

# **FINAL REPORT**

## **Development and Implementation of a National Standard for a Recreational Fisheries Database by all Fisheries Agencies**

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**F I S H E R I E S  
R E S E A R C H &  
D E V E L O P M E N T  
C O R P O R A T I O N**



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## *Non – Technical Summary*

SIRFIS is an acronym for Standardised Integrated Recreational Fisheries Information System. The system is designed to provide a user friendly and flexible environment in which to enter, store and retrieve data relating to recreational fisheries. The system also allows storage of comprehensive metadata (information about the data collection such as the methodology used) as well as storing associated documents such as journal articles or management plans produced from the data collected.

The system is designed to handle information relating to the following:

- Club Fishing
- Charter vessels
- On site surveys such as boat ramp/creel surveys
- Small off site surveys such as recall surveys/angler logbooks
- Tagging data
- Metadata and person/organisation administrative information

The need for a coordinated, national approach to the development of a standard for a recreational fisheries database was identified at the Recreational Fishing Workshop in Canberra in August 1994. The development of such a system was also considered a high priority at the pre workshop gathering of the 2<sup>nd</sup> National Fisheries Management Workshop at Bribie Island in 1994.

The system will operate against four of the main database management systems (Oracle, Ingres, SQLBase, and Sybase), providing flexibility and significant cost savings for users to implement the application against their current computer server software.

The project was funded by the Fisheries Research and Development Corporation and commenced in October 1995. All State fisheries agencies in Australia were involved in the project, which was developed by a team based at the Queensland Fisheries Management Authority in association with Farview Technology Pty Ltd. At a national level, the project was overseen by a group in Canberra called the Standing Committee on Fisheries and Aquaculture Fisheries Statistical Working Group.

With the development of the National survey of Recreational and Indigenous Fishing underway, research and planning are currently being pursued to develop a module in SIRFIS to enable such a large-scale survey to make use of the application. With this in mind, the SIRFIS application is well placed to go beyond the project's original objectives and provide a system that is capable of not only handling the predominant localised data collection methodologies widely used in each State, but also provide a system capable of handling large scale state wide and national information relating to recreational fisheries.

## ***Background***

The 1992 Queensland Government Inquiry into Recreational Fishing identified the need for a comprehensive database to assist with the monitoring of recreational fishing catch and effort data to contribute to the sustainable management of those species targeted by recreational anglers.

In August 1994, the need for a coordinated and national approach to the development of a standard for a recreational fisheries database was identified at the Recreational Fishing Workshop in Canberra entitled “Recreational Fishing: What’s the Catch?”. Further, it was considered a high priority at the preworkshop gathering entitled “Best Available Information – Its Implications for Recreational Fisheries Management”, held in conjunction with the 2nd National Fisheries Management Workshop (Bribie Island, October 1994).

The Standing Committee on Fisheries and Aquaculture (SCFA) Fisheries Statistical Working Group (FSWG) agreed that the development of a National Standard for a recreational fisheries database would provide a common structure for the collection processing, storage and retrieval of recreational fisheries data. Such a standard would enable common baseline data to be stored by each agency to assist with management of the major recreational fisheries in each State or Territory.

With the support of State fisheries agencies and the Fisheries Statistical Working Group, an application entitled “*The development and implementation of a national standard for a recreational fisheries database by all fisheries agencies*” was submitted to the Fisheries Research and Development Corporation in December 1994. The project commenced on October 1, 1995.

The application provides simple, yet flexible usability to allow the storage of a wide range of information relating to recreational fisheries including, but not limited to:

- creel surveys;
- boat ramp surveys;
- club and individual angler logbooks;
- game fishing records;
- charter boat records.

The application also provides functionality for administration, such as recording contact addresses and organisation details. In addition, a metadata module allows the entry of important information relating to data collections such as abstracts, methodology, and any constraints of using the data.

The solution offered by SIRFIS will promote greater access to datasets while still providing security to limit the users within organisations. The increased access and documentation of available recreational fishing datasets will greatly assist future management of recreational fisheries around Australia.

## *Need*

A comprehensive information recreational fisheries information system would:

- Ensure management decisions are based upon sound information. In addition, it would provide the structure to allow recreational fisheries data to bridge the existing substantial gap in relation to quality, coverage and availability as compared to commercial fisheries data collections.
- Provide a common structure for the collection, processing, storage and retrieval of recreational fisheries data.
- Be suitable for use by all fisheries agencies irrespective of their current facilities (i.e. mainframes, mini computers or PC's) through the incorporation of a comprehensive and user friendly interface for users to access the database.
- Provide a user friendly interface allowing retrieval of recreational fisheries data.
- Adopt national coding and validation conventions as recommended by the FSWG.
- Ensure the data meets the standards set by the Fisheries Statistical Working Group.
- Ensure recreational data would be compatible with major commercial fisheries databases such as the Australian Fishing Zone Information and the Queensland Fisheries Information System.

## *Objectives*

- To provide the tool to facilitate the “build up of an on-going national information base – a store of knowledge”, as recommended by the National Recreational Fisheries Working Group. Development of a Recreational Fisheries Database would provide a common structure for the collection, storage and retrieval of recreational fisheries data.

The database would be suitable for use by all fisheries agencies irrespective of their current hardware and database server facilities (i.e. mainframes, mini computers or PC's) through the incorporation of a custom front end.

- To ensure the database meets the standards set by the Fisheries Statistical Working Group
- To ensure the database can be integrated with commercial catch and effort databases

## ***Methods***

### ***1. Requirements Gathering***

In December 1995 (3 months after the project commenced), requirements gathering commenced in all State fisheries agencies around the country. This process involved identifying contacts within each agency and arranging times to visit each organisation and investigate the current recreational fisheries data collection methodologies. Copies of all available data collection forms (such as logbooks, diaries, survey sheets) were collected and brought back to QFMA for analysis of the nature of the recreational fisheries data collected around the country.

### ***2. Requirements Document***

Once analysis of the data types and collection methodologies used in each agency had been undertaken, a document entitled "Requirements of the Client Agencies for the SIRFIS FRDC Project" was completed (refer appendix 4). This document not only outlined the types of recreational data collected by each agency, but also outlined the information technology environment in place at the time of the requirements gathering. Each agency's requirements and priorities in terms of the SIRFIS project were also documented. A draft of this document was distributed to the agency client group for comment prior to the final copy being completed.

### ***3. Selection Of A Client/Server Application Development Environment***

The selection of software with which to develop the SIRFIS application was clearly of prime importance and a decision critical to the project success. A review of six different products was undertaken by the Senior programmer on the project, with the final recommendation being to utilise Centura Team Developer as the Client/Server Application Development Environment for the project. Documentation of this review process and the information relating to the successful product was also circulated to the client group for comment (refer appendix 5). No negative comments were received, therefore the team proceeded with the decision to utilise Centura Team Developer.

### ***4. Database Design***

The first step undertaken in this process was data modeling. This involved using a modeling software package (Info-modeler) to produce schematic designs of the database structure.. Once this was completed, the designs were reviewed and refined to make them

more efficient. The data models were then incorporated into the database design document to be circulated for comment from the client group.

After brainstorming and workshopping a range of ideas, prototype data entry screens were designed using Centura Team Developer. These were circulated for peer review, modified, and incorporated into the database design document (refer appendix 6).

Included in the design document were also fact reports relating to the database design produced by Info-modeler, as well as object descriptions and accompanying definitions (very similar to a glossary). Logical models were also produced, illustrating the table structures of the database, and the final section to the draft database design was the documentation of a list of standard codes to be used within the database.

Once this process was complete, the draft database design document was produced and circulated to the client group for comment.

## ***5. Programming***

Once feedback from the design document had been received and incorporated, programming commenced. This process primarily involved developing scripts and code to provide functionality to the concepts and designs developed during the design phase. The programming phase was an on-going process, with work being broken up into key components of the system. As programming proceeded, testing was undertaken and any errors detected were noted and sent back to the programmers for fixing.

In January and February 1997 presentations were made to key members of each of the State fisheries agencies around the country. The objectives of these presentations were:

- to demonstrate the concepts and development of the SIRFIS project to date
- to gather further feedback on particular aspects of the project
- to broaden awareness of the project in each agency.

These objectives were achieved and programming work continued, with beta versions of the Club, Charter, Diary and Correspondence modules all being completed by September 1997. Additionally, in July the application was demonstrated at the Australian Society for Fisheries Biology National Conference in Darwin with positive feedback received from a number of participants.

In response to one of the programmers on the project resigning mid – year, remaining development work was contracted out to Farview Technology Pty Ltd with three phases of the project specified for completion. These three phases were as follows:



## Phase One

- 1) Completion of the *Dynamic Screen Creation* including validation of data fields created and enforcement of mandatory fields;
  - 1a. The screens can be used to insert, update and display activity and catch data without any errors.
  - 1b. The screen dynamically builds using configurations supplied through the wizard
  - 1c. Field level validation implemented.
  - 1d. The activity Lookup screen allows for search criteria
  - 1e. Latitude and Longitude, if not on screen, need to be found from the location table and included in the activity.
- 2) Implementation of the *Person, Organisation and Location maintenance screens*
- 3) Completion of the *Collection Wizard*
- 4) Implementation of basic reports (to be specified)
- 5) Completion of the *user maintenance and security maintenance screens*
- 6) Ensuring the SIRFIS application *complies with Microsoft GUI standards*
- 7) Correction of *existing bugs* as advised in bug reports.

## Phase Two

- 1) Implementation of the *Correspondence Module* (2 screens)
- 2) Implementation of *Delete functionality for Administration*, to delete entire collections
- 3) Implementation of *Export/Import to flat file* functionality, both for database unloads and reloads, and user defined extractions;
  - 3a) Load and unload database capabilities. This is to be used to transfer datasets between databases.
  - 3b) Require a screen to allow the user to define a data set to extract a csv file. The data for selection should be presented to users in the same form as it is

entered. The physical database structure should be hidden.

- 4) Implementation of an *attribute maintenance screen*
- 5) Implementation of *Basic Tag Recording functionality* (requires specification)
- 6) Correction of *Existing Bugs* as advised in the bug report.

### **Phase Three**

- 1) *Certification* of the SIRFIS application *against other DBMS's*. Certification will be against SQLBase (V6.x), Oracle, OpenIngres and Sybase (versions to be advised by QFMA). The product will be deemed to be certified against a DBMS when its behaviour when run against that DBMS is identical to its behaviour when run against SQLBase, and all screens are fully functional.

Due to a range of unforeseen circumstances occurring at Farview, some time overruns occurred, resulting in delays in installing the SIRFIS application at many sites. Due to the nature of the consultancy agreement with Farview Technology however, these time overruns did not incur any additional expenditure with Farview.

Phase one of the remaining work was completed on March 5, 1998, with Phase two completed several months later in June. Phase three was finalised in October 1998, whereupon it was installed at QFMA and on machines in New South Wales Fisheries for testing and feedback.

## ***Results/Discussion***

Overall the final result of this project was the completed information system. However, there were a range of individual components which were bought together to form the system. The major components of SIRFIS are as follows:

- Facility to create data entry screens for creel surveys, charter logbooks, catch cards, angler diaries, club logs and recall surveys.
- Comprehensive metadata capabilities based upon the Australia and New Zealand Land Information Council standards
- Fish species lookup capabilities incorporating the CSIRO CAAB codes
- Capabilities to record details relating to organisations and contact names within those organisations
- Standard reports and an export facility

- Security administration

## ***1. Screen Creation For Multiple Data Collection Methods***

Through a unique process the SIRFIS application allows dynamic creation of data entry screens through a user friendly and time efficient 10 step process. This process allows the user to create data entry screens for their surveys quickly and easily, allowing time and financial resources to be channeled into data collection and data entry/analysis, rather than having to spend time and money and passing the task onto information technology professionals.

## ***2. Comprehensive Metadata Capabilities***

Metadata is textual information which describes data. The metadata details things such as when the data was collected, the methodology used, who was responsible for the data collection, and how accurate the current data collection is.

The metadata screen comprises of seven subscreens, where information relating the the collection can be stored. The general information screen stores information on the collection type, the location type, the date range of the collection, the region, the fishery involved as well as the collection owners details such as their login name, their full name and contact phone number. As some of these terms will probably not make sense, they will be explained more fully below.

The collection type: Used to specify the type of collection. It is a drop down menu, with options for the type of data collection, such as a creel survey or a club logbook. In this case the collection type will be a club log.

The date range of the collection: This allows the user to ascertain when the collection was conducted and for how long. In situations where the collection is ongoing it is recommended that you leave the end date field blank (unless you know how long a particular study will go for).

The region: This is a general descriptive term that can be used to apply any geographical regions which are established. For example in Queensland regions may include Moreton Bay, Sandy Straits, South East Queensland etc.

The fishery: Again, as most of this information is descriptive, the fishery involved may be a broad term such as inshore, offshore game, offshore reef etc.

The collection owner details are fairly straight forward and don't really need much explanation. It is basically the name and contact details of the collection owner.

The "Abstract Tab" is a free text field which allows the entry of a large amount of text. This screen is designed to be used by the owner of the collection, who should enter an

abstract relating to the collection to allow other SIRFIS users to obtain an understanding of the data and the work done.

The “Keywords Tab” provides you with the ability to specify a number of keywords relating to the collection, which will then be used by the search facility on the SIRFIS main screen to identify relevant collections.

The “Methodology Tab” contains a free text field where the owner of the collection can write an outline of the methodology used to collect the data for the collection. It allows another user to look at the method used in data collection, and gain a better understanding of the data, and even replicate the study if required. Similar to the abstract field, it is important that a detailed methodology be completed, so that the same process can be followed if the study or data collection process needs to be replicated at a later date.

The “Quality Tab” is comprised of two free text fields where the owner of the collection can provide an indication of the quality of the data in the collection. These comments should include such things as accuracy of any locations used in the collection (for example were GPS marks used or a more general description of location such as nearest town ?).

Other comments relating to quality could include the accuracy of species identification in the catch records or any validation checks undertaken on the data when it was being entered.

The maintenance screen is intended to be used to detail the frequency of changes or additions made to the collections after their initial establishment date. The screen has two drop down boxes from which to select options under the headings of ‘*progress*’ and ‘*maintenance frequency*’, as well as a table to detail the maintenance history of the data set.

The documents tab allows you to store links to any documents that are of relevance to the data collection in question. For example, if a creel survey had been conducted and a subsequent journal article had been written from the data collected, a link can be made to an electronic copy of the journal article. This allows you to look at the data set as well as the interpretation and discussion of that data.

### ***3. Fish Species Lookup Functionality***

The species maintenance screen is used to add or modify information related to fish species used in the SIRFIS database. It is anticipated that this feature will not be commonly used, however if a fish species that occurs in recreational fisheries around the country does not appear in the species list and therefore needs to be added, this feature will allow you to do it.

Additionally a range of names may be applied to a single species of fish, and this has been a commonly recognised problem for people undertaking surveys, is whether the species of the fish has been correctly identified by the angler, or the number of different

names the same species may be recorded as. The functionality of this screen allows you to list a number of names associated with a single fish species, as well as designate a preferred common name. This allows multiple names to be linked to the one species code and scientific name.

