Anal-O

#130

IFDaS IFDaS

Sierra Leone

Industrial Fishery Database System

(IFDaS)

User Manual

J.M. Vakily
International Center for Living
Aquatic Resources Management (ICLARM)
Manila, Philippines

ICLARM Contribution No. 1146

Freetown, 1995

The Sierra Leone Industrial Fishery Database System is a product developed in the context of a consultancy provided to the Department of Fisheries and Marine Resources (DFMR), Government of Sierra Leone by the International Center for Living Aquatic Resources Management (ICLARM), Manila, Philippines. The project was made possible through the financial assistance provided by the European Development Fund of the European Union.

Trademarks

Purpose of this Document

This document introduces the user of the Sierra Leone Industrial Fishery Database System (IFDaS) to the features of the database in respect to entering, retrieving, and analyzing of data. It does not require any pre-knowledge in the general use of database software. Rather, it leads the reader step-by-step through the various options contained in the program's *Menus*

Background information is also given of the structure and organization of the database as well as instructions of how to install IFDaS on a computer This serves as a guide for the system manager and the experienced programmer whenever modifications to existing forms or programs are to be made, or new components are to be incorporated into the database system.

While developing the software, every effort has been made to ensure consistency and the proper integration of all components involved. If problems are encountered in the operation of the software, please contact:

The IFDaS Project Leader
International Center for Living Aquatic Resources Management
MC P.O. Box 2631
Makati, Metro Manila 0718,
PHILIPPINES

Acknowledgment

I wish to express my appreciation for the support that was provided by the Director of Fisheries, Mr. Abu Kamara, and the staff of the Department of Fisheries and Marine Resources at Marine House, Freetown. A special thank is due to Mr. Mohamed Seisay, Fisheries Officer, DFMR, whose well-founded knowledge of the fisheries sector and untiring willingness to answer questions was instrumental in achieving the necessary in-depth analysis of the structure of the Sierra Leone industrial fishery.

Contents

Contents (contd.)

Table of Figures

Table of Tables

1. Introduction

1.1. Purpose of IFDaS

The Industrial Fisheries Database System (IFDaS) is an highly integrated fisheries management tool that is meant to facilitate the administrative work of the Department of Fisheries and Marine Resources (DFMR) in Sierra Leone. It deals solely with information originating from the industrial fishery, as defined in the new Fisheries Management and Development Decree 1994 and is a direct implementation of the rules and regulations laid down in the Fisheries Regulations 1994.

IFDaS covers the following important aspects of administrative fisheries management:

- Registration of fishing vessels with the DFMR
- Licencing of fishing vessels
- Catch recording
- Summary reports (monthly/annual)

IFDaS applies the rigid framework of rules for the processing of licence applications spelled out in the Fisheries Regulations 1994. It thus gives maximum support to the issuing authority when it comes to the control of the proper procedure in following up on licence applications. In the same time it frees senior DFMR personnel from having to deal repetitiously with minor technical aspects of the licence application procedure. IFDaS automatically keeps track of financial transactions involved in the issuance of licences.

The format for receiving information from the fishing operations (catch, effort) emulates a procedure well established in the DFMR since early 1993. It takes full advantage of existing fishing log forms used by the Department's observers on board the fishing vessels to record catch and effort.

The program features a wide range of standardized routines to process and analyze the information contained in the database on both monthly and annual basis. It thus allows the fisheries administration at any point in time to produce in-depth reports on licencing, level of activity and catch volume in the fishery. Such reports are of fundamental use for general information and sector planning purpose.

IFDaS is fully menu-driven, which means that its use does not require any programming knowledge. All options are accessed through a hierarchical system of menus, supported - where necessary - by additional screens with a (commented) display of available choices. Procedures are standardized throughout, making the adaptation time for new staff to the software as short as possible. Internal error checking helps to ensure the proper use of the software even by less experienced staff. In addition, a two-level system of users has been implemented, giving the possibility to modify essential parts of the database to only a knowledgeable user who can identify him/herself by means of the proper password.

Because of its high degree of integration IFDaS can only be used as a whole, meaning that all three parts of the package: vessel registration, licencing and catch reporting, have to be fully implemented. Catch reports can not be entered without information on the licence situation of the reporting vessel, and licence applications can not be handled without the

corresponding vessel being registered. On the other hand, if properly implemented, IFDaS will provide the DFMR with all the necessary background information on the industrial fishery sector, required both for national policing and for participating in regional fishery development efforts.

1. 2. Definition of USERS in IFDaS

The Industrial Fishery Database System incorporates a system of gradual access to its functions depending on the status of its user. Two categories of operational level are envisaged, each with its own access rights, and thus with a certain range of actions permitted in accordance with the conceived needs. Which level a user is assigned depends on the ***User Name*** and ***Password*** provided during start-up.

1. 2. 1 Operational level "MANAGER"

Definition

The MANAGER has overall responsibility for the maintenance of the database. He/she has full access to all menu options in IFDaS and to the DataEase system level itself, where modifications to the forms/procedures can be made and new-ones implemented. Thus, he/she should be well acquainted with the DataEase software. The MANAGER should be in a position to introduce operators to the software, and organize and supervise the entering of new data. However, given the crucial role *Catalogues* play in the database, the MANAGER is the only one who can enter, or modify records in the *Catalogue Forms*. The option to delete existing records both in *Data Forms* and *Catalogues* is also exclusively reserved to the MANAGER.

Start-up

During start-up the following information must be entered by the manager:

⇒ User Name: MANAGER

⇒ Password: MR

1. 2. 2 Operational level "OPERATOR"

Definition

The OPERATOR is a person that is being assigned by the MANAGER the task to enter new records and make modifications to existing records in the *Data Forms*. In addition the OPERATOR can perform all tasks available to analyze or summarize data. He/she can not delete records in the Data Forms, and has no access to any form of database maintenance, such as updating catalogues. The OPERATOR is expected to know how to call up the program, enter the information correctly, and be aware of the difference between saving a new record and modifying an existing record.

Start-up

During start-up the following information must be entered by the operator:

⇒ User Name: OPERATOR

⇒ Password: OR

1. 3. IFDaS Components

The technical components of IFDaS are ***Forms***, ***Procedures*** and ***Menus***.

Forms are, similar to tables, a means of storing information in a structured way. They are made up of "*Fields*" each containing a specific piece of information, and "*Records*", being the total of information contained in the fields related to a specific set of information.

Procedures are programs, i.e. a set of instruction that let the computer process information contained in the forms in a user-defined manner.

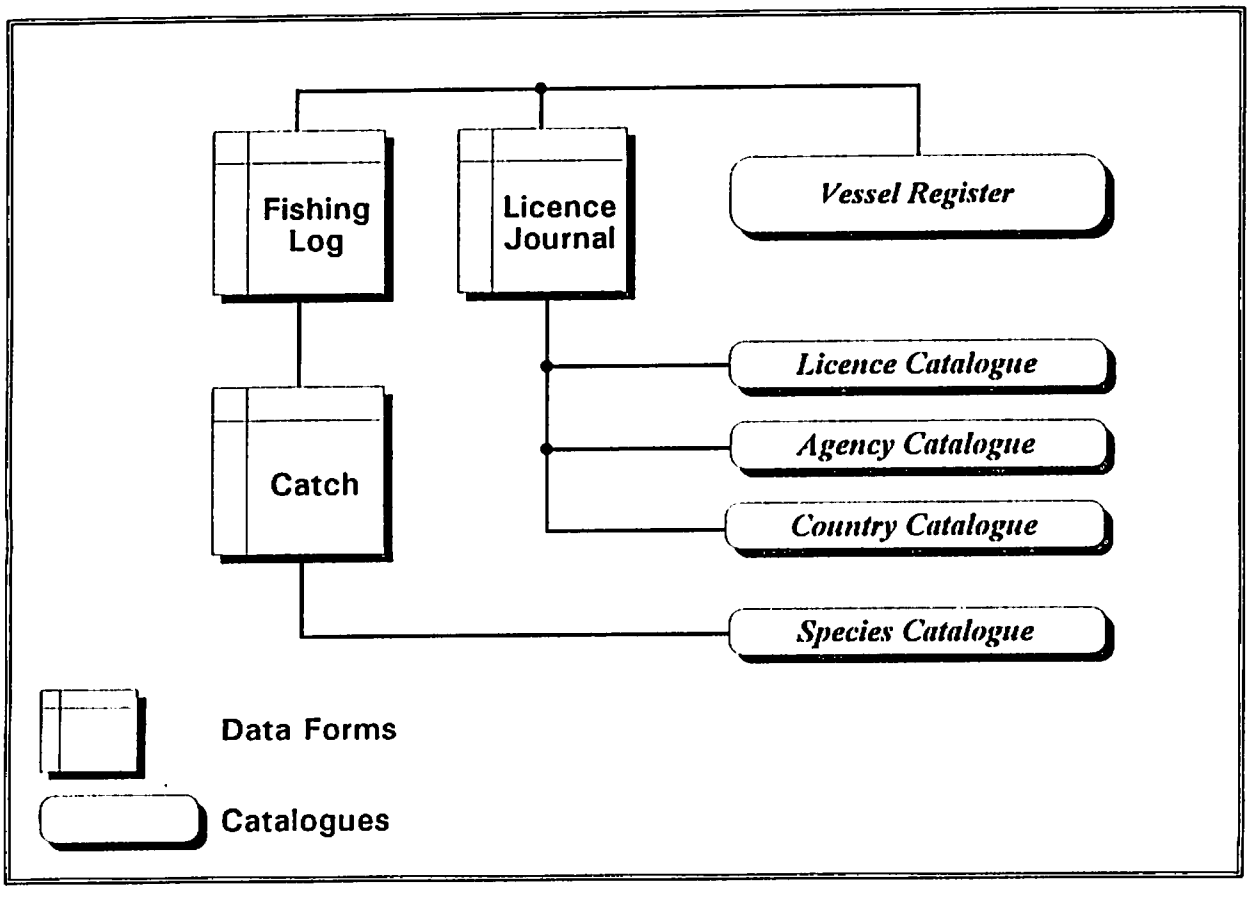
Menus consist of options presented to the user, that organize interaction between the user and the database software.

In the following a short overview is given of general aspects related to these various components.

1. 3. 1 · Forms

The forms contained in IFDaS can be classified into three categories, namely *Data Forms*, *Catalogues*, and *Auxiliary Forms*. A graphic representation of the structure of the database and the connections between Data Forms on the one hand and Data Forms and Catalogues on the other hand is shown in Figure 1. Inclusion of the Auxiliary Forms has been omitted from the picture, as their sole purpose is to facilitate the entering of data. They are not used to permanently store information.

Figure 1 **Scheme of the connections between Data Forms and Catalogues in the Sierra Leone Industrial Fishery Database System**



Data Forms

Data forms are meant to store regularly collected information from the industrial fishery, such as licencing and catch reports. IFDaS has three of these forms, the names of which are given in Table 1.

Table 1. List of Data Forms and their corresponding DataEase names

	Name	DataEase Form Name
1.)	Fishing Log	FishingLog
2.)	Catch Records	Catch
3.)	Licence Journal	LicenceJournal

The forms "Fishing Log" and "Catch Records" are meant to store information on fishing operations as recorded in the catch report forms filled in on board by the DFMR observers. The form "Licence Journal" receives the information from licence applications submitted by fishing agencies.

Catalogue Forms

Catalogue Forms play a supportive role, in that they provide recurrently needed background information, without the need of having to store this information permanently with each record, thus freeing valuable storage space from redundant information. The five Catalogues available in IFDaS are presented in Table 2.

Table 2. List of Catalogue Forms and their corresponding DataEase names

	Name	DataEase Form Name
1.)	Vessel Register	VesselRegister
2.)	Licence Catalogue	LicenceList
3.)	Agency Catalogue	AgentList
4.)	Country Catalogue	CountryList
5.)	Species Catalogue	SpeciesCatalogue

The "Vessel Register" contains all the technical information about a given vessel operating in Sierra Leone waters. The "Licence Catalogue" is the form that holds information on licence fees and royalties for the various types and categories of licences as defined in the Fisheries Regulations of the Fisheries Management and Development Decree 1994. The "Agency Catalogue" keeps track of Sierra Leone fishing agencies that submit fishing licence applications, while "Country Catalogue" is a simple table of country names used in the process of licence application to identify the country of origin of a given vessel.

The "Species Catalogue" contains a list of names used in the local fishery to identify fish and other marine animals, as well as their scientific taxonomy (Species name, Family) and their broad classification into one of the major marine groups (i.e. Demersals, Pelagics, Crustaceans, etc.). The

latter is based on publications on the marine resources off West Africa of the Food and Agriculture Organization (FAO), United Nations[1] .

Auxiliary Forms

IFDaS comprises a number of Auxiliary Forms used in the process of updating the various catalogues. Their purpose is primarily technical. They provide the user with additional information regarding the update procedure and ensure that the entered data are checked for consistency with the existing information, before the actual modifications/additions to the catalogues are made.

1.3.2 Procedures

Procedures (also called "Queries") are DataEase-specific programs that control interaction between the user and the database when it comes to entering, extracting, and analyzing data contained both in the Data Forms and the Catalogue Forms. IFDaS has more than 200 such programs, grouped by *Program Concepts* and accessed via a hierarchically structured menu system.

IFDaS can be used without any knowledge in programming or how these procedures operate in IFDaS. On the other hand, the source code is accessible and existing programs can, therefore, be modified, respective other procedures can be added. It should be noted, though, that most existing routines are part of a highly integrated program network and modifications to the database should only be made with a good understanding of the underlying program structure.

1.3.3 Menus

Menus assist the user in achieving a desired task implemented in the database. Upon starting IFDaS , the user is presented with a *Main Menu*. From there, the user can select global options that lead to sub-menus with a more detailed list of tasks.

As already mentioned, IFDaS envisages two types of users, the MANAGER and the OPERATOR, each with a different security level, and thus with a different degree of access to the various options provided in the database. The two user types are each provided with their own specific version of the *Main Menu*, i.e. the options available are:

1) **OPERATOR**

- Vessel Registration
- Licence Application
- Data Entry: Catch and Effort
- Analysis: Catch, Effort, and CPUE
- Summaries: Licencing, Fees, and Royalties

2) **MANAGER**

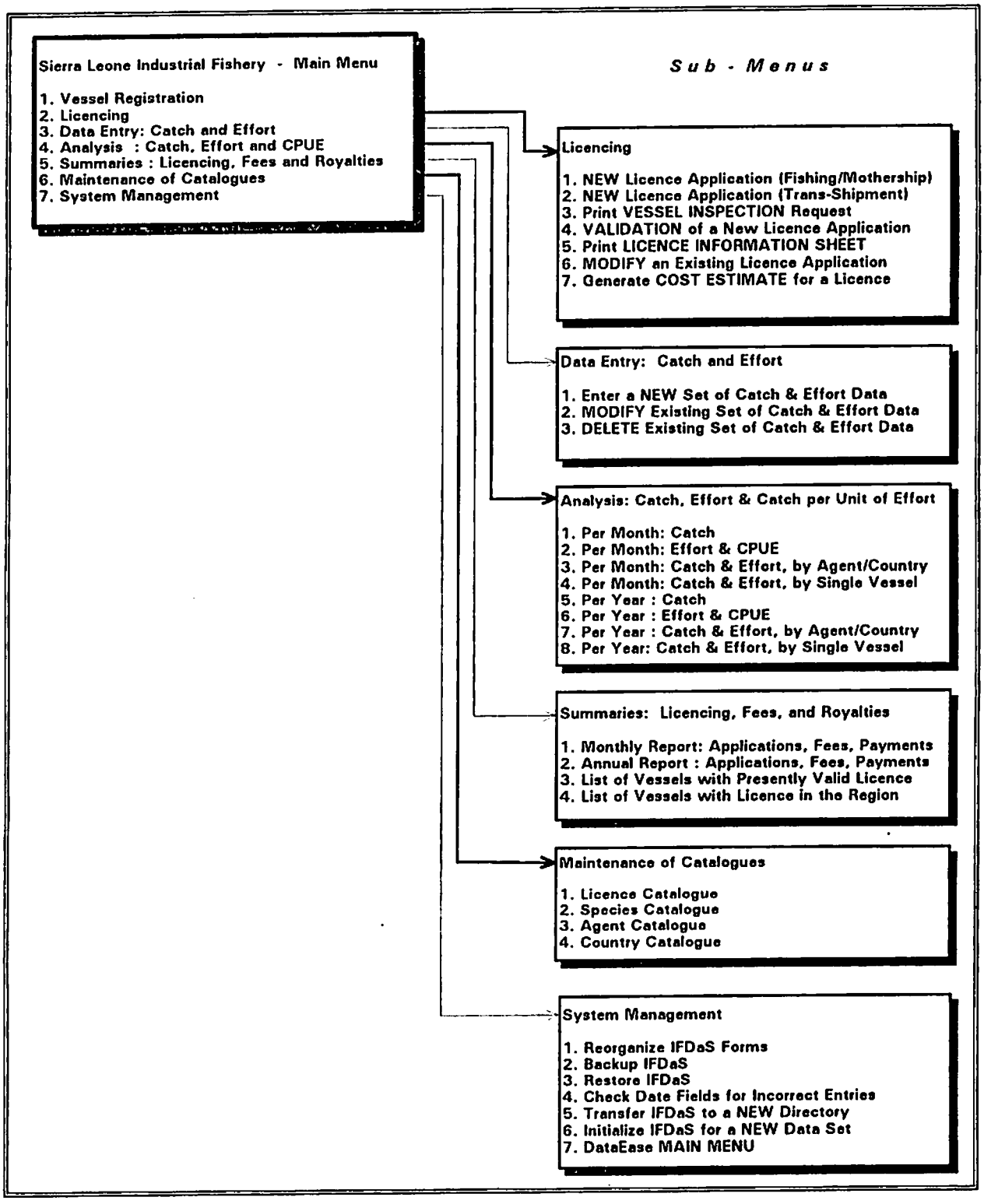
- all options available to the OPERATOR plus
- Maintenance of Catalogues
- System Management

---

[1] Schneider, W. FAO species identification sheets for fishery purposes. Field guide to the commercial marine resources of the Gulf of Guinea. Prepared and published with the support of the FAO Regional Office for Africa. Rome, FAO. 1990. 286 p.

