existing fisheries databases of Vietnam.	April 15 <sup>th</sup> 2014
2. A functioning database for trawl fisheries data.	April 30 <sup>th</sup> 2014
3. Guidelines on how to use the database	April 30 <sup>th</sup> 2014
4. Final report in English and Vietnamese, sent to NTO and NPC.	May 15 <sup>th</sup> 2014
5. Participate in any other project related activities as directed by the National Project Coordinator and National Technical Officer	as required

## **REQUIRED SKILLS AND EXPERIENCES**

- At least 10 years working in fisheries sector and holding a degree of MSc or higher in Fisheries Management or Fisheries Sciences, Natural Resources Management;
- Good knowledge in fisheries management system in Vietnam;
- A comprehensive understanding of trawl fisheries and management;
- High capacity in independent work and also in team;
- Proficiency in working in English including oral, writing and reading skills;
- Good computer skills, especially in Word, Excel, PowerPoint and internet applications;
- Good understanding about the project is considered as a plus