

CARICOM FISHERY RESEARCH DOCUMENT No. 26



**FIRST WORKSHOP OF REGIONAL EXPERTS
TO DEVELOP THE CARIBBEAN FISHERIES
MANAGEMENT DATABASE
SOFTWARE PROGRAMS**

Workshop Report

(July 25 to 27, 2001; Kingstown, St. Vincent and the Grenadines)

CARICOM Fisheries Unit
Belize City, Belize C.A.

August 2001



**FIRST WORKSHOP OF REGIONAL EXPERTS TO DEVELOP THE
CARIBBEAN FISHERIES MANAGEMENT DATABASE
SOFTWARE PROGRAMS**

Preparation of this Report

This report was compiled by the CARICOM Fisheries Unit (CFU) staff based on the written and verbal contributions of the Chairman and members of the TIP/LRS Working Group. These include: Michael Braynen, The Bahamas (Chairman); Sharon Corriette (Dominica); Shellene Reynolds (Jamaica); Williana Joseph (St. Lucia); Cheryl Jardine (St. Vincent and the Grenadines); Mario Yspol (Suriname); Peter Murray and Sherrill Barnwell (OECS- NRMU); Susan Singh-Renton; Milton Haughton; Merline Hemmings; Terrence Phillips (CARICOM Fisheries Unit) and Paul Medley (Consultant-CFU).



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CARICOM Fisheries Unit
Belize City, Belize
August 2001
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Programmer)

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Executive Summary

The main objective of the Fisheries Component of the Integrated Caribbean Regional Agriculture and Fisheries Development Programme (ICRAFDP) is optimal utilization and sustainable management of marine resources in the CARIFORUM countries. The participating countries are Antigua and Barbuda, The Bahamas, Barbados, Belize, Dominica, Dominican Republic, Grenada, Guyana, Haiti, Jamaica, Montserrat, St. Lucia, St. Kitts and Nevis, St. Vincent and the Grenadines, Suriname and Trinidad and Tobago.

The purpose of the Fisheries Data Management Systems subproject is: (1) to improve the Data Collection and Management Systems in the CARIFORUM Countries; (2) to provide fisheries data for assessment and management; and (3) provide quality data to facilitate effective monitoring and regulation of fishing effort.

In an effort to provide information for management and decision-making on a continuous basis, the Project will assist the Fisheries Departments of Member States to strengthen their data collection and management systems. The Upgrade of the Trip Interview Program (TIP) and the Licensing and Registration System (LRS) is one of several activities planned to address this objective.

As part of the upgrading process two Workshops were held: (1) "First Workshop of Regional Experts to Review and Upgrade TIP and LRS Software Programs" and (2) "Second Workshop of Regional Experts to Review and Test the Alpha Version of the Upgraded TIP and LRS Software Programs". The aim of the first workshop was to provide a forum for regional data experts to discuss the Consultant's recommendations and blue prints for the upgraded databases; and at the second workshop, this same group of experts reviewed, discussed and tested the alpha version of the upgraded programs.

The Workshop participants (Working Group Members) included delegates from The Bahamas (Mr. Michael Braynen), Dominica (Ms. Sharon Coriette), Jamaica (Ms. Shellene Reynolds), St Lucia (Ms. Williana Joseph, Mr. Peter A. Murray-NRMU/OECS and Ms. Sherill Barnwel-NRMU/OECS), St. Vincent and the Grenadines (Ms. Cheryl Jardine) and Suriname (Mr. Mario Yspol). The CARICOM Fisheries Unit (CFU) staff attending the meeting included the Scientific Director (Mr. Milton Haughton), Data Manager/Analyst and coordinator of the Workshop (Ms. Merline Hemmings), Senior Biologist and RAU Leader-Pelagic and Reef Fisheries (Dr. Susan Singh-Renton) Biologist, RAU Leader-Shrimp and Groundfish Mr. Terrence Phillips) and Consultant (Dr. Paul Medley).

Presentations and discussions included:

- **Workshop objectives, expected outputs and overview of the plan to upgrade TIP and LRS.** This presentation outlined the goals and objectives of the



Workshop and the plan for upgrading and preparing the Windows version of TIP and LRS.

- **Discussion of the comments received from Member States.** During this session, the feedback obtained from Member States, on TIP and LRS was summarized.
- **Presentation and discussion of Data Collection Systems and the role of the Database.** Participants presented and discussed their experiences with the TIP and LRS database and their needs and recommendations for upgrading the software programs.
- **Comments from the Consultant and general discussion of issues covered in the reports.** In this session the issues presented in the reports were discussed.
- **Discussion of the review and recommendations of the consultant.** This was a “round table” discussion of the database blue prints.
- **Review and finalization of specifications for upgraded windows version of TIP and LRS.** During this session consensus, on certain vitals matters such as the database developments tools; deadline for completing the alpha and beta version of the program; the best method of communicating, as a group; after the workshop; deadline for testing and debugging the software and release of the final version were thoroughly examined.

Finally, it was agreed that a new name for the Upgraded Software was required and the Scientific Director indicated that the CFU Management Team would make the final decision on the issue. Most participants agreed that (1) Delphi and (2) Visual FoxPro should be used as the database development tools.

The follow-up issues included (1) functioning of the Working Group during the inter-sessional period; (2) the Second Meeting of Regional Experts to Review and Upgrade TIP & LRS Software Programmes scheduled for October, 2001; (3) Participants would consider developing a new name for the database software and (4) CFU would give consideration to holding a third workshop for the actual transfer of country data to the new program.



FIRST WORKSHOP OF REGIONAL EXPERTS TO REVIEW AND UPGRADE TIP AND LRS SOFTWARE PROGRAMS

SECTION I

SUMMARY OF WORKSHOP ACTIVITIES

WEDNESDAY, 25TH JULY 2001

The Workshop commenced at about 9.00 a.m. The Scientific Director (CFU – Belize), Mr. Milton Haughton, welcomed the participants. Following that, the Workshop participants introduced themselves. Following the introductions the Scientific Director proceeded to give an overview of the current TIP and LRS software programs, highlighting the frustration of member states in using the software; the fact that the technology used in developing the current databases was obsolete and the Y2K compliant version of TIP had bugs. Finally, he noted that it was necessary to develop a Windows version of the software using updated available technology, and hence the need for this activity to upgrade the software programs.

The Scientific Director noted that the objective of the Workshop was to upgrade and improve the databases to make them more relevant, user-friendly, and functional to the countries. He also acknowledged the efforts of the CARIFORUM Data Manager, Ms. Hemmings, in preparing for the Workshop and in compiling and circulating the relevant material. After the discussion of the workshop arrangements Mr. Haughton nominated Mr. Michael Braynen as Chairperson. The representative from Jamaica seconded the nomination.

The Scientific Director commenced the Presentation Sessions with his Presentation on the “Workshop Objectives, Expected Outputs and Overview of the Plan to Upgrade TIP and LRS”. The presentation focused on:

- The Workshop activities, these included:-
 - A thorough review of the current databases, TIP and LRS
 - Development of a new and upgraded TIP and LRS
 - Obtaining consensus on the database development tools
 - Obtaining consensus on specifications of database structure
 - Examining the data to be stored in the system
 - Looking at the type of reports required
 - Considering the compatibility of the proposed database with other software programs, e.g. FISAT, SPSS



- The fact that the process of upgrading the programs should follow the following steps:
 - The Consultant (Dr. Paul Medley) should at the end of the Workshop have a clear idea as to what countries need in terms of data fields/variables;
 - Programming of the alpha version of the Software by October, 2001;
 - The alpha version would be distributed to members of the Working Group for review;
 - The Second Workshop would be conducted about the end of October, 2001 to review the alpha version in detail, and to conduct practical trials;
 - The Consultant will make the necessary amendments to the alpha version to produce the beta version of the software;
 - The beta version was expected to be circulated to participants shortly after the second workshop;
 - Review and debugging would take place over the next few months;
 - By December 2001 all the countries should have the beta version;
 - The Consultant would be available until March 2002 for testing and maintenance;
 - It was proposed that technical assistance will be provided online and in printed format if necessary. Also context sensitive help and internal documentation on the data structure for future development will be available online.

Issues/Comments

- The SD indicated that participants at this Workshop would form the Working Group for this activity. He indicated that transfer of technology is considered important, and that the consultant should bear in mind the need to explain his approaches and to ensure that persons understand the procedures involved.
 - Participants sought clarification on the types of manuals to be produced, and some time was spent in discussing this issue. It was recognized that the existing manual was not helpful in the past. Participants argued that a Windows online help facility should provide useful assistance. The consultant noted that the new manual being considered is intended to provide help in using the program, e.g. explanations of data forms, data fields and contents. Description of the database structure would be provided in an external document. An internal document would also be prepared, providing details regarding rationale and application of the database, and the planned evolution of the system.
 - The participant from Suriname proposed that a Tutorial for the software could be distributed on CD. The SD indicated that the production of a tutorial for the software was not part of the Consultant's Terms of Reference; however, this request would be given some thought.



The Data Manager/Analyst made the second presentation of the morning entitled, “Presentation and Discussion of Comments received from Member States”
Comments from the countries were presented under the following general headings:

- **Trip Interview Program (TIP): -**
 - General Features
 - Database Structure
 - Querying Features
 - Reporting Features

- **Licensing and Registration System (LRS):-**
 - General Features
 - Fishers Database
 - Vessels Database
 - Licence Database
 - Legal Infraction
 - Reporting

Issues/Comments

- Participants reiterated the need to consider compatibility of the new database with other database and data analysis software packages. The inclusion of a weather record form and a sighting record form should be considered. There was also some debate about the necessity to control and regulate database access through the use of passwords and usernames. This facility could be made optional.

- Participants pointed out the need to include data on total vessels. The growing importance of recording cetacean sightings data was also emphasized. Other upgrade/improvement needs indicated were:
 - The need to alert the user whenever forms with notes are edited;
 - The need for the upgraded software to be compatible with GIS software programs;
 - The new software should allow calculation of CPUE and other analyses in a simpler way;
 - A printer option should be included, which allows printer choices;
 - The new software should allow production of graphs;
 - The new software should include a procedure allowing for conversion of measurement units;
 - The picklist for fishery type and gear type need to cater for multi-target fishing trips;
 - Database names, e.g. TIP11, are unhelpful and should be revised to be more user-friendly;



- The field for target fishery needs to accommodate for the possibility of a primary target fishery and a secondary target fishery;
 - The field ‘trip type’ needs to accommodate for a multi-gear trip;
 - The field for interview year should accommodate 4 digits;
 - Repeated data fields should not have to be re-entered;
 - Gear code is currently numeric, while a character code would be more user-friendly;
 - The user should be able to conduct validation checks by specified time periods;
 - Additional fields should be added to accommodate recorded data on soaktime, number of hooks, and fuel used.
- It was pointed out that databases are now developed with built-in validation. In view of this, it will be important to define the rules of validation for the upgraded software, so that validation is as exhaustive as possible.
 - Concerning LRS, some participants raised the issue of inclusion of vessel photos, as this can be useful for dealing with identification and other queries. The advent of the Maritime Authorities Act will place certain obligations on countries, and these, together with other possible legal applications of the data should be considered in upgrading the LRS section of the database.
 - The Chair emphasized the urgency to pursue and obtain comments on the TIP/LRS upgrade from those countries, which were not covered in Ms. Hemming’s presentation.

After lunch the workshop continued with Presentation of reports on the “TIP and LRS: Experience, Needs and Recommendations” presented by the participants from The Bahamas (Mr. Michael Braynen); Dominica (Ms. Sharon Corriette); Jamaica (Ms. Shellene Reynolds); St. Lucia (Ms. Williana Josephs); St Vincent & the Grenadines (Ms. Cheryl Jardine); Suriname (Mr. Mario Yspol); Sherill Barnwell (OECS, NRMU) and Dr. S. Singh-Renton and Mr. Terrence Phillips (reports available in Section III).

The reports covered all or most of the following:

- The overall goal of data collection and the role of the database
- What data are required?
- What data are collected and stored within the current database
- What data are collected and are not stored within the current database
- How relevant data are collected and managed specifically:
 - How forms are processed
 - Where sampling takes place
 - How vessels are chosen



- How data are managed on the computer (backing up procedures etc.)
- Rules used to maintain data quality (e.g. checks on bounds of values, eyeballing data, statistics etc.)
- Recommended functions and capability of the Windows version TIP and LRS
- Details of the platform for running the database (computer stats including processor speed, windows version, disk size, free space, RAM, CD-ROM specs, LAN specs, and any other relevant information about the system setup).
- Skills of the people expected to run the system.

Issues/Comments

- Following country presentations, several issues were raised for consideration in developing the upgraded data information system:
 - The vessel identification data field should accommodate the inclusion of more than 1 vessel, e.g. beach seining operations often include several assisting vessels;
 - Participants reiterated the point that there are cases when the fishery practice is multi-target in nature;
 - Data manipulation and reporting procedures are difficult in the current TIP/LRS version, and this needs to be addressed urgently;
 - Participants reiterated the need for the fishery type and gear type fields to allow for more than one selection;
 - There should be no need to re-enter data fields when these are repeated;
 - The inclusion of data fields for recording social and economic data is important for many countries.
- It was pointed out that the consultant should develop the upgrade, bearing in mind the current level of available skills and resources within the countries.
- The OECS representatives highlighted the following main issues for consideration in developing the proposed TIP/LRS upgrade:
 - Participants were asked to bear in mind that country presentations made at the workshop were likely the best case scenarios;
 - Data needs remain essentially unchanged;
 - TIP and LRS should be kept separate, although the linkage of these two programs probably needs to be strengthened;
 - Vessel registration numbers should be unique and should not be transferred to other vessels or new vessels entering the fishery;
 - The concept of the standard report should remain, although clearly there is a need to provide more flexibility in report generation;
 - The upgrade must be compatible with other databases.



- Dr. Singh-Renton and Mr. Phillips generally echoed the sentiments expressed by country representatives and the OECS representatives, particularly emphasizing the need for:
 - Strengthening the linkage between LRS and TIP;
 - The inclusion of social and economic data fields;
 - Wide flexibility in reporting procedure, to accommodate for the constantly evolving reporting needs of countries including fulfillment of international reporting obligations and production of more readily understood outputs;
 - Wide flexibility in the data extraction procedure, to enable production of data files that require little or no further manipulation for export to other databases and software packages, and to facilitate ready submission of data to shared regional and international databases;
 - The incorporation of data from observer programmes.