The search facility also provides you with the ability to search different species through the species lookup screen and look at their common names, species codes or scientific names.

#### ***4. Organisations And Contact Name Administration***

The Organisation/People Maintenance screens are used to list details of different organisations and people involved in recreational fisheries activities. These could be people involved in recreational surveys, fishing guides, charter boat operators, or research organisations (just to name a few).

There are three screens associated with the organisation/people facility of SIRFIS;

*The Organisation Screen* – This screen is used to record details relating to organisations. Information such as organisation name, the type of organisation, and the contact details such as address and phone number.

*The People Screen* - This screen is used to record the details of individuals relating to the collections contained in SIRFIS. These details include the person's name, date of birth, address and contact telephone number. It is designed to be used to record the details of people whom may need to be contacted in relation to a particular collection. For example, you may record the details of the secretary of any fishing clubs whom you receive data from, so that you can contact them to discuss the data received from the club.

*The Organisation/Person screen* – This screen allows you to associate individuals with organisations that are present in the “organisations” screen. For example if you had a number of people who were members of the same fishing club, you could associate them with that organisation, as well as record any position within the organisation that they may have, such as president, secretary etc.

#### ***5. Standard Reports And The Export Facility***

There are two standard reports provided in SIRFIS. The first is the “collection summary report”, the second is the “collection catch percentage report”.

The collection summary report provides a summary of all the collections in SIRFIS. It is designed to allow a user to obtain broad information relating to all the collections contained within SIRFIS. The information is listed in a table style format and includes the following headings:

- Collection ID

- Collection heading
- Owner
- Number of activity records
- No. of catch records
- Minimum date
- Maximum date
- Publications

The collection catch percentage report provides the user with a breakdown of the species recorded in an individual collection, with an indication of the percentage that each species contributes to the total catch. The report headings are as follows :

- Collection
- Year
- Month
- Species
- Percentage

The export function allows the exporting of data from SIRFIS. As there is no reporting tool associated with SIRFIS, it is necessary to use the export facility to allow analysis of the data in your analysis tool of choice.

The data is exported in comma separated variable (CSV) format, which is readily accepted and simple format able to be used by a wide variety of applications.

## ***6. Security Features***

The security screen is used to select from the list of established SIRFIS users, who can have access to particular collections. For example if a researcher sets up a collection and then wants to give his data entry staff member access so that they can enter data, the collection security functionality of this screen would be used.

There are four (4) security levels provided by this screen, and each one will be briefly explained below:

*No Access* - As the name implies, users with a no access security level next to their name for a particular collection are not able to access the collection in any way.

*Data Entry* – This level of security allows users to enter data into a collection, however prevents them from extracting and data by way of reports or exporting.

*Retrieval* – This level of security allows the user complete access to the collection, including the ability to generate reports and export data from the collection.

*Owner* – The same rights as the retrieval level of security, with the user being able to enter, retrieve and export data. The important thing to note about this category is that

there can only be one owner for a collection, and the owner should be the person who is in control of the study, and hence the collection. If any changes to the collection are required, or questions need to be asked regarding the collection, they should be directed to the owner of the collection.

## ***Benefits***

The sectors that will benefit from the development and implementation of SIRFIS are:

- State Fisheries Agencies – Each agency will benefit from the provision of a national standard in terms of design, validation procedures and species codes. Considerable savings will also be realised through the adoption of SIRFIS, through a reduction in resources being required to be directed at information technology intensive solutions to handling recreational fisheries data.
- Recreational Fisheries Researchers– All data collection undertaken at an agency can be made accessible to others in the agency, in addition to individual researchers having access to the range of data collected and stored within the system. This increases time efficiencies and also allows for security of data collections if a researcher leaves and organisation, the data and the associated metadata is still available and accessible.
- Recreational Fisheries Management - By centralising all the data collections and the associated documentation in each agency, the management of recreational fisheries will benefit through well documented storage of existing data collections which can be easily accessed to provide information relating to recreational fisheries. The ability to incorporate both research and management information in the system will enable a better link between research findings and management actions. The streamlining of development costs and the low distribution cost of the system also allows financial resources to be directed into fisheries management, rather than having to spend significant amounts developing expensive individual information systems in isolation.
- Recreational Fishing Sector - Benefit will also be realised (despite being difficult to measure) in the recreational fishing sector as a whole. This benefit will come about through better knowledge sharing which should lead to better management of recreational fisheries issues.

## ***Further Development***

Due to the information technology intensive nature of this project it is likely that additional enhancements will be requested by the client group and extended users once the application has been utilised for a period of time and the users become familiar with the system. Some enhancements have already been noted during the project development phase, however due to being outside the scope of the project, these additional changes were simply documented for future reference.

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There are however two avenues for future development of the SIRFIS application. The first is to develop a process for support and maintenance of the application for at least 12 months post deployment of SIRFIS. This would provide users with access to telephone support if experiencing difficulties with some aspect of the system, as well as ensuring that a process was in place for efficient and effective resolution of any application bugs that may arise during the post deployment phase.

The second area of development involves the creation of a module for the National Survey of Recreational and Indigenous Fishing. Preliminary discussion of this area has already been undertaken with FRDC and the committee for the National Survey and further liaison and discussion with the committee is currently underway.

## *Conclusion*

The major outcome of the project was the deployment of the SIRFIS application to all fisheries agencies around Australia, including associated user documentation for the system. This outcome satisfied the three objectives of the project which are listed again below:

- To provide the tool to facilitate the “build up of an on-going national information base – a store of knowledge”, as recommended by the National Recreational Fisheries Working Group. Development of a Recreational Fisheries Database would provide a common structure for the collection, storage and retrieval of recreational fisheries data.

The database would be suitable for use by all fisheries agencies irrespective of their current hardware and database server facilities (i.e. mainframes, mini computers or PC's) through the incorporation of a custom front end.

This objective was achieved through the provision of a system for use by all fisheries agencies which met the specified project requirements.

- To ensure the database meets the standards set by the Fisheries Statistical Working Group

This objective was met through the involvement of the Fisheries Statistical Working Group in steering the project at a National level.

- To ensure the database can be integrated with commercial catch and effort databases

This objective was met by ensuring that the database could be run against four of the major database management systems in use in fisheries agencies around the country. This will allow common query languages to be used to extract the data and allow comparisons with commercial catch and effort data.



The only exception to meeting these objectives was the inability of the development team to produce a version of SIRFIS suitable for running on a Macintosh operating system, due to the failure of the Centura software company to deliver the required software according to their stated timetable. It is felt that as the majority of agencies are now utilising PC's, the impact of this situation will be extremely minimal.

## *References*

Not applicable

## ***Appendix 1: Intellectual property***

The intellectual property created during the three years of the project encompasses the SIRFIS application and all the associated documentation (both hard and digital copies). For detailed information relating to the distribution of intellectual property rights for the project refer to the Intellectual Property Agreement drawn up between QFMA, FRDC and Farview Technology (this agreement is attached).

## *Appendix 2: Staff*

A number of people have been involved in this project, not only at QFMA but representatives from each State fisheries agency, the Bureau of Resource Science and Farview Technology Pty Ltd.

### CORE DEVELOPMENT TEAM

Principal Investigator – Neil Trainor	QFMA
Senior Programmer/Analyst – Cameron Baker	QFMA
Programmer Analyst – Gary Mandelkow	QFMA (Oct '95 – July '97)
Project Co – Ordinator – Andrew Thwaites	QFMA (Oct '95 – Aug '96)
Project Co – Ordinator – Todd Kelly	QFMA (Sept '96 – Oct '98)
Programmer – Shane Russell	Farview Technology

### SIRFIS CLIENT GROUP

Sandra Cormack	QFMA
Aldo Steffe	NSW Fisheries
Gary Henry	NSW Fisheries
Anne Gason	VIC Dept. of Conservation and Natural Resources
David McGlennon	SARDI Aquatic Sciences
Jeremy Lyle	Marine Resources Division TAS Fisheries
Nick Caputi	WA Fisheries Department
Anne Coleman	NT Fisheries Dept.
Phil Stewart	Bureau of Resource Sciences

*Attachment 1*



***USER MANUAL***

***THE STANDARDISED INTERGRATED  
RECREATIONAL FISHERIES  
INFORMATION SYSTEM.***



**FISHERIES  
RESEARCH &  
DEVELOPMENT  
CORPORATION**

**Project No. 95/054**

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## WHAT IS SIRFIS ?

SIRFIS is an acronym for **Standardised Integrated Recreational Fisheries Information System**. It is a database designed to store information relating to recreational fisheries. The system is designed to handle information relating to:

- Club fishing
- Charter vessels
- On site surveys such as boat ramp surveys
- Small off site surveys such as recall surveys/angler logbooks
- Tagging projects
- Metadata and details about people and organisations

The need for a co-ordinated, national approach to the development of a standard for a recreational fisheries database was identified at the Recreational Fishing Workshop in Canberra in August 1994. The development of such a system was also considered a high priority at the pre workshop gathering entitled "Best available information – Its implications for recreational fisheries management", held in conjunction with the 2<sup>nd</sup> National Fisheries Management Workshop at Bribie Island in 1994.

With the support of State fisheries agencies and the Standing Committee on Fisheries and Aquaculture (SCFA) Fisheries Statistical Working Group (FSWG), an application entitled "*The development and implementation of a national standard for a recreational fisheries database by all fisheries agencies*" was submitted to the Fisheries Research and Development Corporation (FRDC). This application was successful and the project commenced in October 1995. Guidance at a national level was provided by the members of the Steering Committee for Fisheries and Aquaculture (SCFA), Fisheries Statistical Working Group (FSWG).



## HOW TO USE THIS MANUAL

This manual has been designed to be as simple to use as possible, incorporating illustrations of what you will actually be seeing on your computer when you are using SIRFIS. When you require help on how to use a specific part of SIRFIS I recommend you utilise the contents and index pages provided to steer you in the right direction.

The sections of the manual are broken into two broad categories for each feature; an “*about*” category and a “*how to*” category. The “*about*” sections describe different screens and their functions, then the “*how to*” section provides instructions on how to use the different features of SIRFIS to achieve your desired outcomes. This should work fairly nicely, provided your outcomes don’t involve using SIRFIS to select the weekends lotto numbers. Generally the “*about*” information will precede the “*how to*” instructions.

A glossary of terms and concepts has been provided in the early pages of this manual, and I recommend reading through these, as some frequently used terms and a couple of concepts are explained. (but let’s face it, if you’re anything like me you’ll jump straight in boots and all and wait until you get into trouble before reading any of this).

## GLOSSARY OF TERMS AND CONCEPTS

**Activity** – The term activity is used to describe a range of different endeavours which may be undertaken by a recreational fisher. Fishing club trips, a charter boat trip and a dive trip are all examples of an activity.

**Attribute** – A detail associated with a fishing activity, for example the type of gear used or the weather conditions.

**Catch** – The catch is obviously the catch associated with a fishing activity. SIRFIS aims to provide standardised catch recording via species name and CSIRO codes.

**Collection** – A collection is the term used to describe a data set held in the database. For example the results of a creel survey entered into SIRFIS would be referred to as a collection, under a particular title, for example “Mary River Creel Survey 1997”.

**Fisher** – The term used to refer to an individual person involved in a fishing activity.

**Metadata** – Metadata is textual information about a collection in SIRFIS. The metadata details things such as when the data was collected, the methodology used, who was responsible for the data collection, how accurate and current the collection is etc etc.

**Parent/child concept** – This is an important concept to grasp. The best example I can use to explain this is as follows. A group of fishers go out on a charter boat trip for the day, the details of the trip itself such as the time departed, the name of the boat, the location fished, the weather conditions are all referred to as relating to the parent activity, i.e. the fishing trip. Details about individual fishers, such as the individual times fished by them, and their catch are referred to as child details, as they are a level of detail below the parent activity. In summary, all fishers are a part of the same fishing trip (the parent), so all these details will be the same for each fisher and there is no sense in repeating them for each entry. However each fishers' catch and effort will vary on the trip, therefore it is necessary to differentiate between each one (the child information).

**SIRFIS** – An acronym for Standardised Integrated Recreational Fisheries Information System.

**Tabs** – A tab is a part of the screen that allows you to switch between two or more related areas of information. The best example of the use of tabs is on the metadata screen (refer figure 1), where tabs for general, abstract, keywords, methodology, quality, maintenance and documents are used.

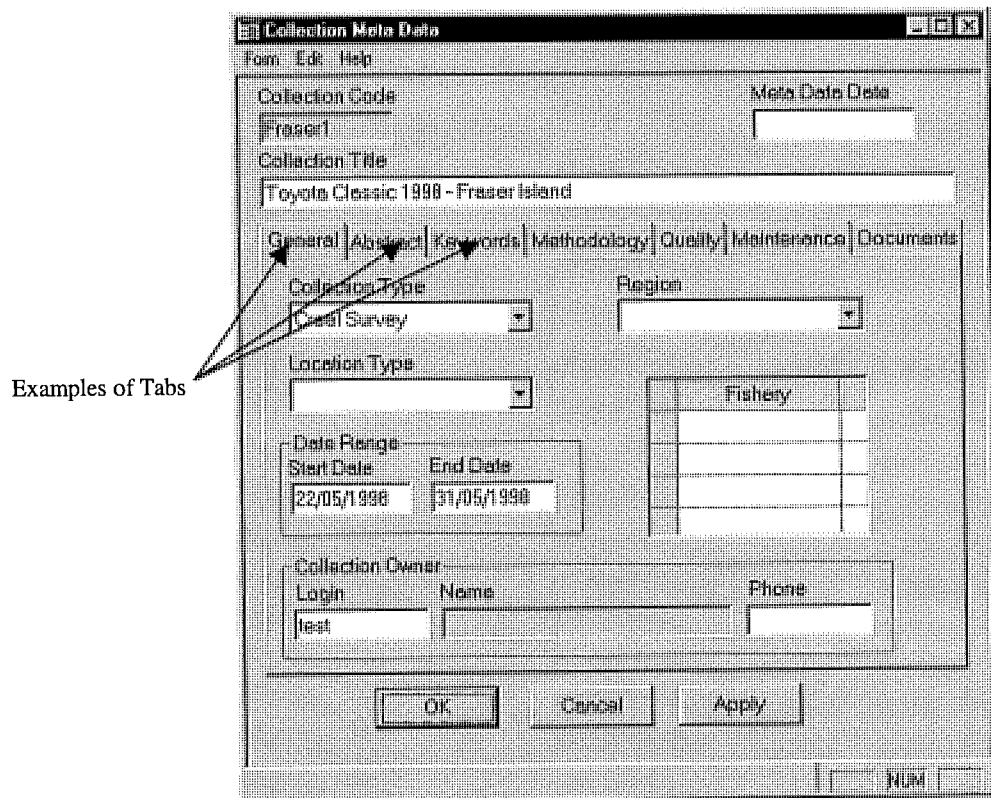


Figure 1. The metadata screen, showing examples of Tabs.

**Wizard** – A wizard is a step by step process which is used to simplify what would otherwise be a difficult and complex process, such as designing data entry screens. This is not to be confused with the masters of sorcery who occasional get around the place and do the fire and brimstone stuff.