This scheme ensures that functions that give access to the very system of the database are reserved for the MANAGER, thus avoiding potentially disastrous actions by an inexperienced (or adventurous!) user. A full representation of all menus is given in Figure 2.

Figure 2 IFDaS: Structure of User Menus



2. Installation of IFDaS

2. 1. Hardware/Software Requirements

- Computer operating under MS-DOS
- free hard-disk storage capacity of at least 5 Megabyte
- 1.4 MB (HD) floppy disk drive
- EPSON-compatible printer with A4 size paper (11.7"), either single sheet or continuous paper (tractor feed)
- DataEase, Version 4.53

The DataEase software must be properly installed. See the technical manuals delivered with the software for detailed information on how to install the software on the computer.

2. 2. First-time Installation

1. Create a separate directory on the disk into which the IFDaS files can be copied; the name for the directory for e.g. the 1994 data from the industrial fishery, thus could be:

   C:\DATA\IFDAS-94

   Consult the MS-DOS Manual for details on how to create directories on a disk.

2. Insert the diskette labeled "Sierra Leone Industrial Fishery Database System, Program Diskette No. 1" into drive A: of the computer.

3. Copy the files to the disk, using the DOS command:

   COPY A:*.* [*Drive:*][*Path*]

   where [*Drive:*] denotes the disk drive to which the files are to be copied

   and [*Path*] denotes the directory into which the files are to be copied.

   Thus, using the directory name suggested above as an example, the command would read:

   COPY A:*.* C:\DATA\IFDAS-94*.*

This completes the installation of IFDaS. The original diskette should be kept in a safe place where it is protected against dust and humidity. It is not needed again, unless IFDaS is to be re-installed after some of its files have been damaged and no other backup copy has been made, or to install the original version on another computer.

The version of IFDaS on the master diskette does not contain any data from fishing operation or licencing. It does, though, contain a vessel register and the various catalogues with information that reflects the stand as of 1994. This must be kept in mind, if IFDaS is re-installed from the master diskette, as it means that all additional data entered into the catalogues since the first installation are lost.

Under no circumstances should modifications/additions be made to the contents of the master diskette, as it serves as a master copy of the Sierra Leone Industrial Fishery Database System. Use a different set of diskettes for back-ups.

2. 3. Annual Installation

IFDaS is designed such that all data pertaining to a single year should be kept in a separate version of IFDaS in a directory of its own. This means that at the beginning of each year, a fresh version of IFDaS must be installed on the hard-disk.

IFDaS contains two routines that carry out this task, in the course of which a copy of the existing IFDaS version is copied to the new directory (see Chapter 11. 5). The only action requested from the user is to provide a two-digit number identifying the new year, which then becomes part of the new directory name (.\IFDAS-95, .\IFDAS-96, etc.). In a second step (see Chapter 11. 6), the new version of IFDaS is initialized in that all fishing records are deleted, and data on licence application only retained inasmuch as the granted licence period extends into the new year. Catalogues and Vessel Register remain unchanged. The routines can be accessed through the Option 7 "System Management" in the Main Menu and are discussed in more detail in Chapter 11. 5 and 11. 6, (page 58).

3. Working with IFDaS - A General Overview

3. 1. How to Start IFDaS

3. 1. 1 General Procedure

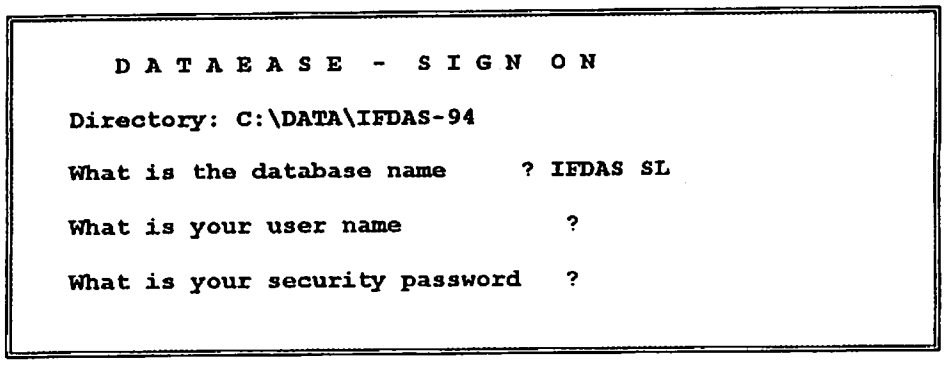
Starting IFDaS involves calling up the program itself and providing a user name (i.e.: OPERATOR or MANAGER) and the corresponding password. The software checks the validity of the entered name and password. If accepted, the user is presented with the *Main Menu*.

How the program itself is started depends on the kind of operating environment available on the computer. A number of suggestions to facilitate the start-up procedure are given below. It basically means that the information about location and name of the database are automatically passed on to the program leading to a "Sign On Screen" as shown in Figure 3.

At this point the user has to identify him/herself by entering the appropriate user name (either OPERATOR or MANAGER) and pressing [ENTER]. The next input requested is the password for OPERATOR, respective MANAGER. In either case, typing the password and pressing [ENTER] leads to the *Main Menu*.

Entries under "user name" depend on who wants to use the program and will determine the options made available (for details on USERS and SECURITY LEVEL see Chapter 1. 2: Definition of USERS in IFDaS).

Figure 3 **"Sign On" screen at start-up**



In order for IFDaS to properly function, one has to be aware of the location of the two types of software files used in running IFDaS, i.e.:

a) what is the name (drive, path) of the directory, where the DataEase software files are located ("DataEase Directory");

b) what is the name (drive, path) of the directory, where the IFDaS program files are located ("IFDaS Directory").

If IFDaS is started from the DOS level, it is **mandatory** that the program is started from the **"IFDaS Directory"**, by changing to that directory before calling up DataEase. If IFDaS is started from e.g. the "DataEase Directory" (which is principally possible!), the various text files that can be created with IFDaS will not be saved into the IFDaS Directory.

3.1.2 Basic

In its most basic form, IFDaS is started by changing to the directory that contains the IFDaS program files (the "IFDaS Directory"), using the DOS command "CD" (Change Directory). Assuming IFDaS has been installed as suggested in Chapter 2, the command would read:

CD C:\DATA\IFDAS-94

Then the DataEase database program is called by entering the command:

[*Drive:Path*\]DE16M**

and pressing the [ENTER] key. [*Drive:\Path*] refers to the name of the directory where the DataEase software files are located ("the DataEase Directory"). DataEase will load and the user is then asked to provide information on:

a) **what is the name of the database**

b) **what is the name of the user**

c) **what is the password (if any)**

The required information is the following:

a) **"IFDAS SL"**
(can be selected from the list of available databases shown automatically at start-up)

b) either **MANAGER**, or **OPERATOR**

c) either **MR**, or **OR**

3.1.3 Advanced

To facilitate the process of starting the program, use can be made of a feature in DataEase that allows to provide the necessary information on location and database name right at start-up. This involves the adding of **parameters** to the command line that starts DataEase. Thus, instead of simply typing "DE16M" and pressing ENTER - and again assuming IFDaS has been installed as described above -, the command line to start DataEase would read as follows:

[*Drive:Path*\]DE16M C:\DATA\IFDAS-94 "IFDAS SL"**

This would automatically provide the information required under a), leaving to the operator the obligation to provide name (b) and password (c).

Note: The command line must be entered as shown, including empty spaces and quotation marks, without regard, though, to capitalization.

3.1.4 Batch File

As the previous method involves a fair amount of typing if the IFDaS directory name is very long, it is recommended to create a batch file to further facilitate the start-up process. Thus, a text file could be created that is named **IFDAS.BAT** and contains only one line of text, i.e.

[Drive:\Path\]DE16M C:\DATA\IFDAS-94 "IFDAS SL"

(If in doubt consult the DOS Manual on how to create a *Batch File*.)

Save the file into the directory where the *IFDaS Program Files* are located. Thereafter, it suffices to change to the IFDaS Directory and to type the command IFDAS followed by pressing the [ENTER] key to start IFDaS without the need to type again the lengthy command line.

3. 1. 5 Microsoft Windows Environment

In the Microsoft Windows environment programs and applications are started by assigning them to a specific "*Icon*". Consult the WINDOWS Manual for information on how to create these icons. In the process of creating such an icon, details have to be provided of the commands necessary to start a program. Enter the command exactly as described before, (if IFDaS has been installed as suggested) i.e.

[*Drive:Path*\]DE16M C:\DATA\IFDAS-94 "IFDAS SL "**

where **[*Drive:**Path*\]** refer again to the "*DataEase Directory*". In addition, there is a field identifying the "Start-up Directory". In this field **must** be entered the drive and path of the "*IFDaS Directory*", e.g.

C:\DATA\IFDAS-94

which ensures that the program is started from the "*IFDaS Directory*". Once the icon is saved with this information, IFDaS can be started by double clicking the corresponding icon.

3. 2. How to Exit from IFDaS

In order to leave IFDaS the operator has to press the [ESC] key while in the *Main Menu*. This action, however, has to be confirmed. The program will ask:

Exiting DataEase --- Are you sure?

At this point the operator can respond by pressing "**Y**" (for yes) and leave the program, or "**N**" (for no) to continue working with IFDaS.

Note: It has to be emphasized here that it is mandatory to quit IFDaS in the described manner. For technical reasons database programs usually keep files "open" until the very end. By leaving the program as described, it is ensured that all files are properly closed. Leaving IFDaS e.g. by simply shutting off the computer while still in IFDaS could result in parts of the database not being accessible anymore the next time IFDaS is started. Such a situation would require to restore the whole database from a back-up copy.

3. 3. Menus

The operator interacts with IFDaS by means of options selected from ***Menus***. The structure of the *Menus* in IFDaS is hierarchical. At the very top is the *Main Menu* displayed automatically after completing the "sign on" procedure. Any option selected from the *Main Menu* will lead to a sub-menu with its own set of options. Options selected from these sub-menus will lead to "Fill-in Forms", where the operator can provide specific information in respect to the task selected, e.g. which month to analyze, whereto the output should be going, etc. A more detailed description of the use of the menus and the various options available will be presented in the following chapters.

Available options in the menus are presented as numbered lists. Selecting an option is done either by pressing the corresponding number of the item in the menu or by moving the "cursor" to the desired option and pressing [ENTER]. Conversely, pressing the [ESC] key will "undo" a selection, bringing the operator back to the menu from which the last option was selected.

3. 4. Entering Information

Information is entered in IFDaS by first selecting the appropriate options from the Main Menu. This leads to specifically designed "forms" made up of explanatory text and corresponding fields that provide the operator with detailed information about what information is to be filled-in, and where, and to some extent verifies the correctness of the entered information.

3. 4. 1 Type of Information

The information to be entered can be either raw data or selection criteria.

- **Raw data** are primary data collected from the fishery in respect to vessel registration, licencing and fishing operation.
- **Selection criteria** is information to be provided in the process of extracting data (original or processed) from the database. Selection criteria allow to limit the processing of data to a sub-set of data, e.g. to data of a specified month.

3. 4. 2 Entering Information in a Field

The information can take either the form of free text, pre-defined choices, or an item selected from a list.

Free Text

Free text fields allow the entering of text, either letters, numbers, or a combination of both. A typical example would be the providing of a vessel's call sign. Whenever the information is limited to a certain type (e.g. numeric) or to a specific range of values (e.g. 1-12, when entering the number representing a selected month), IFDaS verifies that the information entered conforms to the respective restrictions.

Choices

Often, the required information in a field is one of a series of pre-defined choices. Whenever a choice field is reached, the available choices are listed in the top row of the screen, each identified by a number in ascending order.

Such a list of choices appears for example when the operator is asked to indicate whereto the results of an analysis should be directed. The available choices would read: Screen, Printer, and ASCII (for standard text files).

The desired option is selected by pressing its corresponding number. If there are more choices than fit in the top row, a complete list of all available choices and their corresponding numbers can be displayed by pressing the function key [F1]. Again a choice is then selected by pressing the appropriate number, or by moving the cursor to the desired option and pressing [ENTER].

List Items

List items are items contained in a "*Catalogue*", which can be looked up and entered in a field of a form. Typical examples are the *Species Catalogue or* the Agent *Catalogue*. List items are identified by a code, and it is usually only this code that is retained in a form. The corresponding information, (e.g. species name, family name, etc.) is automatically retrieved from the catalogue and displayed in the form.

While in a field that requires the entering of a code from a Catalogue, the record pertaining to that code can be looked-up in its Catalogue by pressing simultaneously the [CTRL] key and the [F10] function key. (A corresponding information is displayed on screen.) This action opens a separate "Window", in which the records of the catalogue are displayed. To select an item the cursor is moved up or down the list until it rests on the desired item (cursor keys such as [UP, ↑], [DOWN, ↓], [PgUp], [PgDn], [Home] and [End] can be used to move the cursor). Pressing [ENTER] transfers the corresponding code to the field in the form and closes the "Catalogue Window". At the same time, all other fields in the form related to this code are filled with the corresponding information.

3. 4. 3 Moving between Fields

Entering information in a field is usually concluded by pressing [ENTER], upon which the cursor moves to the next field. However, making a selection in a choice field enters the selected option and immediately moves the cursor to the next field. Similar, when reaching the end of the available space in a free text field, the cursor moves to the next field. Pressing the [UP↑] / [DOWN↓] key moves the cursor back/forth one field at a time.

3. 4. 4 Editing Information in Fields

While in a field, existing information can be edited using the [BACKSPACE] or the [DELETE] key. Existing information can also be overwritten if the program is in "Overwrite" mode. This mode is toggled on or off by pressing the [INSERT] key. The message "Insert" appears at the top of the screen, if the program is in "Insert" mode. Pressing [INSERT] at this stage changes to "Overwrite" mode and the message disappears.

It should be noted that a field that contains already the full number of characters allowed, can only be edited by either first deleting one or more characters, or by ensuring that the program is in "Overtype" mode.

3. 5. Saving Information

Data entered into a form must be saved in order for IFDaS to process the information. In the case of "Raw Data" the information is stored permanently in a file on disk. "Selection Criteria" are stored only temporarily in memory, until the routine has come to an end that uses these selection criteria to process data.

To save data in a form or selection criteria (and start processing the data), the standard procedure is that the operator has to press the [F2] function key. A reminder of this is always found at the bottom of the screen, whenever the operator is required to do so. This is true irrespective whether the information just entered is new or a modification to existing one. The only exception to this is when modifying existing catch records, where the operator has to press the [F8] function key rather than the [F2] key. This is explained, though, in more detail in the description of this menu option further below.

3. 6. Retrieving Information

IFDaS provides a series of routines to extract data either in their original or in a processed form. These routines are accessed by selecting corresponding options from sub-menus.

Most analysis/summary routines have in common that the data processing can be based either on the combined data available for a year ("results per year") or on the combined data available for a given month ("results per month").

In either case, the operator then has to specify the year for which to run the analysis. Even though each version of IFDaS is supposed to contain only data from a single year, this is meant to double-check the consistency of the dates entered. The year consists of four digits, e.g. "1997". IFDaS can also be used without any problems in the next Millennium up to the year 2075. Thereafter, calculations based on dates become incorrect.

If analysis/summaries on a monthly basis is selected, the operator has the additional option to specify a range of months for which to produce monthly reports. The range can comprise either a single month (e.g. "January to January") or any number of consecutive months (e.g. "March to May"). The program will then produce individual monthly reports for each of the months in the range.

3. 7. Output Options

Each routine in IFDaS that produces a result from the analysis of the available data or leads to the extraction of a data-set is provided with three output options selectable by the operator. These output options allow the operator to specify, whether the results/extracted data should be routed to the screen, a printer, or to a text file. The selection is done usually at the beginning of a routine. The following gives a short summary of the main characteristics of the different output options.