THURSDAY JULY 25, 2001

Comments from the Consultant and General Discussion of Issues Covered in the Reports

In responding to the earlier presentations and issues raised, the consultant noted that the selected system must be generic and highlighted that a more generic system would facilitate easier management and use of the database. He pointed out that the aims and roles of the new database need to fit into the associated normal processes, e.g. issuing of licences. It will be important to define the nature of reports to be generated by the new database. Forms of analysis can be written that can be used by all persons, as long as the database is generic in nature. Participants noted that usually licence application forms are completed prior to issue of licences and completion of licence forms.

The consultant highlighted the importance of ensuring a seamless transition from the old to the new database, to ensure that old data are not lost. The new database will be relational, and the transition from the old to the new database may encounter relational problems. The consultant sought clarification on the use of certain fields and codes. Participants acknowledged that many previous problems in data entry arose as a result of the frequent use of local names, and little or no attempt to relate these local names to the standard ones appearing in the database.

It was noted that fisheries officers are not able to invest significant time to learn the proposed programs. Having noted this, participants recognized that successful database maintenance will require trained, experienced fisheries officers who appreciate the applications of the database. The effort to develop capacity in this regard should be given equal attention to the effort directed at database development. The consultant acknowledged the difficulty of limited resources, skills, and time; if available skills are limited, then it may be advisable to develop a simple, although less powerful system.



Presentation and Discussion of the Review and Recommendations of the Consultant

The sessions for the presentation and discussion of the review and recommendations of the Consultant, Dr. Paul Medley, took place on July 26 and 27, 2001. The Consultant and participants in the Workshop reviewed and discussed the “Proposed Data Fields” as set out in Appendix I of the Workshop document entitled “First Workshop of Regional Data Experts to Review and Upgrade TIP and LRS Software Programs – **Workshop Working Document.**” As well as issues related to database function (e.g. Multilingual capability of the software).

ISSUES/COMMENTS

The points to note from the review of the Proposed Database Fields, and the subsequent discussions, are set out below.

- The Consultant would give consideration to the best means of including catch, effort, biological and other fisheries related data from vessel observer programmes in the TIP/LRS database.
- During the TIP/LRS upgrade, the gear, vessel and species codes would be reviewed to ensure that the fishing gear, vessel types being used, and species being caught in the CARIFORUM area were being adequately covered.
- In a similar manner, the Consultant would give consideration to the best means of including social and financial data in the TIP/LRS databases. New tables on operational costs for vessel trips, processing plants and aquaculture facilities would be included in the TIP/LRS database.
- The group recognised that there would be the need to clearly define the terms full-time, part-time and occasional fisher as the definitions seem to vary for some countries.
- On examination of the options for the relationship between TIP and LRS, it was proposed that TIP and LRS be an integrated system. The options looked at were one with TIP and LRS being in the same system, and the other with TIP and LRS being two separate systems, with provisions for linkages. The disadvantages of the latter option were seen as:
 - linkage would be through Windows;
 - errors in data could result in a real time problem when linking; and
 - the development of two separate systems would be time consuming.



- Bearing in mind the need to utilise the data in the TIP/LRS database to provide information for policy/decision makers, the expert group would decide and make recommendations on the types of standard reports that could be included as primary and secondary analytical reports.
- Following a discussion on the merits and demerits of MS Access, Visual Fox Pro, and Oracle as suitable software for the TIP/LRS database, the group recommended Visual Fox Pro, but the Consultant would be checking to see if automatic upsizing works in this software.
- In terms of the most suitable application software, the group recommended Delphi, following a discussion on the advantages and disadvantages of using Delphi or Visual Basic. It was felt that Delphi was fast; undergoing very rapid development, well supported, had a transparent code, and was widely used. Delphi could be implemented for LINUX or Windows. Also, within the CARICOM/CARIFORUM region, there were experts who could service Delphi.

FRIDAY, JULY 25, 2001

On Friday discussion of the Consultant's/Programmer's Review and Recommendations continued with discussion and modification of data fields and tables.

The final consensus on the Upgraded windows Version of TIP and LRS included:-

- The need for a new name for the Upgraded Software. The Scientific Director indicated that the CFU Management Team would have to make that final decision.
- The software tools that would be used to design the database are:
 - Delphi (to develop the application or front-end of the database)
 - Visual FoxPro (utilized as the Server).
- The red highlight in the "Proposed Database Fields Documents" indicate
 - Addition of data fields (variables) and tables
 - Modification of the field characteristics
 - Deletion of the field/table (see Appendix I)

The follow-up activities, including the role of the Working Group are as follows:

- The participants of the Workshop decided that the Working Group, chaired by Mr. Michael Braynen, Director of Fisheries, Bahamas, would continue to function during the inter-sessional period, with communication being by way of an e-group;



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- The Second Workshop of Regional Experts to Review and Upgrade TIP and LRS Software Programmes would be held in October 2001. At this Workshop, the group would attempt the transfer of legacy data from the old TIP to the alpha version of the integrated TIP/LRS. Also, during this Workshop, the Consultant will seek to ensure that participants understand how the alpha version of TIP/LRS functioned.
- Participants undertook to give consideration to a suitable name for the new TIP/LRS integrated system
- It was suggested that CFU give consideration to the holding of a Third Workshop for the actual transfer of country data into the new TIP/LRS software.



SECTION II

COMMENTS AND FEEDBACK RECEIVED FROM MEMBER STATES

In this section the comments received from Member States on TIP and LRS database programs are presented below:

Trip Interview Program (TIP)

COMMENTS	A&B	SVG	JAM	GUY	DOM
GENERAL FEATURES					
Develop database in MsAccess	*				
Easy linkage to other Microsoft programmes	*				
Add a section on 'Action and Weather Record' (vessel name, researcher, date, time, position, action, wind, weather, glare etc.)		*			
Add a section on 'Sighting Record Form' (vessel, date, recorder, sighting number, time, type, water quality, etc.)		*			
Allow for the export of files in SPSS and MsAccess			*		
The programme needs a password and/or user name and password			*		
Alert the user whenever forms which have notes in them are edited			*		
Allow the software to be compatible with a GIS software program and GIS board.			*		
Allow for the calculation of CPUE, and other analysis in a more simpler way			*		
Print option needed (option to select a default printer)			*		
Allow for the production of graphs (line, bar, pie, etc.)			*		
Provision to convert measurement of units (eg. from lbs. to kg.)			*		
Long learning curve	*				
More user-friendly	*				
Software requires programmers to make changes, this can take months				*	
Data entry ease and presentation of the form is poor					
Built-in Tutorial					
Minimal maintenance					
Put pick list for fishery type and gear type to cater for one trip where more than one gear type needs to be entered from one interview.					*
Computer needs to recognize current data and to beep when wrong dates ie. year are entered.					*



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COMMENTS	A&B	SVG	JAM	GUY	DOM
DATABASE STRUCTURE					
Names assigned to databases eg. TIP 11, TIP 12 etc. is a bit confusing	*				
Section 1: Instead of having one field 'target fishery', this can be split into 'primary and secondary target fishery'		*			
Section 1: Split 'trip type' into two or more to facilitate multi-gear trip		*	*		
Section I: Interview year – that number should be greater than 80, but should be re-written and the number reduced to 70 in order to accommodate data entry in the 1970's.			*		
Section 1: Ensure that when gear type is entered, it should be carried to Section II automatically. One should not have to re-enter the information again					*
Section 1: Put in an Alpha Code for gear instead of the present numeric code. It causes confusion and time consuming to go back to the pick list over and over.					*
Section II: Add the following fields – soaktime, no. of hooks, fuel used (to help in the gathering of economic and effort data		*			
Section II: where more than one mesh size is used to catch a specific type of species, this needs to be displayed when a query is done. Instead all the species are duplicated.		*			
Section III: Need to add the field – 'fishery type'		*			
Section IV: The two fields for weight – when a query is done using databases TIP 11 to TIP 41, the sample weight does not appear, although it was entered in section IV.		*			
'Mixed fish' needs to be introduced in sections III, IV and V		*			*
Gear and Species lists needs to be upgraded		*	*		
Species list should be able to amend for species that are not there					*
Gear description field: needs to be increased to three decimal places.		*			
Frame survey: an <INSERT> option is needed in case a date was inadvertently left out.		*			
Frame survey: Should be developed to link the other TIP databases. This will allow ease of estimating total landings based on sampling by boat types and gear types		*			
Validation: There should be an option to validate for a period specified by the user. This will lessen the amount of time to wait for a validation process to be completed.		*			
Interview: <PRINT RAW DATA> There should be a confirmation message and an option to cancel the print job.		*			
Pick List: Needs Area codes		*			
Pick List: There should be an <ADD> option			*		
Area Field: in section II and III, needs to be increased to two decimal places.		*			
Area Fished should be an alpha code instead of a numeric code					*
Needs to be more user-friendly	*				
Easy to develop and monitor if a MsAccess database	*				



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COMMENTS	A&B	SVG	JAM	GUY	DOM
REPORTING FEATURES					
Easy to develop and monitor if a MsAccess database	*				
Creating reports is difficult, this function should be deleted (not able to use a report saved in the TIP environment with other programs)		*			
Rename 'reporting' to 'extraction' and remove the 'custom reporting option		*			
A error message appears when <RUN EXTRACTION> is selected			*		
Page Preview: an arrow key is needed to the side of the screen.			*		
A range of combination of results should be done automatically, eg. Landing by site; landing by species; landing by boat ID; landing by gear type; CPUE; Total effort; effort by species category; comparison between landing sites; etc.					*
The reporting feature has been the most difficult task					*

Key: DOM – Dominica; A&B – Antigua & Barbuda; SVG – St Vincent & the Grenadines; JAM – Jamaica; GUY - Guyana



SECTION III

REPORTS – TIP AND LRS: EXPERIENCE, NEEDS AND RECOMMENDATIONS

In this section reports submitted by Barbados, Bahamas, Dominica, Jamaica, St. Lucia, St. Vincent and the Grenadines, Suriname and Ms Sherill Barnwell are presented in the section. Most of the reports covered the following topics:

- ☞ the overall goal of data collection and the role of the database
- ☞ the data required
- ☞ data collected and stored in the current database
- ☞ data collected and not being stored in the current database
- ☞ how is data collected and managed
- ☞ details of the platform that the database is currently operating on
- ☞ skills of persons expected to operate the new system.

BAHAMAS

(Mr. Michael Braynen- Director of Fisheries)

DATA COLLECTED AND STORED IN CURRENT DATABASE

- ☞ Catch & Effort
- ☞ Commercial Fishing Vessel Permits
- ☞ Other Permits & Licences
 - Processing Plants
 - Export Licences
 - Marine Products Exports
 - Vendors
 - Use of Special Fishing Gear
 - Arrests
 - Inspection Certificates
- ☞ Biological Data
 - Conch
 - Nassau Grouper



DATA TO BE ADDED

- ☞ Monthly Purchase Reports from Processors
- ☞ In House dBase III+ databases and programs
- ☞ In House MS Access databases

EXISTING COMPUTER HARDWARE

- ☞ Intel Pentium III
- ☞ 600 MHz
- ☞ 128 MB RAM
- ☞ 20 GB Hard Drive
- ☞ Windows 98 4.10.2222A
- ☞ Network Card
- ☞ MS Office 2000
- ☞ 10GB Tape Backup
- ☞ Office Network NT 4.0
- ☞ Server Compaq Reliant Pro 10 GB , P III @ 600 MHz, 256 KB RAM
- ☞ 14 Workstations

COMPUTER SOFTWARE CURRENTLY USED

- ☞ Bahamas Fisheries Information System (BFIS) - custom dBase III+ program
- ☞ In-house dBase III+ databases and programs
- ☞ In-house MS Access databases
- ☞ Custom MS Access database
- ☞ In-house MS Excel worksheets



(Mr. Christopher Parker – Fisheries Officer)

BARBADOS

RECOMMENDATIONS FOR DATABASE FIELDS

Presented below are Barbados' recommendations for database fields in the upgraded TIP and LRS:

Key numbers for databases: -

Vessels database - Vessel Number = veno

Fishers database - Fisher Number = fino

- ☞ Make LRS networkable.
- ☞ Data for the LRS DATABASE is going to be used in IMAGE CARD EXPRESS DATA CARE SYSTEM for Fishers and Vessels Licence.
- ☞ Short cut buttons to relevant database should be available in each database window.
- ☞ The LRS DATABASE should keep a history of changes to its data.