## STARTING SIRFIS – THE SIRFIS LOGIN

### About the SIRFIS Login Screen.

The SIRFIS login screen will be the first screen you encounter after clicking on the SIRFIS icon on the desktop of your PC. It is a fairly simple and straight forward screen, requiring you to enter your user login name and your password.

To obtain your user login name and password, see your system administrator and they will assign you one. The user login must be less than 12 characters, with the password limited to 10 characters in length.

### How to use the SIRFIS Login Screen.

Simply enter your user login name into the appropriate field on the screen. Then use the Tab key (or use the mouse) to move to the password field and enter your password. Then select the OK button or hit the Enter key on your keyboard and you will proceed through to the SIRFIS main screen. **Note that these fields are case sensitive.**

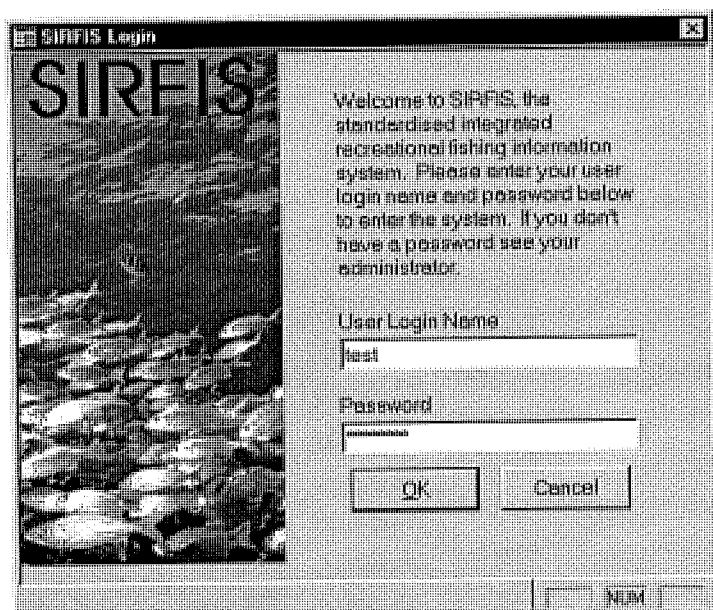


Figure 2. The SIRFIS login screen

#### Summary

Enter your user login name ✓

Use the Tab key or mouse to move to the password field ✓

Enter your password ✓

Select the OK button or hit the Enter key on your keyboard ✓

## THE SIRFIS MAIN SCREEN

### About the SIRFIS Main Screen

The SIRFIS main screen provides access to a broad range of functions and subscreens within the SIRFIS application. At first glance the most obvious area of the main screen is the screen with the Collection ID and Title columns with the abstract field beneath it.

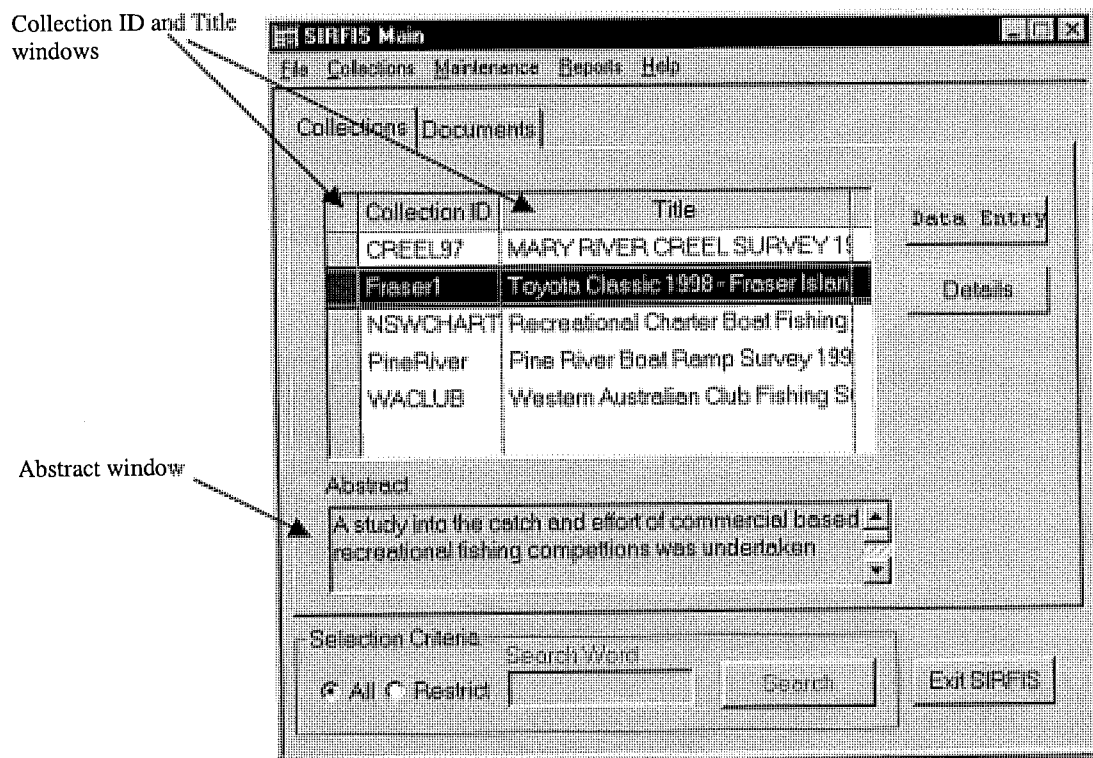


Figure 3. The SIRFIS main screen.

You will also notice a range of buttons down the right hand side of the screen, as well as two separate tabs with headings entitled “*Collections*” and “*Documents*” at the top of the screen. Along the very top of the screen you will see a range of menus, and at the bottom of the screen some ghosted buttons and a field related to the search facility.

As the name implies, the SIRFIS main screen is the screen which allows access to the main component of the SIRFIS application. Through functions on this screen you are able to create new collections, open and add data to existing collections, view individual records in a collection, generate standard reports provided with the application and create metadata relating to collections as well as many other things.

## The Collections Tab

The table on the main screen showing the Collection ID and Title is used to display the list of the collections kept in the database. The collection ID is simply a code used to briefly name the collection as opposed to the long title.

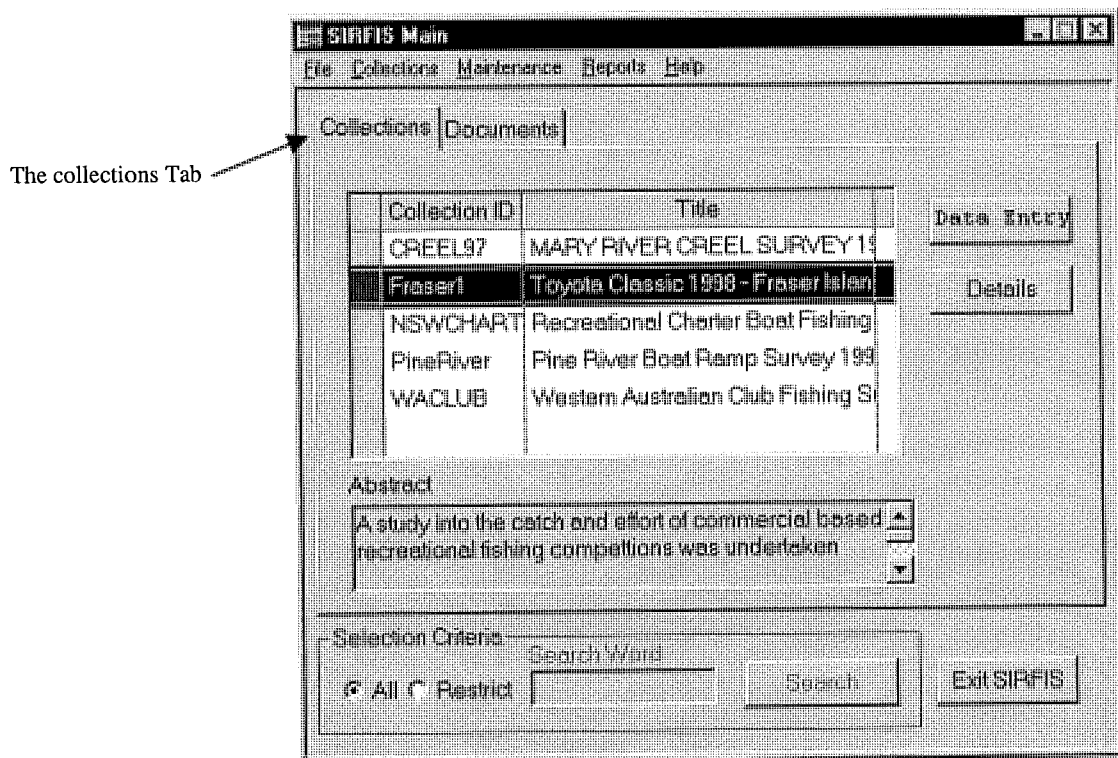


Figure 4. The collections Tab

The abstract field underneath the Collection ID and Title field is linked to the metadata screen, which provides details relating to each collection in SIRFIS. The abstract field shown in Figure 4 allows you to read what the collection is about before actually having to open it. The abstract can be read using the scroll arrows and provides a brief summary of the collection.

The **Data Entry** button is used to open the data entry screens of existing collections listed in the collection ID window on the main screen.

The **Details** button links you to the collection metadata screen, where a large amount of information relating to each collection can be stored. For example, the methodology used, the collection abstract, related documents, keywords, and the quality of the data.

The **Exit SIRFIS** button is self explanatory: select this button and you will leave the SIRFIS application.

The **Search** button can be used to search for collections using a common search word which is specified in the metadata screen. This button is ghosted out when the selection criteria radio button is checked as “all”.

## The Documents Tab

The documents Tab provides the facility to view documents associated with collections stored in SIRFIS. For example, a journal article or conference paper may have been written after the results from data collection had been analysed, and a copy of this paper can then be stored with the collection, with the details recorded in the documents Tab (refer figure 5)

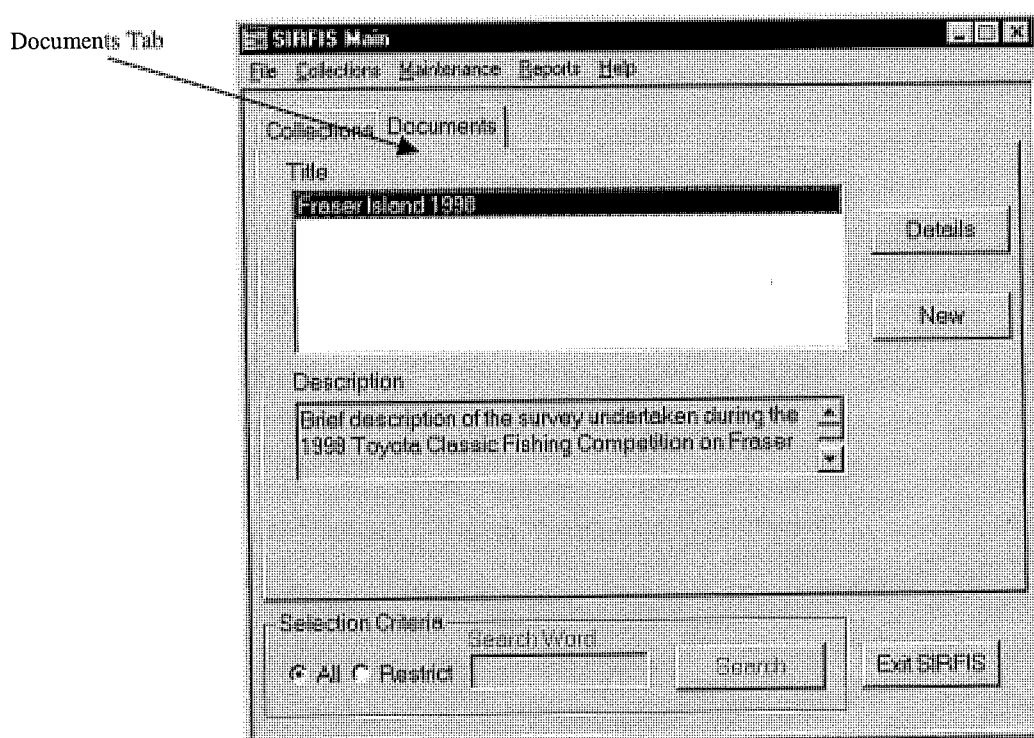


Figure 5. The documents Tab

On the Documents Tab you will see a field for document names, a text field for the document description, and a range of buttons down the right hand side of the screen, as well as the search facility at the bottom of the screen.

**Details** The **Details** button opens a new screen used for listing document details such as the author, the date and a brief summary of the document.

**New** The **New** (add document) button is used to associate new documents with a collection stored in SIRFIS. After selecting this button, you are able to copy a document from your computers hard drive (or a floppy disk) and add it to the database for referencing in the future.

A rectangular button with a textured background and a thin border, containing the text "Exit SIRFIS".

The *Exit* button allows you to leave the SIRFIS application.

A rectangular button with a textured background and a thin border, containing the text "Search".

Similar to the search facility seen in the collections Tab, the search facility in the documents Tab allows you to find documents with specific keywords in them.

The next section will discuss how to use the various features of SIRFIS available through the main screen.



## How To Use the SIRFIS Main Screen

### Creating a new collection

SIRFIS provides a wizard to guide you through the creation of a new collection. While the collection wizard is a fairly simple step by step process which allows you to create a new data collection in a very short space of time, there are a number of features which require explanation. I think the best way of doing this is to run through each wizard screen one by one, and explain how each is to be used.

To create a new collection, select "Create" from the "Collections" Menu on the SIRFIS Main screen. The first screen of the collection wizard will then appear. Note that the only way to create a new collection is through the collection wizard.

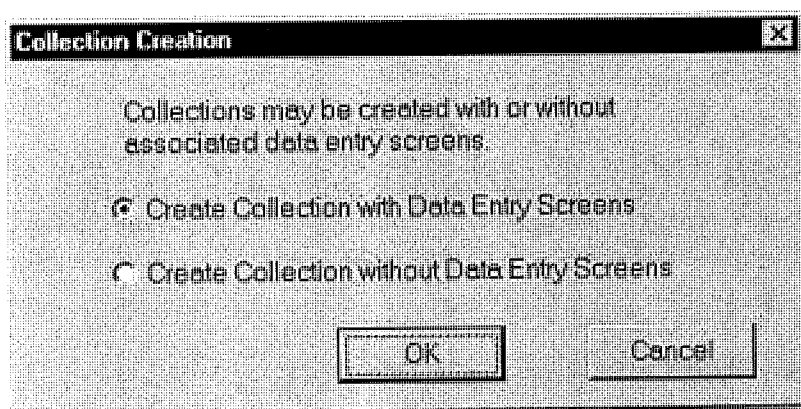


Figure 6. Creating a new collection - step 1.

This screen gives you the option of creating Collections either with or without data entry screens. Why would you want a Collection without data entry screens? This allows for existing, complete datasets to be loaded into SIRFIS without them being re-entered. The Collection can be defined, the meta data entered and the existing data files loaded as files through the Details Screen.

Select one of the options and select "OK".