3. 7. 1 Screen

Selecting this option will route the output to the screen. Results are displayed a screen at a time. Once a full screen is displayed, the program waits for the operator to take one of the following actions:

[SPACEBAR], [DOWN, ↓], [PgDn]:	continue to display results
[UP, ↑], [PgUp]:	Scroll back through whatever has been displayed so far
[ESC]:	Abort the present procedure.

A reminder of these various possible actions is displayed at the top row of the screen. Once all results are displayed, the operator is asked to press [ESC] to return to the previous menu.

3. 7. 2 Printer

Selecting this option will route the output to a printer to produce a hard-copy of the results obtained. The output is almost identical with the screen output. It ensures the proper alignment of the text on paper, and adds useful information such as page number and date of report.

The printer connected must be EPSON-compatible. Paper size must be A4 (=11.7") It can be either continuous paper (tractor feeder) or single

sheet, manually fed. It should be noted that using paper of a different size than indicated above will lead to the loss of a proper page lay-out.

In any case, before printing (or if problems occur during printing) it has to be ensured that the following conditions are met:

⇒ If the printer can emulate different types of printers, the printer must be set to EPSON-compatibility.

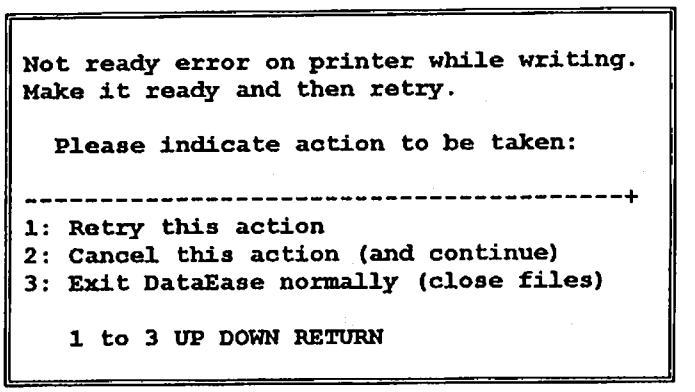
⇒ The printer is in READY mode, i.e. it is connected, switched on, and the paper is properly loaded.

⇒ The paper is loaded with the printer head positioned at the "Top of Form", i.e. the printer head is located exactly at the upper edge of the paper. In case of single sheet printing, this applies to every sheet fed into the printer.

If continuous paper is used the printing does not need any further attention, as all results will be printed until the procedure comes to an end.

If single paper sheets are manually fed into the printer, results are printed up to the bottom of a page. The paper is then ejected and the next page should be fed into the printer. If this is not done within a certain time limit, the printer signals "Out of Paper" condition. This condition is reflected by a "Printer Error" message on screen (Fig. 4):

Figure 4 Printer error message



Position a new sheet of paper in the printer, ensure that the printer head is at "Top of Form", and the printer in READY mode. Then select Option 1 ("Retry this action") to continue printing of results.

Likewise this communication between printer and software could also be used to immediately stop printing, in cases where the printout does not match the expected result. It suffices to simply switch off the printer and wait until the message above appears on screen. Selecting Option 2 ("Cancel this action and continue") in Fig. 4 would stop the printout of the results and return the operator to the previous menu.

3.7.3 ASCII File

Selecting this option will save the results in a text file of standard ASCII format, which can be read by any word-processing software. It is thus a convenient way to transfer the results obtained into a report, without the need of re-typing tables.

It should be noted, however, that after the text file has been imported into a word-processing software, some editing might be necessary in order

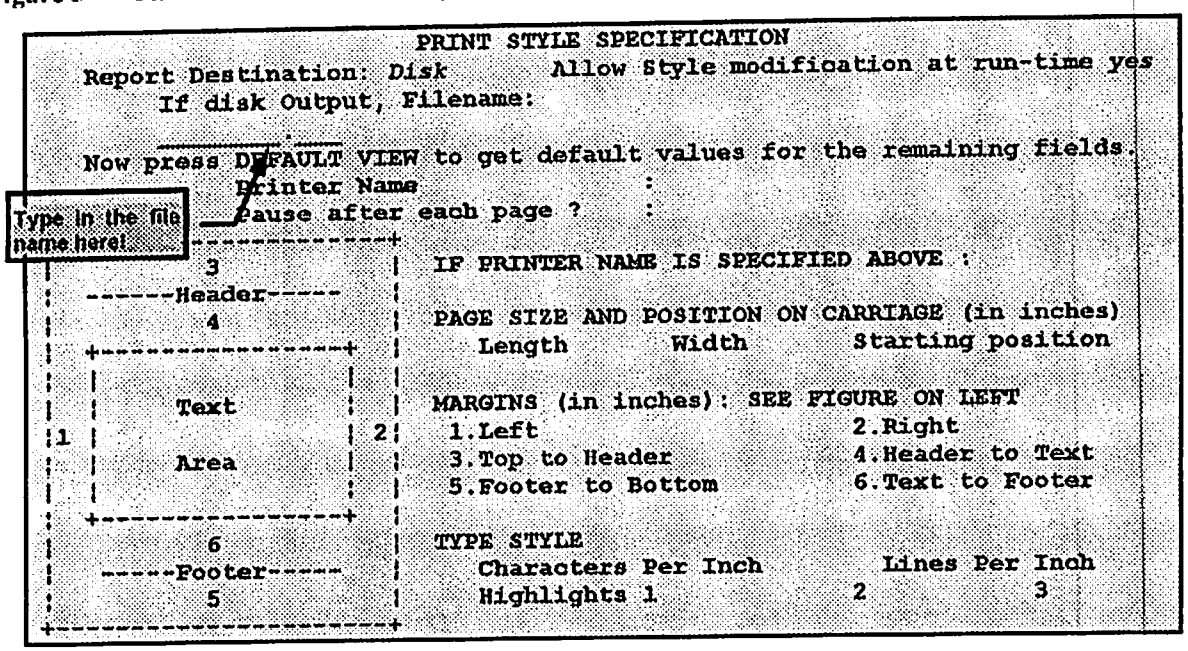
for the tables to appear in a new document as they appeared on screen. This involves mainly to change the typeface to a small, fixed-size font, such as COURIER 12 or COURIER 15, to accommodate the whole width of a table within the usually narrower margins of a document.

When selecting the output option ASCII File, the operator will be presented with a fill-in form as shown in Fig. 5.

Provide a name in the field indicated in Fig. 5 for the file to be created. Leave all other fields unchanged. Following normal DOS rules in naming files you can use up to 8 characters, followed by a dot and the extension "TXT". File names can consist of letters, numbers, underscore (_) and hyphen (-), e.g. "CPUE-96.TXT". Empty spaces between characters are not allowed. They can also be preceded by a path name, if the file is to be stored in a directory different from the one where IFDaS is located. Pressing the [F2] function keys starts processing the data.

Note that before having to provide a file name, a help screen will appear that summarizes all aspects of naming files for the operator's information.

Figure 5 Fill-in form for the naming of a file for disk output



For convenience, each of the routines that can be routed to an ASCII file has a default file name. This file name can be accepted or changed. It should be noted, however, that the program does not check, whether a file with the same name exists already in the directory. If there was a file with the same name, it would simply overwrite it with the newer version. (In this respect one should especially be aware that the "annual" and the "monthly" version of a routine use the same default ASCII name!)

3. 8. Help Facilities

IFDaS has a number of help facilities to assist the operator. These range from pre-defined choices as described above to dedicated on-screen help messages giving explanation in respect to the information required in a given field. Help is accessed using one of the following (combination of) keys:

[F1]	In a choice field: In other fields:	List of available choices. No function.
[ALT] [F1]	Call up a help message for the present field, if available; (If no specific help message is available, a more general message concerning the present form is displayed.)	
[CTRL] [F1]	Toggles the automatic display of help messages on and off. This feature slows down data entry, but might be useful for beginners who still need orientation while using IFDaS.	

3. 9. Special Keys

The bottom part of the screen usually lists the function keys that are available at a given situation. Important for the normal use of IFDaS are only the function keys [Ctrl] [F10] described earlier (see "List Items", page 13), the [F2], the [F6] key, as well as the [ESC] key. Other function keys, such as [F3], [F7] or [F8] should only by used, if the program specifically asks for it, e.g. when deleting/modifying catch records.

3. 9. 1 [F2] Key

Pressing this key tells the program that the operator has completed his/her action, and that the program should start processing the data according to the action selected by the user. It thus could be considered a type of "Go"-command that returns control over the program flow to IFDaS.

During data-entry, pressing the [F2] key will lead to the saving of the data just entered. While running any of the procedures to analyze or retrieve data, pressing [F2] will conclude the entering of information in the fill-in forms and process the data according to the selection criteria provided in the fill-in forms.

3. 9. 2 [F6] Key

Pressing the [F6] key while in a field clears the contents of that field (in contrast to clearing a whole form!). This might be useful when editing the contents of a field that contains already a long string of characters. The complete clearing of a field is also necessary when editing a field in a primary form that contains a code, which itself can be "looked up" in a secondary form by using the [CTRL] [F10] key combination. Such a look-up will only display the entire available list if the corresponding field in the primary form is empty; otherwise it will only show the item in the list that corresponds to the one shown in the primary form.

3. 9. 3 [ESC] Key

The [ESC] key (ESC stands for "Escape") is a general means to revoke the last given instruction, and thus serves as a sort of "Un-do" key. In some cases, especially when the revoking of the last action resolves in the loss of data, the program will ask for a verification/confirmation that pressing the [ESC] key was really intended. In such cases a question appears on screen, which has to be answered with "Yes" if one really intents to abandon the entered data, or with "No", if the [ESC] key was pressed only accidentally, and one wishes to continue with the selected task.

The consequences of pressing [ESC] depend on where this action is being taken:

⇒ **While in a menu (except *Main Menu*)**

Result: Return to previous menu.
Confirmation: no.

⇒ **While in the Main Menu**

Result: Close all files and leave IFDaS.
Confirmation: yes.

⇒ **During Data-entry**

Result: Abandon the presently entered data.
Confirmation: yes.

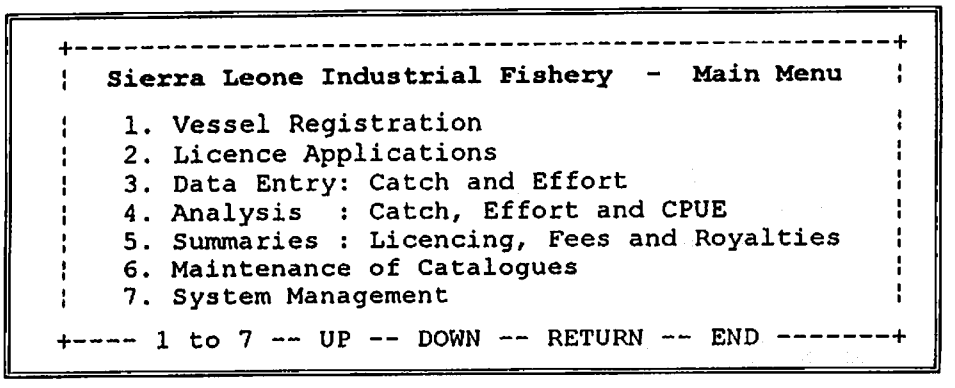
⇒ **Data Retrieval/Analysis**

Result: Abort the presently running procedure.
Confirmation: yes.

4. The Main Menu

The *Main Menu* is called up immediately after the (successful) completion of the sign-on procedure. It plays a role in ensuring that options made available correspond to the user level, i.e. the number and kind of options listed on the *Main Menu* depend on the status of the user. While the MANAGER has access to the full menu as shown in Figure 6, the menu presented to the OPERATOR will not include the last two options.

Figure 6 IFDaS Main Menu (OPERATOR Level)



The Main Menu is also meant to organize in a general way the work with IFDaS as it reflects a logical framework within which the management of the data from the industrial fishery is handled. Thus the sequence of steps to undertake starts with the registration of a vessel (1). Only if the relevant details of a vessel are "known" to IFDaS is it possible to proceed with the licencing (2), and only if a licence application has been accepted can catch reports be entered into the database (3).

The next two options deal with the retrieval of data, i.e. the analysis of catch, effort, and catch per unit of effort (4), and tabular summaries of licences granted and fees and royalties collected (5).

The last two options are reserved for the MANAGER, and concern the maintenance of the catalogues (6) and general database management in IFDaS (7). Each of the options in the Main Menu lead to a sub-menu with a more specific listing of the tasks and options available. These menu options are explained in full detail in the following chapters.

5. Vessel Registration

Purpose:

Vessel registration is a central task in IFDaS and a necessary precondition for any of the other options available. It ensures that all information is available to IFDaS that is needed to compute automatically licence fees and royalties. The whole vessel registration is a direct implementation of Schedule 7 "Industrial Fishing Licence Application" and Schedule 9 "Licencing of Fish Loading and Trans-Shipment" of the Fisheries Regulations 1994. Each item on-screen is preceded by a number that is a reference to the corresponding number in the application forms in the Fisheries Regulations.

The options available under "Vessel Registration" comprise the adding of new, respective modifying of existing records as well as the sorting and listing of the Vessel Register.

5. 1. Option 1: Add a New Record

Use this option to add the general and technical specifications of a vessel that so far had not been participating in the fishery in Sierra Leone, and thus is not listed in the Vessel Register. The data have to be taken from the "Industrial Fishing Licence Application", Part A, C, E, F, and G. Following are comments for a few of the fields, which might need special attention.

Form Field	Comments
Name of Vessel	The name of the vessel as given in the ship's papers. If the name of the vessel is followed by a sequential number, do not use Roman numbers (i.e. IV, III, etc.); leave one space after the name, then write the number as a two-digit number, e.g. "Alex 01", "Alex 02", etc.
Radio Call Sign	The radio call sign as given in the ship's papers. Enter all characters of the call sign in a series. Do not use spaces or hyphens between characters. This is an essential piece of information, make sure there are no mistakes.
Port of Registration	The port, where the ship is being registered. If the vessel applies for a local licence, the port of registration must be Freetown.
Country of Registration	The country, where the ship is registered. Required is only the code for the country which can be selected from the country list using [Ctrl] [F10]. If the vessel applies for a local licence, the country of registration must be Sierra Leone.
Agent in Sierra Leone	The fishing agent, who represents the vessel in Sierra Leone. Required is only the code for the agent which can be selected from the agency list using [Ctrl] [F10].

Form Field	Comments
GRT	The gross registered tonnage as indicated in the ship's papers. This is an essential piece of information which serves to compute the licence fees, and therefore must be accurate.
HP, Main Engines	Combined horse power of all main engines (in HP); do not include auxiliary engines. This is an essential piece of information which serves as the basis of one of the units of effort, and therefore must be accurate.
Fish Hold Capacity	Total fish hold capacity, of either the Chilled Holds or the Freezer Holds. This is an essential piece of information which serves to compute the licence fees for tuna vessels, and therefore must be accurate.

5. 2. Option 2: Modify an Existing Record

Because of the crucial role the call sign plays in identifying catch records, modifications to the call sign are of much greater implication than changes to any other aspect of a vessel's technical details. The operator, therefore, is first presented with a screen as shown in Figure 7 in order to indicate, whether he/she wants to make modifications to the call sign, or to anything else but the call sign.

Figure 7 Vessel Register: Modify existing record

```
+-------------------------------------------------------------------------------+
|      Sierra Leone Industrial Fishery  -  Vessel Register Modifications        |
+-------------------------------------------------------------------------------+

 Modifications to existing records in the Vessel Register can be either:

   1.)   Modifications to the Call Sign of a vessel                  (CALL SIGN)

   2.)   Modifications to any other technical detail of a            (OTHER)
         vessel (including her name), but not to the Call Sign
                              +---------+
                  Your choice: |         |
                              +---------+
  Note: In case you make modifications to the Call Sign, the program will
        ensure that all records in the Catch Reports and the Licence Journal
        will be updated to reflect your changes. This might take a considerable
        amount of time, during which the computer may not be switched off.
        It is, thus, recommended to backup the database before selecting this
        option, in case something unexpected (e.g. power failure) happens.
+-------------------------------------------------------------------------------+
|       Make your choice, then press F2 to continue, else ESC to quit!          |
+-------------------------------------------------------------------------------+
```

Depending on which option was selected the operator then has to follow the instructions on the screen, which is for Case 1) to enter the old and the new call sign. Note that a vessel name appears next to the old call sign once it is entered. If no name appears, it means that there is no such call sign in the Vessel Register as the one entered. If the operator

nevertheless chooses to continue, a warning message will appear, informing him/her about the detected mistake.

If Case 2) is selected, the operator will be presented with the usual Vessel Register screen as known from entering data. The operator then has to select the record to be modified using various techniques described on-screen. Once the record to be modified is displayed on the screen, changes can be made and all modifications can be saved by pressing the [F2] key.