Fields for

VESSEL DATABASE

- ☞ Picture of the vessel = (picture) *new*
- ☞ Vessel number = (key number) - (602)
- ☞ Registration number of vessel - (text) - (X12, P36, S22)
- ☞ Vessel name = (text) - (EXAMPLE)
- ☞ Vessel markings - (text) - (8p-X12-BC)
- ☞ Radio call sign = (text) - (8p-X12)
- ☞ Local vessel = (pick box) - (YES/NO)
- ☞ Class of vessel = (pick box) - (1, 2, 3)
- ☞ Type of vessel = (pick box) - (Moses, Launch, Iceboat, long-liner)
- ☞ Homeport = (pick box) - (Bridgetown Fishing Complex, Oistins, Sixmens)
- ☞ Proposed number of crew = (number) - (4 people) *new*
- ☞ Fish storage = (pick box) - (deck, containers, insulated icebox, fish/ice hold) *new*
- ☞ Capacity of fish storage = (number) - (10 lb)
- ☞ Length = (number) - (45 ft)
- ☞ Beam = (number) - (15 ft)
- ☞ Depth = (number) - (7 ft)
- ☞ Draught = (number) - (3 ft) *new*
- ☞ Construction material of hull = (pick box) - (wood, fibreglass, steel)
- ☞ Construction material of deck = (pick box) - (wood, fibreglass, steel) *new*



Main engine - heading

- ☒ Type of main engine = (pick box) - (outboard petrol, outboard petrol kerosene, outboard diesel, inboard diesel, inboard petrol) **new**
- ☒ Engine make of main engine = (pick box) - (Yamaha, Ford, CAT, John Deere, Lister)
- ☒ Engine horsepower of main engine = (number) - (40 hp)
- ☒ Serial number of main engine- (number) = (6FT-L235497)

Auxiliary engine - heading

- ☒ Type of auxiliary engine = (pick box) - (outboard petrol, outboard petrol kerosene, outboard diesel, inboard diesel, inboard petrol) **new**
- ☒ Engine make of auxiliary engine = (pick box) - (Yamaha, Ford, CAT, John Deere, Lister)
- ☒ Engine horsepower of auxiliary engine = (number) - (40 hp)
- ☒ Serial number of auxiliary engine = (number) - (6FT-L235498)
- ☒ Proposed fishing distance from shore = (number) - (10 miles) **new**
- ☒ Proposed length of a fishing trip = (number) - (10 days) **new**
- ☒ Date vessel was built = (year/month/date) - (2002-01-01) **new**
- ☒ Builder of the vessel = (text) - (Mark Corbin) **new**
- ☒ Place the vessel was built = (text) - (DI Manufacturing) **new**
- ☒ Vessel constructed in accordance with regulations of = (pick box) - (1974, 1998, 2001) **new**
- ☒ Vessel converted = (text) - (NO, From a Moses to a Launce 1984, From a Launce to a Iceboat 1995) **new**
- ☒ Registered date = (year/month/date) - (2002-01-01)
- ☒ Condition status = (pick box) - (hauled up, under repairs, sold, not fishing, sank, cancelled, registration suspended, operating out of the country) **new**
- ☒ Condition status updated date = (year/month/date) - (2002-01-01) **new**
- ☒ Inspection status = (pick box) - (pass/fail)
- ☒ Date inspection expires = (year/month/date) - (2002-01-01)

VESSEL LICENSING DATA BASE

- ☒ Target species = (pick box) - (Flying fish, Dolphin, Tuna)
- ☒ Fishing gear = (pick box) - (Gill-nets, Seine nets, Long-lines, Traps)
- ☒ Fisher Area = (pick box) - (Zone A, Zone B, Zone C)
- ☒ Primary landing site = (pick box) - (Bridgetown Fishing Complex, Oistins, Sixmen)
- ☒ Secondary landing site = (pick box) - (Tent Bay, Consett Bay, Skeet's Bay) **new**
- ☒ Condition status = (pick box) - (Licence cancelled, Licence suspended, Operating out of the country, Active) **new**



- ☞ Condition status updated date = (year/month/date) - (2002-01-01) *new*
- ☞ Comments = (memo)
- ☞ Authorising Officer = (pick box) - (G. Franklin, T. Moore, C. Taylor) *new*
- ☞ Licence Issue date = (year/month/date) - (2002-01-01)
- ☞ Data licence expire = (year/month/date) - (2002-01-01)
- ☞ Fisher's list = (window in to a sub-database) - (List of the owner(s), agent(s), crew, captain etc. Displayed using the fields below)**new*
- ☞ Fisher number = (Key number) - (521)* *new*
- ☞ Relation to vessel = (pick) - (Owner)* *new*
- ☞ First name = (text) - (Robert)* *new*
- ☞ Last name = (text) - (Yearwood)* *new*

- ☞ The license, inspection, search & rescue vessel database for this vessel "EXAMPLE – X12" should be accessible by the click of a button, and allow for changes to be made in the databases from this window.
- ☞ There should be a section to assign the owner(s), agent(s), crew, captain etc., and information concerning each person in the Fisher Database accessible by the click of a button. Only the person's Fisher number, name and his relation to the vessel need appear in the Vessel Database and only when you click a button for more information should the person's Fisher File open. You should be able to view each fisher by scrolling the fisher's list of the vessel.
- ☞ When you assign a person to a vessel, the vessel should automatically be assigned in the Fisher Database as one of the vessels that the person works on or is associated with. In the same way, in the Fisher Database the vessel is assigned as a vessel the applicant is associated with, it should appear in the Vessel Database.

VESSEL INSPECTION HISTORY DATABASE *new*

- ☞ Inspection report = a button to click to a Microsoft Word file *new*
- ☞ **Inspection history - heading**
- ☞ Inspection history = (list) - (a data base list of inspection for the year. The fields for each inspection are listed below) *new*
- ☞ Date of inspection = (year/month/date) - (2002-01-01) *new*
- ☞ Inspection location = (pick box) - (Bridgetown Fishing Market, Oistins, Sixmens) *new*
- ☞ Inspection was done = (pick box) - (On land, Afloat) *new*



- ☞ Type of inspection = (pick box) - (Under hull, Sea trial, Safety gear, Shaft alignment, Engine, Propeller shaft, Yearly, Second year, Third year, Re-registration, Existing vessel, New vessel, Conversion) **new**
- ☞ Status of inspection = (pick box) - (pass/fail) **new**
- ☞ Inspector(s) = (pick box) - (C. Weekes, W. Gittens, a. Jackman) **new**
- ☞ Comments or Notes = (Memo) **new**

☞ Inspection report = (Memo) - This should allow you access to a Microsoft Word file for that vessel to add a note or to view it. The memo is best in word because you could add graphics, images, pictures, charts etc. to the report if necessary. It would be good to have relevant pictures that concern the vessel's inspection. Having this feature would allow for a continuous inspection report on a vessel.

☞ All inspections entered should be recorded in an inspection history database. In the database the history for the year would appear and then you could enter the latest inspection. Each entry can only be changed if it is selected. You should be able to view each inspection the vessel has ever had by scrolling the inspection list of the vessel.

SEARCH & RESCUE DATABASE

- ☞ Date of report = (year/month/date) - (2001-01-15) **new**
- ☞ Who made the reported that the vessel was in distress = (memo) - (The Barbados Coast Guard informed the Fisheries Division that Michael Yearwood the captain of the vessel contacted them for help) **new**
- ☞ Departure time = (hour/minutes/am/pm) - (6:45 AM) **new**
- ☞ Departure date = (year/month/date) - (2001-01-12) **new**
- ☞ Departure location = (pick box) - (Bridgetown Fishing Complex, Oistins, Sixmens) **new**
- ☞ Last known position of vessel = (memo) - (27 degrees off the shore of St. Vincent) **new**
- ☞ Time of last known position of vessel = (hour/minutes/am/pm) - (8:45 AM) **new**
- ☞ Suspected problems = (text) or (memo) - (Engine failure) **new**
- ☞ Crew on board vessel = (crew list) - (List of the crew on board vessel) **new**
- ☞ Vessel found time = (hour/minutes/am/pm) - (12:25 PM) **new**
- ☞ Vessel found date = (year/month/date) - (2001-01-20) **new**
- ☞ Vessel found location = (text) - (40 degrees off the shore of St. Vincent) **new**
- ☞ Vessel returned time = (hour/minutes/am/pm) - (6:20 PM) **new**
- ☞ Vessel returned date = (year/month/date) - (2001-01-26) **new**
- ☞ Condition of vessel upon returned = (pick box) **new**
- ☞ Crew found time = (hour/minutes/am/pm) - (12:25 AM) **new**
- ☞ Crew found date = (year/month/date) - (2002-01-20) **new**
- ☞ Crew found location = (text) - (St. Vincent) **new**



- ☒ Number of days at sea = (number) - (14 days) **new**
- ☒ Country landed = (pick box) - (St. Vincent, St. Lucia, Trinidad) **new**
- ☒ Crew returned time = (hour/minutes/am/pm) - (6:20 PM) **new**
- ☒ Crew returned date = (year/month/date) - (2001-01-26) **new**
- ☒ Condition of crew upon returned = (pick box) - (Good condition, Hull damage, engine out of order) **new**
- ☒ Reason for problems = (memo) - (No oil in the engine) **new**
- ☒ Correction to problem = (memo) - (none) **new**
- ☒ Comments or notes = (memo) - (none) **new**
- ☒ Report closed date = (year/month/date) - (2002-01-28) **new**
- ☒ Report closed by = (pick box) - (C. Weekes, W. Gittens, a. Jackman) **new**
- ☒ A record of every time the vessel has had to be assisted should be kept.

FIELDS FOR

FISHER DATABASE

- ☒ Picture of the person = (picture) **new**
- ☒ Fisher number = (key number) - (521)
- ☒ Last name = (text) - (Yearwood)
- ☒ Middle initial or name = (text) - (C or Clyde) **new**
- ☒ First name = (text) - (Robert)
- ☒ Address = (text) - (Doughlin Road, Weston)
- ☒ Parish = (pick box or text) - (St. James) **new**
- ☒ Nickname = (text) - (Tim)
- ☒ Date of birth = (year/month/date) - (1974-01-01)
- ☒ Nationality = (pick box) - (Barbadian,
- ☒ National Identification Number = (number) - (19740101-4501)
- ☒ Home telephone number = (number) - (246-421-4523)
- ☒ Work telephone number = (number) - (246-436-9467) **new**
- ☒ Cellular telephone number = (number) - (246-231-3548) **new**
- ☒ Fax telephone number = (number) - (246-232-5124) **new**
- ☒ E-mail address = (text) - (Tim32@ hotmail.com) **new**
- ☒ Occupation outside of fishery if any = (text) - (Truck driver) **new**
- ☒ Fishery Organisation = (pick box) - (Bridgetown Fishers, Oistins Fishers, Weston Fishers) **new**

Contact in case of Emergency

- ☒ Name = (text) -(Ann Yearwood)
- ☒ Address = (text) - (Doughlin Road, Weston St. James)
- ☒ Home telephone number = (number) - (246-421-4523)
- ☒ Work telephone number = (number) - (246-424-6953) **new**
- ☒ Relation = (pick box) - (Wife, Sister, Mother)
- ☒ Education = (pick box) - (Elementary / Primary, Secondary, Polytechnic, Collage, University)
- ☒ Qualification = (text) - (O' Level / CXC, A' Level, Degree)



- ☒ Role(s) in fishery = (pick box) - (Boat owner, Agent, Captain, Fisherman, Owner & Captain)
- ☒ Time working in fishery = (pick box) - (Full time, Part time, Sport fisher, Investor only)
- ☒ Registered date = (year/month/date) - (2002-01-01)
- ☒ Signature of fisher = (signature) **new**

FISHER'S LICENSING DATA BASE

- ☒ Target species = (pick box) - (Flying fish, Dolphin, Tuna)
- ☒ Fishing gear = (pick box) - (Gill-nets, Seine nets, Long-lines, Traps)
- ☒ Fisher Area = (pick box) - (Zone A, Zone B, Zone C)
- ☒ Primary landing site = (pick box) - (Bridgetown Fishing Complex, Oistins, Sixmen)
- ☒ Secondary landing site = (pick box) - (Tent Bay, Consett Bay, Skeet's Bay) **new**
- ☒ Type of licence = (pick box) - (Fisherman, Vendor, Sport Fisherman) **new**
- ☒ Condition status = (pick box) - (Licence cancelled, Licence suspended, Operating out of the country, Active) **new**
- ☒ Condition status updated date = (year/month/date) - (2002-01-01) **new**
- ☒ Comments = (memo)
- ☒ Authorising Officer = (pick box) - (G. Franklin, T. Moore, C. Taylor) **new**
- ☒ Licence Issue date = (year/month/date) - (2002-01-01)
- ☒ Date licence expires = (year/month/date) - (2002-01-01)
- ☒ Vessel's list = (window in to a sub-database) - (List of the vessels the fisher is associated with. Displayed using the fields below) **new**
- ☒ Vessel number = (Key number) - (602) **new**
- ☒ Relation to vessel = (pick) - (Owner, Agent(s), Crew, Captain) **new**
- ☒ Vessel registration number = (text) - (X12, P36, S22) **new**
- ☒ Vessel name = (text) - (EXAMPLE) **new**



DOMINICA

(Ms. Sharon Corriette – Fisheries Officer)

THE OVERALL GOAL OF DATA COLLECTION AND THE ROLE OF THE DATABASE PLAY

The overall goal of data collection is for the provision of information for management of the fisheries of Dominica and for fish stock assessments.

The database can play a very vital role in enabling one to effectively manage the data set and to quickly obtain desired information. Many simple time consuming computations and combinations of data fields required for providing information on the fishery can be quickly produced if the database is user friendly.

It allows the data operator to be able to put the data into an electronic format for easy access and for more effective management of the data set.

The database is actually a very efficient tool for working with large quantities of data and for providing the necessary parameters used for fish stock assessments.

DATA REQUIRED

- ☒ Dates
- ☒ Landing site
- ☒ Gear type
- ☒ Weight
- ☒ Species
- ☒ Vessel ID
- ☒ Number of sets of gear
- ☒ Number of fish pots
- ☒ Area fished (alpha code to be customized)
- ☒ Biological data
- ☒ Provision for more than one boat per trip.
- ☒ Multiple target fishery

data is collected and stored within the current database

- ☒ Target fishery
- ☒ Landing site
- ☒ Site sampled
- ☒ Gear
- ☒ Weight
- ☒ Species
- ☒ Crew size



- ☞ Hours fished
- ☞ Agent
- ☞ Vessel ID
- ☞ Days out
- ☞ Biological data

DATA IS COLLECTED AND NOT STORED WITHIN THE CURRENT DATABASE

- ☞ Use of fuel
- ☞ No. of boats not sampled
- ☞ No. of boats landed
- ☞ No. of boats sampled

HOW RELEVANT DATA IS COLLECTED AND MANAGED SPECIFICALLY

☞ How forms are processed:

- The forms are made into a book and given to data collectors who enter the data. Checks are made in the field to ensure that the data collector is sampling and entering the information correctly. The data book is checked by the data entry person for errors which are corrected before it is entered into the data base. In some cases the data collector is contacted to clarify certain issues to ensure that the correct information is entered into the computer.

☞ Where sampling takes place

- Sampling is done at all landing sites on the beach on a daily basis. In some areas a census is done mainly because the data collectors live in the fishing communities and collection of data is their sole occupation. The data collection supervisor visits each landing site at least once per month to help resolve problems encountered with sampling technique, difficulty with identification of fish species or fishing gear and methods, and to discuss with fishermen and the general public the importance of data collection in order to gain their support.

☞ How vessels are chosen

Random sampling & census sampling

☞ How data are managed on the computer

Back-ups are done every two weeks and stored on diskettes.

☞ Data manipulation and reporting

All manipulation and reporting of data is done in Excel because TIP is not user friendly and data cannot be manipulated easily.

☞ Rules used to maintain data quality

- Random checks on the field



- Queries are done at the end of every week
- Data forms are checked before data is entered into the system
- User code is installed

RECOMMENDED FUNCTIONS & CAPABILITY OF THE WINDOWS VERSION OF TIP & LRS

- ☞ Pick list for fishery type, gear type to cater for one trip where more than one fishery type & gear needs to be entered from one interview.
- ☞ Programme needs to recognize current date and beep when wrong dates (i.e) year are entered.
- ☞ Ensure that when gear type is entered in section 1, it should be carried to Section 11 automatically. It should not be re-entered again.
- ☞ Section 1. Put in an alpha code for gear instead of Numeric code
It causes confusion and time consuming to go back to the pick list over and over.
- ☞ One should be able to link the fisheries and vessel databases not only by using vessel id. This makes things difficult where there is no registration number for the particular boat.
- ☞ Species list should be able to be amended to allow for entry of species which are not accommodated or available in the system.