If you are creating a Collection without data entry screens you will only be asked to complete a screen similar to the first screen of the Collection Wizard.

Regardless of which option you take, please ensure that after creating the Collection you proceed to the Details Screen for the new Collection and enter as much of the meta data as possible. This will make your data much more valuable for all users.

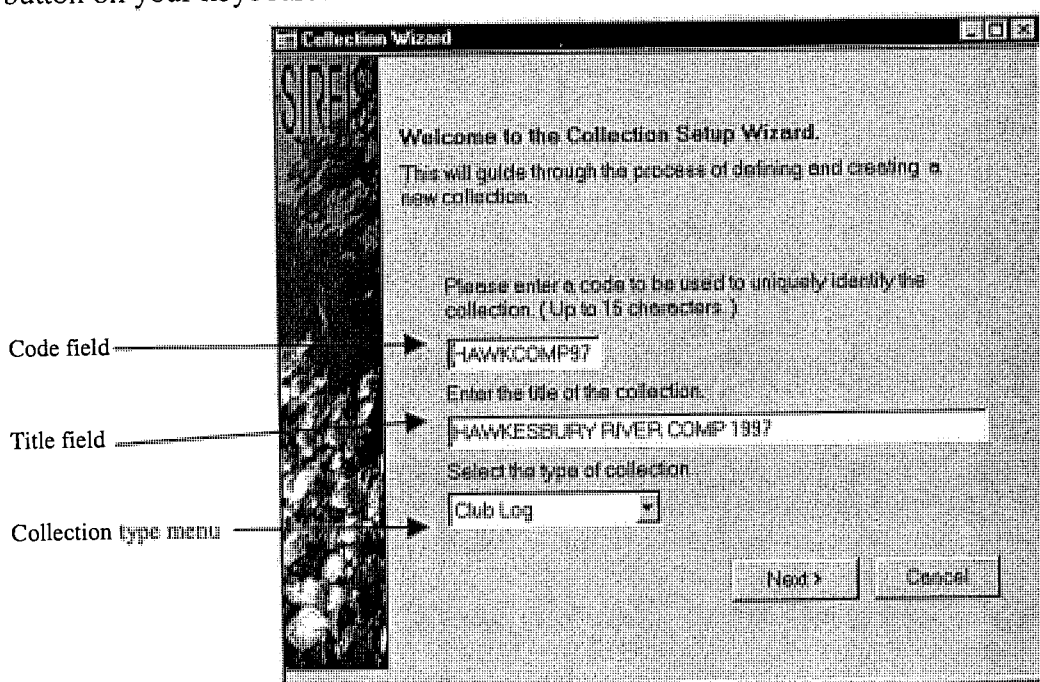
### ***Wizard Screen No. 1***

The first screen in the wizard (see figure 7) has three fields which you will need to complete. In the first field you need to type in a unique code for the collection, this should be something that gives some indication to you what the collection is. For example, if it is the results of a fishing competition on the Hawkesbury River in 1997, the code may be HAWKCOMP97. It is important to note that this field is limited to 15 characters.

The second field is for entering the long title of the collection. You should ensure that this title is descriptive so that others can ascertain what the collection is about when looking at the title on the main screen. This field can store 100 characters, however I would recommend trying to keep the title to less than 50 for the sake of brevity.

The third field (which is a drop down menu) allows you to select the type of collection, which then allows easier specification of collection types in reports. There are six collection types; charter log, club log, creel survey, recall survey, catch cards and fishing diaries.

To move between the fields, either click into each one using the mouse, or use the “**Tab**” button on your keyboard.



**Figure 7. Wizard screen No. 1 showing the 3 fields requiring completion.**

### ***In Summary***

*Enter a collection code in the first field (less than 15 characters) ✓*

*Use the mouse to click into the next field (or use the Tab key on your keyboard) ✓*

*Enter a descriptive collection title in the second field ✓*

*Move to the third field on the screen ✓*

*Select the collection type from the drop down menu ✓*

*Select the "Next" button with your mouse to move to the next screen ✓*

## Wizard Screen No. 2

The second wizard screen (refer to figure 8) provides the option to base a new collection upon a collection that has already been set up in SIRFIS. For example, if you were conducting a survey which was very similar to an existing collection in SIRFIS, you could use the setup of the existing collection to save time setting up the screens for the new collection.

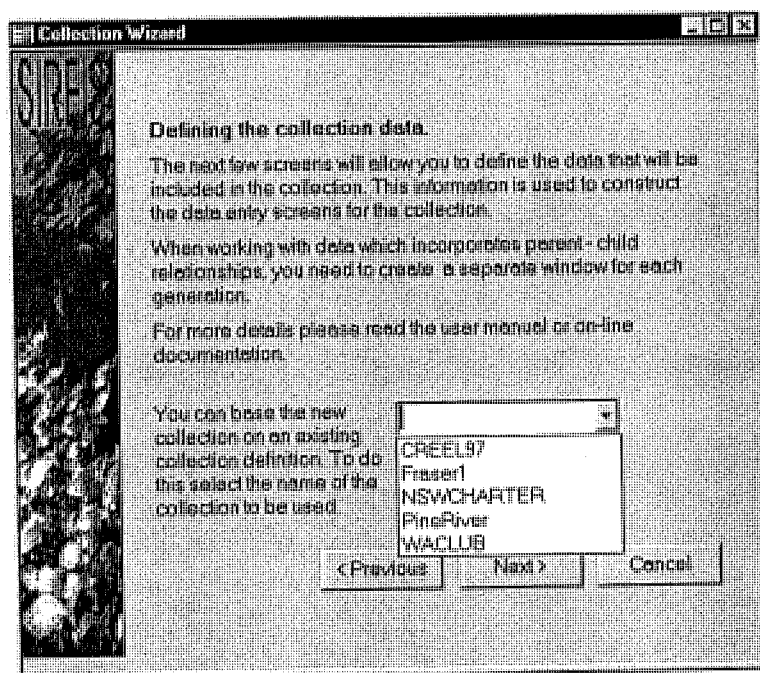


Figure 8. Wizard screen No. 2 showing options for basing a new collection upon.

This choice is only optional, and if you are setting up a completely new collection and do not wish to base it upon an existing one, then simply select the “*Next*” button to move through to the next screen in the wizard.

However, if you do want to base your new collection upon an existing one, simply select the name of the collection that is to be the basis of the new one from the dropdown menu using your mouse. Then select the “*Next*” button to move to the next screen in the wizard.

### In Summary

- Decide whether or not you want to base your new collection upon an existing one ✓
- If not - click on the “*Next*” button and proceed to the next screen ✓
- If you do – use your mouse to access the dropdown box (click on the down arrow) ✓
- Select the name of the collection that you want to be the basis of your new collection ✓
- Click on the “*Next*” button and proceed to the next screen ✓

### *Wizard Screen No. 3*

This screen in the wizard commences setting up the data entry screen(s) for your collection. The window title that is asked for in the top field is actually the title that will appear at the top of the data entry screen when it is completed. With this in mind, you should give it a title which explains what the collection is (this may be fairly similar to the collection title that was written in the first wizard screen).

To do this simply type the title in the top field (the cursor should already be in the correct place), and hit the “**Tab**” key to move to the next field on the screen, which requests that you select the activity type for the collection. Note that if you have based the new collection upon an existing one, you may need to type over the old collection title.

The “activity type” is used to define the type of activity undertaken when collecting the data. For example, a Fisher refers to an interview with a fisher in the field. This part of the wizard is used to better define the collection type. To select the activity type, simple use the mouse to access the dropdown box and select the desired activity type from the selection. Then select the “**Next**” button to move to the next screen in the wizard.

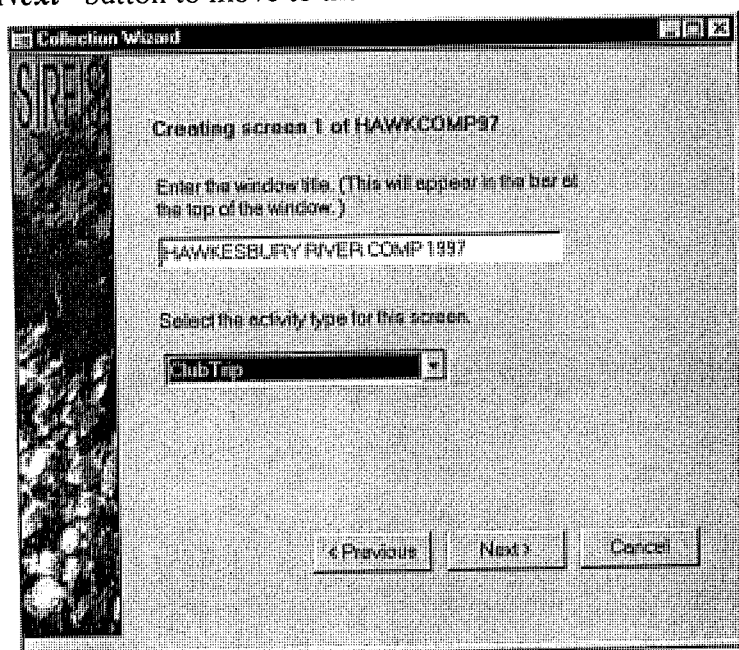


Figure 9. Wizard screen No. 3 - defining the title and activity type.

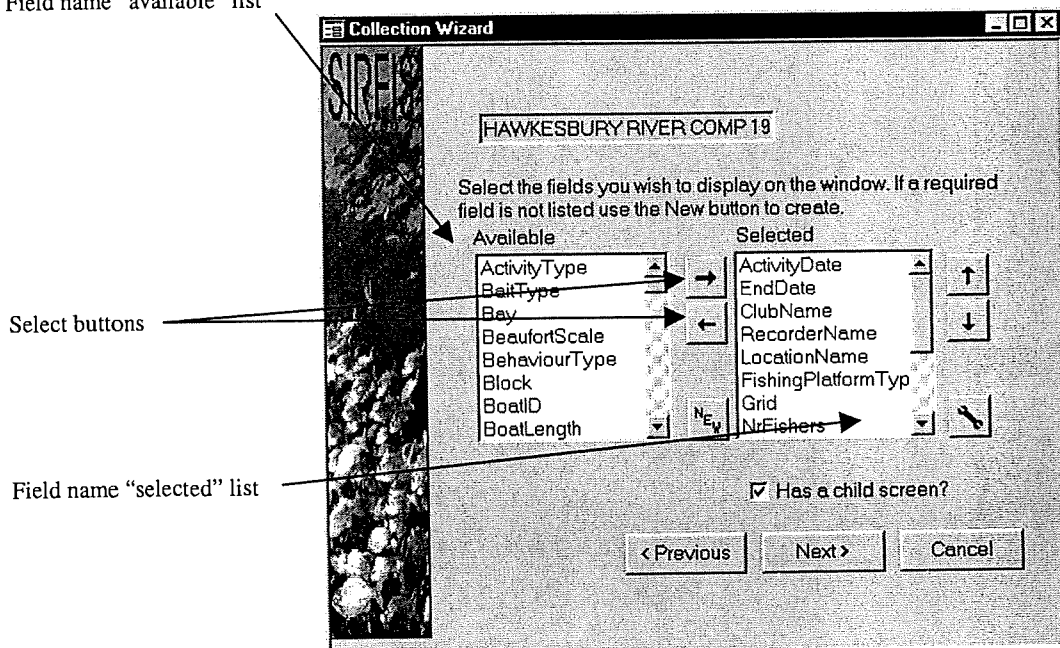
#### *In Summary*

- Enter a descriptive title in the top field of the screen ✓*
- Use the “**Tab**” button to move to the next field (the drop- down box) ✓*
- Select the activity type from the drop – down list ✓*
- Click on the “**Next**” button and proceed to the next screen ✓*

### Wizard Screen No. 4

OK. Pay attention – things start to get a bit tricky here, so I recommend that you read through the next section and ensure you understand it before trying to continue in the wizard.

Field name “available” list



Select buttons

Field name “selected” list

Figure 10. Screen four of the wizard showing fieldname functionality.


This screen of the wizard has numerous features, and is important in creating the correct data entry screens for your collection. *It is vital that you think about the way you design your data collection form before continuing in this process. Thinking about your form design will make building your data entry screens much easier.*


In this example the screens are being created for a fishing club competition on the Hawkesbury River north of Sydney. When thinking about the typical information received from fishing club trips, it becomes clear that there are usually two separate parts to the information. The first part relates to the trip information itself, such as the date of the trip, the data recorder, the location, the environmental conditions such as tide and weather etc. This information relates to all the fishers participating in the event, therefore only need be recorded and entered once for the days fishing.

The information relating to each individual fisher in the competition however is unique, and an additional screen should be created to record this information. As I have mentioned before in this manual, this is where the concept of parent/child screens becomes important. In this example, the “trip information” (such as the date, location fished etc), would be regarded as the parent data, whereas the information relating to the individual fishers would be child data.

You need to decide if the data you collect (or plan to collect) will have only a parent screen, or both parent and child screen(s). Once you have decided, you are able to set about selecting the required fields for the parent screen using this screen in the wizard.

The main features of this screen are the two columns headed *“available”* and *“selected”*. Basically the fields required for the parent screen can be picked from those listed in the *“available”* column and taken across to the *“selected”* column. The wizard will take the field names that you have chosen and build a data entry screen, arranging the field names in order as they appear in the list from top left to right. Confused yet ??? The best suggestion I can give is to play with this feature prior to setting up the collection that you are serious about entering data into. Fine I hear you say – how ???

Hopefully you are happy with the concept, and I can explain how the screen works. To move field names from the *“available”* column to the *“selected”* column, highlight the required field name using the mouse, then use the  button to move the field name into the *“selected”* column. Alternatively, you can double click on the required field name using the mouse and transfer it from the *“available”* column to the *“selected”* list.

If you change your mind and decide that you don't want a fieldname that has been moved to the *“selected”* list, use the  button to move the unwanted field names back into the *“available”* column again. You can also use the mouse and double click on the unwanted field and achieve the same result.

When selecting field names from the *“available”* list, you can either use the scroll bars at the side of the list to move up and down, or you can select a letter on the keyboard and that will take you to the range of field names beginning with the letter selected.