5. 3. Option 3: Sorting of the Vessel Register

This option re-arranges the records in the Vessel Register in alphabetic order of the name of vessels. This procedure should be carried out, whenever a new vessel was added to the Vessel Register, or when the name of a vessel was changed. It ensures that the vessels in the Vessel Register are always listed in an alphabetic order when using the [Ctrl] [F10] key combination to look-up a vessel's call sign during data entry.

If selected, no further operator input is required, the sorting procedure will start immediately. Please note that under no circumstances should the computer be turned off before this routine is completed, as this might result in the complete loss of the data in the Vessel Register.

5. 4. Option 4: Listing of the Vessel Register

Listing of the contents of the Vessel Register can be achieved in various forms depending on the need of the operator. Upon selecting this option the operator is presented with the list of available choices as shown in Figure 8. After having made a choice and indicated the output device, pressing [F2] will start the routine.

Figure 8 Vessel Register: Choices for listing of records

```
+-------------------------------------------------------------------------+
|      Sierra Leone Industrial Fishery  -  Vessel Register Listing        |
+-------------------------------------------------------------------------+

A)   You have the option to list the Vessel Register according to:

       1.) Vessels, in alphabetic order, general information      [ GENERAL   ]
       2.) Vessels, in alphabetic order, technical information    [ TECHNICAL ]
       3.) Vessels, grouped by country of registration            [ COUNTRY   ]
       4.) Vessels, grouped by fishing agency                     [ AGENCY    ]
       5.) Vessels, by order of call sign                         [ CALL SIGN ]
                                                                  +------------+
                                                                  |Your choice:|
                                                                  |            |
                                                                  +------------+
B)    Indicate, whether the listing should be routed to           +------------+
                                                                  |Your choice:|
      1.) Screen     2.) Printer     3.) ASCII File               |            |
                                                                  +------------+
+-------------------------------------------------------------------------+
|      Make your choices, then press F2 to continue, else ESC to quit!    |
+-------------------------------------------------------------------------+
```

The result when e.g. selecting Option 1.) "Vessels, in alphabetic order, general information" might look as shown in Figure 9, whereas Option 2.) "Vessels, in alphabetic order, technical information" will produce an output similar to Figure 10.

Figure 9 Vessel Register: Listing of vessels, in alphabetic order, general information

List of Vessels registered in IFDaS
(in alphabetic order)

Vessel Name	Country of Registration	Vessel Type	GRT	Fish Hold	Engine Power	Last Update
ALBACORA DIEZ	(Call Sign: HP-6049 Agent: MSF Group Fish. Co.) Panama	Purse Seiner	1,349		4,000	Jan 95
ALEX 3	(Call Sign: SV8407 Agent: Veeds Fishing Co.) Greece	Trawler	257		975	Jan 95
ALEX 4	(Call Sign: SV8310 Agent: Marine Supplies) Greece	Shrimper	191		1,100	Jan 95
ALEX 5	(Call Sign: SV6465 Agent: Veeds Fishing Co.) Greece	Trawler	244		1,200	Dec 94

Figure 10 Vessel Register: Listing of vessels, in alphabetic order, technical information

List of Vessels Registered in IFDaS - Technical Summary
(in alphabetic order)

Vessel Name	Call Sign	Vessel Type	Cnstr. Year	Size Length (m)	Beam (m)	Draft (m)	Last Update
AGIA GANA	6WBF	Trawler	1986	37.7	9.0	4.5	Jan 95
A) Dimensions:	Engine Power: 800HP		GRT: 371		Fish Hold:		m3
B) Gear Details:	Type: Trawl		Number: 1		Mesh Size:		70mm
AKMEIA (BEEM 9)	LYIY						Dec 94
A) Dimensions:	Engine Power: HP		GRT:		Fish Hold:		m3
B) Gear Details:	Type:		Number: 1		Mesh Size:		mm
ALBACORA DIEZ	HP-6049	Purse Seiner	1976	67.4	13.5	6.2	Jan 95
A) Dimensions:	Engine Power: 4,000HP		GRT: 1,349		Fish Hold:		m3
B) Gear Details:	Type: Purse Seine		Number: 1		Mesh Size:		150mm

6. Licencing

Purpose: The sub-menu "Licencing" contains all necessary options for the management of licence applications. A successful application is a necessary prerequisite for the entering of catch data, as IFDaS will not allow to enter any catch reports from vessels that have no valid licence. On the other hand a licence application can not be handled by IFDaS, if the corresponding vessel has not been registered yet in the "Vessel Register".

The various options available under "Licencing" lead in a chronological way through the sequence of steps necessary to obtain a fishing licence in Sierra Leone. The procedure comprises the following actions:

- entering of a new licence application
- printing of a vessel inspection request
- validation of a new licence application that has been found in order
- printing of a licence information sheet to be used for the issuing of the licence.

The rather rigid structure implemented in IFDaS requires that issuing of licences is done strictly according to the rules laid down in the new Fisheries Regulations 1994. This ensures that applications can be quickly processed if all parties concerned are aware of the proper procedure.

Upon selecting the option "Licence Application" from the Main Menu, the operator is presented with a sub-menu as shown in Figure 11, from which to choose the desired action.

Figure 11 Sub Menu "Licencing"

```
+-------------------------------------------------+
|                    Licencing                    |
|                                                 |
|   1. NEW Licence Application (Fishing/Mothership)|
|   2. NEW Licence Application (Trans-Shipment)   |
|   3. Print VESSEL INSPECTION Request            |
|   4. VALIDATION of a New Licence Application    |
|   5. Print LICENCE INFORMATION SHEET            |
|   6. MODIFY an Existing Licence Application     |
|   7. Generate COST ESTIMATE for a Licence       |
|                                                 |
+---- 1 to 7 -- UP -- DOWN -- RETURN -- END -------+
```

6. 1. Option 1: New Licence Application (Fishing/Mothership)

This option is to be selected to enter a new licence application for fishing vessels, motherships and processing vessels covered by licence category A1-A12 and B1-B3. Note that applications for trans-shipment licences (Category B4) can not be entered using this routine. A separate menu option is available for this type of licence application.

The information to be entered is contained in Part B) "Licence Specifications" of the "Industrial Fishing Licence Application" (Schedule 7 of the Fisheries Regulations 1994).

After the operator has selected Option 1) from the Licence Application Sub-Menu, he/she has first to enter the call sign of the vessel for which a licence is requested. Once the call sign is entered, IFDaS provides information on the name of the vessel and its agent, and on GRT respective cubic meter fish hold. The details are taken from the Vessel Register, which means. of course, that a vessel's technical specifications have to be available to IFDaS, before a licence application can be entered.

If no information appears on the screen, after a call sign was entered, it means that IFDaS could not find the entered call sign in the Vessel Register. Reasons could be the following:

- Call sign entered is misspelled: go to the call sign field, press [F6] to clear its contents, and enter the correct call sign.
- Vessel is not yet registered: press [ESC] to abandon the record and go back to the Main Menu. Select Option 1) Vessel Registration and then the option: "Add a new record". Enter all the details contained in Part A, C, D, E, F, and G of the licence application. Save the record, then return to the licence application sub menu to enter the details contained in part B) of the licence application.

It could, of course, also be that the vessel had been registered, but with a misspelled call sign. In case of doubt, it might therefore always be advisable to consult the general list of vessels to find out whether a vessel with the same name exists already in the vessel register, but with a different call sign.

The fastest way to do this is to press [Ctrl] [F10] while being in the (empty!) call sign field. This brings up the list of registered vessels in alphabetical order with name and call sign (check also the end of the list for any vessel that was entered since the last time the Vessel Register was sorted). If indeed a vessel exists with the same name but a different call sign, a decision must be made, whether the call sign should be corrected or whether this represents the record of a truly different vessel, which happens to carry the same name as another one. In the first case the record has to be modified, in the second case a new record has to be entered into the Vessel Register.

If the call sign entered produced a vessel name that corresponds to the one on the application form, the operator should press [ENTER] to proceed with entering the details of the licence application. The information can be taken directly from the application form. The following comments, though, might be useful:

Form Field	Comments
Licence Code	Make sure to enter the correct code; the name of the licence category is shown on screen to provide a visual check for the correctness of the code entered.
Licence Period	The period can be anything between 1 and 12 months. A period of more than 12 months will be rejected by IFDaS.
Commencement Date	Enter the date in the format "dd/mm/yy"
Regional Licence	If any information on regional licences is given in the application form enter "yes" in this field, otherwise "no".
Authorized Period	The starting date is taken over from the field "Commencement date", but can be modified, if the Director of Fisheries has indicated so in the application form. The ending date is the last day on which the licence is still valid. Thus a 6-months licence that starts on 01/03/95 ends on 31/08/95. As a visual check, IFDaS computes the number of months between starting and ending date. This number must be identical with the number entered as "Licence Period".

After completing the entering of the licence application press [F2] to proceed. IFDaS will then compute the licence fees and royalties based on the licence type, category, and period, and on GRT, respective fish hold capacity. Once this is completed all data are transferred into the Licence Journal. During this procedure the operator will be given on-screen information about the new licence number assigned to the licence application, the computed fees and royalties to be paid by the applicant. This information must be entered on page 7 of the licence application in the space provided.

Once this is completed, IFDaS will print a "Vessel Inspection Request" (VIR), which contains all the essential details of the new licence application. This VIR is to be forwarded to the Director of Fisheries together with the original licence application. The Director keeps the application, but sends the VIR to the officials in charge of vessel inspection. During vessel inspection, all the details given are verified, and, where necessary, corrected. After successful completion of the vessel inspection, the VIR is sent back to the Director.

The Director examines the VIR and decides whether the licence application can be accepted or has to be rejected. If accepted the Director informs the applicant about the fees and royalties to be paid (corresponding amounts are marked down on the last page of the application form). Once payments are made and receipts being issued, the Director forwards the whole file (licence application, VIR, receipts) to the statistical unit for the validation of the licence (see 6. 4).

6. 2. Option 2: New Licence Application (Trans-Shipment)

Applications for a trans-shipment licence have to be entered using this option. The necessary information is contained in application forms issued in accordance with Schedule 9 of the Fisheries Regulations 1994 ("Application for Fish Loading and Trans-Shipment Licence").

The procedure is very similar to the one described in the previous chapter. Vessels have to be registered before a licence application can be handled. The technical information for the vessel can be found in Part A), Nos. 1-3, of the application form. The licence-specific details are found in Part A), Nos. 4-6, and in Part B). It should be noted that IFDaS automatically sets the period to one trans-shipment if the requested licence type is "foreign", whereas "local" licences are given in terms of months.

Upon completing the entry of the application data, the operator has to press [F2] to continue. This leads to the on-screen information about licence number and fees which has to be noted down in the application form for use by the Director of Fisheries.

This completes the procedure for entering new licence applications for trans-shipment. In contrast to the applications for fishing licence, there is no request for a vessel inspection to be printed. Instead the application form is sent to the Director of Fisheries, who then orders the applicant to make the necessary payments. Once this payment is made, the Director sends the application and receipt for the payments back to the Statistical Unit for final validation of the licence (see 6. 4).

6. 3. Option 3: Print Vessel Inspection Request

This option allows to independently print a Vessel Inspection Request (VIR) for submission to the Director of Fisheries. Note that this option is normally part of the procedure involved when entering a new licence application for fishing (see 6. 1). It thus serves only as an emergency measure, in case something went wrong during the printing of the first VIR, or if this VIR is not available anymore.

6. 4. Option 4: Validation of New Licence Application

This option is to be selected two times during the process of issuing either fishing or trans-shipment licences :

- Case 1: to change the status of a licence application in IFDaS from "pending" to either "valid" or "rejected", depending on the decision taken by the Director of Fisheries. It is an extremely important step, as IFDaS will only accept catch reports from vessels with a valid licence. It follows immediately after the Director has sent back to the Statistical Unit the proof that the vessel inspection has been carried out (the filled-in Vessel Inspection Request) and that payments have been made. Note that the status of an application automatically changes from "pending" to "accepted" , once a licence has been validated.

- Case 2: to mark the licence application as "issued" and to enter the date the licence has been issued. This takes place after the Director has actually issued the licence, noted down the date on the application form and has sent the whole file back to the Statistical Unit.

After selecting this option, the operator is presented with a screen as shown in Figure 12. The operator then enters the licence number of the licence application to be validated (to be found on the last page of the application form), e.g. LO/94-00003. If this licence number exists, a summary of the relevant data of this application as stored in the Licence Journal is brought to the screen, such as the vessel's name, type and duration of the licence and the fees due. Also shown is the status of the application in the right corner of the box.

Depending on the case the operator then has to take the following actions:

***CASE 1*: The status of a licence application is still "pending":**

a) The Director has sent back the file with VIR and proof of payment and has declared the licence as accepted:

Action:

- Change the field "Licence fee paid?" from "no" to "yes".
- Enter the Receipt no. for the payment.
- Press [F2] to save changes.

Note that the status of a licence application automatically changes to "accepted" if the field "Licence fee paid?" is changed to "yes" and a receipt no. has been entered.

b) The Director has sent back the file with VIR, but has declared the licence as rejected.

Action:

- Change the field "Licence rejected?" from "no" to "yes".
- Enter the date when licence was rejected.
- Press [F2] to save changes.

Note that the status of a licence application automatically changes to "rejected" if the field "Licence rejected?" is changed to "yes" and a rejection date has been entered.

***CASE 2*: The status of a licence application is "accepted":**

a) The Director has issued the licence and sent back the file with the date of issuance noted on the application:

Action:

- Change the field "Licence issued?" from "no" to "yes".
- Enter the date of issue.
- Press [F2] to save changes.

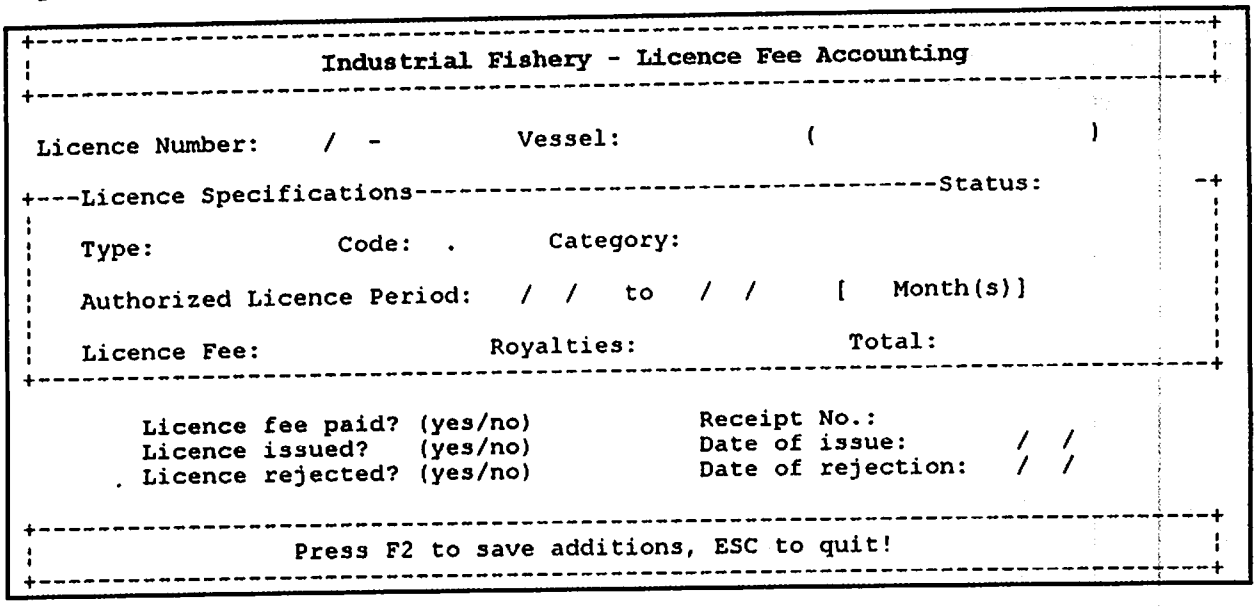
b) For technical or any other reason, the Director had to make a "last minute" decision not to issue the licence even though the licence application was already accepted (and handled as in CASE 1). The file was sent back with the remark "rejected", cancellation of payments and date of rejection noted on the application:

Action:

- Change the field "Licence fee paid?" from "yes" to "no".
- Delete the receipt no. [F6].
- Leave the field "Licence issued?" at "no".
- Change the field "Licence rejected?" from "no" to "yes".
- Enter the date when licence was rejected.
- Press [F2] to save changes.

Note that the status of a licence application automatically changes to "rejected" if the field "Licence fee paid?" is changed to "no", the field "Licence rejected?" is changed to "yes" and a rejection date has been entered.

Figure 12 Data-entry screen for licence validation



6. 5. Option 5: Print Licence Information Sheet

This option is to be used once a licence has been changed to the status "accepted" using the procedure described in the previous section. It is meant to print a "Licence Information Sheet" upon which the Director of Fisheries can base the issuance of a licence. The option should be selected immediately after having validated a licence and the resulting printout should be forwarded to the Director for final issuance of the licence.