SKILLS OF THE PEOPLE EXPECTED TO RUN THE SYSTEM:

Training is required to manipulate the data in TIP and use the system to its full potential, because to date reporting has been the most difficult task and represents the greatest limitation of the programme.



JAMAICA
(Ms. Shellene Reynolds – Regional Trainer)

**THE OVERALL GOAL OF DATA COLLECTION AND THE ROLE THE
DATABASE PLAY**

The Government of Jamaica, Fisheries Division is committed to the conservation and sustainable use of fisheries resources for the social and economic benefits to the people of Jamaica.

The overall goal of the Data Collection and Assessment Unit at the Jamaica Fisheries Division, is to:

- ☞ Provide information for national accounting. (information collected from catch & effort and biological data collection)
- ☞ Provide information for sustainable management of the most important species landed. (Lobster, Conch Fishery etc)

Both the LRS and TIP databases play a major role in the storing of data that is collected. It acts as a register to give account of the number of registered fishers, vessels, gears, type of species caught, average fish landed throughout the island, etc. The database can be manipulated to suit ones needs. It is easily accessible and can be imported or exported to and from other software programs such as Microsoft Excel. The data can be used to run queries and reports, do stock assessment and statistical analysis.

DATA REQUIRED

The data required includes:

- ☞ Social Data
- ☞ Economical Data
- ☞ Statistical Analysis
- ☞ Spawning season
- ☞ Different changes in the environment. (how they affect the population of fishes e.g. pollution effects, fishing pressure, climatic changes)
- ☞ Stock Assessment
- ☞ Thematic Mapping - (Plotting of fishing areas using a GIS system)
- ☞ Fishery Related Data such as: Catch and Effort, Biological Data : eg. Maturity, Aging (their life cycle), Sex of Species , Length and Weight (Biological data is only done for some species) see table below:



**FIRST WORKSHOP OF REGIONAL EXPERTS TO REVIEW AND
UPGRADE TIP AND LRS**

July 25-27, 2001; Kingstown, St. Vincent and the Grenadines

Fishery	Shallow-Shelf & Reef Fishery	Deepslope Fishery	COASTAL PELAGICS	Large Pelagics	Lobster	Conch	Shrimp
Objective of the Fishery	To rehabilitate reef fisheries to sustainable levels within the context of coastal zone management and conservation-oriented fishing practices.	To prohibit fishing effort on spawning aggregations and protect areas where these species normally inhabit during the early life stages.	To ensure the viability of the fishery through maintaining and enhancing habitat, and protection of nursery areas.	To cooperate with other states (particularly Caribbean states) to assess, protect and conserve the large pelagic resource.	To restore/rehabilitate the fishery through protection of lobsters and protection and enhancement of their habitat.	To ensure optimum sustainable yields and develop the fishery in other areas.	To ensure sustainability and efficient use of the fishery.
Type of Data Collected	(from Individual vessel) C & E BIO • Length.	(from Individual vessel) C & E	(from Individual vessel) C & E BIO • Length. • Maturity • Sex	(from Individual vessel) C & E BIO • Length.	(from Individual vessel & Industrial log sheets) C & E BIO • Length. • Maturity • Sex	(from industrial log sheet) ECONOMI CAL C & E BIO • Weight • Maturity • Sex	(from Individual vessel) C & E BIO • Weight • Maturity • Sex



DATA COLLECTED AND STORED WITHIN THE CURRENT DATABASE

The data stored within the current database captures the majority of the data collected required by both programs.

LRS

- ☒ The first and last name of the fisher (including alias and/or nicknames), Name of aqua-culture farms, processing plants
- ☒ Address of fisher, aqua-culture farms, processing plants and contact number (usually a home or work telephone number)
- ☒ Fishers date of birth, Fisher identification number
- ☒ Name of fishing beach, Educational level, Role in the fishery, Worktime in the fishery
- ☒ Martial status, Gender, Number of dependent
- ☒ Any other form of profession or qualification the fisher may possess
- ☒ Type of fishing gear(s) used, Type of species caught, Area(s) fished
- ☒ Name of vessel, Vessel registration number, Description of the vessel (the colour, the dimension)
- ☒ Number of crew, Vessel Port of entry, Vessel VHF call sign number

TIP

- ☒ Type of fishing activity conducted, Type of gear used, Number of gear used, Description of gear
- ☒ Type of species caught, Weight of species caught, Area fished, Depth fished,
- ☒ Biological data
- ☒ Unit Price of species sold

DATA COLLECTED AND NOT STORED WITHIN THE CURRENT DATABASE

LRS

- ☒ Number of each gear used
- ☒ Transfer of ownership (Sale) of vessel to another fisher, The destruction of a vessel
- ☒ Cancellation of a fisher or vessel application
- ☒ A history of the renewal of licences. This includes for both fishers and vessels.
- ☒ Photograph of the fisher, Photograph of the vessel. (The side and bow view)
- ☒ Deceased fishers
- ☒ Economical data
- ☒ Census data
- ☒ Community involvement and development (needs assessment)
- ☒ Problems faced by fishers while conducting fishing activities and otherwise
- ☒ Loan applications



TIP

- ☞ Expenditure of fisher
- ☞ Shared methods. (Gas price, boat and engine cost, amount each crew member receives)

DATA COLLECTION AND MANAGEMENT

How are forms processed

LRS

In order to maintain a standardized and accurate database of information, a large part of the Data Collection Unit activities has been involved in the standardization of all data including verification and data backups.

Application forms for fishermen, boats, are all kept in a safe and accessible place until they are ready to be entered in the computerized software.

- ☞ Registration forms are first checked and signed by the Director of Fisheries.
- ☞ Forms are entered into the official register by parish and by fishing beach. The fishers names, licence number, date of birth, sex and license expiry date is entered in the appropriate Fishermen's Register.
- ☞ A coded entry number is then written at the top left hand corner, on the application form based on the parish, fishing beach, page number and the row number in the book. For example, (K-112-3). K, which represents the code for the parish of Kingston, 112, represents, the page number and 3, represents the row number.
- ☞ The application forms are then handed to the data entry operator to be entered into the computer. The forms are compiled and double checked to ensure that the forms have all been signed and entered in the appropriate registers.
- ☞ All data is entered in capital letters and codes are created for specific fields. This is done in order to have a standardized data entry system. **Codes** such as: *Name(s) of Opsite, PortOp, Landing Site, Area Fished.*
- ☞ An index number, (generated from the appropriate database file (eg. fishers.dbf) is entered on the appropriate form with a coloured ink.
- ☞ After all the forms have been entered in the computer, the index number is entered in the appropriate register beside each entry. They are stored in piles of twenty in report folders. The index numbers from all the forms are used to number the folders (eg. 00001 - 00020). They are stored into metal filing cabinets for further reference.

TIP

- ☞ All catch and effort and biological data collection sheets are first thoroughly checked by the Data Manager, then re-checked by the data entry operator before entry into the database.
- ☞ Forms are checked for any information left blank, the correct calculation of hours fished (this depends on the type of fishing gear used) etc.



- ☞ A summary of all the vessels sampled, area fished and total catch of each vessel is recorded on a "Summary Sheet". This sheet is attached to the data collection sheet and biological data sheets (that is, if any biological data was collected)
- ☞ Codes are assigned to this summary sheet depending on the type of fishing being targeted at that particular landing site
- ☞ eg. Code 31: Shrimp Fishery , Code 71: Lobster Fishery
- ☞ Each interview is then entered into the TIP database and assigned an interview number (generated from TIP). This number is written at the top of each catch and effort sheet and corresponding biological data sheet. The interview number is used as a cross reference from the hard copy to the database.
- ☞ All data sheets are compiled and filed in chronological order at the end of each month. These folders are then labeled e.g. "June 2001, data collection sheets" and stored in a metal filing cabinet.

Where sampling takes place

Sampling is done at 10 different landing sites across the island for both catch and effort data collection and biological data collection.

However, biological data is only done at 6 landing site. See table below:

	<i>Landing Site</i>	<i>Fishery Type</i>	<i>Catch and Effort Data</i>	<i>Biological Data</i>
1	Whitehouse (Mobay)	OP	✓	✓
2	Manchioneal	OP, RF	✓	
3	Pagee	OP	✓	✓
4	Bull Bay	LF	✓	✓
5	Hunts Bay	SF	✓	✓
6	Greenwich Town	CP	✓	✓
7	Hellshire Bay	LF	✓	✓
8	Old Harbour Bay	RF, CP, LF, SF	✓	
9	Rocky Point(Clarendon)	RF	✓	
10	Barnmouth	RF	✓	

Code: CP: Coastal Pelagics, LF: Lobster Fishery, OP: Offshore Pelagics, RF: Reef Finfish, SF: Shrimp Fishery,

How vessels are chosen

There is no special method set up in choosing vessels. Interviews are conducted on the basis of cooperation from members of a crew.



How data is managed on the computer (backing up procedures etc)

Data for both the TIP and LRS software are backed up on a regular basis. Usually, a

back up is done at least 1-3 times per week or whenever any changes to the data is made.

The 1Omega ->1 Step Backup and Restore and/or PKZIP software is used for this purpose. Zip disk and 3 ½" Floppy disk is stored both off-site and on-site of the Fisheries Division.

Two sets of backup disks are kept at all times. They are labeled by date and are alternated each time a backup is performed.

Data manipulation and reporting

Data can be manipulated in many ways using various methods. This is usually done in order to suit ones need.

Decisions are made on how data in each field is entered. Rules relating to data entry are also set. For example: Landing sites are spelt in a specific way, and all entry is done in caps lock.

Information collected can be entered into fields of the databases, which are not currently being used.

Fields that are not relevant to the country's needs are left blank. However, this is not the case with fields that are used to link one database to another as this could result in a misrepresentation of information whenever a query is run.

Information in fields is easily replaced by manipulating the data using the Foxpro25 software.

From time to time the request for specific reports are required from within the Division, students, NGO's and other organizations. Over the years, most of these requests have been found to be of the same nature. For example, the number of total fishers and boats at a particular landing site. Average fish catch etc.

In order to respond to these requests promptly, some of these reports are pre-designed.

Reports are both printed in the LRS and TIP programs, however, some times they are exported into Excel and printed.

Rules used to maintain data quality (e.g. checks on bounds of values, eye-balling data, statistics etc)

Throughout each day or at the end of a workweek, a '**Quality Control Report**', (**QC Report**) is done. The QC Report gives a print out of all the data that has been entered in the LRS and/or TIP software programme for the day. With this, all the application forms/catch and effort sheet/data collection sheets are once again checked by comparing what is on the QC report to that on the original forms.



The purpose of preparing this report is to check and correct any error(s) that have been created while typing in information. Once a mistake has been found, the computerized registration number is then edited and the error(s) is corrected.

RECOMMENDED FUNCTIONS AND CAPABILITY OF THE WINDOWS VERSIONS OF TIP AND LRS

LRS

- ☒ A database should be created to hold applications such as:
 - Fishers who have been deceased
 - Cancelled or suspended fisher or vessel application
 - Destroyed vessels, any vessel or anyone who used to be in the fishery but no longer is involved,
 - Change of fishers name (through the means of deed pole)
 - Change of boat ownership, etc.

This database is necessary because whenever a count of vessels or fishers is done, (there is a mis-representation of the data since some of these applications, although not functional are still within the system)

N.B. This database could be called **HISTORY.dbf**

- ☒ Provisions should be made to scan in photograph of a fisherman and/or boat in the LRS programme. This could be done at the top left hand corner of the screen if the screen is rearranged.
- ☒ Within the browse screens, the “**Quicky**” and “**Find**” option should be able to accept both upper and lower case letters regardless of how they were written within the program.
- ☒ Some form of cross reference should be made to visually view fishers who own boat/boats while in the edit screen. (I’m suggesting that some form of ‘picture in picture’ feature be included. Example, while in the fisher edit screen, there should be a small screen in the top right hand corner showing the name of boat(s) and boat veno that that fisher owns.
- ☒ Within the licence database or the proposed history database there needs to be a screen which shows an history (at least up to six years) of licences issued, expiry date, renewal date for each fisher and vessel.
- ☒ *Currently, no record is shown of years gone by. The database only keeps record of the current licence.
- ☒ Allow for the program to be exported into Microsoft Access and SPSS
- ☒ Alert the user when forms which have notes entered in them are edited. (an asterisk, beep or flash could be used to tag these record)



- ☒ Make provisions to incorporate a loans database. This would involve fishers who have granted loans to purchase fishing equipment, material for net construction, gear, engine and/or boat.
- ☒ This database could either be separate or could be on a separate screen inside of the fishers database.
Example : section 1 = fishers information, section 2 = loan information

This should include:-

- the loan application number (this could be either entered manually or generated by the computer)
- the amount of the loan, cost of equipment, type of loan (example: to purchase gear, engine and/or boat etc, (* this could be a pick list)
- (If a loan was given to purchase a boat or engine, information should be entered on the name of the boat, boat registration number, length, depth, width, engine type, serial number and hp.)
- date issued, date of last payment, amount paid to date, payment this period
- balance outstanding, arrears/overpayment, receipt #
- the name of the loan (there are two different loan types used in Jamaica.)
- name, address, telephone number and identification number of guarantors,

- Names and ages of fishers dependents

***Information about the fisher (example: fisher id no. address, name, nickname/alias, telephone number, date of birth,) would be automatically brought on the screen from the fisher database. (if they have already been entered into the database)**

- ☒ A Trial Balance should also be able to be generated from data entered into this database. This should also include a report run date. (generated from the computer system date) as well as, a user could create his own query and report.
- ☒ A loan application form needs to be incorporated into this database, similar to the application used by each
- ☒ country who have an active loan program.
- ☒ Within the Loans database, an alert should be made to the user to identify a fishers who has a loan outstanding.
- ☒ The Licence. Dbf screen could be incorporated into the fisher and vessel screen. This could be done by dividing these screens into section.
- ☒ Example: After entering data into the fisher screen, (section 1) data could be entered into section 2 (licence information) if that fisher is issued a licence to fish. If not, it would be left blank.
- ☒ Define each option in the menu bar when it is selected at the bottom of the main menu screen. Example: Add “ adds new record”, Delete “delete interview” etc.
- ☒ Printer option needed
- ☒ Allow program to incorporate Economical Data.
- ☒ Allow for the production of graphs. (example: line, bar, pie etc)



- ☞ Create section within the vessel.dbf to record a fishing inspection report. Example: to list the type of fishing equipment and quantity found on each fishing vessel.