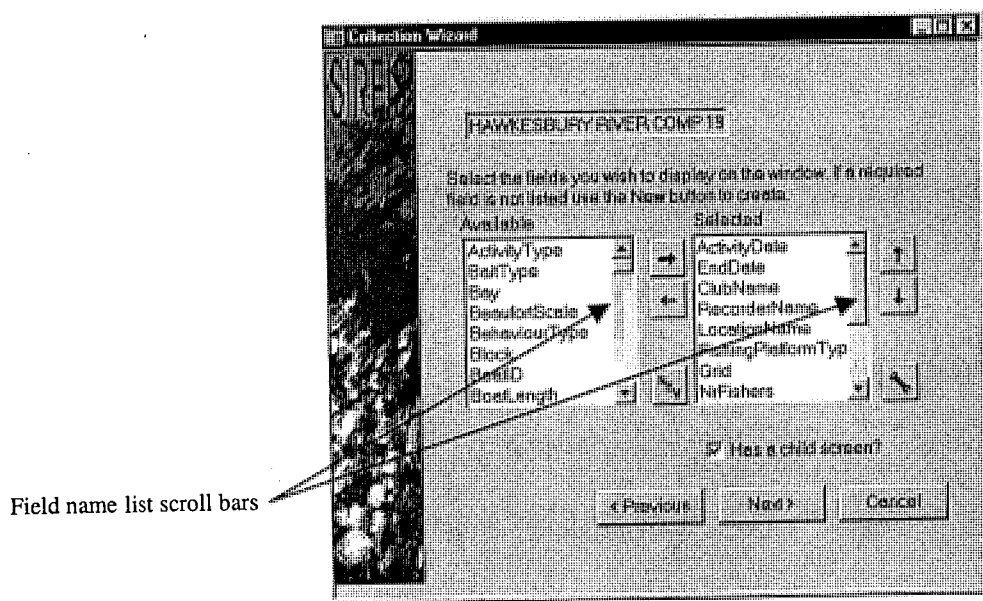


Figure 11. Wizard screen four showing the scroll bars

For example, if the “bait type” field name was selected, and you wanted to move to the a field name entitled “visibility”, instead of scrolling all the way to the bottom of the list, simply type the letter “v”. This will result in the cursor moving to the field names in the list beginning with “v”. You can then find the “visibility” field name and move it across to the “*selected*” field.

Because the order of the field names on the data entry screen is determined by the order of the field names in the “*selected*” list, you need to ensure that you order your “*selected*” field names correctly (so that they appear in the same order as say, your data recording form). To reorder the fieldnames in the “*selected*” list, use the arrows located to the right of the selected field names list (refer figure 12). To move a field name, simply highlight it by clicking on it using the mouse, then use either the “up” or “down” arrow to alter its’ position in the list.

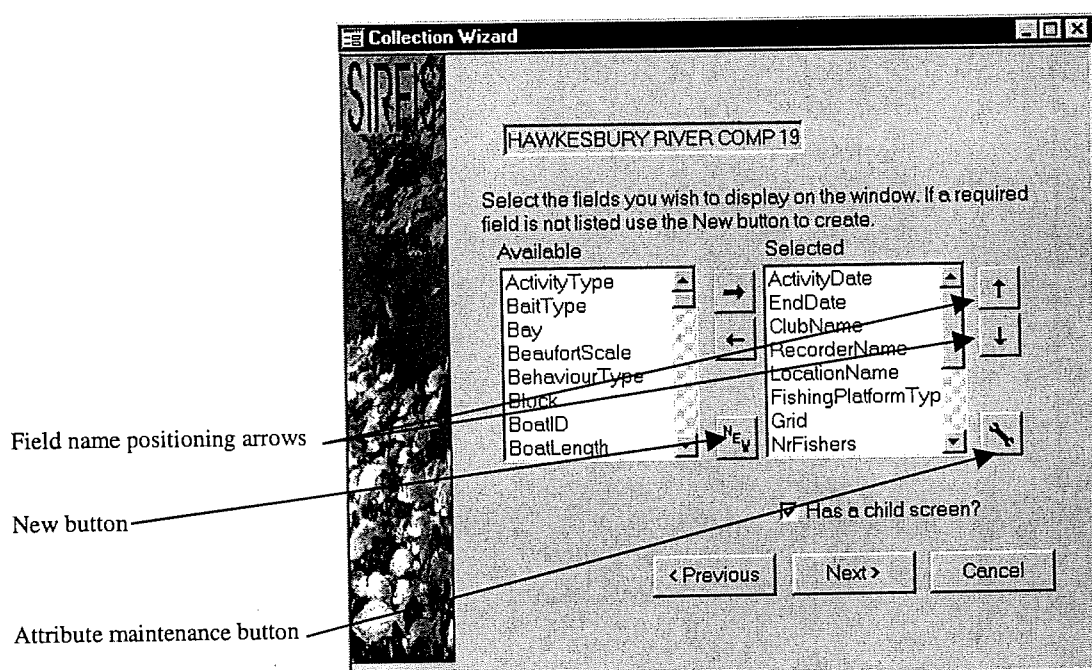


Figure 12. Wizard screen four - the field name repositioning arrows.

If the desired field name is not present in the “*available*” list, you need to create a new field name. To do this simply select the “*New*” button (refer figure 12). By selecting this button, a new screen will appear (refer to figure 13), which will allow you to enter the new field name (otherwise known as an attribute) and specify details relating to it (if required), such as maximum and minimum values.



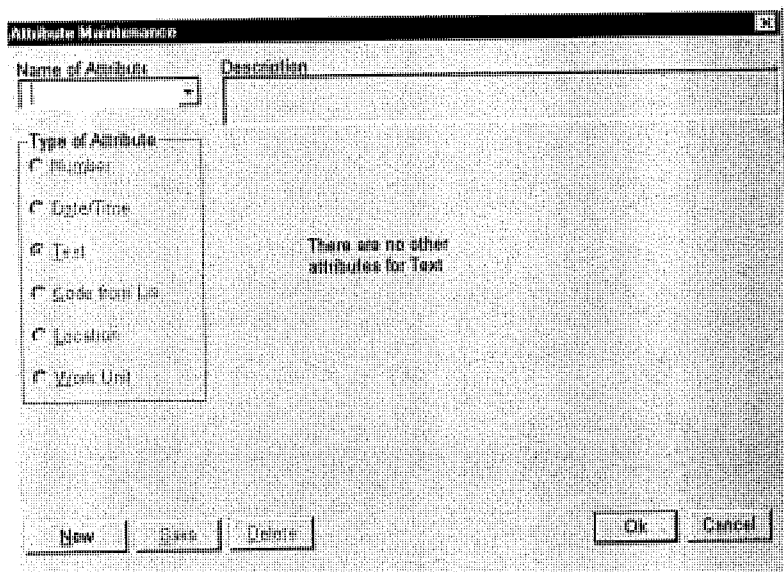


Figure 13. The attribute maintenance screen.

The screen shown above is the screen which will appear after selecting the “New” button to create a new field name (or attribute). To use this screen to add a new attribute, you need to select the “New” button on this screen to signal that you want to create a new attribute.

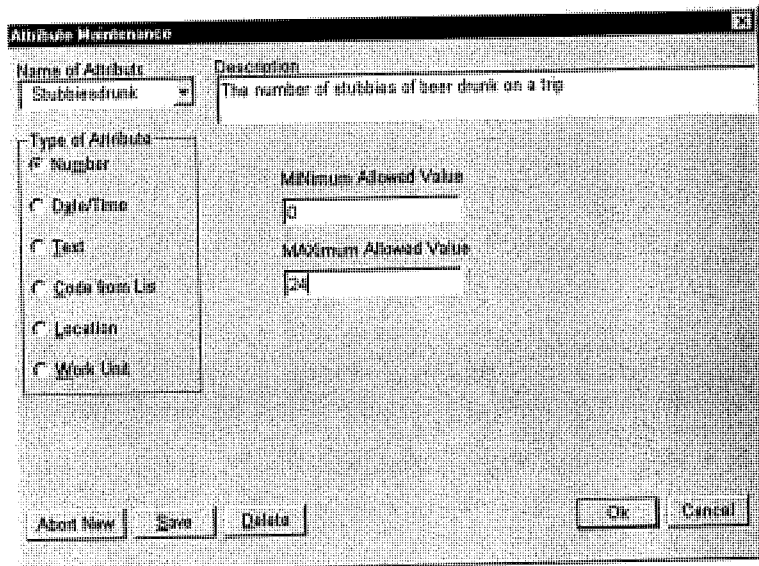



Figure 14. The attribute maintenance screen - allowing the creation of a new attribute.

The first thing to do when creating a new attribute is to type the name of the new attribute in the “*Name of attribute*” field. Ensure that there are no spaces in the name. The next field to fill in is the “*Description*”, which allows an area to type in a brief description of the new attribute. Then select the “*Type of attribute*” from the list provided on the screen, and if necessary, set parameters for that attribute type (such as

minimum and maximum limits). For an explanation of the different attribute types, refer to the section entitled “Types of attributes” on page 20.

When you have finished, select the “*save*” button, then click “*OK*” to return to the wizard screen. The new attribute should then appear in the “*available*” list and you can then use it in setting up your screen.

If you need to edit an existing attribute (for example add “live prawn” to the list of baits already existing under the “*BaitType*” attribute), click on the attribute maintenance button on the wizard screen – it looks like this: 

After clicking on this button, the attribute maintenance screen will appear (basically the same screen that first appears when you select the “*new*” button on the wizard screen). To use this feature you then need to select the attribute that you wish to modify from the drop down box entitled “*name of attribute*”.

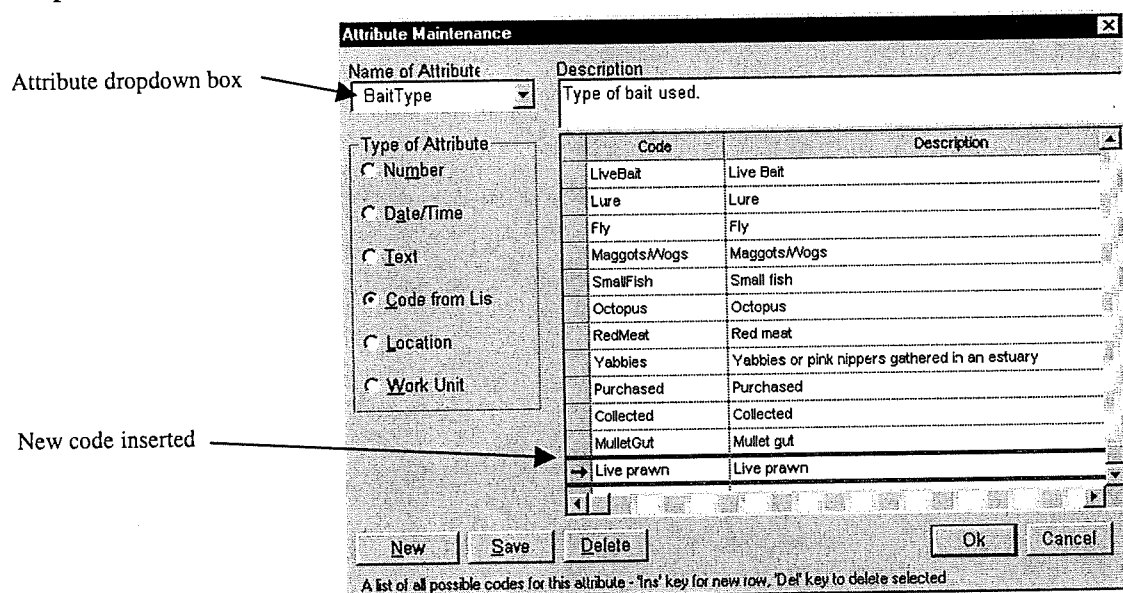


Figure 15. The attribute maintenance screen.

Once you have selected the attribute of interest, you can then modify the attribute description and add any codes to the list (if relevant). To modify the description field, use the tab key to move into the field from the previous field (or use the mouse to click into the field), then simply type whatever text is required in the field.

To add a new code to the list, scroll down to the last code in the list and click on it with the mouse. Then hit the “*Insert*” button on your keyboard twice, which will then allow you to enter the new code and its description in the list. Then select “*Save*” and then the “*OK*” button to return to the wizard screen. The updated attribute will then be available to use.

Once you have selected all the required field names for your parent screen, you can move to the next part of the wizard. **If you need to create a child screen for your collection as**

well, ensure that the “has a child screen ?” checkbox is ticked before proceeding. (you can do this simply by clicking on the box using your mouse. To move through to the next wizard screen, select the “Next” button.

### *In Summary*

*Think about the design of your form and how you will want to enter the data ✓*

*Determine if you require a parent screen and a child screen or just a parent screen ✓*

*Decide what information will be entered in the “parent” screen ✓*

*Decide which information will be entered in the “child” screen (if required) ✓*

*Select the desired attributes from the available column and move them to the selected column ✓*

*If the attributes in the “selected” column need to be reordered, do so using the arrow tools provided ✓*

*If the desired attribute isn't present in the “available list” select the “new” button to create it ✓*

- *Select the “New” button at the bottom left of the attribute maintenance screen ✓*
- *Enter the name of the new attribute in the appropriate field ✓*
- *Enter an attribute description in the appropriate field ✓*
- *Select the type of attribute ✓*
- *Select the save button, then click “OK” to return to the wizard ✓*

*If the desired attribute requires modification, select the attribute maintenance button ✓*

- *Modify the attribute as required ✓*
- *Select the save button button, then click “OK” to return to the wizard ✓*

*Once all the attributes are selected and in the correct order decide if a child screen is required ✓*

*If a child screen is required, select the tick box and click the “next” button to move to the next screen ✓*

*If a child screen isn't required, select the next button to proceed to the next screen ✓*

## Types of attributes

There are six different attribute types available in SIRFIS. These are as follows:

- **Number** – The number attribute allows you to define that the attribute you have created as a numerical value. For example the number of fishing lines used will be a number attribute. When an attribute type is defined as a number, an option will also be provided to allow you to set minimum and maximum values. When data entry is occurring and data falls outside these defined values and validation message will appear flagging that the value is outside the range defined. You will however still be allowed to enter this value after acknowledging the validation message.
- **Date** – As the name suggests, the date attribute type is specified when you have created an attribute involving the date, for example fishing trip start date. Specifying this attribute type simply allows SIRFIS to turn an entry such as 8/8/98 into 8 August 1998.
- **Text** – The text attribute type specifies that the new attribute is simply entered as text, and SIRFIS creates a free text field for this attribute on the data entry screen.
- **Code from List** – This attribute type allows you to create an attribute with a list of associated codes. For example you may create an attribute called bait type, in which you then wish to specify a defined range of bait types. The “code from list” attribute type allows you to do this, creating a dropdown list on your data entry screen with the list of different bait types which can then be selected for data entry.
- **Location** – This attribute type allows you to specify that the attribute you have created is a location type. For example if you have a logbook for the charter boat industry, you may wish to load the grid system in as a location type. The “location name” column is the only column that needs to be populated. The other columns are provided for additional information if necessary (such as linking latitude and longitude centre points to a grid).

### Wizard Screen No. 5

This screen in the wizard allows you to define the way your data entry screen(s) behave. Looking at the screen you will notice that the attributes you selected in the previous screen are listed in the first column on the left hand side of the screen.

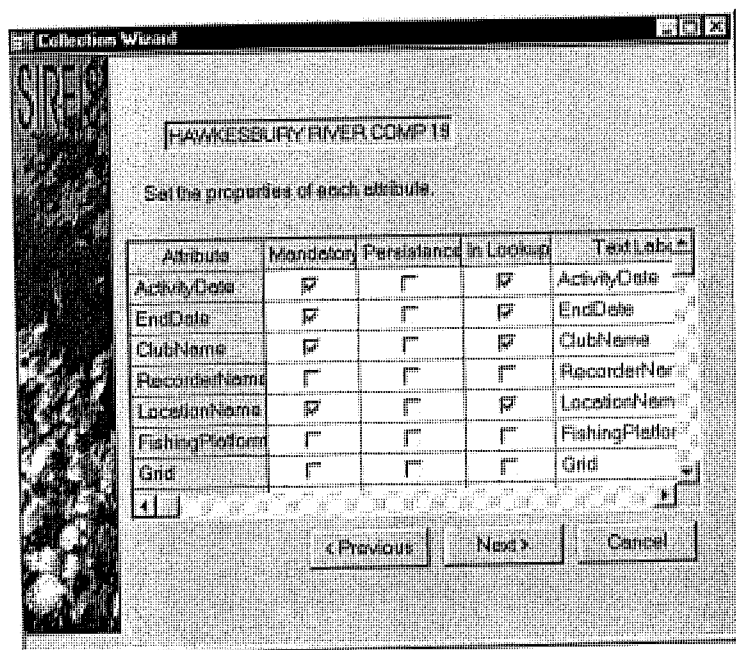


Figure 15. Wizard screen 5 - showing the mandatory, persistent and lookup checkbox columns.