When selecting this option the only action required from the operator is to enter the licence number of the application in question. IFDaS then checks whether the licence number exists, and if it exists whether it has been already validated, i.e. marked as "accepted". If any of the conditions is not met, the operator is warned with a corresponding message, and the procedure is discontinued. If both conditions are met, the operator is reminded to have the printer ready, and then the "Licence Information Sheet" is printed.

Before printing IFDaS determines whether the licence number refers to a fishing- or a trans-shipment licence and automatically formats the output accordingly by emulating the "Fishing Licence" respective the "Trans-shipment Licence" in Schedule 8 and 9 of the Fisheries Regulations 1994.

6. 6. Option 6: Modify an Existing Licence Application

As long as the licence has not been validated (i.e. as long as no payments have been made) details of a licence application can still be modified, such as e.g. starting date, duration, even type and category. This option serves this purpose. Once called up, the operator has to enter the licence number of the application to be modified, be it a fishing- or a trans-shipment licence. If the licence number exists, the details of the vessel to be licensed are displayed on screen. Pressing [ENTER] shows a second screen with the corresponding entries from the Licence Journal.

Any of the entries can be modified. It should be noted, though, that changes to the **type** of the licence ("Local" respective "Foreign") or to the

starting **year** will result in the change of the licence number as part of the number depend on these two entities.

As an example, a local licence number will always start with the two-letter combination "LO". Thus, if the licence type changes from "local" to "foreign", the two letters have to change to "FN". Similar, the next two characters of a licence number reflect the year in which the licence starts to be valid. Thus if the commencement date of the licence was originally 15 December 1994 but is then transferred to 15 January 1995, the year code in the licence number will have to change from "94" to "95".

IFDaS is taking care of these changes automatically. If no change in licence number is involved the existing record in the Licence Journal will be modified, after the operator pressed [F2]. If a number is to be changed, the former application will be marked "canceled" and a new record will be written into the Licence Journal with the new licence number and the details of the previous licence application inclusive any changes made during the modification procedure. In both cases, IFDaS checks whether the previously calculated fees and royalties still apply and recalculates them if necessary.

At the same time the operator will be informed about the need to change the licence number, and the new licence number will appear on screen. It is extremely important that the operator crosses out the old licence number on the application form and writes the modified licence number into the form. The application cannot be retrieved anymore under its old number, instead the new number must be used in all cases where the entering of a licence number is required.

6. 7. Option 7: Generate Cost Estimate for a Licence

This option is meant to provide a quick answer to the question, how much licence fee and royalty for a certain type of licence has to be paid, without the need to go through a licence application procedure.

The kind of input requested is the following:

Input Field	Comments
Type of Licence:	Select either "Local" or "Foreign"
Licence Category:	Enter any of the existing licence codes, i.e. A01 to A12 or B01 to B04. Note that the corresponding name of the licence category will appear on the right side. If the space remains empty, a non-existent licence code has been entered.
Licence-relevant Size	Enter the size that is relevant to determine the fees and royalties, i.e. • GRT for licence category A01-A08 • m^3 Fish Hold Capacity for licence categ. A09-A12 • Leave at zero (0) for licence categ. B01-B04 as the size is not relevant to determine fees.
Licence Period:	Enter the duration in number of months. Note that the number can not exceed 12. In case of foreign trans-shipment licence enter 1 to indicate a one-time trans-shipment.

The result of the computation of licence fees and royalties is presented only on screen, as it serves general purpose only. Thus, the screen for the computed fees of a foreign demersal trawler applying for a six months licence would look as in Figure 13.

Figure 13 IFDaS output: Example of computed licence fees and royalties for a demersal trawler.

```
+-------------------------------------------------------------------------+
| Sierra Leone Industrial Fishery - Computation of Licence Fees and Royalties |
+-------------------------------------------------------------------------+

                        Licence Specifications

                    Licence Type:      Foreign
                    Licence Category:  A03
                    Relevant Size:        350 (GRT or m3)
                    Requested Period:   6 Month(s)


                  +-----------------------------+
                  | Licence Fees:   20,000 US$  |
                  | Royalties:       7,000 US$  |
                  |                 ------------|
                  | TOTAL:          27,000 US$  |
                  +-----------------------------+
```

7. Data Entry: Catch and Effort

Purpose: To enter data related to fishing operation and catch. The data are recorded in the fishing log books maintained by the observers on-board the fishing vessels.

Upon selecting this option from the Main Menu, the operator is presented with a sub-menu as shown in Figure 14, from which three options can be selected. It should be noted, however, that Option 2. and 3. are reserved for the MANAGER only. Even though these options are accessible to the OPERATOR, any attempt by him/her to modify or delete existing data will result in the routine to be abandoned.

Figure 14 Sub-Menu "Data Entry: Catch and Effort"

```
+-------------------------------------------------+
|            Data Entry: Catch and Effort         |
|                                                 |
|   1. Enter a NEW Set of Catch & Effort Data     |
|                                                 |
|   2. MODIFY Existing Set of Catch & Effort Data |
|                                                 |
|   3. DELETE Existing Set of Catch & Effort Data |
|                                                 |
+---- 1 to 3 -- UP -- DOWN -- RETURN -- END -------+
```

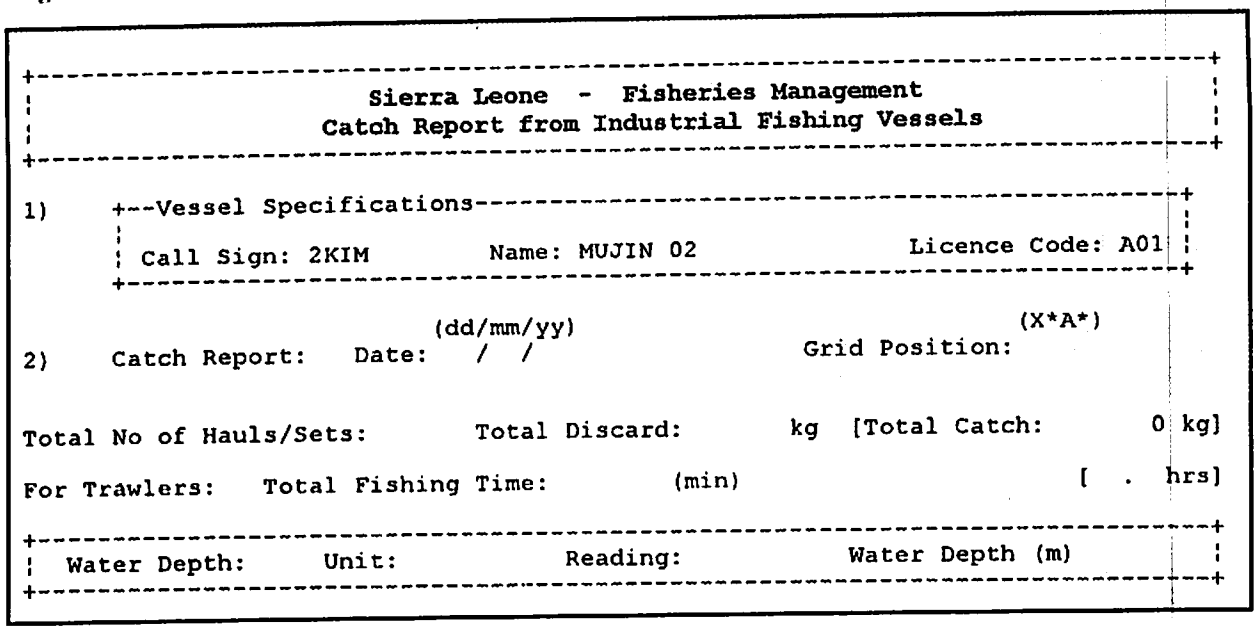
7.1. Option 1: Enter a NEW Set of Catch & Effort Data

Select this option to enter a new record from the fishing log book. In a first step the operator has to enter the call sign of the vessel in question and the date of the first day of the report period. As a visual check the name of the vessel appears on the screen. If that is different from the one on the fishing log book, the entry for the call sign has to be verified and eventually corrected. If the Call Sign field blanks after entering a call sign, the entered call sign has no matching record in the Vessel Register, i.e. it doesn't exist.

After the operator has pressed [F2] the program will check if the specified vessel has a valid licence for the period of the catch report. If not, IFDaS will notify the operator accordingly and immediately abandon the data entry. Otherwise the routine proceeds by presenting the operator with the data-entry screen for the general information on the fishing operation. An example is shown in Figure 15 for a vessel named "Mujin 02".

The data to be filled into the form are a summary of all fishing activities effectuated during a 24 hour period, starting at 0.00 hr and ending at 23.59 hr, with the start of the fishing operation determining to which date to count a fishing operation that extends beyond midnight. Some of the information can be taken straight from the fishing logs such as "Date" and "Position", and "Total Discard". "Total No of Hauls/Sets" is a count of all single fishing operations that took place during the 24 hour period, while "Total Fishing Time" is the sum of minutes spent altogether during these fishing operations. Note that IFDaS will automatically convert the minutes to hours and display it on screen. "Water Depth" is the average of the water depths stated for the date on the fishing log book.

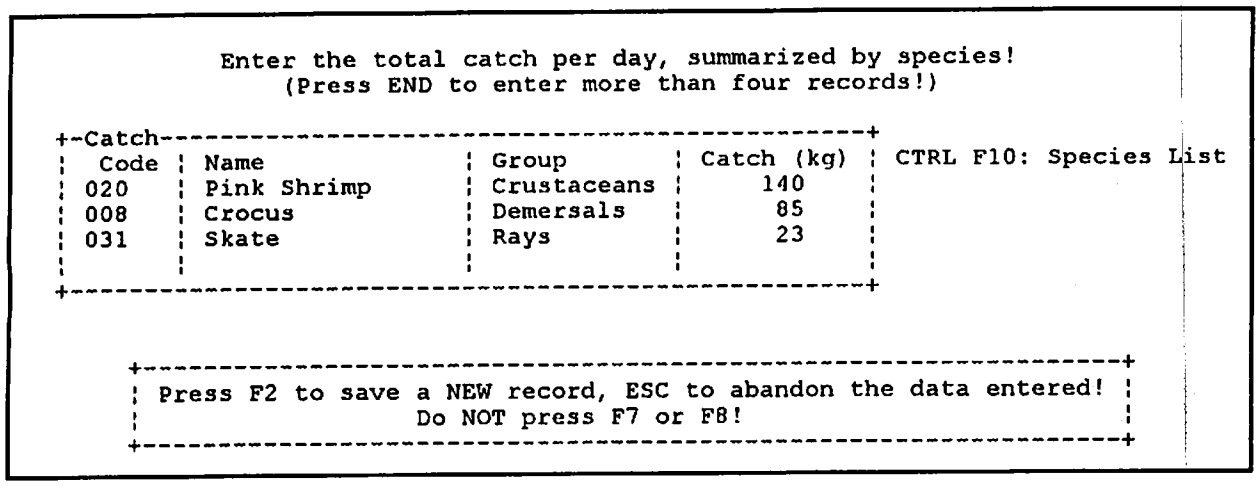
Figure 15 Data-entry screen for general information about daily fishing operation



After entering the "Water Depth", the operator is brought to the next screen where he/she has to fill in the catch by species as reported in the log book. An example of the screen is shown in Figure 16. The only information to be entered here is a species code (if not known, it can be looked up in the "Species Catalogue" by pressing [Ctrl] [F10]!) and the catch summarized for the 24 hour period for the said species. Name of the species and ecological classification is inserted automatically by IFDaS using the information available in the "Species Catalogue".

This procedure has to be repeated until all single catch records have been entered. If more than four such records exist, press [END] to expand the available space for entering the catch records. There is no practical limitation to the number of records than can be entered.

Figure 16 Data-entry screen for summary of daily catch by species



After a day's catch records have all been entered, press [F2] to proceed, (or [ESC] to abandon the entered data). At this point the operator has then the following choice:

a) to enter the next set of daily catch information for the **same vessel** or

b) press [ESC] which brings him/her back to the screen where to select a **different vessel** by entering its call sign.

If no more catch records are to be entered, pressing [ESC] at this point brings the operator back to the Data Entry sub menu.

7. 2. Option 2: MODIFY Existing Set of Catch & Effort Data

This routine serves to make modifications to existing records in the "Fishing Log" and/or the "Catch" forms in order to correct any mistake made during data entry.

Upon calling up the routine from the Catch Record sub-menu, the operator is asked - like during the entry of new data - to indicate the vessel's call sign and the date that has an erroneous record. If the call sign exist, the corresponding vessel name will appear on screen.

In order to continue, the operator has to press [F2]. IFDaS then checks whether a record for the specified vessel and date exists in the Fishing Log. If none exists it will inform the operator accordingly and abandon the routine. If a record was found, it will present the operator with a screen that looks identical to the one known from data entry (see Figure 15). The operator is then asked to press [F3] to fill the data fields with the selected record. This brings to screen both the general information about the fishing operation as well as the "attached" records on catch by single species.

The basic procedure to follow is to make any necessary changes and to press then the **[F8]** key. Note that in this case it is mandatory **not** to press the [F2] key, as this would lead to a duplication of the catch data recorded for this day.

However, some modifications might require a different strategy in order to maintain the integrity of the database. In the following, a summary is given of the various kinds of modifications that might occur and the corresponding steps that need to be undertaken:

What to change	How to realize the change
Daily Operation, general information, except fishing date	Make modifications, press [F8]
Daily Operation, fishing date	***Do not use the "Modify" option.*** Delete the whole record, (see 7. 3) and enter the whole record as a new record in the correct form.
Catch Reports, modification to code or catch of species, with total number of catch records remaining **constant**	Change code or weight, press [F8]
Catch Reports, modifications to code or catch of species, total number of catch records being **increased**	Change code or weight, enter additional catch-by-species records, press [F8]
Catch Reports, modifications to code or catch of species, with need to **delete** one ore more catch-by-species records for that day.	***Do not use the "Modify" option.*** Delete the record (see 7. 3), and then re-enter the whole record as a new record in the correct form.

7. 3. Option 3: DELETE Existing Set of Catch & Effort Data

This procedure allows to delete records in the Fishing Log and the corresponding entries in the Catch form. Deletion might become necessary if a record has been entered with a wrong date (a special routine is provided under "System Management" to identify such records), or with a number of catch-by-species records exceeding the actual number recorded in the Fishing Log Books.

After selecting this option from the Catch Report sub-menu the procedure to identify the record is basically the same as described in the previous section: Enter the call sign and the (incorrect) fishing date, press [F2] to search for the record, then press [F3] to display the identified record on screen. Without the need for any further interaction, the operator simply presses [F7] to indicate that the record should be deleted. IFDaS will then delete the record and the operator is brought back to the first screen where he/she can select another record to be deleted or press [ESC] to return to the Catch Report sub-menu.

8. Analysis: Catch, Effort, and CPUE

Purpose: Provide a convenient way of producing monthly/annual reports on catch, effort, and catch per unit of effort (CPUE) in the Sierra Leone industrial fishery.

All routines available through this option exist in two versions:

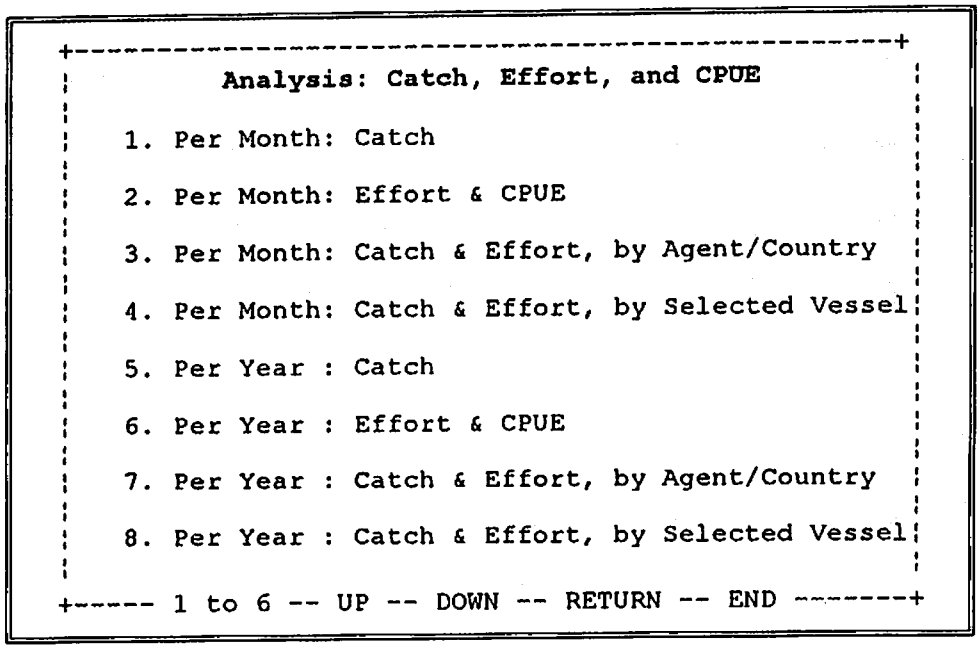
a) Results are presented as totals per month.

b) Results are presented as totals per year.