TIP

- ☞ Provision to convert measurement of unit (example: convert lbs to kilogram, metre to feet etc..)
- ☞ Allow for the calculation of CPUE, and other analysis in a more simple way.
- ☞ Printer options needed. (option to select a default printer)
- ☞ Allow for the production of graphs. (example: line, bar, pie etc)
- ☞ Allow for software to be compatible with a GIS software program and GIS board.
- ☞ Allow for the export of files into SPSS and Microsoft Access
- ☞ Alert the user whenever forms which have notes entered in them are edited. (an asterisk, beep or flash could be used to tag these record
- ☞ Need for a password and/or user name and password for the program.
- ☞ There should be an “ADD” option for all the pick list files within the software. One should be able to add to all the pick list files. Example: the gears, species etc., where some options are not available.
- ☞ N.B: The current pick list .dbf is too complex.
- ☞ Where more than one mesh size is used in Section 2 to catch a specific type of species. This information needs to be displayed when a query is done.

DETAILS OF THE PLATFORM ON WHICH THE DATABASE WILL RUN

Details of the platform the database will run (computer stats including processor speed, windows version, disk size, free space, RAM, CD-ROM specs, LAN specs, and any other relevant information about the system set up)

Company	Intel or AMD
<i>Processor</i>	Pentium 3, Pentium 4 or Athlon (Enhanced)
Processor Speed	1GHz upwards
Windows Version	Windows 2000/XP
Hard Drive	30GB
Memory	256 MB RAM
CD-ROM	CDR-W 12 x 10 x 32
Modem	External LAN Modem ver 90/56K
Network	Ethernet 10/100 mbps
Monitor	17" colour
Printer	Fast Dot Matrix or High Volume data printer using 8½" x 11" , 8¼" x 14", 11" x 17" letter, legal and poster size papers



SKILLS OF THE PEOPLE EXPECTED TO RUN THE SYSTEM

The qualification of the people expected to run the system should includes:

- ☒ Basic training in Windows Operating System
- ☒ Basic training in the use of database software, including troubleshooting, running queries etc.
- ☒ Basic reporting skills. (written and oral)
- ☒ Programming skills in the relevant languages. (Visual Foxpro, Foxpro25, etc..)



(Ms. Williana Joseph – Regional Trainer)

ST. LUCIA

Policy

- ☞ to develop the fishing industry and ensure its sustainability by promoting increased production of marine and aquatic products for self sufficiency and export through the institution of appropriate management measures.
- ☞ This include: the modernization of the fisheries infrastructure and fishing vessels; the use of improved fishing gear and methods; regulation of fishing gear; protection of marine and fresh water biodiversity, regulation of other marine based activities; advising coastal development so as to mitigate negative impacts on the marine environment and ensuring the overall educational advancement of fishers.

THE OVERALL GOAL OF DATA COLLECTION AND THE ROLE THE DATABASE PLAY

Aim

- ☞ The main aim of the data collection system is to monitor the status the fishing industry, provide management with information to guide development and management strategies.

Database Roles

- ☞ Electronic entry and storage medium
- ☞ Easy access and retrieval in number of formats (flexible)

DATA REQUIRED

- ☞ Catch
- ☞ Biological
- ☞ Sighting Surveys
- ☞ Effort
- ☞ Economic
- ☞ Social
- ☞ Legal
- ☞ Exports (CITES, conch)



DATA COLLECTED AND STORED IN CURRENT DATABASE

- ☒ Catch
- ☒ Effort
- ☒ Biological
- ☒ Social
- ☒ Economical (price)

DATA COLLECTED AND NOT STORED IN CURRENT DATABASE

- ☒ Total vessel
- ☒ Sampling regime
- ☒ Species Info. (tunas species, gar)
- ☒ Specific gears
- ☒ Economic information – due to increasing demand for such
- ☒ Fuel used per trip
- ☒ Sea Urchin harvest data (biological and catch)
- ☒ Sports fishers, SCUBA diving, Snorkeling, Recreational fishers

DATA COLLECTION AND MANAGEMENT

- ☒ Processing of forms
- ☒ Sampling
 - Mainly at landing sites
 - Lobster and Conch proposed to implement questionnaire survey – main purchasers
 - Lobster, biological, at main purchaser (SLFMC)
 - Sea Urchin – at harvesting site
- ☒ Vessels
 - (LRS) All fishing vessels are required to be registered
 - TIP- In the order at which they return from sea based on the sampling strategy at the location
- ☒ Backup
 - Batch after entry and after corrections
- ☒ Reporting



- Most queries performed in TIP
- Presentations Formats and additional reports are performed in other packages

☞ Quality

- Verification and validation before and after data entry by someone other than person who entered data.
- Simple queries compared to randomly selected totals (manual).

☞ Functions and capabilities

- Entry, storage and reporting/analysis
- Compatible with Stats packages in addition to Ms software
- Link TIP and LRS
- LRS – generate country specific legal license documents



(Cheryl Jardine – Regional Trainer)

ST. VINCENT AND THE GRENADINES

Introduction

The Trip Interview Program (TIP) and the Licensing and Registration System (LRS) are two database software designed and developed to be used specifically by the Fisheries Departments within the CARICOM region. These two programs are used extensively in St. Vincent and the Grenadines mainly for data entry, storage and reporting.

The Overall goal of data collection and the role the database play

In 1992, a revised data collection system was implemented under the CARICOM Fisheries Resource Assessment and Management Program (CFRAMP) with the main aim of providing data and scientific analyses necessary to assist resource managers to make resource management decision. The specific objective of this plan was to implement a fish sampling program which will provide catch effort data, and biological data.

A licensing and Registration system was also introduced with the aim to document the character of the potential effort of the fishery and to provide a tool for monitoring and regulating the actual effort of the fishery.

The importance of a proper data collection programme for any harvested fishery resource can never be overemphasised. However, an efficient data management system must be put in place to ensure proper data storage, to reduce data redundancy by linking data tables, to ensure flexibility i.e random and sequential access to the data, data security, Data manipulation and reporting. The Trip Interview Programme (TIP) and the Licensing and Registration System (LRS), have played a vital role in this regard.

DATA REQUIRED

Monitoring catch, effort and investments of capital and personnel is fundamental to evaluating the performance of a fishery. This information allows the fishery managers to monitor changes in fishing activity and to evaluate change in the biological and economic status of the resource. Hence there is need for:

- ☞ General Information – Which gives details on who collect the data, where collection or sampling occurred, and vessel information and species targeted.



- ✧ Information on Fishing activity – fishing effort, gear, fishing location, landings by species, market category and price information
- ✧ Bioprofile data – growth information (Length weight measurements, ageing etc), otolith samples, reproduction, migration.
- ✧ Fisher Information – The number of individuals working in the fishery, time working in the fishery and educational background.
- ✧ Vessel Information – Number of vessels involve in fishing, the types of vessels and gear use, vessel condition and the type of fishing each vessel is involved in.
- ✧ Processing Plant Information – Number of processing plants establish in a particular area, the type of processing to be done, the equipment use etc.
- ✧ Aquaculture information

Data collected and stored within the current database

- ✧ Catch and effort data – General information on the fishing activity (type of fishing, area fished, crew size, soak time, gear), landings of various species by weight, price, etc.
- ✧ Biological data – at present the biological data collection only involves length measurements of a few selected species at selected landing sites.
- ✧ Fisher information – general information of the fisher, educational background etc.
- ✧ Vessels information – general information on the vessels (types, gear used, type of fishery)

DATA COLLECTION AND MANAGEMENT

There are currently six (6) data collectors, collecting biological and catch and effort data throughout the state. Each data collector is responsible for a given landing site and is expected to work for a period of 24 days in any given month. A sampling schedule is planned prior to the beginning of a particular month. This schedule allocates sampling days to landing sites for each data collector by using the techniques of simple random sampling.

Information is taken from all boats at random eight-hour periods between the hours of 6:00 am and 7:00 p.m. These eight-hour periods are divided into two four-hour periods with a one-hour break for lunch. At the landing site, sampling is done for the first available vessel after



the data collector arrives and then the next available vessel given the length of time spent conducting the interview.

The data collectors submit data forms (Catch and effort forms, Biological forms) along with the daily summary sheets at the end of each month. The daily summary sheets give information on the number of vessels landed and how many were sampled on that day. The Data Officer or Assistant Data Officer reviews each data sheet to ensure that there are no discrepancies. The information is then entered on the computer in the TIP database.

Fishermen who wish to be registered visit the Fisheries Office and give the relevant information, which is entered on the appropriate forms (fisher forms, vessel forms). Information is then transferred to the computer in the Licensing and Registration system software. All Fishing vessels must be inspected before a unique vessel registration number is given

Data are backed up twice per week in quadruplicate using the PKZIP software. They are stored on 3 ½ 1.44 MB floppy diskettes and 3 ½ 120MB Zip diskettes. Occasionally data will be copied onto a compact disc. Copies of these diskettes are stored at the office and by the Data Officer and Assistant Data Officer.

Data entered in the TIP and LRS programmes are checked periodically to ensure accuracy and reliability. Records entered are selected at random and the information cross-checked with that of the hard copy. The validate data option in the TIP menu is also use to check for any inconsistencies in the data entered.

Reports are done on a quarterly basis. Data are extracted from the TIP and LRS programmes and exported to Excel. Other database packages such as Minitab and SPSS are used for data analysis.

With the use of the TIP and LRS software the objective of enhancing the data storage and management capability to ensure a proper functioning data collection system have been achieved. However, the need for improving these two programs has arisen since technology is fast developing and we are no longer in a DOS age.

RECOMMENDATIONS

- ✧ The TIP software continues to store all catch and effort data, biological data with the addition of census data collected at the New Kingstown fish Market.
- ✧ Data reporting capability is improved so that there is full compatibility with other database programmes.



(Mr. Mario Yspol – Fisheries Officer)

SURINAME

Suriname never used TIP and LRS prior to May 2001, when Ms. Cheryll Jardine gave a presentation to Suriname Fisheries staff.

**THE OVERALL GOAL OF DATA COLLECTION AND THE ROLE THE
DATABASE PLAY**

The purpose is to remedy the identified shortcomings and provide the information needed for management. In particular it should produce , for each fishery type, monthly estimates of effort, catch per unit of effort (CPUE), catch, that are sufficient reliable and accurate for stock assessment purposes. Also for decision making, evaluation of the performance of the different fishery types.

DATA REQUIRED

Application Form for License

- ☞ Information of the owner, identification, name, address, place and date of birth, part time or full time fisher, does the owner also fished.
- ☞ Information of the vessel, name, registration number, material the boat is build, boat type (OG, GG, Canoe, other), measurements, new or secondhand, place, year build or year bought, fishery type, fishing grounds, landing site, ice holes(#), radio frequency, calling name, numbers of crew (Surinamese / Guyanese), family members.
- ☞ Information on the engine, serial no, brand mark, inboard or outboard, horse power, year build, year bought.
- ☞ Information on the gear, type(driftnet, njawarie, dragnet, incircnet, lagoon gillnet, stagnet). Material, mesh size (stetched), length, depth, year bought. Chinese seine, type (large, medium or small), numbers of rows, measurements, opening(width, depth), total length, mesh size (largest and smallest), year bought. Other gears.



Catch and Effort

This is collected on forms by enumerators at the various landing sites in Paramaribo as well in the district area. Forms are made according to the fishery types, except for the Central market where normally different types are landing their catches. These are :

- Central market
- Estuarine (small scale)
- Coastal
- Lagoons
- Seabob
- Finfish

Biological Data

Samples are taken offshore (by observers) as well onshore (at landing sites and processing plants). For fish, length frequencies and for shrimp, length frequencies, weight and maturity.

The observers do record on a trip the number of the haul, the date, time set in and out, position of the haul, weight kept and discarded, length frequencies and prepare samples for the office (seabob).

Data Stored

Currently the data is not stored in any data base, but all information that is being collected is stored on spreadsheet (Microsoft excel).

Data Management

- ☞ **How forms are processed**
All forms are entered in excel, major errors are corrected when the forms are entered.
- ☞ **Where sampling takes place**
Sampling takes place at Landing sites, processing plants and in the office.
- ☞ **How vessels are chosen**
For Catch and Effort data at some landing sites there is census on others a sampling program. This depends on the manpower available for the area.
- ☞ **How data is managed on the computer**
Data is stored on the server and also there recently a CD Recorder is available.



RECOMMENDATIONS

- ∅ The system must also allow export of data to other software application;
- ∅ The system will be used for mainly registration purposes;
- ∅ It must also be possible to select parts or part of the information stored in the System;
- ∅ We also recommend that it must be possible for the new system to make certain pre-defined reports;
- ∅ We further recommend that the system should have some space for future text field and numeric field;
- ∅ The query within the system must gave an overview of the fields to defined any specific reports;
- ∅ The system must be a multi user system;
- ∅ It must be possible for three to five persons to access the system at the same time.

DETAILS OF THE PLATFORM ON WHICH THE DATABASE WILL RUN

System Summary of the Server. There are 4 computers on the network (server)

Item	Value
OS Name	Microsoft Windows
Version	4.90.3000 Build 3000
OS Manufacturer	Microsoft Corporation
System Name	Server
System Manufacturer	VIA Technologies,Inc.
System Model	VT82C694X
System Type	X86-based PC
Processor	Pentium(r) 111processor GenuineIntel ~866Mhz
Bios Version	Award Modular Bios v6.00PG
Windows Directory	C:/WINDOWS
System Directory	C:/WINDOWS/SYSTEM
Boot Device	//Device/Harddisk0
Locale	United States



**FIRST WORKSHOP OF REGIONAL EXPERTS TO REVIEW AND UPGRADE
TIP AND LRS SOFTWARE PROGRAMS**

July 25-27, 2001, Kingstown, St. Vincent and the Grenadines

User Name	admin
Time / Zone	SA Eastern Standard Time
Total Physical Memory	127.51.MB
Available Physical Memory	6.93MB
Total Virtual Memory	2.00GB
Available Virtual Memory	1.81GB
Page File Space	1.88GB
Page File	C:/WINDOWS/WIN 386.swp



(Ms. Sherrill Barnwell – Regional Trainer/Programmer of TIP & LRS)

TIP AND LRS PROGRAMMER'S REPORT

RECOMMENDATIONS

- ☞ Data needs have not changed.
- ☞ Each software should remain separate because of the necessity that may arise out of the CARICOM Draft Harmonised Shipping Bill and subsequent formation of maritime authorities. However the established link should remain or strengthened as necessary.
- ☞ At present, the fields are compatible with that required under the FAO Compliance agreement – that should be maintained.
- ☞ Flexibility to incorporate country specific outputs consistent with the schedules under the relevant national legislations.
- ☞ The ability to maintain an archive/history of data. Generally there are certain pieces of information not must not be replaced/deleted when edited. Eg. Vessel description, Ownership, dates of registration and renewal, etc.
- ☞ At present, the fields are compatible with that required under the FAO Compliance agreement – that should be maintained.
- ☞ When a vessel is decommissioned, its registration number should never be given to another/new vessel. For example, if a person owns a canoe, and replaces it with a pirogue, the registration number of the canoe cannot be transferred to the pirogue.
- ☞ The concept of Standard Report must remain, but the ease of creating new/customised queries/reports must improve.
- ☞ The capability of importing of TIP and LRS databases, and the exporting feature maintained and enhanced.