The next three columns provide the ability to make field names mandatory, persistent and in the lookup. These terms are explained below.

**Mandatory** – By ticking the check boxes in this column you are saying that data must be entered in this field on the data entry screen – and you will not be able to exit the data entry screen unless there is data in the field. It is a good idea to make important fields like date, time and location mandatory, but other less important fields can be left alone.

**Persistence** – By ticking the check boxes in this column you are making the data entered in the previous record of the data persist every time you proceed to enter a new record. For example, if all your catch data comes from the same location such as a particular beach, by making the location name persistent you will avoid having to type in the same location for every record. You are able to overwrite a persistent field if required.

**In Lookup** – If you select the check boxes in this column, the field names will appear in a lookup screen (which we haven't seen yet) which allows you to view records that have been entered as a collection. It is important that you limit the number of attributes that you select for the lookup screen (to 6 or less). Usually they will be things that are "parent" type information, such as date, fisher name, location or boat name.

***In Summary***

*Look at the attribute names in the far left hand column ✓*

*Work your way through the list and decide which need to be mandatory (using the mouse to tick the box) ✓*

*Work your way through the list and decide which need to be persistent ✓*

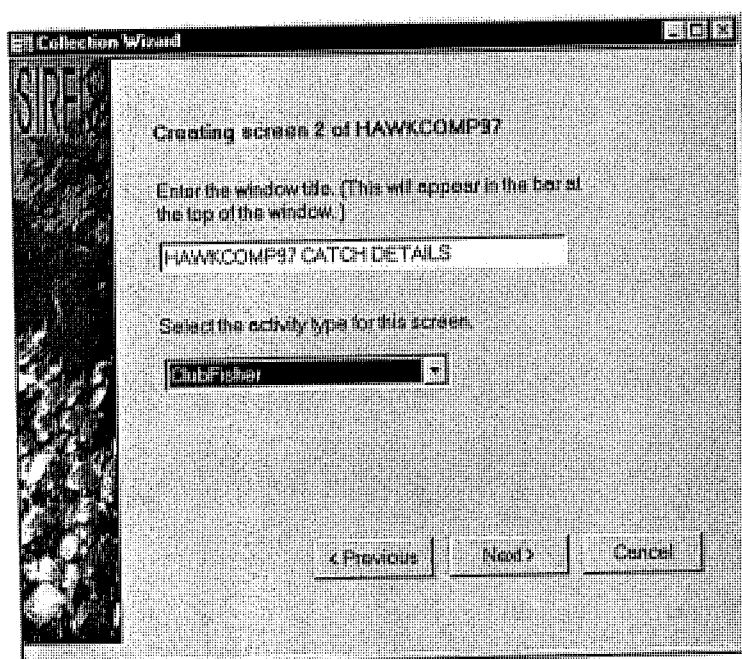
*Work your way through the list and decide which attributes need to be in the lookup (be sure to keep the number of attributes chosen here to six or less) ✓*

*Select the "Next" button to move to the next screen in the wizard ✓*

*The next few wizard screens are repeats of earlier screens, however they apply to the child screen. The functionality is exactly the same as those screen you have already used, therefore I will simply provide brief instructions on how to use them (as they have been explained already).*

### **Wizard Screen No. 6**

This screen is essentially the same as the third wizard screen. To use it simply enter a window title for the child screen, and select the activity type for the screen. In this example, the child screen will be set up to allow entry of the catch details of the fishers participating in the Hawkesbury River fishing competition. Therefore, the activity type for the child screen will be “ClubFisher”.



**Figure 16. Wizard screen No. 6 – defining the child screen title and activity type.**

#### ***In Summary***

- Enter a descriptive title in the top field of the screen ✓*
- Use the “Tab” button to move to the next field (the drop – down box) ✓*
- Select the activity type from the drop – down list ✓*
- Click on the “Next” button and proceed to the next screen ✓*

### Wizard screen No. 7

Hopefully you remember all the details of how to use this screen from the laborious explanations a few pages ago. This time you are selecting the field names for your fisher details. This is generally a smaller screen, usually limited to individual details like fisher name, no. of years fished, and number of lines, bait type used etc.

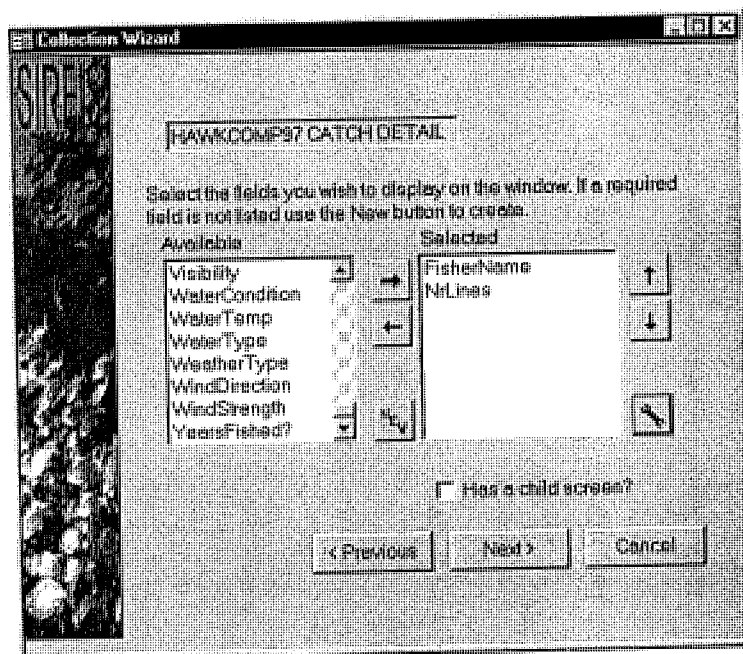


Figure 17. Wizard screen 7 - setting up the fisher catch screen field names.

#### *In Summary*

Select a desired field name from the "available" column ✓

Use the arrow button to move the field name to the "selected" column (you can also double click on the desired field name in the "available" column to achieve the same result) ✓

Use the "New" or "Maintenance" buttons to add or modify any attributes ✓

Once you have all the desired field names in the "selected" column, click on the "Next" button and proceed to the next screen ✓



### Wizard screen No. 8

This screen allows you to select fields on the catch screen that will be mandatory, persistent or in the lookup. Tick the necessary boxes, ensuring that you have at least one field name in the lookup.

Attribute	Mandatory	Persistent	In Lookup	Text Label
FisherName	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	FisherName
NoLines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NoLines

Figure 18. Wizard screen No. 8 - setting parameters for the child screen attributes.

#### In Summary

Look at the attribute names in the far left hand column ✓

Work your way through the list and decide which need to be mandatory (using the mouse to tick the box) ✓

Work your way through the list and decide which need to be persistent ✓

Work your way through the list and decide which attributes need to be in the lookup (be sure to keep the number of attributes chosen here to six or less) ✓

Select the "Next" button to move to the next screen in the wizard ✓

### Wizard screen No. 9

If there is to be catch associated with the child screen, select the check box, which asks “Include catch on this screen” ? Then use the same technique as you used in wizard screen four, i.e. select the desired field names from the “*available*” list and move them across into the “*selected*” list using the arrows. Note that the species common name and either species number or species weight are mandatory fields. This means this is the minimum information that must be recorded with the catch data.

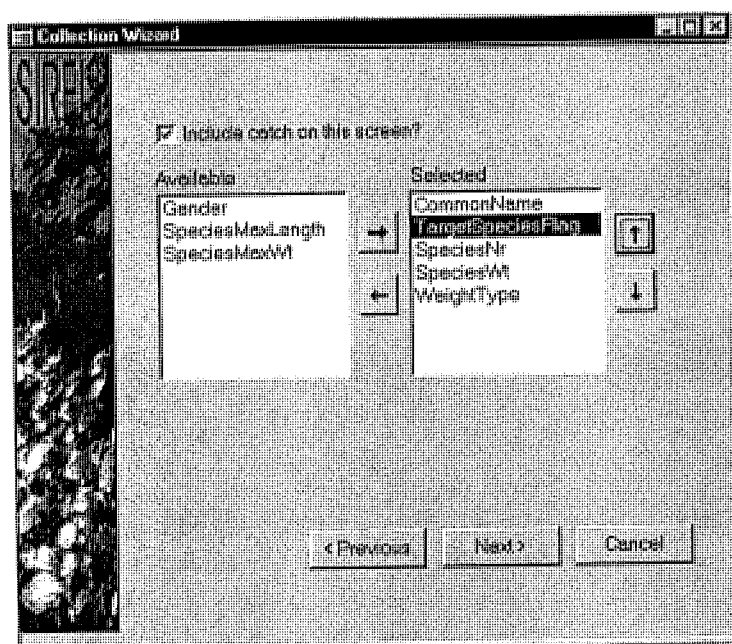


Figure 19. Wizard screen 9 - defining the catch attributes for the child screen.

### In Summary

If catch details are to be stored with the child screen, tick the “Include catch on this screen” ? box ✓

Determine the required attributes and move them from the “available” column to the “selected” column using the arrows ✓

Once the attributes are selected in the correct order, select the “Next” button to move to the next screen ✓

### Wizard screen No. 10

If there is any release information associated with the child screen, select the check box, which asks “Include release on this screen” ? Then use the same technique as you used in wizard screen four, i.e. select the desired field names from the “*available*” list and move them across into the “*selected*” list using the arrows. Note that the species common name and the release code are mandatory fields that are the minimum information that must be recorded with the release data.

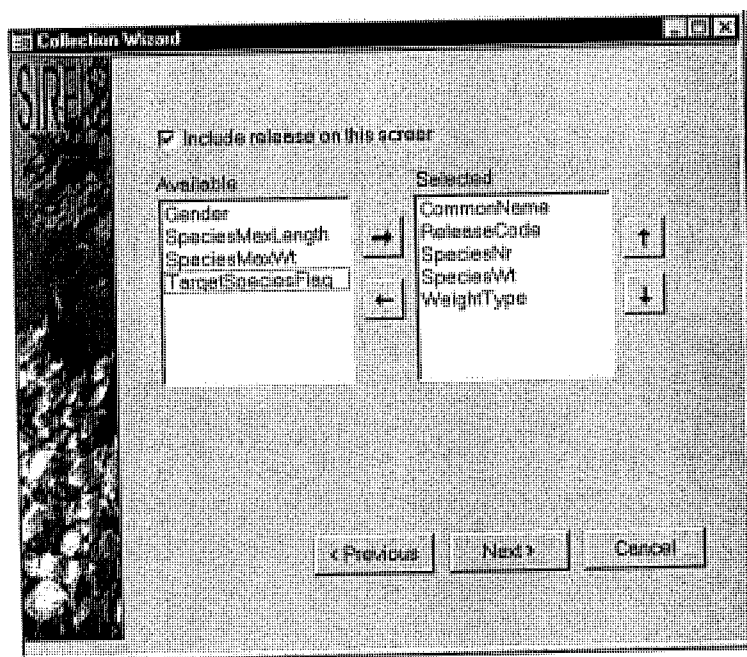


Figure 20. Wizard screen No. 10 - defining release information for the child screen.

### In Summary

If release details are to be stored with the child screen, tick the “Include release on this screen” ? box ✓

Determine the required attributes and move them from the “available” column to the “selected” column using the arrows ✓

Once the attributes are selected in the correct order, select the “Next” button to move to the next screen ✓

### *Wizard screen No. 11*

This is the last screen in the wizard. If you wish to review any of the selections you have made in any of the wizard screens, use the “*previous*” button. This will cycle you back through the screens of the wizard and you can make any alterations if desired before finishing. To save the newly created collection to the database, select the “*finish*” button using the mouse. The wizard will then close and you will be returned to the SIRFIS main screen. Your collection title will then appear in the main screen window, which you can access using the “*open*” button (refer to the next section).

Note: If you select the cancel button at this point you will exit the wizard and all your hard work will *not* be saved – so think carefully before agreeing to this course of action.

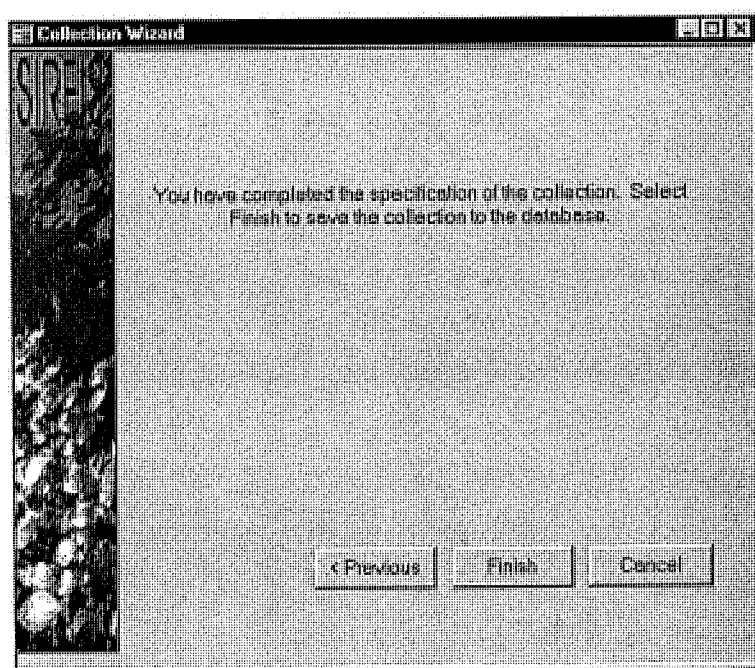


Figure 21. The final wizard screen, showing options before exiting.

### *In Summary*

*Review any screens in the wizard using the “previous” button ✓*

*Select the “finish” button to save the collection and exit the wizard ✓*

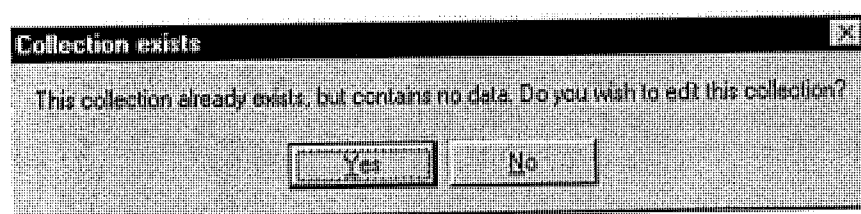
*Only use the “Cancel” button if you wish to leave the wizard and DO NOT want your work saved ✓*

## How to edit a newly created collection.

Occasionally after you have created a new collection you may want to change something, such as the position of a field on the data entry screen, or perhaps you want to add another attribute that was inadvertently omitted. You are able to do this by editing the collection through the wizard.