In respect to case a) the operator has the additional choice to produce separate monthly reports for a range of months (from 1 to 12 months), without having to go each time again through the starting routine.

Upon selecting the option from the Main Menu, a sub-menu as shown in Figure 17 is called up and the operator can select any of the three main types of analysis, either by month, or by year.

Figure 17 Sub-Menu "Analysis: Catch, Effort, and CPUE"



The general procedure to obtain reports consists of the following steps:

I. Select one of the options provided in the sub-menu "Analysis: Catch, Effort, and CPUE" (Figure 17).

II. Choose on Screen No. 1 from a list of available reports any combination of reports to be produced.

III. Select on Screen No. 2 the desired output device (screen, printer, ASCII text file).

IV. Indicate on Screen No. 3 the year (and the month respective range of months) for which the reports are to be produced.

V. Press [F2] to start the analysis of the data..

After the operator has selected an option from the menu (I.), a list of available report formats appears on the first screen (II.). Next to each listed report format is a field, in which the operator can select either "yes", meaning the report should be produced, respectively "no", meaning to skip this report. The available reports can be selected in any combination.

The second screen (III.) is a standard interface, where the operator indicates whether the report(s) should be sent to the screen, the printer, or an ASCII file. Note that the output option "Screen" requires the operator to regularly press a key, whenever the display of data has reached the bottom of the screen. No interaction is required, if the operator has selected "Printer" as output device, given that the printer uses A4 fan-fold (endless) paper, and enough paper is in the tray. Output option "ASCII" requires the operator at the start of each routine to either accept the default file name or enter his/her own one. For more information on using printer and ASCII files see the general remarks in Chapter 3. 7 "Output Options", page 14.

The third screen (IV) is a standard interface, where the operator is asked to specify the year of the report (e.g. 1994 or 2003) and - if monthly reports are selected - the month (or range of months) for which the reports are to be produced. Even though each version of IFDaS should only contain a single year's data, the request to specify a year has been maintained to ensure the correctness of the analysis even if data from different years have been entered.

An "annual report" can be produced at any time during the year. The report will thus consider all data recorded since the beginning of the year up to the date of the report. A corresponding information is always contained on the "Title Page" that can be produced with every group of reports.

Following is a short description of the various types of reports available. As the only difference between monthly and annual reports is the sample base, discussion of the routines is limited to the monthly reports.

8. 1. Option 1: Catch

When selecting this option a screen is presented to the operator with a choice of available reports listed as shown in Figure 18.

Figure 18 Report formats available for the analysis of catch data

```
+-------------------------------------------------------------------------+
|              Fishery Report - Monthly Summaries of Total Catch          |
+-------------------------------------------------------------------------+
 The following reports can be produced on a monthly basis:      Page 1 of 2

      1.    Title Page                                          [yes/no]

      2.    Summaries, grouped according to type of licence
              a)  Total catch, by group of species              [yes/no]
              b)  Total catch, by family of species             [yes/no]
              c)  Total catch, by single species                [yes/no]

      3.    Summaries, all licence types combined
              a)  Total catch, by group of species              [yes/no]
              b)  Total catch, by family of species             [yes/no]
              c)  Total catch, by single species                [yes/no]

      4.    Comparison of total catch and total discard         [yes/no]
+-------------------------------------------------------------------------+
|    Please select any number/combination of reports to be produced       |
|    by changing "no" to "yes" in the corresponding field.                 |
+-------------------------------------------------------------------------+
```

The choice of reports available comprise the following:

Title Page

A one page summary that shows the dates of the earliest and the latest fishing record included in the selected period; the number of daily fishery reports processed and the total catch volume (in tons) reported for the period in question.

The next three summaries are available either grouped according to type of licence, or combined, irrespective of the type of licence (and thus gear used).

Total catch by group of species

The result of this routine is the total reported catch (by type of licence, or combined) of the marine groups as defined in the Species Catalogue (Crustaceans, Molluscs, Demersals, Pelagics, Sharks, Rays). An example of a typical output is shown in Figure 19.

Figure 19 IFDaS output: Catch by group of species

Sierra Leone - Industrial Fishery
Total monthly catch (in kg) reported, by type of licence and species group

-------- Month: January 1994

Shrimp Trawler [A01]		
Crustaceans	17,788	
Molluscs	4,290	
Demersals	35,103	
Pelagics	1,190	
Total [A01]		58,371
Demersal Trawler (Fish) [A03]		
Crustaceans	215	
Molluscs	1,140	
Demersals	19,705	
Pelagics	4,605	
Total [A03]		25,665

Total catch by family of species

The result of this routine is the total reported catch (by type of licence, or combined) of the family of species as defined in the Species Catalogue (nomenclature follows FAO standards). An example of a typical output is shown in

Figure 20.

Figure 20 IFDaS output: Catch by family of species

Sierra Leone - Industrial Fishery
Total monthly catch (in kg) reported, by type of licence and species family

-------- Month: January 1994

Shrimp Trawler [A01]		
Albulidae	180	
Ariidae	190	
Carangidae	200	
Cynoglossidae	470	
Drepanidae	450	
Haemulidae	1,495	
Palinuridae	730	
Penaeidae	16,350	
Polynemidae	7,880	
Purtunidae	708	
Rajidae	600	
Sciaenidae	8,330	
Sepiidae	4,290	
Serranidae	263	
Sparidae	2,210	
Sphyraenidae	890	
Var. Demersals	13,035	
Var. Sharks	100	
Total [A01]		58,371

Total catch by single species

The result of this routine is the total reported catch (by type of licence, or combined) of single species as defined in the Species Catalogue (nomenclature follows FAO standards). An example of a typical output is shown in Figure 21.

Figure 21 IFDaS output: Catch by single species

Sierra Leone - Industrial Fishery
Total monthly catch (in kg) reported, by type of licence and single species

Month: January 1994

Shrimp Trawler [A01]

Catfish	Arius spp.	190
Couta / Kini	Sphyraena afra	890
Cowreh	Caranx hippos	60
Crab	Callinectes spp.	708
Crocus	Pomadasys spp.	1,495
Cuttlefish	Sepia spp.	4,290
Demersals (var)	Various Species	13,035
Gwangwa	Pseudotolithus elongatus	30
Ladyfish	Pseudotolithus senegalens	8,300
Lobster	Panulirus spp.	730
Pomp	Alectis alexandrinus	140
Record	Epinephelus spp.	263
Shark	Various Species	100
Sheephead	Drepane africana	450
Shinenose	Galeoides decadactylus	7,880
Shrimps (var)	Various Species	16,350
Skate	Raja spp.	600
Snapper	Various Species	2,210
Sole	Cynoglossus spp.	470
Tenny	Albula vulpes	180
Total [A01]		58,371

Comparison of total catch and total discard

The result of this routine is a comparison of the reported total catch and total discard (by type of licence). An example of a typical output is shown in Figure 22.

Figure 22 IFDaS output: Comparison of total catch and total discard

Sierra Leone - Industrial Fishery
Comparison of monthly total catch and total discard, by type of licence

Licence Type	Licence Code	Total Catch (kg)	Total Discard (kg)
Month: January 1994			
Shrimp Trawler	[A01]	58,371	32,185
Demersal Trawler (Fish)	[A03]	25,665	5,675
Total, all licences combined:		84,036	37,860

8. 2. Option 2: Effort and Catch per Unit of Effort

When selecting this option a screen is presented to the operator with report formats listed as shown in Figure 23. and the option to mark each report with a "yes" or "no". It should be noted that the routines are again available on a monthly as well as an annual basis. On the other hand, as effort is closely related to the type of gear used, all routines present results on a "per type of licence" basis.

Figure 23 Report formats available for the analysis of catch, effort and catch per unit of effort

```
+-------------------------------------------------------------------------+
|       Fishery Report - Monthly Summaries of Effort and Catch per Effort |
+-------------------------------------------------------------------------+
                                                              Page 1 of 2

 The following reports can be produced on a monthly basis:

      1.    Title page                                          [yes/no]

      2.    Total effort (fishing days, hauls, hours, HP*hours) [yes/no]

      3.    CPUE, grouped according to type of licence
              a)  by group of species                           [yes/no]
                  (Demersals, Pelagics, Crustaceans,
                  Molluscs, Sharks & Rays, Total Catch)
              b)  by selected species              (USER-selected) [yes/no]


+-------------------------------------------------------------------------+
|     Please select any number/combination of reports to be produced      |
|     by changing "no" to "yes" in the corresponding field.                |
+-------------------------------------------------------------------------+
```

Title Page

A one page summary that shows the dates of the earliest and the latest fishing record included in the selected period; the number of daily fishery reports processed and the total number of fishing vessels (by type of licence) that were operating during the period in question.

Total Effort

The result of this routine (see Figure 24)is a summary by type of licence of various categories of effort, namely:

- Total Fishing Days (total number of days vessels spent fishing)
- Total No. of Hauls (total number of successful hauls, summed over all fishing days)
- Total Fishing Hours (total number of hours fished, summed over all fishing days)
- Total Horsepower-Hours (HP·Hrs), in thousand (i.e. summed over all fishing days the total number of hours fished during a day multiplied with a vessel's Horsepower, divided by 1,000)

Figure 24 IFDaS output: Summary of total effort

Sierra Leone - Industrial Fishery
Summary of monthly total effort, by type of licence

Licence Type	Licence Code	Total Fishing Days	Total No. of Hauls	Total Fishing Hours	Total HP*Hrs (in Thsd)
Month: January 1994					
Shrimp Trawler	[A01]	55	349	976	530
Demersal Trawler (Fish)	[A03]	22	86	234	44
Total, all licences combined:		77	435	1,210	574

Average catch per unit of effort (CPUE), by group of species

The result of this routine (see Figure 25) is a summary by type of licence of various categories of average catch per unit of effort, namely:

- Average Catch per Fishing Day (total catch per day, averaged over all fishing report days)
- Average Catch per Haul (total catch divided by number of hauls, averaged over all fishing report days)
- Average Catch per Hour (total daily catch divided by number of daily fishing hours, averaged over all fishing report days)
- Average Catch per 1,000 Horsepower-Hours (HP·Hrs), (total daily catch divided by the product of total number of hours fished during a day and a vessel's engine size (in HP), divided by 1,000, averaged over all fishing report days)

It should be noted that the computation of averages takes also "zero observations" into consideration, i.e. catch records that do not include a group/species are included in the computation of the mean as "zero catches".

Averages of "Total Catch" are computed independently and thus, due to rounding, might occasionally differ in the first decimal from the arithmetic sum of the single averages contributing to the total catch.

Figure 25 IFDaS output: Average catch per unit of effort

Sierra Leone - Industrial Fishery
Average catch (in kg) per unit of effort, by type of licence and species group

	Catch per Fish. Day	Catch per Haul	Catch per Hour	Catch per 1000 HP*Hours	No. of Obs.
Month: January 1994					
Shrimp Trawler [A01]					
Demersals	638.2	96.8	38.3	68.7	
Pelagics	21.6	3.1	1.1	1.7	
Crustaceans	323.4	53.1	19.1	31.2	
Molluscs	78.0	15.4	5.7	9.5	
Sharks & Rays	0.0	0.0	0.0	0.0	
Total Catch	1,061.3	168.4	64.2	111.2	55

Catch per Unit of Effort, by selected species

This routine provides the possibility to examine separately for each type of licence the average catch per unit of effort for a single species to be identified by the operator. The units of effort are the same as previously described. The main difference to all other routines described so far is that after the operator has specified the report period, there is an additional screen where the operator is asked to enter the code of the species to be investigated. This code must be known beforehand as no possibility exists at this point to look it up directly in the Species Catalogue.

After the code has been entered and the operator has pressed [F2] the routine will produce a result as e.g. the one shown in Figure 26 for *Galeoides decadactylus*.

Figure 26 IFDaS output: Catch per unit of effort for a single, selected species

Sierra Leone - Industrial Fishery
Average catch (in kg) per unit of effort, by type of licence, by species

Selected Species: Shinenose (Galeoides decadactylus)
Family: Polynemidae Group: Demersals

		Catch per Fish. Day	Catch per Haul	Catch per Hour	Catch per 1000 HP*Hours	No. of Obs
Month: January 1994						
Shrimp Trawler	[A01]	143.3	22.0	8.9	16.0	55
Demersal Trawler (Fish)	[A03]	0.0	0.0	0.0	0.0	22

8. 3. Option 3: Catch and Effort, by Agent/Country

The routines available through this option (see Figure 27) are similar to those described previously that summarize catch and total effort by type of licence and marine groups. They differ, though, in that they group the analysis by fishing agent, respective country of registration. This allows a closer look at the performance of the various fishing agents operating in Sierra Leone, or - in case of the grouping by country to differentiate the catch realized by foreign nations from the one landed by Sierra Leone vessels. The latter is especially useful when it comes to preparing the annual catch statistics for FAO.

Figure 27 Report formats available for the analysis of catch and effort, grouped by fishing agents, respective a vessel's country of registration.

```
+-------------------------------------------------------------------------------+
|          Fishery Report - Monthly Summaries of Catch & Effort                 |
+-------------------------------------------------------------------------------+
 The following reports can be produced on a monthly basis:          Page 1 of 2

      1.    Summaries, arranged according to vessels' FISHING AGENT
            and by type of licence

              a)  Catch, by group of species and Total              [yes/no]
              b)  Total effort                                      [yes/no]


      2.    Summaries, arranged according to vessels' COUNTRY OF REGISTRATION
            and by type of licence

              a)  Catch, by group of species and Total              [yes/no]
              b)  Total effort                                      [yes/no]

+-------------------------------------------------------------------------------+
|    Please select any number/combination of reports to be produced             |
|    by changing "no" to "yes" in the corresponding field.                       |
+-------------------------------------------------------------------------------+
```

Output created by these routines is basically identical in its form with the output of reports described before, i.e. Figure 19 (for Option 1a and 2a) and Figure 24 (for Option 1b and 2b). As already mentioned they have an additional grouping element, either the agency or the country.

8. 4. Option 3: Catch and Effort, by Selected Vessel

The routine accessible through this option is meant to produce summaries on catch and effort similar to the one previously described. However, results are limited to a single vessel selected by the operator. This option is useful when it comes to comparing data reported by a given vessel on its catch and operation with aggregated data e.g. provided during trans-shipment or off-loading.

The options available (see Figure 28) allow to analyze the catch data either by group of species or by single species. Effort data refer to the same categories of effort as previously described, i.e. "Catch per Day", "Catch per Haul", "Catch per Hour", and "Catch per HP*Hours".

Figure 28 **Report formats available for the analysis of catch and effort, limited to data originating from a single vessel**

```
+-------------------------------------------------------------------------+
|            Fishery Report - Monthly Summaries of Catch & Effort         |
+-------------------------------------------------------------------------+
                                                          Page 1 of 2

The following reports can be produced on a monthly basis:

     1.   Summaries for a single vessel (to be identified by the operator)

            a)  Catch, by group of species and Total          [yes/no]
            b)  Catch, by single species and Total            [yes/no]
            c)  Total effort                                  [yes/no]


Please indicate below the vessel for which the report(s) is (are) to be
produced, by entering its corresponding CALL SIGN:

     Vessel's Call Sign:                  Name:

+-------------------------------------------------------------------------+
|     Select any number/combination of reports to be produced by changing |
|     "no" to "yes" in the corresponding field, and enter a call sign.    |
+-------------------------------------------------------------------------+
```

Which reports are to be produced is to be indicated in the usual manner by selecting "yes" in the corresponding field adjacent to the option. In addition, the operator has to identify the vessel for which the summary is to be produced by entering the correct call sign for the vessel in the field provided for this purpose. The call sign has to be known beforehand, as there is no possibility at this point to look it up in the vessel register. If the call sign is correct, the corresponding name of the vessel will appear on screen. If no name appears, IFDaS does not "know" of any vessel with the entered call sign. In such a case, the operator has to verify the spelling (and eventually the existence) of the call sign entered.

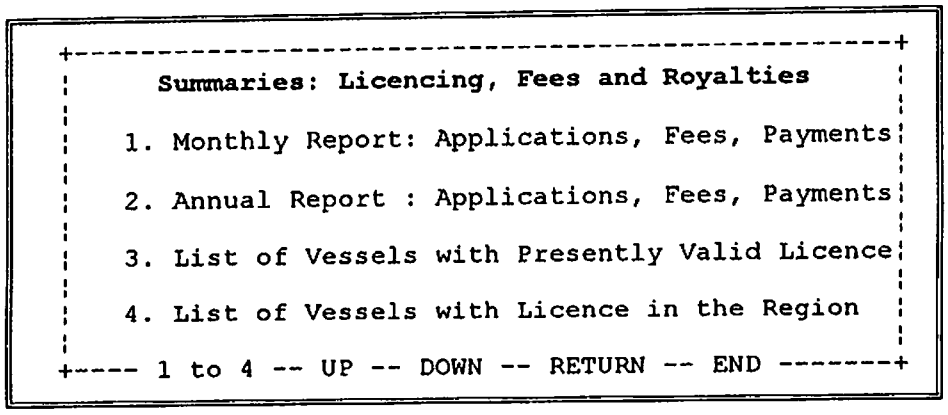
Output created by these routines is basically identical in its form with the output of reports described before, i.e. Figure 19 (Option 1a, catch by group of species), Figure 21 (Option 1b, catch by single species) and Figure 24 (Option 1c, effort). However, each output contains additional information in respect to the vessel selected, its licence, and the fishing agency, to which the vessel belongs.