SECTION IV

CONSULTANT'S REPORTS

In this section the following Consultant's reports are presented:

- ☞ Window version of TIP/LRS
- ☞ WINTILS - A Fisheries Information System

WINDOWS VERSIONS OF TIP/LRS

Introduction

As well as transfer the database from MSDOS to Windows, the opportunity is being taken to upgrade the structure and functions of the database. We must therefore review the current database and what additions and improvements can be added besides the graphical interface. This report summarises the issues raised so far by users and others of the old database software and is designed to stimulate discussion on the direction the software should take.

The database should fit smoothly within the data collection – monitoring - decision making processes. However, because the database is regional, some compromise is necessary between countries on what the system may and may not do.

The database and software could do many, many things, but we need a reliable robust system relatively quickly. It is important to ensure requirements are realistic to achieve a working version quickly and to allocate adequate time for testing and improvements. This means prioritising changes and additions to the system.

Output from the database is an important consideration. Almost all database software now supports SQL queries, which forms the standard method to extract data. While ideally users should become familiar with this technique, help in various forms can be provided (standard queries, query-by-example, query support tools).

How the data will be used should also be considered. Because the database structure is the same for all countries, analysis tools (such as CPUE standardisation, simple stock assessment modelling) can be provided to output statistics of interest. This does not replace a full analysis, but should aid routine monitoring and increase the use (and therefore value) of the data. The database could form the basis in future for other tools to help countries carry out fisheries management tasks, and some thought should be given to this.



Platform Specifications

An initial review suggests that we need to specify minimum requirements for the computer on which the database will run. If these requirements are set too low, many countries will not be able to take advantage of the advancements available for software. Although the software may be installed on below-minimum systems, it cannot be guaranteed that the system will work well. Note that the higher the performance of the computer above the minimum, the faster the system will run and the less frustrating it will be to use and the less likely it will crash.

The following is a suggestion:

- ☞ Windows 98
- ☞ Pentium 200Mhz +
- ☞ Hard disk 300MB free space
- ☞ 64MB RAM
- ☞ Graphics settings: 16bit high colour, Screen area 1024 by 768
- ☞ 56K modem and Internet connection
- ☞ High volume reliable backup facilities (CD-R / CD-RW / Tape)

The screen area is important for database forms, as it is often useful to display a large amount of information at one time. If the software is written for lower resolutions (e.g. 800x600), data records may be spread across larger numbers of forms so that the system becomes harder to use and more confusing. If your computer cannot support 1024x768 or better resolutions, you may wish to consider upgrading your graphics card.

Although the whole system is not likely to take up much space depending on the amount of data already loaded, once free hard disk space falls below 100MB, the speed of the whole system can be greatly reduced. With the addition of images and MS Word documents, space will be very rapidly used up.

If the computer you plan to use falls below these requirements, let me know.

General Issues

Users and others have raised a few issues regards the database:

Password security: The database should require a username and password before access can be granted. This is standard practice.

Y2K compliant: All dates WITHIN the database will be Y2K compliant. Unless specific instructions are given limiting date range, any date from 0AD – 9999AD could be entered in the date fields.



Historical data: Most data will need to be kept permanently, as most analyses use historical information. However, some data need only be current (e.g. identification information) and these two types of data fields need to be separated into tables.

Support for different fonts and printers: Windows now handles fonts and printers. It should be possible to change settings in Windows for these.

Database Navigation: Movement among tables and data should be easier with a Windows interface. The user will be able to arrange and display forms as they wish.

Specific Uses: Some users have indicated they wish the database to connect to other software or systems. These depend upon the software or system involved. Some software will be able to access the database directly (e.g. Excel, SPSS, GIS). For others a connection could be provided as long as an exact specification of how the software and connection is provided.

Updating species and gear codes, and other lists: The idea behind codes is that data entry is standardised across the region. Allowing users to change and update these can cause problems. However, standardisation inevitably leads to problems where categories do not quite fit the observations. We may need to review the current lists of species, gear and other codes and decide upon how they are managed.

Tutorial: A software tutorial as provided in some commercial packages would not be possible. However, context sensitive help, tool-tips and similar facilities will be integrated into the system.

Data Unit conversion: The main data conversion required is from lbs to kgs and vice versa. I would suggest the database holds data in one unit only (kg) and that conversion is carried out when necessary on input or output.

Network: At least one user has requested the database can be accessed across a network. The current suggestion is to develop a client-server system, separating the “application” (software written by the consultant) and the database (software written by a 3rd party such as Microsoft). Although this system is much more powerful, it may require some additional data management skills which smaller systems do not need. Although the system architecture will be for networks and ready for upgrading, the first version at least will be single user and run on a single computer as with the current TIP/LRS systems.

LRS-TIP: There are currently two databases. These databases could share data, which would improve their performance. However, it needs to be decided whether they should be integrated into single database or simply communicate through a connection. If they are combined into a single database, there will be fewer chances of errors and the system will be more efficient. If kept separate, they could reside on different computers on a network, which may be useful if responsibility for data maintenance lies with different departments.



Additional Variables

Trip Interview Program (TIP)

New Variables

- ☞ Interviewer name
- ☞ Target fishery – Primary and secondary target fishery
- ☞ Trip type – allow multigear trips
- ☞ Add Soak time, Number of Hooks, fuel used

Changes to variables

- ☞ Gear description needs 3 decimal places
- ☞ Area needs 2 decimal places

Additions to the Pick Lists

- ☞ Vessel Class: Prawn vessel, Seabob vessel, Snapper vessel
- ☞ Gear Type: One Shrimp Trawl, Double Shrimp Trawl, Quadruple Shrimp Trawl, Snapper Traps, Snapper Handline
- ☞ Gillnet sizes: 2-4 inches, 4-6 inches, 6-14 inches
- ☞ Fishery type: Shallow Shelf Fishery, Deep Slope Fishery, Coastal Pelagics, Shrimp

Licensing and Registration System (LRS)

Fishers

- ☞ Fisher Picture ID
- ☞ Signature
- ☞ Financial dependents
- ☞ Status deceased, retired, active, inactive
- ☞ Telephone, Home, Work, Cellular, Fax, email
- ☞ Middle initial or name = (text) - (C or Clyde)
- ☞ Parish = (pick box or text) - (St. James)
- ☞ Occupation outside of fishery if any = (text) - (Truck driver)
- ☞ Fishery Organisation = (pick box) - (Bridgetown Fishers, Oistins Fishers, Weston Fishers)



Fisher Licensing Table

- ☞ Secondary landing site = (pick box) - (Tent Bay, Consett Bay, Skeet's Bay)
- ☞ Type of licence = (pick box) - (Fisherman, Vendor, Sport Fisherman)
- ☞ Condition status = (pick box) - (Licence cancelled, Licence suspended, Operating out of the country, Active)
- ☞ Condition status updated date = (year/month/date) - (2002-01-01)
- ☞ Authorising Officer = (pick box) - (G. Franklin, T. Moore, C. Taylor)
- ☞ Vessel's list = (window in to a sub-database) - (List of the vessels the fisher is associated with. Displayed using the fields below)
- ☞ Vessel number = (Key number) - (602)
- ☞ Relation to vessel = (pick) - (Owner, Agent(s), Crew, Captain)
- ☞ Vessel registration number = (text) - (X12, P36, S22)
- ☞ Vessel name = (text) - (EXAMPLE)

Legal Infringement

- ☞ Quality
- ☞ Weight

Vessel

- ☞ Vessel status (active, inactive, scrapped)
- ☞ Engine serial number
- ☞ Historical ownership records
- ☞ Several owners
- ☞ Several engines
- ☞ Gear types
- ☞ Species
- ☞ Picture of the vessel
- ☞ Proposed number of crew = (number) - (4 people)
- ☞ Fish storage = (pick box) - (deck, containers, insulated icebox, fish/ice hold)
- ☞ Draught = (number) - (3 ft)



- ☞ Construction material of deck = (pick box) - (wood, fibreglass, steel)
- ☞ Type of main engine = (pick box) - (outboard petrol, outboard petrol kerosene, outboard diesel, inboard diesel, inboard petrol)
- ☞ Type of auxiliary engine = (pick box) - (outboard petrol, outboard petrol kerosene, outboard diesel, inboard diesel, inboard petrol)
- ☞ Proposed fishing distance from shore = (number) - (10 miles)
- ☞ Proposed length of a fishing trip = (number) - (10 days)
- ☞ Date vessel was built = (year/month/date) - (2002-01-01)
- ☞ Builder of the vessel = (text) - (Mark Corbin)
- ☞ Place the vessel was built = (text) - (DI Manufacturing)
- ☞ Vessel constructed in accordance with regulations of = (pick box) - (1974, 1998, 2001)
- ☞ Vessel converted = (text) - (NO, From a Moses to a Launce 1984, From a Launce to a Iceboat 1995)
- ☞ Condition status = (pick box) - (hauled up, under repairs, sold, not fishing, sank, cancelled, registration suspended, operating out of the country)
- ☞ Condition status updated date = (year/month/date) - (2002-01-01)

Licence

- ☞ Date of licence application
- ☞ Allow for several fishery types
- ☞ Total number of gear
- ☞ Cancellation date
- ☞ Cancellation reason

Vessel Licence

- ☞ Secondary landing site = (pick box) - (Tent Bay, Consett Bay, Skeet's Bay)
- ☞ Condition status = (pick box) - (Licence cancelled, Licence suspended, Operating out of the country, Active)
- ☞ Condition status updated date = (year/month/date) - (2002-01-01)
- ☞ Authorising Officer = (pick box) - (G. Franklin, T. Moore, C. Taylor)



- ☞ Fisher's list = (window in to a sub-database) - (List of the owner(s), agent(s), crew, captain etc. Displayed using the fields below)*
- ☞ Fisher number = (Key number) - (521)*
- ☞ Relation to vessel = (pick) - (Owner)*
- ☞ First name = (text) - (Robert)*
- ☞ Last name = (text) - (Yearwood)*

Aquaculture

- ☞ Land Area
- ☞ Water Area
- ☞ Soil Type
- ☞ Farm Type
- ☞ Pond Size

REPORTS

Reports represent important output from the database, and would be provided as standard queries and report formats for printing etc. The following have been suggested as possible output from the database.

- ☞ Last 6 month licence history
- ☞ Licence should display offences
- ☞ No Printed Reports from LRS, just export to Excel
- ☞ Graphs
- ☞ Annual Landings by species group
- ☞ Number of licences by vessel category by year
- ☞ Numbers employed in the fishery sector by category
- ☞ Prices, imports and exports by year
- ☞ Fisher's costs and earnings by trip
- ☞ Fishing performance indicators



New Tables

The following new tables have been suggested by some users. If they are going to be included, precise definitions of all fields will be required.

Trip Interview Program (TIP)

Action and Weather table

☞ Fields: Vessel, Researcher, Date, Time, Position, Action, Wind, Weather, Glare.

Sighting Record table

☞ Fields: Vessel, Date, Recorder, Sighting number, Time, Type, Water quality

Licensing and Registration System (LRS)

Fisher Loans table

☞ Fields: Amount, APR, StartDate, DueDate, Description of the equipment bought.

Vessel Inspection table

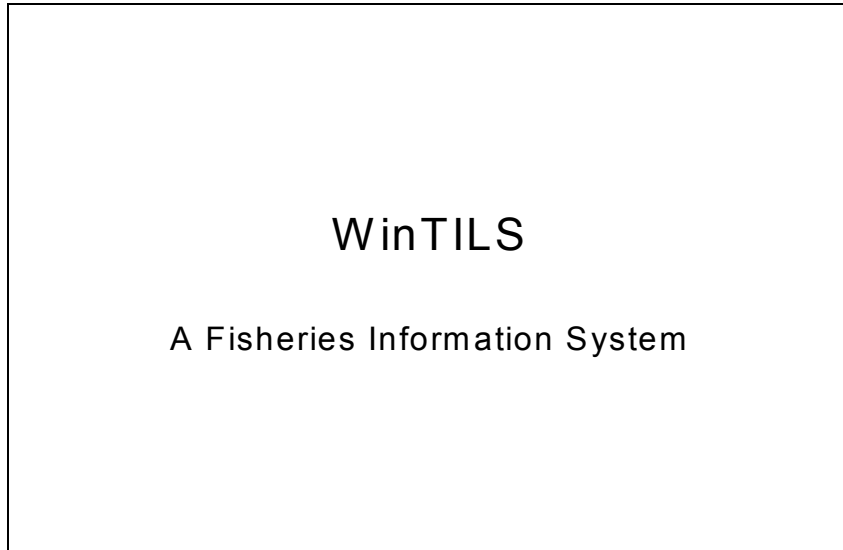
☞ Fields: Vessel, Inspection report (MSWord file), Date of inspection, location, Inspection was done (On land, Afloat), Type of inspection, Status of inspection, Inspector(s), Comments.