**It is important to note however, that this option is only available provided that no data entry has taken place. If data entry has occurred, you will not be able to edit the collection, and will have to create a new one if you want to change anything.**

Editing a collection is a simple process. Select the “*New*” button on the SIRFIS main screen, and type in the collection code of the collection you wish to edit in the first field of the wizard. The following message will then appear:



**Figure 22 - The message which appears giving you the chance to edit a collection.**

If you wish to proceed, select the “*Yes*” button, whereupon you will be taken back to the start of the wizard that was completed for that collection. This allows you to step through the wizard and make any changes required. Ensure that you proceed to the end of the wizard and click on the “*Finish*” button to save the collection with its’ new changes.

## How to enter data into a newly created data entry screen.

OK, now that you have created a new data entry screen, you probably want to start entering your data and building the collection. This is a fairly straight forward process, although there are a couple of features which you will need to learn along the way.

For the sake of this example we will use the screens that we just created in the wizard for the Hawkesbury River Fishing Club Competition.

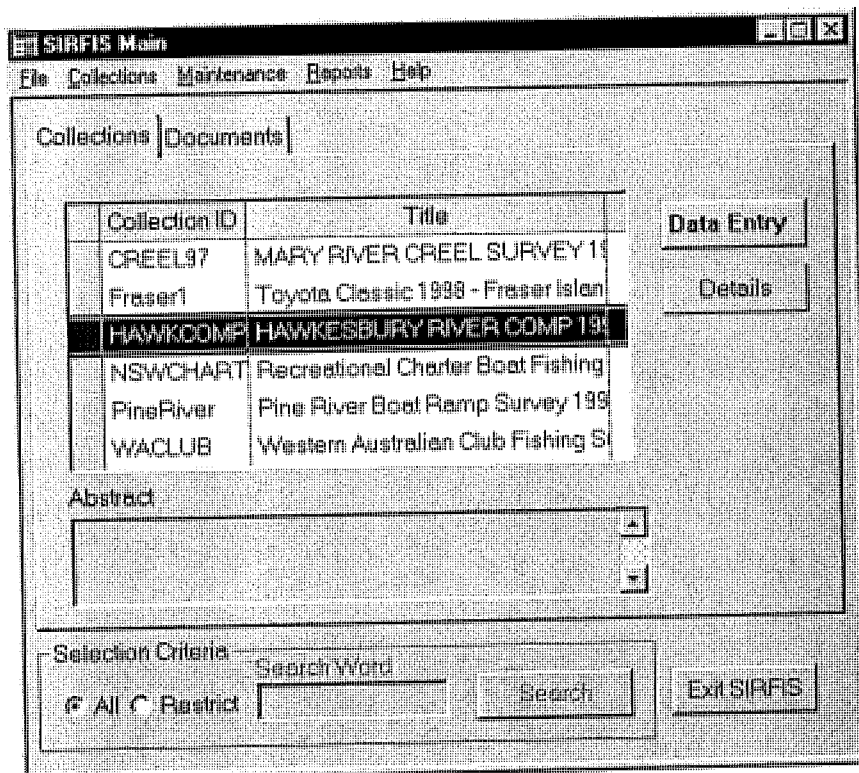


Figure 22. The SIRFIS main screen showing existing collections.

Open the collection as shown in the previous section, by highlighting the collection of interest, by either double clicking on the title, or selecting the **“Data Entry”** button. This will bring up the data entry screen for that collection (refer figure 23).

Figure 23. Hawkesbury River competition data entry screen.

The only particularly tricky part about entering the data occurs when you come to entering the catch of each fisher. Everything else on the data entry screen is either a straight text field or a drop down box which you can make selections from (remember you are able to add items to the drop down list using the attribute maintenance functionality, which can be found in both the wizard and the “**maintenance**” menu).

Species	Target	Number	Weight	Form
OTHER...				

Figure 24. The catch screen for the Hawkesbury River fishing club competition.

The trick to the catch screen is that you build your dropdown menu of selectable fish species as you progress. Great I hear you say, what does that mean? Bear with me and I'll show you.

You will notice (refer figure 24) that the catch screen has blank rows in which you need to insert the fish caught, it's weight, length etc (these attributes are defined by you in the

wizard). To access these fields, you need to click on the first row with your mouse and then press the “*Insert*” button on your keyboard. This will activate a drop down menu, that when first encountered will only have the word “other” listed in it. Select “other” using the mouse, and the species lookup screen (see below) will appear.

Search Criteria		
<input type="text"/>	<input type="text"/>	<input type="text"/>
Name	Scientific Name	CSIRO Code

Figure 25. The Species lookup screen, showing search criteria and data columns.

You will notice that the species lookup screen has three distinct columns; common name, scientific name and CSIRO code. It is anticipated that the common name will be the column most widely used. To find a species, simply type the common name (or even part of the name) and select the “*Search*” button.

The species lookup table will then be populated by all the fish species similar or matching the search criteria. For example if you wanted “trumpeter whiting”, simply type “whit” in the common name search box, select the “*Search*” button and then select trumpeter whiting from the list of presented as the search results (refer figure 26).



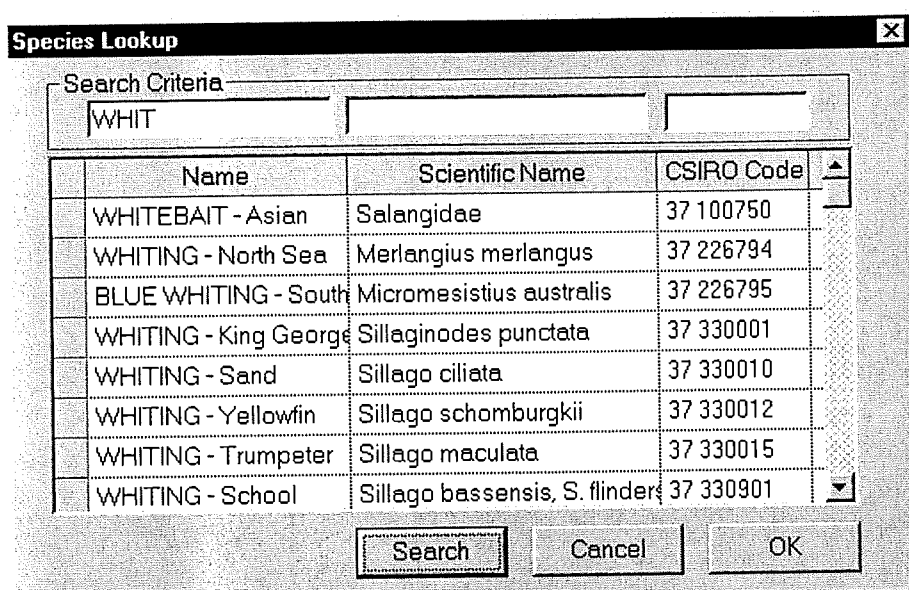


Figure 26. An example of search results using the species lookup screen

To add the fish to the catch screen, either select the “OK” button on the species lookup screen once the species name is highlighted, or simply double click the desired species name using the mouse. The selected species will then also be added to the drop down menu for the catch screen(s) of that collection (refer figure 27).

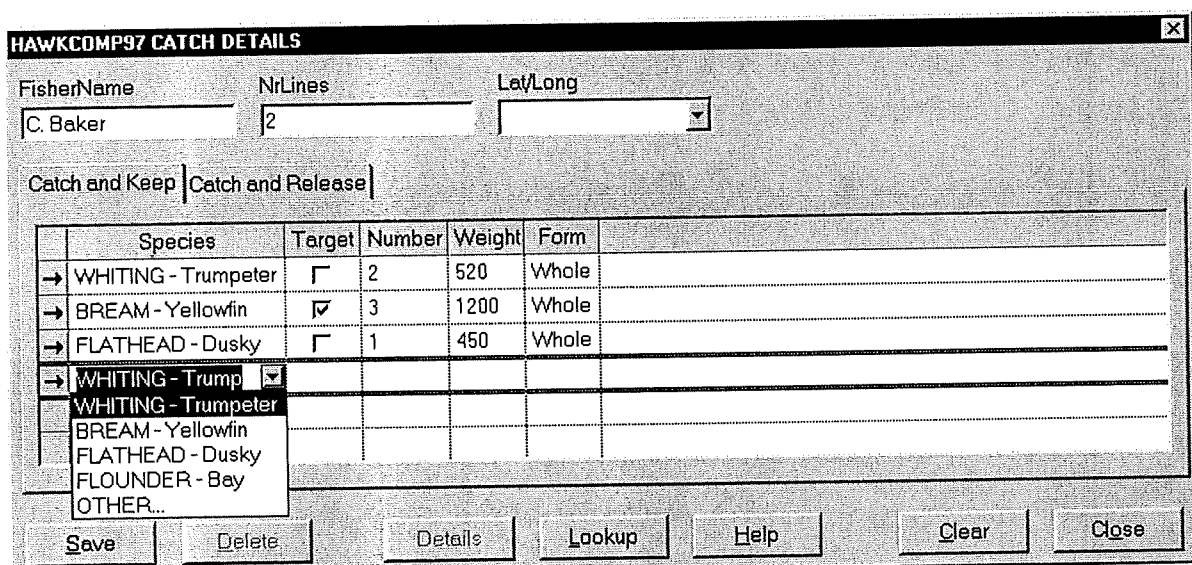


Figure 27. The catch screen illustrating the populated species dropdown box.

You will notice there is a “catch and release” tab on the catch screen as well as the “catch and keep” tab (hopefully you remember what I am talking about when I mention tabs – if not look in the glossary of terms and concepts). The “catch and release” screen can be filled in if there were fish caught on a trip which were subsequently released. It works in exactly the same way as the “catch and keep” screen.

***In Summary***

*Open the collection from the main screen by selecting the collection and using the "open" button ✓*

*Enter the data on the data entry screen using the "tab" key to move through the fields ✓*

*Use the species lookup screen to populate the species dropdown box on the catch screens ✓*

*Populate the catch screens ✓*

*Click on the save button to save the record ✓*

## Opening an existing collection.

As mentioned previously in this manual, the open button is used to open data collections already present in the SIRFIS application. There are two primary reasons why you may want to open a collection. The first is to undertake or to continue data entry, while the second may be to look up a particular record in a collection.

To open an existing collection, select the desired collection from the “Collection ID and Title” window, highlighting it using the mouse. Then select the *Data Entry* button from the main screen.

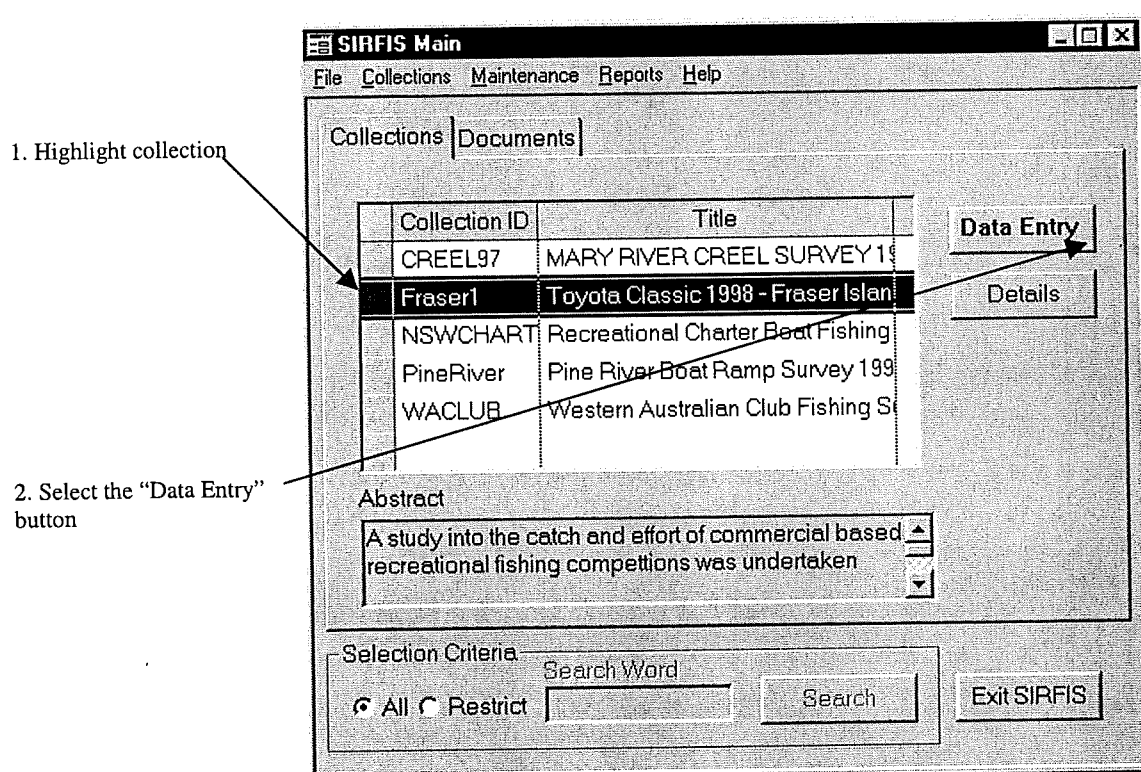


Figure 22. Opening a collection from the main screen.

After opening the collection, the data entry screen will appear (provided that you have security access to the collection), an example of which is provided below. From this screen (or the equivalent) you will be able to enter more data to the existing data collection.

Survey info - Fraser Island 1998

InterviewerName    ActivityDate    InterviewTime    LocationName    NrPeople

NrFishers    NrOfCompetitors    Launch/departTime    Grid    HoursFished

FishingPlatformType    Boatrego    BoatName    BoatLength    FishingComplete?

YearsFished?    HomeTown    HomeState

Catch and Keep | Catch and Release

Species	Number	Max Length	Weight	Form

Save    Delete    Details    Lookup    Help    Clear    Close

Figure 23. An example of a data entry screen for an existing collection in SIRFIS.

### Summary

Highlight the desired collection from the main screen using the mouse to click on the title ✓

Open the collection by using the mouse to click on the "Open" button ✓

*HINT: You can also open a collection by simply double clicking on the collection title with the mouse.*

*NOTE: Even though you will have opened the collection, you will only see the blank data entry screen. To find out how to view the collection details refer to the next section of this manual.*

## Viewing collection details.

In order to view an individual record (or records) you need to follow the same process to open a collection as explained previously (i.e. select the collection from the main screen using the mouse, then select the open button). As detailed above, this will bring up the data entry screen for the selected collection, and it is from this screen that you access collection records.

Survey info - Fraser Island 1998

InterviewerName ActivityDate InterviewTime LocationName NrPeople

NrFishers NrofCompetitors Launch/departTime Grid HoursFished

FishingPlatformType Boatrego BoatName BoatLength FishingComplete?

YearsFished? HomeTown HomeState

Catch and Keep | Catch and Release

Species	Number	Max Length	Weight	Form

Save Delete Details **Lookup** Help Clear Close

Lookup button

Figure 24. Example of a collection data entry screen.