9. Summaries: Licencing, Fees and Royalties

Purpose: Provide a convenient way to produce various summaries in respect to licencing of vessels, fees and royalties charged, and the status of licence applications.

Upon selecting this option from the Main Menu, the operator is presented with a sub-menu as shown in Figure 29. This sub-menu contains options for reports either on a monthly or on an annual basis (Option 1 and 2). As they do not defer substantially, except for the period they are limited to, an overview is given in the following only for monthly reports. The other two options (3 and 4) are independent of any report period and simply reflect the most recent situation in the licencing of vessels.

Figure 29 Sub-Menu "Summaries: Licencing, Fees and Royalties"



9. 1. Option 1: Report: Applications, Fees, Payments

The first two options on the sub-menu are meant to produce monthly, respective annual, reports on the status of licence applications and payments of licence fees and royalties. For convenience, the reports are grouped by fishing agency.

Four choices of reports are available upon selecting either Option 1) or 2) from the sub menu (see Figure 30). The available choices are presented in the same way to the operator as the report formats for catch data analysis, i.e.:

- Screen 1 allows to select any combination of reports by changing the corresponding check-field from "no" to "yes".
- Screen 2 requests the operator to identify the output device (screen, printer ASCII text file).
- Screen 3 is meant to specify the year and - if monthly reports are selected - the month (respective the range of months) for which the report is to be produced.

Figure 30 **Report formats available for summaries on licences, fees and royalties, grouped by fishing agents**

```
+-------------------------------------------------------------------------+
:                          Licence Reports                                :
+-------------------------------------------------------------------------+
                                                              Page 1 of 2

      The following reports can be produced on a monthly basis:

      1.    Licence applications, grouped by fishing agency

            a)  General information                                [yes/no]
                (Licence Type, Vessel Name, Licence No., Period, Status)
            b)  Information on payment of fees and royalties       [yes/no]

      2.    Summary of licence fees and royalties

            a)  List of applications received                      [yes/no]
                (Vessel name, Licence No., Period, Fees, Payments)
            b)  Summary of licence fees and royalties collected    [yes/no]
                (Lic.No., Period, Fees, Payments, Receipt, Issuance)
+-------------------------------------------------------------------------+
:     Please select any number/combination of reports to be produced      :
:     by changing "no" to "yes" in the corresponding field.               :
+-------------------------------------------------------------------------+
```

In the following the four report choices are presented, each with an hypothetical example of licence applications and payments.

Licence Applications, General Information (1a)

Grouped by fishing agency and within fishing agency by type of licence, licence applications are lised, whose starting dates fall within the report period (see Figure 31). The licence applications are arranged in alphabetic order of the corresponding vessel names. Shown is the licence number, the starting and ending date of the licence period, and the status of the licence application (either accepted, rejected, pending, or canceled).

Figure 31 **IFDaS output: Licence applications, general information**

```
                    Sierra Leone  -  Industrial Fishery
                Summary of licence applications, by fishing agency
                  Listed are all licence applications starting in
                              January 1994

  Category   Vessel Name          Licence No.      Licence Period        Licence
                                                  from        to        Status
-------------------------------------------------------------------------------

Agency: Fish ImpEx Ltd.

  A01  Shrimp Trawler
             INKFISH 4            LO/94-00004    01/01/94 - 31/05/94   Accepted
             INKFISH 5            LO/94-00005    01/01/94 - 31/05/94   Rejected
             INKFISH 6            LO/94-00006    01/01/94 - 31/05/94   Accepted
             INKFISH 7            LO/94-00007    01/01/94 - 31/05/94   Pending

  -----------------------------------------------------------------------------
```

Licence Applications, Information on Payment of Fees and Royalties (1b)

Grouped by fishing agency, and within fishing agency by type of licence, licence applications are listed whose starting dates fall within the report period (see Figure 32). The licence applications are arranged in alphabetic order of the corresponding vessel names. Shown is the licence number, starting date and period (in months) of the licence, amount for fees and royalties, and whether they have been paid ("yes") or not ("no").

Figure 32 IFDaS output: Licence applications, information on payments of fees and royalties

Sierra Leone - Industrial Fishery
Summary of licence applications and payments, by fishing agency
Listed are all licence applications starting in
January 1994

Category	Vessel Name	Licence No.	Licence-Period Start	Months	Fee (US$)	Royalty (US$)	Paid ?
Agency: Fish ImpEx Ltd.							
A01	Shrimp Trawler						
	INKFISH 4	LO/94-00004	01/01/94	5	3000	0	yes
	INKFISH 5	LO/94-00005	01/01/94	5	2500	0	no
	INKFISH 6	LO/94-00006	01/01/94	5	2500	0	yes
	INKFISH 7	LO/94-00007	01/01/94	5	3700	0	no

List of Applications Received (2a)

Grouped by status of licence application, and for each status by order of licence number, licence applications are listed, whose starting dates fall within the report period (see Figure 33). Shown is the licence number, the starting and ending date of the licence period, amount for fees, royalties, and total and whether they have been paid ("yes") or not ("no"). In case payments have been made, the receipt number is shown and whether the licence has already been issued ("yes") or not ("no"). If issued, date of issue is also shown.

Figure 33 IFDaS output: Licence fees and royalties, list of applications received

Sierra Leone - Industrial Fishery
Summary of licence fees and royalties (in US$), arranged by application status
Listed are all licence applications with a starting date in
January 1994

Licence No.	Licence Period Starting	Ending	Licence Fee	Royalty	Total Amount	Paid ?	Receipt No.	Licence issued? yes/no	Date
Application Status: Accepted									
LO/94-00004	01/01/94	31/05/94	3000	0	3000	yes	173 562	yes	01/01/94
LO/94-00006	01/01/94	31/05/94	2500	0	2500	yes	173 581	yes	01/01/94
LO/94-00008	01/01/94	30/11/94	12200	0	12200	yes	173 593	yes	01/01/94
FN/94-00001	01/01/94	30/06/94	30000	9000	39000	yes	173 604	yes	01/01/94
Application Status: Pending									
LO/94-00007	01/01/94	31/05/94	3700	0	3700	no		no	
Application Status: Rejected									
LO/94-00005	01/01/94	31/05/94	2500	0	2500	no		no	

Summary of Licence Fees and Royalties Collected (2b)

Grouped by fishing agency and within fishing agency by type of licence, licence applications are listed, whose starting dates fall within the report period and which have been marked as accepted (see Figure 34). The licence applications are arranged in chronological order of the licence numbers. Shown is in a tabular form the licence number, starting date and period (in months) of the licence, licence fees paid (local/foreign), royalties paid (local/foreign) and total amount. Also given is the total amount paid by each fishing agency, as well as the grand totals for all single categories of payments.

Figure 34 IFDaS output: Summaries of fees and royalties collected.

Sierra Leone - Industrial Fishery

Summary of fees and royalties (in US$) collected during the month of report
(Summary arranged by fishing agency and type of licence.)

Licence No.	Licence-Period Starting	Mths.	Licence Fees LOCAL	Licence Fees FOREIGN	Royalties LOCAL	Royalties FOREIGN	Total Collected
Month: January 1994							
Fish ImpEx Ltd.							
Shrimp Trawler [A01]							
LO/94-00004	01/01/94	5	3000		0		3000
LO/94-00006	01/01/94	5	2500		0		2500
			Total amount (US$) paid by agency:				5500
Blue Water Fishing Co.							
Shrimp Trawler [A01]							
LO/94-00008	01/01/94	11	12200		0		12200
FN/94-00001	01/01/94	6		30000		9000	39000
			Total amount (US$) paid by agency:				51200
Total Fees & Royalties collected:			17700	0	30000	9000	56700

9. 2. Option 2: List of Vessels with Presently Valid Licence

This routine is meant to produce a list of vessels with valid licences at the date of report (IFDaS assumes that the computers internal date and time settings are properly set!). A valid licence is a licence that has been marked "accepted" and which has not yet expired at the date of report. The listing is in alphabetic order of vessel names and shows the licence category, the licence number, and the expiry date of the licence.

For convenience the routine is selectable in two versions: either by simple alphabetic order of vessel names, or by alphabetic order of vessel names, but grouped by fishing agency to which the vessel belongs.

Selection of either or both routines is done in the usual manner by changing a corresponding check-field from "no" to "yes" on Screen 1, and indicating the output device on Screen 2. Both report forms are very

similar, differing only by the inclusion in the list of agency names as group headers. An example of a typical output of the first version is given in Figure 35.

Figure 35 IFDaS output: List of vessels with a valid licence

Sierra Leone - Industrial Fishery
Summary of vessels with licences valid as of 31/12/94
[in alphabetic order of vessel names]

Vessel Name	Licence Category	Licence No.	Expiry Date
ALBACORA DIEZ	A09 Tuna Purse Seiner	FN/94-00016	28/03/95
ATLANTIS 09	A01 Shrimp Trawler	FN/94-00013	26/03/95
BUCCANEER 01	A01 Shrimp Trawler	FN/94-00012	26/03/95
MA SUNDA	A01 Shrimp Trawler	LO/94-00015	10/04/95
POSEIDON	A01 Shrimp Trawler	FN/94-00018	07/06/95

9. 3. Option 3: List of Vessels with Licence in the Region

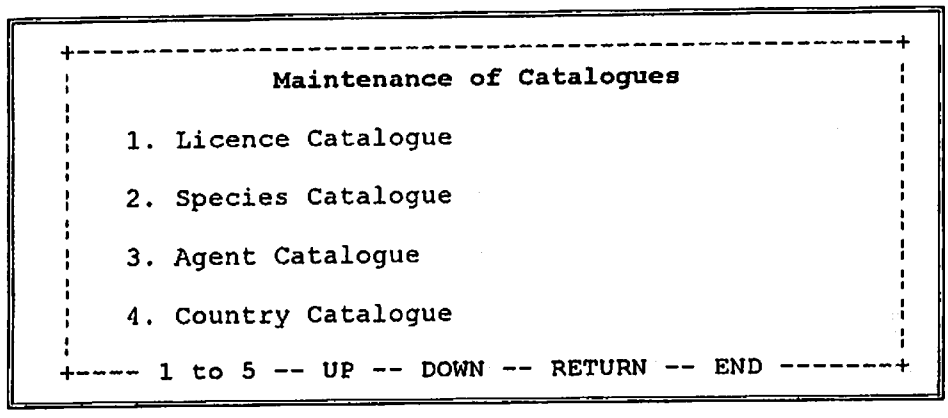
This option is identical to the previous one in that it lists vessels with a valid licence, either in a simple alphabetic way, or grouped by fishing agent. The list, however, includes only those vessels, that have reported to be holding another fishing licence in the region. The output is the same as the one shown in Figure 35 with the exception of the title which indicates the regional licence context.

10. Maintenance of Catalogues

Purpose: Provide access to the catalogues in order to add/modify records, sort the entries in alphabetic order, or to produce hard copies of the contents of the catalogues.

Because of its imminent importance in IFDaS, the option "Maintenance of Catalogues" is only available if the database has been accessed via the user-level "MANAGER". Upon selecting the option from the Main Menu, the operator is presented with a sub-menu, from which he/she can select any of the options shown in Figure 36.

Figure 36 Sub-Menu: "Maintenance of Catalogues"



After the operator has selected one of the options, the next step is a standardized procedure for all options already described earlier when presenting vessel registration. It consists of indicating a choice of action which can be :

1.) Add a new record (NEW)

2.) Modify an existing record (MODIFY)

3.) Sort the Catalogue (SORT)

4.) List the Catalogue (LIST)

After having made a choice in the field provided, the operator has to press [F2] to continue. The next action depends on the choice and the catalogue selected.

Options "NEW" and "MODIFY" require specific inputs and are discussed in more detail below for each Catalogue.

The option "SORT" provides a simple way to ensure that records are always displayed in a alphabetic order on screen when a Catalogue is called up for a "look-up" using the [Ctrl] [F10] function. It does not demand any further input from the side of the operator. Immediately after being selected the routine starts to sort the records according to the alphabetic order of the key field, i.e.

- Licence Catalogue Licence Code
- Species Catalogue Species Name
- Agent Catalogue Company Name
- Country Catalogue Country Name

Note! *Sorting of Catalogues should under no circumstances be interrupted, as this could lead to loss of the catalogues' content.*

The option "LIST" is meant to produce a listing of the contents of the catalogues in a compact form. After selecting this option, the operator is asked to indicate the output device for the listing, which can be either the screen, a printer, or an ASCII text file. Except for the Species Catalogue, no further input is required. Once the output device has been selected and the operator has pressed [F2], IFDaS will proceed with sending the list to the output device selected.

In the case of the Species Catalogue, the operator has the additional choice to choose among four different ways of how the produced list is being sorted:

a) by common name of the species
b) by scientific name of the species
c) by family
d) by marine group

Once this selection is made and the operator has pressed [F2], the list will be produced on the output device previously selected.

10. 1. Option 1: Licence Catalogue

New record

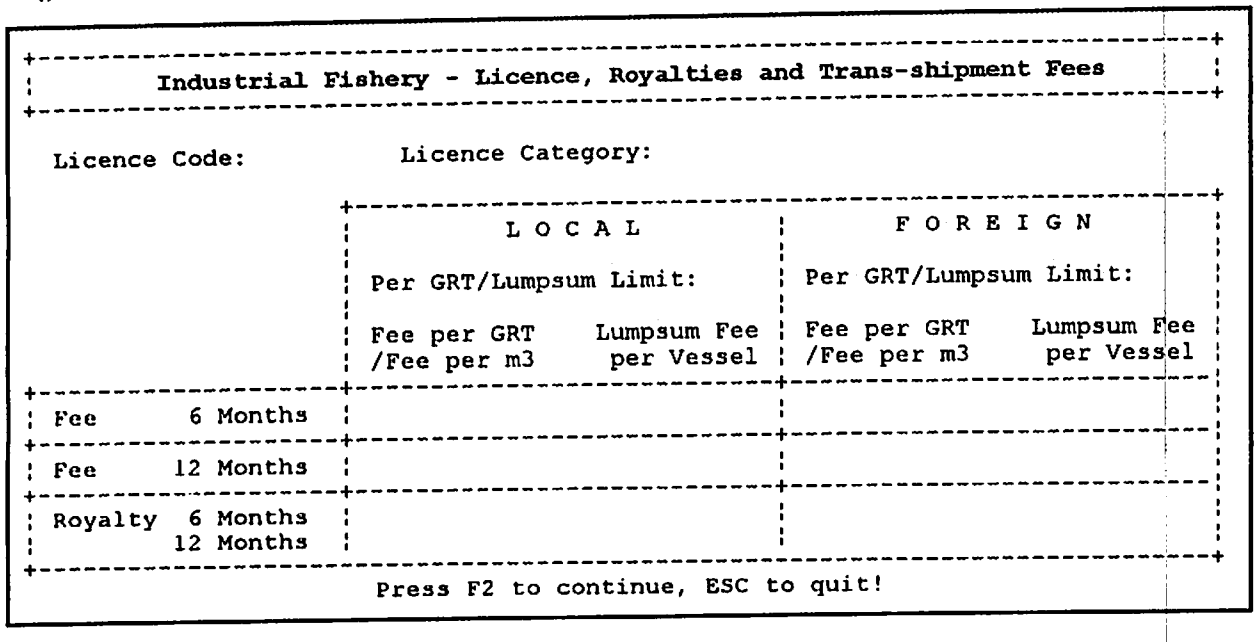
This routine can be used to add a new licence category to the Licence Catalogue. When selected the operator is presented with a form as shown in Figure 37 which has to be filled with the details of the new category. These are in detail:

Form Field	Comments
Licence Code	**It consists of a letter (A, B, C, ...) and a two digit number. Make sure to not enter an already existing code.**
Licence Name	Any name to meaningfully describe the licence category.
Per GRT/Lumpsum Limit	Size limit (in GRT) up to which the computation of the licence fee is based on a "Fee per GRT", whereas any vessel with a size larger than the limit pays a lumpsum fee. (Note that even though IFDaS also contains categories where this limit is not measured in GRT, but in m^3 fish hold capacity, new categories added to the catalogue can have only a GRT limit!)
Fee 6 Months	The fee to be paid for a six month licence. Note that computation of fees for a period other than six months is **always** based on the 6 month fee, giving the bonus of a 12 month fee only to licence periods of exactly 12 months; i.e. any licence period that is not either 6 or 12 months will be computed as (fee 6 months) / 6 x (licence period). It is therefore necessary to always give a value for the 6 month fee. If left blank, IFDaS will automatically insert a value equivalent to 50% of the 12 month licence fee, rounded up to the next integer number.