Search & Rescue Table

☞ Fields: Date, Who reported that the vessel was in distress, Departure datetime and location, Last known time-position of vessel, Suspected problems, Crew list, Vessel found Datetime location, Vessel returned Datetime, Condition of vessel upon returned, Crew found Datetime, location, Number of days at sea, Country landed, Crew returned Datetime, Condition of crew, Reason for problems, Correction to problem, Comments, Report closed date, Person who closed report



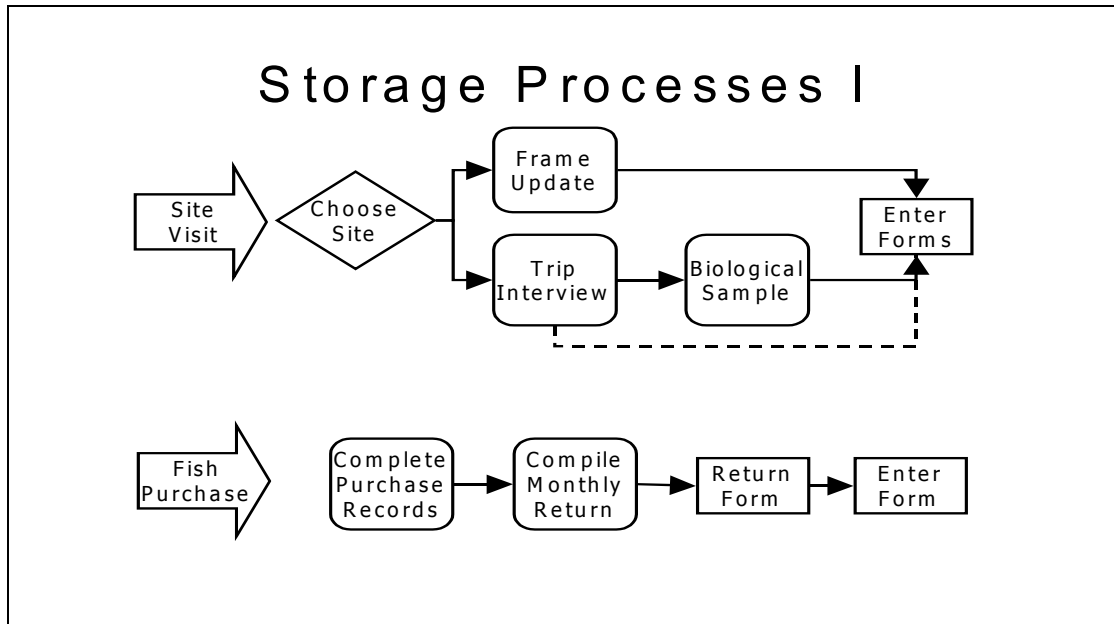
**WINTILS
FISHERIES INFORMATION SYSTEM**



The suggested name comes from Windows Trip Interview and Licensing System. As a fisheries information system, WinTILS will serve two purposes. Firstly it will monitor management transactions, such as registration and licensing. Secondly, it will archive information and carry out analyses to support management decision-making, such as generate an stock index from historical catch and effort. These two functions combine and enhance the old LRS and TIP systems.

While developing a new system, it is important that information previously collected is not lost. Hence the new system should be able to load previous information even if the data structures have changed.

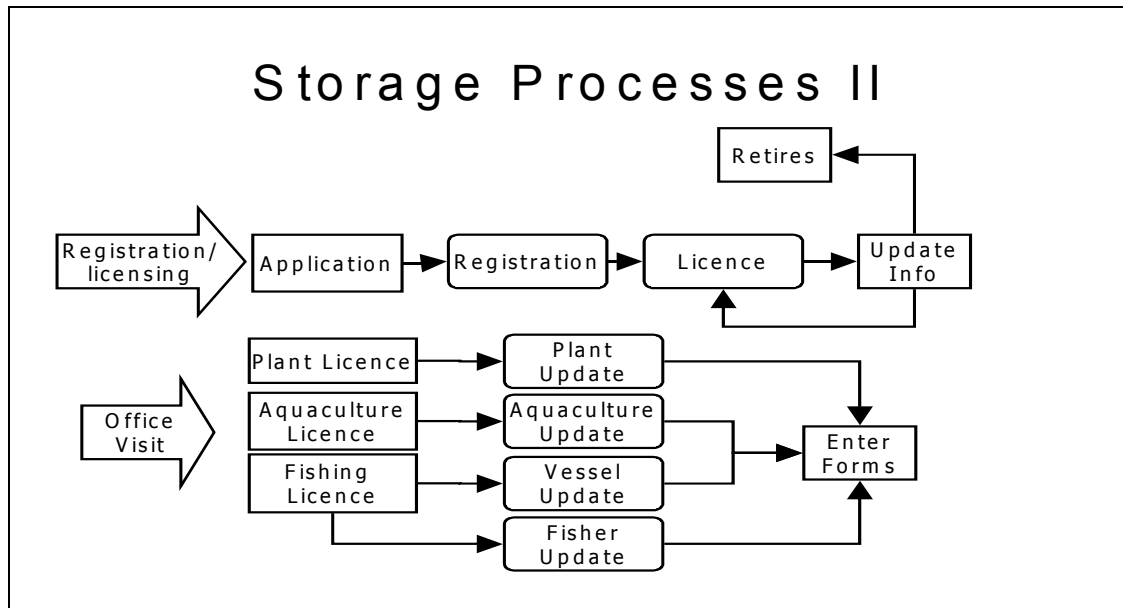
A critical issue is that database will be generic to the region and not closely adapted to any one country's needs. This will require compromise.



On a visit to a site an enumerator will update a frame survey form (Number of vessels by category based at the site, number of vessels by category out fishing). The enumerator will conduct a series of trip interviews and may take biological samples. This generates a number of data forms, which are entered into the database on return from the site visit.

When a processor purchases from a vessel, they complete a record of the purchase (vessel/fisher ID, type, amount purchased). Each processor can return these at the end of every month. Monthly returns could be submitted on paper or as a soft copy (e.g. spreadsheet).

A similar process would occur with logsheets maintained aboard larger vessels. In this case, records would represent daily activities and submission of the completed logsheets would occur at the end of the trip.



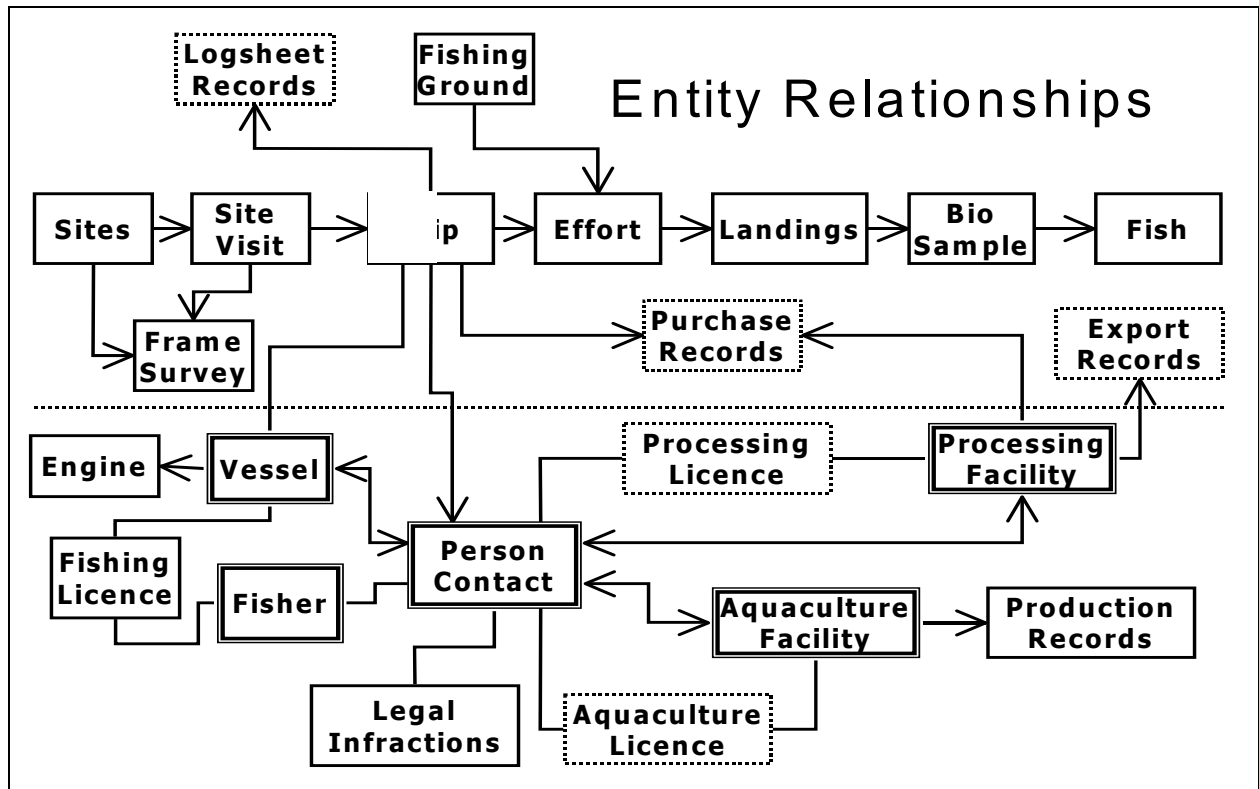
Registration and licensing are an ongoing process. This process can be monitored by maintaining dates representing passing through each stage. Although registration usually occurs only once, licences usually need to be renewed annually.

When a person is seeking a licence they must visit the licensing office. As well as completing the licence form, the licensee should check and update registered information and complete forms requesting or updating additional information. Information can be entered directly into the database during the visit, or from paper forms filled in by the licensee.

As represented here, registration consists of recording identifying information necessary to complete the legal documentation required for a licence. Generally fishers and vessels need both registration and licence, although these can sometimes be implicitly combined. Therefore there are three types of information required:

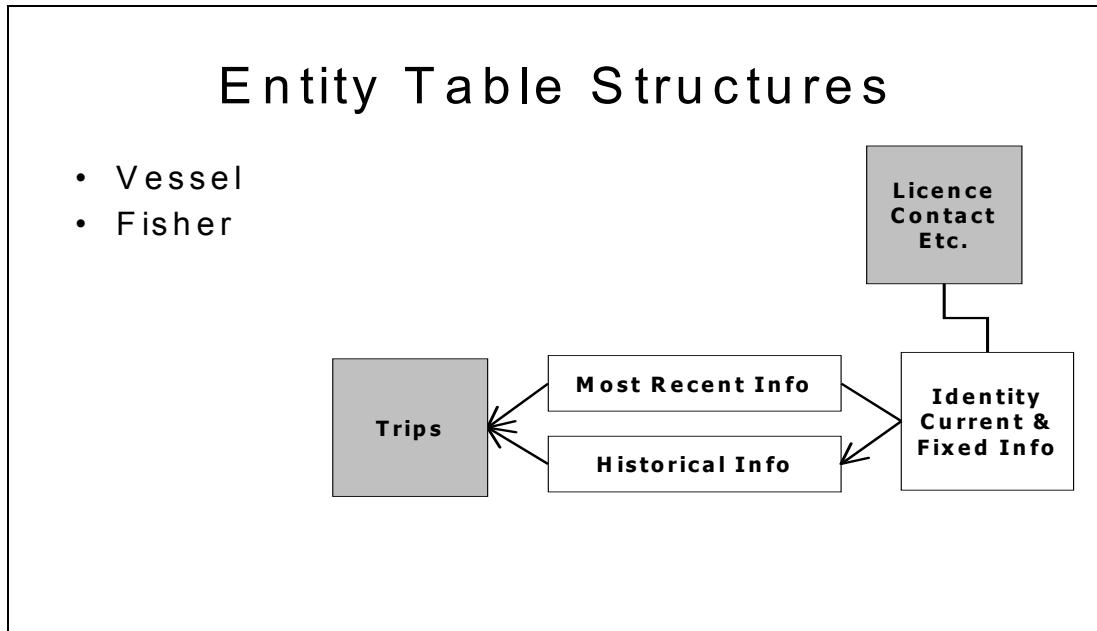
Registration: Identity information that does not change or is kept current (e.g. date of birth, photo id). **Licence:** Information completed for legal documentation. This usually identifies the responsible person and licence permissions only.

Analytical Information: Other information required to aid decision-making, which is usually archived rather than updated so that changes over time can be monitored (e.g. number of dependents, employment, investment).



The diagram shows the main relationships between various entities in the database and data collection process. The entities above the dotted line are more closely associated with TIP and below with LRS. One-to-one relationships are shown as lines without arrows, one-to-many relations are shown as arrows representing the many-relation, and lines with two arrows represent many-to-many relationships. For example, sites can have many frame survey updates, but facilities can have only one licence at a time. Each of the relationships need to be studied carefully to ensure it is correct. Note that many-to-many relationships will have to be eliminated in the table design, and the fewer there are, the higher the performance of the system will be. Entities with single lines will most probably be single tables. Entities with double lines will have an internal table structure as suggested below. Tables with dotted outlines are not in the current system, but could be included if requested.

Additional tables, if agreed, must not only have a defined internal structure, but the relationship between them and other tables in the database must be defined.



Types of information on vessels, processing facilities, aquaculture facilities and people separates into three types of information. Information that identifies the entity (Name, date of birth, location), information that doesn't change (length, registration number) and information that only needs to be current (pictures, contact information) goes into one table. Other information which are needed for an historical record are separated into two tables with the same structure:

- ☞ the most recent information with enforced one-to-one relationships with identity information, and
- ☞ archived information which has a one-to-many relationships with identity information.

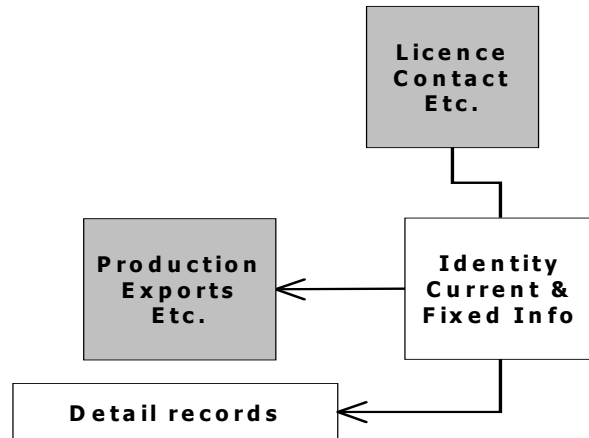
All information is updated (archived) when the licence is renewed.

Archived information on fishers could include any socio-economic survey data. Other information, such as loans, may only need to be monitored, although basic information on the loan (amount, schedule etc.) can easily be kept after closure.



Entity Table Structures

- Aquaculture Facility
- Processing Facility



It is currently proposed that historical data on processing and aquaculture facilities is not maintained. Historical records on production can and should be maintained if possible. Each facility may contain a number of activities and processes (e.g. fresh, frozen, cooked). Details on these are maintained in a separate table linked to the main registration table.

If historical records on facilities were to be maintained, these would be structured similarly to the vessel and fisher tables. Such information could be of use for detailed analytical analyses of processing investment and employment, but it is difficult to imagine that summary information (e.g. number of employees in the sector by month or year) would not be adequate.



LICENSING/REGISTRATION REPORTS



Lists

- License
- Registration
 - Aquaculture facility
 - Processing facility
 - Fisher
 - Vessel
- Owners
 - Aquaculture
 - Processing facility
 - Vessel



Complete Records

- License
- Registration
 - Aquaculture facility
 - Processing facility
 - Fisher
 - Vessel

This and the following slides suggest the most important reports that could be obtained from the database. Full flexibility would only be obtained from users designing their own queries. A query designer will be included to help construct SQL SELECT statements. However, users will need to understand the fundamental data structures to use this facility, and must refer to the documentation.

Lists are summary records in table form. Complete records are all information on a primary entity, including one to many relationships, such as owners, engines. All reports should be printable and lists exportable to Excel in some way.

Note that it should be possible to query the database directly from many packages. For example, it should be possible to get the catch and effort data in SPSS by using the SPSS query function without going through the application.



TRIP INTERVIEW REPORTS

- ☞ List Summary Trip
- ☞ Complete Trip Report
 - All variables and records associated with a trip
- ☞ Flat file raw data lists for export to analysis packages
 - Catch and effort
 - Biological sampling data
 - Frame Survey

Because of the hierarchical nature of the data, it is difficult to design a useful report structure beyond a summary and complete report for each trip. However the primary output from these data will be for analysis. Flat file output (An outer join on the outer node of the selected variables). If possible, dynamic selection of variables will be offered as well as a query interface for creating SQL SELECT commands. It should be possible to export these to Excel and text file (csv) output.

Primary Analytical Reports

- ☞ Number of registered or licensed analytical vessel, facilities and fishers by category
- ☞ Flat file output
 - total catch, effort and CPUE by species, area, month, year
 - CPUE with covariates for standardization in SPSS etc.
 - size frequency for length frequency analysis
 - total revenue by month, year and sector.

The number of licensed or registered entities is probably best output with categories to a flat file export to Excel for analysis using pivot tables. Furthermore, these Excel files can be archived for analysis of changes over time which otherwise may be onerous and complicated to hold on the database.

If sampling takes place, totals will be estimates and therefore need an estimate of their standard error. Raising is simple in theory, but complicated to do with so many data variables. It will be simpler to do this within the application rather than export then analyze the data every time this information is needed. Note that how the data are raised depends very heavily on the sampling regime. It is assumed that this will be consistent among countries.



Whether a report is available will depend upon which data variables are recorded. For example, without prices or catch values, it will not be possible to calculate revenue

SECONDARY ANALYTICAL REPORTS

- ☞ Standardised CPUE by year (graph)
- ☞ MSY reference point from biomass dynamics model (fitted model graph)
- ☞ Vessel profits
- ☞ Fisher earnings

It may be difficult to achieve secondary analysis outputs in this version of the database.

The standardized CPUE would use a standard main effects general linear model to account for vessel characteristics, fishing ground, depth and season. The model could be changed within the program if a better one was identified using SPSS, however allowing the user to change the model may be difficult beyond inclusion/exclusion of main effects. Therefore this would be largely for convenience and exploratory analysis. Similarly the reference point estimation would be exploratory. This would help carry out rapid assessments offering meaningful output with little work. This may be particularly valuable for monitoring purposes.

Vessel profits would require costs. Earnings would require crew share information.



ADDITIONAL DATA

- ✎ For each new variable the following must be defined:
 - how its collection fits into the current data collection process
 - business rules (validity, meaning etc.)
 - in which table a variable must be placed. New tables will require defined relationships with other tables
 - how is it to be used in reports

New data variables can be included, but they will need a precise definition. The primary aim is to build the foundation for the information system first around the current TIP/LRS system, and then to build on to it additional requirements in future versions. Two versions will probably be completed by the end of 2001.

Two-tier Software

- ✎ a Server manages the data. It is built from database software like Visual FoxPro or Oracle
- ✎ an application handles input and output. It can be written in any computer language and connects to the database through Windows
- ✎ the Server and Application can be upgraded separately.

The separation into server and application is irrelevant to the user, particularly where both are installed on the same machine. The separation makes maintenance of the system easier and will allow future upgrading to a networked system much easier. Simple networking between client and server on a LAN should be possible with this version of the database.



MICROSOFT ACCESS



Pros

- Simple and easy to use
- Inexpensive
- Widely used



Cons

- Only useful for small data sets
- Slow
- Unreliable
- Limited multi-user capability

MS Access uses the Jet Database Engine. It was not designed to hold large amounts of data or be distributed over a network. Although Microsoft gives the impression that Access can be used for most tasks, in practice it performs poorly with complex or large databases. It is not recommended for this database.

Visual FoxPro



Pros

- Fast
- Has multi-user capability
- Significant SQL support
- Automated upsizing



Cons

- Uses oldxBase language
- Language may not be supported in the medium term
- Limited development support

MS Visual FoxPro was, until recently, part of the Visual Studio suit for Windows applications development. It is basically a data manipulation language built upon older technology. Microsoft are in the process of replacing the underlying data server with SQL Server technology. This is transparent to the user. The question is whether the extended xBase will be supported, as xBase procedures would have to be re-written in the future if the system is upgraded. Fortunately, as SQL is supported, many procedures can be written that will require minimum alteration for a new system. In addition, the “upsizing wizard” would allow data structures to be transferred to SQL Server or Oracle without rewriting. Otherwise, in terms of scale and cost Visual FoxPro is a good option.



Oracle



Pros

- Fast
- Platform independent
- Completely scaleable
- Full SQL implementation
- Widely used
- Robust



Cons

- Expensive
- Resource hungry
- Requires some expert knowledge, particularly recovery

MS SQL Server is similar to Oracle, but it is not platform independent and does not have such a long history of good performance.

Oracle has a reputation for complexity. It is designed to be very robust, so that it can recover from most hardware and software failures without data loss. When functioning normally, it works without intervention. Where an error has occurred, however, some skill is required to recover the system. Therefore, while familiarity with Oracle is not necessary for all users, at least one or two in the region should be capable of recovering the system. As local businesses probably use Oracle, many countries may have local experts who could provide support.

APPLICATION SOFTWARE



Delphi

- Fast
- Very rapid development
- Well supported
- Transparent code
- Widely used
- Can be Implemented for Linux or Windows



Visual Basic

- Slow
- Rapid development
- Well supported
- Code sometimes unclear
- Very widely used
- Windows only

Delphi and VB do not preclude the use of C++ or Java in modules. Java is mainly used for web-based applications. A web-based database is not proposed here. C++ is very fast to run, but difficult to use and slower in developing applications compared to Delphi or VB. However, its speed can be used to maintain performance in frequently used modules and routines, so some of the application may be written in C++.



Overall, Delphi is probably the best language to choose. The only reason it might be rejected is that there may not be much experience locally for future development of the software.



APPENDIX I

Proposed Data Fields Report

















































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APPENDIX II

Power Point Presentations

Summary of comments received from Member States

Report-TIP and LRS:Experience, Needs and Recommendations
(The Bahamas)

Report-TIP and LRS:Experience, Needs and Recommendations
(St. Lucia)

Report-TIP and LRS:Experience, Needs and Recommendations
(St. Vincent & the Grenadines)

Report-Recommendations (Ms. Sherrill Barnwell-Regional
Trainer/TIP and LRS Programmer)



SUMMARY OF COMMENTS RECEIVED FROM MEMBER STATES

Presenter: Ms. Merline Hemmings

(Data Manager/Analyst-CFU, Belize)



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**REPORT-TIP AND LRS: EXPERIENCE, NEEDS AND
RECOMMENDATIONS (ST. LUCIA)**

Presenter: Mr. Michael Braynen

(Director of Fisheries-The Bahamas)



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**REPORT-TIP AND LRS: EXPERIENCE, NEEDS AND
RECOMMENDATIONS (ST. LUCIA)**

Presenter: Ms. Williana Joseph

(Regional Trainer/Fisheries Biologist-St. Lucia)



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**REPORT-TIP AND LRS: EXPERIENCE, NEEDS AND
RECOMMENDATIONS (ST. VINCENT & THE GRENADINES)**

Presenter: Ms. Cheryl Jardine

(Regional Trainer/Senior Fisheries Assistant (Data))

-St. Vincent & the Grenadines



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**REPORT-TIP AND LRS: RECOMMENDATIONS (MS. SHERRILL
BARNWELL –REGIONAL TRAINER/TIP AND LRS PROGRAMMER)**

Presenter: Ms. Sherrill Barnwell

(Regional Trainer/TIP and LRS Programmer

-NRMU/OECS, St. Lucia



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WINTILS – A FISHERIES INFORMATION SYSTEM

Presenter: Dr. Paul Medley

(Consultant)



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APPENDIX III

Agenda

Participants List



**FIRST WORKSHOP OF REGIONAL EXPERTS TO REVIEW AND UPGRADE TIP AND LRS
SOFTWARE PROGRAMS**

July 25-27, 2001

Kingstown, St. Vincent and the Grenadines

ANNOTATED AGENDA

TUESDAY, JULY 24

Hotel check-in

Check-in of participants (Chief Fisheries Officers/Directors/Administrators, Data Collection Supervisors/Managers and Fisheries Officers/Regional Trainers) from, The Bahamas, Dominica, Jamaica and Suriname. The delegates from Barbados and St. Lucia will arrive on July 25, 2001.

WEDNESDAY, JULY 25

8:00 – 8:30 Registration of Participants

8:30 – 8:45 **Welcome and Introduction**

- Introduction of Country Delegates and invited consultants
- Workshop Arrangements
- Election of Chairpersons
- Adoption of Agenda and procedural arrangements

9:30 - 9:45 COFFEE BREAK

10:00 – 10:15 **Workshop Objectives, Expected Outputs and Overview of Plan to Upgrade TIP and LRS.** (Presenter: **Mr. Milton Haughton-Scientific Director, CFU**)

This presentation will outline the goals and objectives of the Workshop and the plan for upgrading and preparing the Windows version of the TIP and LRS programs.

10:40 – 11.10 **Presentation and Discussion of Comments Received from Member States**

(**Presenter:** Ms. Merline Hemmings-Data Manager/Analyst, CFU)

A summary of comments received from Member States will be presented.

11:10 – 12.00 **Presentation and Discussion on Data Collection Systems and the role of the Database.**

Participants will present and discuss their experiences with the databases, their needs and recommendations for the upgraded TIP & LRS programs. Participants from Suriname and The Bahamas will focus on their database needs and requirements. Each participant will have 5-10 minutes for his or her presentation.

The country reports will include:

- The overall goal of data collection and the role the database play
- What data is required ?
- What data is collected and stored within the current database
- What data is collected and is not stored within the current database
- How relevant data is collected and managed specifically:
 - How forms are processed
 - Where sampling take place



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- How vessels are chosen
- How data is managed on the computer (backing up procedures etc)
- Data manipulation and reporting
- Rules used to maintain data quality (e.g. checks on bounds of values, eye-balling data, statistics etc.)
- Recommended functions and capability of the Windows version of TIP and LRS
- Details on the platform the database will run (computer stats including processor speed , windows version, disk size, free space, RAM, CD-ROM specs, LAN specs, and any other relevant information about the system set up).
- Skills of the people expected to run the system.

11:10 – 11.20	Report – The Bahamas
11:20 – 11.30	Report – Barbados
11:30 – 11.40	Report – Dominica
11:40 – 11.50	Report – Jamaica
11:50 – 12.00	Report – St. Lucia
12:00 – 12.10	Report – St. Vincent and the Grenadines
12:10 – 12.20	Report – Suriname
12:20 – 12.30	Report – OECS-NRMU
12:30 – 12.40	Report – CFRAMP (Dr. S. Singh-Renton and Mr. T. Phillips)

12:40 – 1:40 *LUNCH*

1:40 – 2:40 **Comments from the Consultant and General Discussion of Issues Covered in the Reports.**
(Presenter: Dr. Paul Medley)
In this session the issues presented in the reports will be discussed.

2:40 - 2:55 *COFFEE BREAK*

2:55 – 4:45 **Presentation and Discussion of the Review and Recommendations of the Consultant**
This session will involve a presentation by the Consultant and a “round table” discussion of the database blue prints in terms of:

- Interaction of TIP and LRS
- Database functions such as:
 - Standard Reporting and Formats.
 - Analysis, such as data processing and exploratory model fitting.
 - Sampling, such as random selections for sampling, and mean and
 - variance estimation.



THURSDAY, JULY 26

9:00 – 10:00 **Presentation and Discussion of the Review and Recommendations of the Consultant *cont'd***
(Presenter: Dr. Paul Medley-Consultant)
This session will involve a presentation by the Consultant and a “round table” discussion of the database blue prints in terms of:

- Database functions such as:
 - Reporting through standard report, supported SQL and formatting components.
 - Other functions requested by users
 - Risk involved in providing requested functions.
-
- Flexibility afforded to users.
- Multilingual capability of the software.
- Discuss and finalize the database Development Tool

10:00 - 10:15 COFFEE BREAK

10:15 – 12:00 **Presentation and Discussion of the Review and Recommendations of the Consultant *cont'd***
(Presenter: Dr. Paul Medley-Consultant)
This session will involve a presentation by the Consultant and a “round table” discussion of the database blue prints in terms of:

- Database functions such as:
 - Reporting through standard report, supported SQL and formatting components.
 - Other functions requested by users
 - Risk involved in providing requested functions.
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- Flexibility afforded to users.
- Multilingual capability of the software.
- Discuss and finalize the database Development Tool

12:00 – 1:00 LUNCH

1:00 – 3:30 **Review and Finalisation of Specifications for the Upgraded Windows Version of TIP and LRS**
(Presenter: Dr. Paul Medley-Consultant)

COFFEE BREAK (During Session)

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- **FRIDAY, JULY 27**
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- 9.00 - 10.00 **Review and Finalisation of Specifications for the Upgraded Windows Version of TIP and LRS**
cont'd
(Presenter: Dr. Paul Medley-Consultant)
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- **10:00 - 10:15 COFFEE BREAK**
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- 10.15 - 1.30 **Review and Discussion of the Follow-up Activities Including Role of the Working Group**
- - Any other business
 - Finalisation and adoption of the workshop and closure of plenary sessions
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- 1:30 – 2:30 **LUNCH**
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- 3:00 – 5:00 Hotel Check-out
Check out and departure of some delegates.

SATURDAY, JULY 28

- 8:00 Check out and departure of workshop participants.



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