Form Field	Comments
Fee 12 Months	The fee to be paid for a 12 month licence. It is normally lower than the sum of two six month licences, in order to encourage the taking out of licences for a full year.
Fee per GRT	The amount to be paid (in US$) per GRT, if a GRT limit exists.
Lumpsum Fee	The amount to be paid per vessel, if the vessel is larger than the GRT limit, or when no such limit exist.

The GRT limit and the fees mentioned above have to be entered both for local and foreign licences. Royalties have to be filled in analogue to the scheme described for fees. When all necessary details have been entered, pressing [F2] will add the new record to the Licence Catalogue.

Figure 37 Licence Catalogue: New entry



Modify an existing record

When selecting this option the operator is first asked to enter the code of the licence to be modified. The operator is then presented with a screen identical to the one shown in Figure 37. The selected category has to be brought up to the screen by pressing [F3], upon which any modifications can be made to the record except for the licence code. Pressing [F2] will save the modifications to the Licence Catalogue.

10. 2. Option 2: Species Catalogue

New record

This option can be used to add a new species to the Species Catalogue. When selecting this option the operator has to provide the following information:

Form Field	Comments
Common name	The name of the species as it is usually called on board the fishing vessels.
Group	Specify to which group the species belongs; options are: *Crustaceans* *Molluscs* *Demersals* *Pelagics* *Shark* *Rays*
Genus	Generic name of the species, using FAO standards in taxonomic classification.
Species	Species name of the species, using FAO standards in taxonomic classification. If the common name refers to a group of species all belonging to the same Genus, use the abbreviation "sp."
Family	Family to which the Genus belongs, using FAO standards in taxonomic classification.

Once a form has been filled in, press [F2] to continue. IFDaS will assign a new code to the species and then save it to the Species Catalogue.

Modify an existing record

Once selected a screen will appear as shown in Figure 38. Following the instructions given on screen the record to be modified has to be brought up to the screen, where than any necessary changes can be made except for the species code. Pressing [F2] will save the modifications to the Species Catalogue.

Figure 38 Species Catalogue: Modification of records

```
+-------------------------------------------------------------------------------+
|          Industrial Fishery  -  Catalogue of Locally Used Fish Names           |
+-------------------------------------------------------------------------------+

  Local Name:

      Code:          Common Name:                        Group:


  Scientific Name:   Genus           Species             Family

+-Actions--------------------------------------------------------------------+
| 1.)  To modify an EXISTING record, press F3 until the record is on screen; |
| 2.)  Make any necessary change(s) to the appropriate field(s);             |
| 3.)  Press F2 to save the changes (or ESC to quit and return to the menu); |
|                                                                            |
| Note: Alternatively, you may press `Shift F1' to see the whole list of     |
|       existing species names. Move the cursor along the list until it      |
|       rests on the name of the species to be modified. Press `Shift F1'    |
|       again to return to this form. Continue with step 2.)                 |
+----------------------------------------------------------------------------+
```

10. 3. Option 3: Agent Catalogue

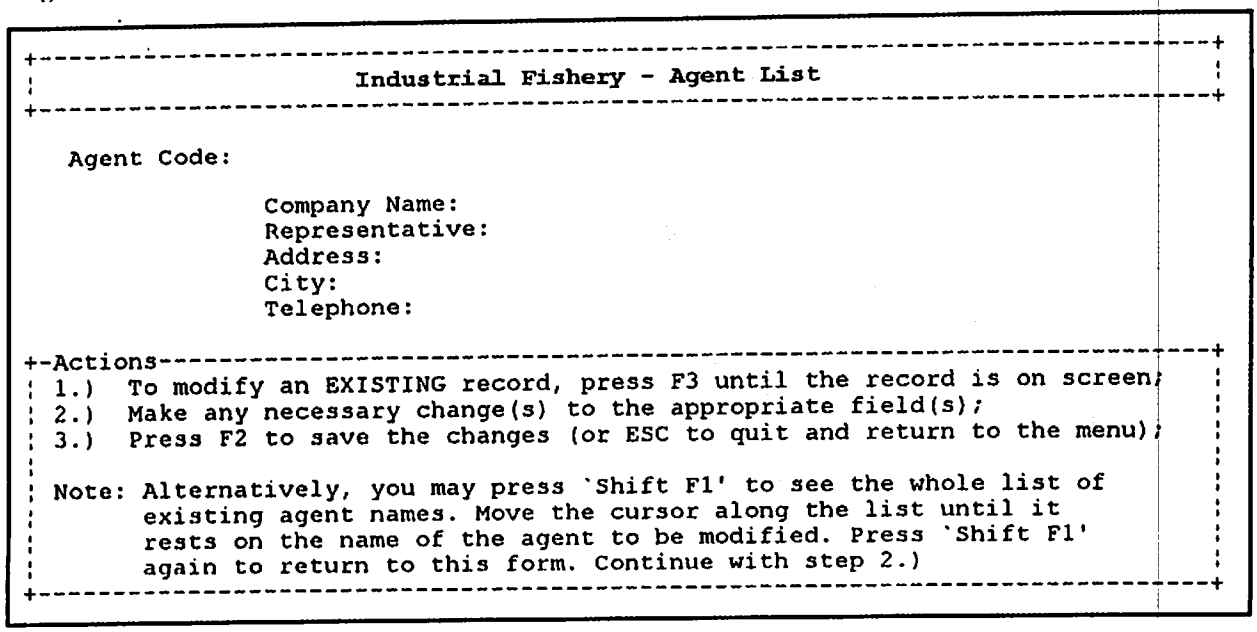
New record

Use this option to enter the details of a fishing agent into the Agent Catalogue. When selected a form appears on screen, which has to be filled with the details of the agent (Company Name, Representative, Address, City, Telephone). Pressing [F2] will save the new record to the Agent Catalogue.

Modify an existing record

If selected a screen appears as in Figure 39. Following the instructions given on screen the record to be modified has to be brought up to the screen, where than any necessary changes can be made except for the agent code. Pressing [F2] will save the modifications to the Agent Catalogue.

Figure 39 Agent Catalogue: Modification of records



10. 4. Option 4: Country Catalogue

New record

Select this option to enter the name of a new country into the Country Catalogue for use when entering information about the "country of registration" in the Vessel Register. When selected a form appears on screen where the name of the country is to be filled in. Make sure the name entered corresponds to the internationally used standard to ensure proper identification of the country in various summaries produced by IFDaS. Pressing [F2] will save the new record to the Country Catalogue.

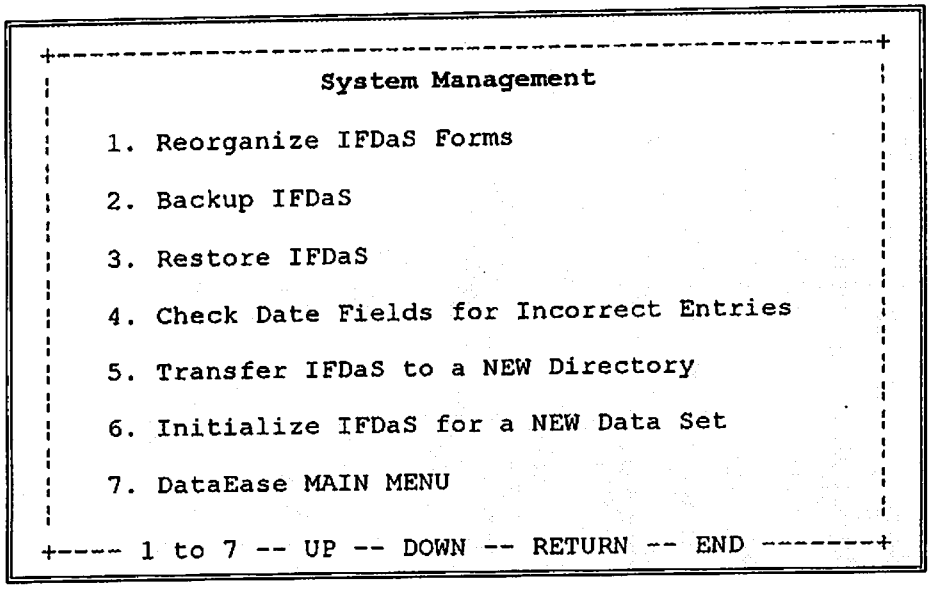
Modify an existing record

This option leads to a screen similar to the one shown in Figure 39, except that only one field (country name) is displayed. Follow the instructions to bring the record to be modified to the screen and make any changes to the country name. Note that this routine may not be used to totally change the country name to another one, unless the real country's name has actually changed accordingly. [F2] saves the modifications to the Country Catalogue.

11. System Management

Purpose: The sub-menu "System Management" contains a series of options related to the general maintenance of the database. The menu is accessible only to the **MANAGER** to prevent potentially disastrous actions by an inexperienced operator.

Figure 40 Sub-menu "System Management"



11. 1. Option 1: Reorganize IFDaS Forms

Purpose: Improve performance rate of IFDaS by increasing the speed with which data are accessed and processed.

When selecting this option, the operator is asked to specify which of the IFDaS forms are to be reorganized. Available choices comprise both the data forms and the catalogues. Once a form is selected and the operator has pressed [F2], no further action is required by the operator.

Reorganization of database forms might become necessary after extensive modifications/deletions have been undertaken or when a message was received that a form has been found to be inconsistent .

During reorganization, deleted records are permanently removed and the index is rebuilt. If the form contains a large amount of data reorganization will take a long time. Make sure power supply is not interrupted during the reorganization procedure.

11. 2. Option 2: Backup IFDaS

Purpose: Make a backup of IFDaS using DataEase's own backup facility. Refer to the DataEase Manual for more information on backing up a database.

All that is required upon selecting this option is to indicate that the backup should be sent to Drive A:, and to provide the necessary amount of diskettes as indicated by the program.

Backups are an important part of the general maintenance and should regularly be carried out, especially when a large amount of new data has been entered. A regular back-up is the best safeguard against the loss of valuable information and/or the need to spend again many working hours on re-entering lost data.

Unlike many other types of software, database programs are quite sensitive to the improper exiting from the program. For technical reasons a database often keeps files open until the user decides to quit the program. It is only then that the files are properly closed, thus maintaining their integrity and making them accessible the next time the database is started.

If for any reason this closing-down procedure is skipped, one might very well end up with files that DataEase will not recognize any more, loosing all the information contained in it. Most typical reason for such failure is the sudden shutting-off of the computer, either by an inexperienced user who has not been properly instructed of how to quit the program, or because of a power failure on a computer that has no battery back-up system. The only solution to problems with corrupted files is the restoring of the database from the last back-up.

Note: The files copied by the program to the backup diskette are not suitable for direct use by DataEase. Rather, they have to be re-installed to the disk using the "Restore Database" option

The backup-procedure is selective, as it transfers only files to the diskettes in Drive A; that are related either to *Forms*, *Procedures*, or the *System*. Thus, index files are not transferred, they are re-built during the Restoring Procedure.

Important in this respect is to be aware that text files created by means of the output option "ASCII" are not backed-up. If text files are to be safeguarded, they have to be transferred manually to a diskette in Drive A: using the appropriate DOS command.

There are a number of commercial software packages available that are specifically designed to back-up large amount of information while minimizing backup time and necessary diskette space. It is recommended to use whenever possible such software in addition (or alternatively) to the DataEase Backup, as they are faster and use less diskette space.

11. 3. Option 3: Restore IFDaS

Purpose: Restore IFDaS to the hard disk from the last backup created with DataEase's own backup facility. Refer to the DataEase Manual for more information on restoring a database.

Using this option allows the complete restoring of IFDaS to the status it had just prior to the most recent backup. This might become necessary, if a file containing the data of a certain form has become damaged or corrupted to the point that DataEase can not access it anymore. It should be noted, though, that this option does not allow a selective restoring of files. It actually replaces the complete database with the version contained on the backup diskettes. This underlines the importance of regular making backups of the database whenever data have been modified or added, or new routines developed.

11. 4. Option 4: Check Date Fields for Incorrect Entries

Purpose: This option can be used to trace records that have been entered either deliberately or by mistake with a fishing date other than the year for which the current version of IFDaS was established.

Each version of IFDaS can only contain catch and effort data from one single year, as most analysis routines are based on extracting data for one specific year. Similar, the creation of a new data directory for a fresh version of IFDaS is not possible, if the present database already contains catch and effort data from the year for which the new IFDaS version is being created.

When selecting this option, the operator is asked to indicate the year, for which the current version of IFDaS was installed. The program will then search for - and list - all records that have a fishing date with a year different from the specified year. Possible output options are the screen or the printer. The listed records should be located and than corrected, using the appropriate routines provided in the menus.

Note: This routine should always be carried out, and possible mistakes corrected, prior to establishing a fresh version of IFDaS for another year's data.

11. 5. Option 5: Transfer IFDaS to a New Directory

Purpose: Preparation for the installation of a fresh version of IFDaS for another year's data by creating a new directory and transferring all files to the new directory.

Installation of a fresh version of IFDaS is accomplished in two steps, namely:

- from the **existing** version of IFDaS select Option 5 "Transfer IFDaS to a New Directory";
- from the **newly created** version of IFDaS select Option 6 "Initialize IFDaS for a new Data Set".

The basic strategy in this two-step approach is to make first an exact copy of the existing IFDaS version into a new directory, and then clear the database of all unwanted information, which is catch and effort data from the previous year and information on already expired licences.

Step 1 is carried out from the existing IFDaS version. After the operator has selected Option 5 "Transfer IFDaS to a New Directory" he/she is first presented with an information screen repeating the main points of the procedure, and then asked to enter the last two digits of the new year, e.g. "96", if IFDaS is to be installed for the fishery data of the year 1996.

After the operator has pressed [F2], IFDaS will create a new directory on the hard disk parallel to the existing one. The directory name consists of the component "IFDAS-" and the two digit number entered by the operator. In the case above the new directory thus would be named "IFDAS-96".

Once the directory has been successfully created, all IFDaS files are copied from the present directory to the new directory and the operator is then returned to the System Management sub-menu.

Under no circumstances should the operator now invoke Option 6: "Initialize IFDaS for a new Data Set", as this would lead to a complete deletion of all relevant information in the current version of IFDaS. Rather, this option has to be accessed from the new version of IFDaS as explained in the next chapter.

Note: Before creating a new directory, IFDaS verifies that the current version does not already contain catch and effort data for the year for which the IFDaS version to be established. If it does find such data, the procedure is abandoned. Use Option 4 "Check Date Fields" to identify the records and either delete or modify them. Similar, IFDaS will also verify that no directory already exists with the name provided by the operator and abandon the procedure, if it finds a duplication in names.

11. 6. Option 6: Initialize IFDaS for a New Data Set

Purpose: Prepare a newly established copy of IFDaS for receiving another year's fishery data.

This routine is the **first** action to be taken after a new version of IFDaS has been installed using Option 5 "Transfer IFDaS Files to a New Directory" (see above). It can not be carried out at a later time as it involves complete deletion of all records in the Fishing Log and the Catch Form.

The newly established IFDaS version has to be prepared for convenient access using any of the possibilities described in Chapter 3. 1 "How to Start IFDaS". Obviously, IFDaS has to be called-up the first time using the "MANAGER" level, as only this security level provides access to the sub-menu "System Management".

When Option 6 "Initialize IFDaS" has been selected, a warning appears on the screen, reminding the operator of the consequences of continuing this option. If the operator confirms his/her intention to continue, he/she is requested to enter the year for which the database is to be initialized. The last two digits should, of course, match those entered under Option 5, when a new directory was created and the IFDaS files transferred to the new directory. Pressing [ESC] at this time still allows the operator to abandon the routine, while [F2] will start the initialization.

During initialization all records in "Fishing Log" and "Catch" are deleted. From the "Licence Journal" are all those records deleted where the ending date of a licence period is before January 1 of the new year. This means that accepted licence applications with a duration extending into the new year are retained. Once this completed, all forms are reorganized and the catalogues alphabetically sorted to prepare them for future reference. All these steps are executed automatically without any further input from the operator.

Note: Under no circumstances should the procedures invoked by Option 5, respective Option 6, be interrupted. It is therefore recommended to always make a back-up of IFDaS just prior to installing a new version, in order to be able to re-establish the database in case something goes wrong during the installation procedure.

11. 7. Option 7: DataEase Main Menu

Purpose: Provide access to the DataEase software proper, in order to make additions and/or modifications to the IFDaS program, or carry out special tasks not provided for in the IFDaS menus.

This option allows to access the DataEase programming level, from where any modifications can be made to the existing IFDaS program or new routines could be added. This is meant to provide the possibility to eventually adapt IFDaS in the future to essential changes in the procedure of fisheries administration, if the need arises.

It should be remembered, though, that IFDaS is a relational database with a high degree of interdependence between its various components. Thus, any changes to the program should only be done by experienced personnel with a very good understanding of the structure of the existing program. Otherwise, there is a high risk of creating inconsistencies between the various parts of the program that might lead either to unnoticed errors in the data analysis or to malfunctioning of IFDaS.