To view a record select the "**Lookup**" button at the bottom of the data entry screen, which will then bring up the collection lookup screen (illustrated below in figure 25).

Survey info - Fraser Island 1998 - Lookup

Criteria

InterviewerName ActivityDate LocationName BoatName

Search

Results


Select Cancel

Figure 25. The collection lookup screen.

The collection lookup screen allows you to search collection information in two ways. The first way allows you to simply select the “*Search*” button, which will display a list of all the records in the collection, from which you can select the one you are interested in (see figure 26 as an example)

The screenshot shows a window titled "Survey info - Fraser Island 1998 - Lookup". It has a "Criteria" section with four input fields: "InterviewerName", "ActivityDate", "LocationName", and "BoatName". A "Search" button is located to the right of these fields. Below the criteria section is a "Results" section containing a table with the following data:

InterviewerName	ActivityDate	LocationName	BoatName
ROGER	23-MAY-1998	WADDY BEACH	FLUKEY
TODD	24-MAY-1998	WADDY BEACH	Test
TODD	27-MAY-1998	WADDY BEACH	TEST1
GHDFGHFS	02-MAY-1998	WADDY BEACH	789

At the bottom of the window are "Select" and "Cancel" buttons.

Figure 26. Collection lookup screen showing all records in the collection.

The second way of looking up records in the collection is to limit the search by typing in specific search criteria (such as the date or the location) in the fields at the top of the screen and then running the search (refer figure below for an example).

The screenshot shows the same window as Figure 26, but with search criteria entered. The "InterviewerName" field contains "TODD", the "ActivityDate" field contains "24-MAY-1998", and the "LocationName" field contains "WADDY BEACH". An arrow labeled "Criteria fields" points to these three fields. The "Search" button is highlighted. The "Results" table now only shows records for "TODD":

InterviewerName	ActivityDate	LocationName	BoatName
TODD	24-MAY-1998	WADDY BEACH	Test
TODD	27-MAY-1998	WADDY BEACH	TEST1

The "Select" and "Cancel" buttons are still visible at the bottom.

Figure 27. Collection lookup screen utilising the criteria fields.

To view the details of the record that you are interested in, use the mouse and double click on the record of interest from the list provided in the lookup screen after you have conducted your search. This will result in the details of the selected record appearing in a populated data entry screen (refer to figure 28). This basically sums up how to view individual records in SIRFIS.

**Survey info - Fraser Island 1998** [X]

InterviewerName	ActivityDate	InterviewTime	LocationName	NrPeople
TODD	24-May-1998	200	WADDY BEACH	4
NrFishers	NrofCompetitors	Launch/departTime	Grid	HoursFished
4	4	600		5
FishingPlatformType	Boatrego	BoatName	BoatLength	FishingComplete?
OwnBoat	W555Q	Test	5	yes
YearsFished?	HomeTown	HomeState		
5	Brisbane	Queensland		

Catch and Keep | Catch and Release

Species	Number	Max Length	Weight	Form
KINGFISH - Black	1	900	6	Whole
EMPEROR - Red	2	370	2	Whole
TUSKFISH	1	320	1.4	Whole

Save Delete Details Lookup Help Clear Close

**Figure 28.** Data entry screen showing the record selected from the lookup screen.

### Summary

From the initial data entry screen, select the "Lookup" button ✓

This will bring up the "Lookup screen" ✓

If you want to specify criteria to search for specific records, type these into the appropriate fields in the Lookup screen, then select the "Search" button. ✓

If you have no search criteria, simply select the "Search" button to view a list of all the records in the collection ✓

Select the record of interest from the list in the Lookup screen under the "Results" heading, and to view the details of this record double click on it using the mouse ✓

To look up a new record, select the "Lookup" button again and follow the same process. ✓

To return to the main SIRFIS main screen, select the Close button. ✓

## Creating metadata for a collection – the details button.

The *Details* button links to the collection metadata screen, where a range of information relating to the data collection can be stored. The collection metadata screen consists of a series of different subscreens accessed by selecting the appropriate Tab on the screen. These screens allow storage of information such as the time period over which the collection was established, the methodology used to collect the data and who the data was collected by. Other information capable of being stored includes indications of the data quality and links to related documents such as management reports or recommendations written as a result of the data collection and subsequent analysis.

There are seven different Tabs on the metadata screen, and the function of each one will be outlined in this section. To access the Collection Metadata screen select the collection of interest using the mouse, then select the “*Details*” button from the main screen.

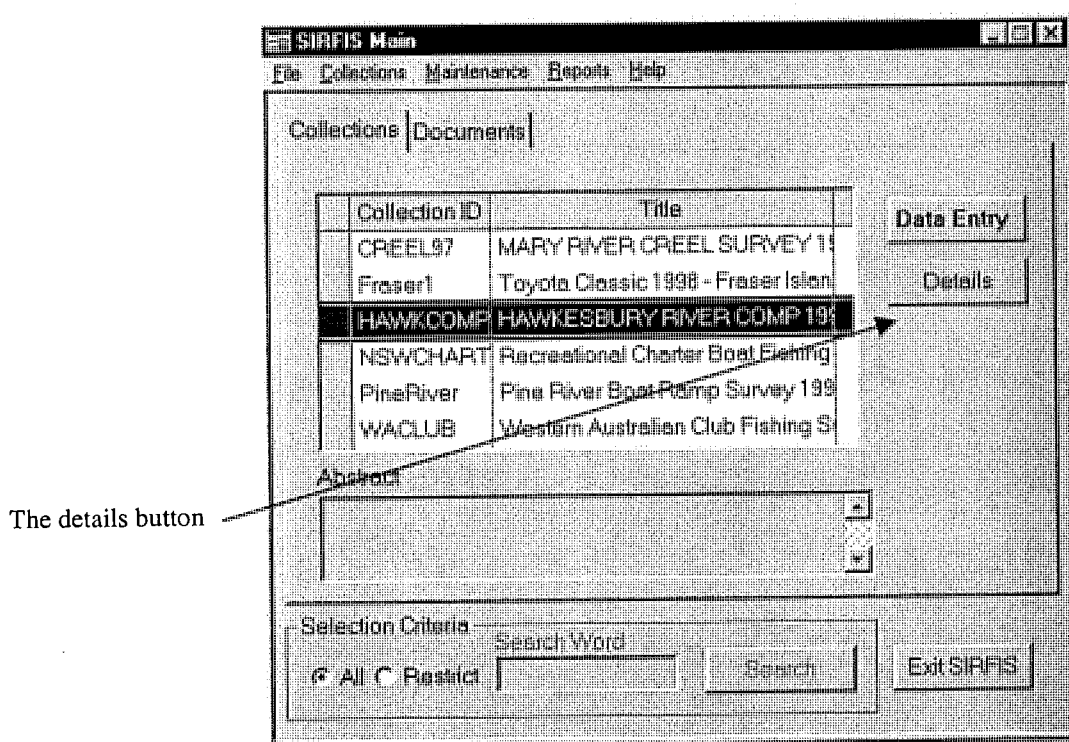


Figure 29. The SIRFIS main screen - using the "details" button to access collection metadata

### *In Summary*

*Highlight the collection of interest using the mouse ✓*

*Select the “Details” button to access the metadata screens for that collection ✓*



## **About the General Information Tab**

The general information Tab (figure 30) stores information on the collection type, the location type, the date range of the collection, the region, the fishery involved as well as the collection owners details such as their login name, their full name and contact phone number. As some of these terms will probably not make sense, they will be explained more fully below.

**The collection type:** Used to specify the type of collection. It is a drop down menu, with options for the type of data collection, such as a creel survey or a club logbook. In this case the collection type will be a club log.

**The date range of the collection:** This allows the user to ascertain when the collection was conducted and for how long. In situations where the collection is ongoing it is recommended that you leave the end date field blank (unless you know how long a particular study will go for).

**The fishery:** Again, as most of this information is descriptive, the fishery involved may be a broad term such as inshore, offshore game, offshore reef etc.

The collection owner details are fairly straight forward and don't really need much explanation. It is basically the name and contact details of the collection owner.

Collection Code: test1

Meta Data Date: [ ]

Collection Title: Test of SIFPIS

General | Abstract | Keywords | Methodology | Quality | Maintenance | Files/Data

Collection Type: Charter Log

Date Range: Start Date [ ] End Date [ ]

Collection Owner	
Name	Login
Cameron Baker	bakerc
Email	Phone
bakerc@qfma.dpi.qld.gov.au	32277434

OK Cancel Apply

NUM

Figure 30 - The general information tab.

## How to use the General information tab

The fields contained in this screen are of two types: either drop down boxes (where you simply select the information required from a drop down list) or free text fields where you type the information required.

It is a simple screen to use, simply use the **Tab** key to navigate through the fields, or use the mouse to click into the fields one at a time.

### *In Summary*

*Select information from the drop down boxes ✓*

*Type in information in the free text fields ✓*

*Click on the next Tab to continue filling out the metadata ✓*

## About the Abstract Tab.

The abstract tab is a free text field which allows the entry of a large amount of text. This screen is designed to be used by the owner of the collection, who should enter an abstract relating to the collection to allow other SIRFIS users to obtain an understanding of the data and the work done.

## How to use the Abstract Tab.

The field on the abstract tab is a free text field, so all that needs to be done is to type the abstract directly into the screen. If the abstract is in another document, then cut and paste functionality can be used to avoid having to retype it into SIRFIS. Click the “**Apply**” button to save the text in the field *before* exiting to a different screen.

Figure 31 - An example of the abstract tab.

### *In Summary*

*Type (or cut and paste) the abstract text into the free text field ✓*

*NOTE: You must select the “Apply” button to save the entry ✓*

## About the Keywords Tab.

The keywords tab provides you with the ability to specify a number of keywords relating to the collection, which will then be used by the search facility on the SIRFIS main screen to identify relevant collections. It is important that the keywords be completed, otherwise the collection will not appear when a search is undertaken.

## How to use the Keywords Tab.

To add keywords to the list on this screen, use the mouse to select the first row in the column, then press the **"Insert"** key on your keyboard. This will result in an arrow appearing next to the row, indicating that a keyword should be inserted in that row. Use the **"Tab"** key to move to the next row in the list.

Collection Meta Data

Form Edit Help

Collection Code: HAWKCOMP

Meta Data Date: 21/5/97

Collection Title: HAWKESBURY RIVER COMP 1997

General Abstract **Keywords** Methodology Quality Maintenance Files/Data

Keywords are used to by the search facility on the main screen, as an aid to help users find relevant data.

Keywords
HAWKESBURY
ESTUARY
LOGBOOK
CLUB
BREAM
WHITING
FLATHEAD
TAILOR

OK Cancel Apply

OK NUM

Figure 32 – An example of the keywords tab.

### *In summary*

*Use the mouse to select the first row in the keywords box ✓*

*Enter the keyword in the field with the arrow next to it ✓*

*Use the "Tab" key to move to the next row of the keywords list and enter the next keyword ✓*

*Select the "Apply" button to save the keywords before exiting the screen ✓*

## About the Methodology Tab.

The methodology tab contains a free text field where the owner of the collection can write an outline of the methodology used to collect the data for the collection. It allows another user to look at the method used in data collection, and gain a better understanding of the data, and even replicate the study if required.

Similar to the abstract field, it is important that a detailed methodology be completed, so that the same process can be followed if a the study or data collection process needs to be replicated at a later date.

## How to use the Methodology Tab.

The screen on the methodology tab is a free text field, thereby allowing you to type the methodology straight into the screen as you would in a word processor. If the methodology is already written in another document, the functionality will allow you to cut and paste the text directly into the screen. Once again, **remember** to select the apply button to save what you have entered before leaving the collection metadata screen.

The screenshot shows a window titled "Collection Meta Data" with a menu bar (Form, Edit, Help). It contains several input fields: "Collection Code" with the value "HAWKCOMP9", "Meta Data Date" with "23/5/97", and "Collection Title" with "HAWKESBURY RIVER COMP 1997". Below these is a tabbed interface with tabs for "General", "Abstract", "Keywords", "Methodology", "Quality", "Maintenance", and "Files/Data". The "Methodology" tab is selected and contains a large text area with the following text: "based upon a logbook system. Logbooks were issued to fishing clubs who were identified as utilising the Hawkesbury river to undertake recreational fishing activities (primarily fishing competitions). At the conclusion of each day of a fishing competition a designated member of the fishing club is responsible for completing details of the catch and effort for the day, including location fished, time the fishing commenced and finished, the environmental factors such as wind, weather and water conditions and of the catch of each fisher participating. Once these details have been completed for each trip, they are forwarded by reply paid mail to the logbook co-ordinator, who then ensures that the data is entered into SIRFIS and validated." At the bottom of the dialog are "OK", "Cancel", and "Apply" buttons. A status bar at the very bottom shows "OK" and "NUM".

Figure 33 - An example of the methodology tab.

### In Summary

Type (or cut and paste) the methodology text into the free text field ✓

NOTE: You must select the "Apply" button before exiting the screen ✓

## About the Quality Tab.

The quality tab is comprised of two free text fields where the owner of the collection can provide an indication of the quality of the data in the collection. These comments should include such things as accuracy of any locations used in the collection (for example were GPS marks used or a more general description of location such as nearest town) ?

Other comments relating to quality could include the accuracy of species identification in the catch records or any validation checks undertaken on the data when it was being entered.

## How to use the Quality Tab.

Being free text fields, this screen is extremely easy to use. Simply use the mouse to select the appropriate free text field and commence typing in your comments.

**Collection Meta Data**  
Form Edit Help

Collection Code: Fraser1  
Meta Data Date: 25/5/98  
Collection Title: Toyota Classic 1998 - Fraser Island

General | Abstract | Keywords | Methodology | **Quality** | Maintenance | Documents

**Positional Accuracy**  
The locations used in the study are the standard QFMA grid system using 30 nautical mile and 6 nautical mile grids.

**Comments**  
Location details and catch information is of good quality, with the majority of fishers surveyed being cooperative in the survey.

OK Cancel Apply

NUM

Figure 34 - An example of the quality tab.

***In summary***

*Select the appropriate field using the mouse ✓*

*Type in comments relating to the quality of the data ✓*

*Select the “Apply” button to save the information before moving to the next tab ✓*

## About the Maintenance Tab

The maintenance screen is intended to be used to detail the frequency of changes or additions made to the collections after their initial establishment date. The screen has two drop down boxes from which to select options under the headings of *‘progress’* and *‘maintenance frequency’*, as well as a table to detail the maintenance history of the data set.

The screenshot shows a window titled "Collection Meta Data" with a menu bar (Form, Edit, Help). The "Collection Code" field contains "HAWKCOMP9" and the "Meta Data Date" field is empty. The "Collection Title" field contains "HAWKESBURY RIVER COMP 1997". Below these are tabs for "General", "Abstract", "Keywords", "Methodology", "Quality", "Maintenance", and "Files/Data". The "Maintenance" tab is active, showing two dropdown menus: "Progress" and "Maintenance Frequency". Below these is a table titled "Maintenance History" with columns "Date" and "Description". At the bottom are "OK", "Cancel", and "Apply" buttons.

Figure 35 - An example of the maintenance tab.

### How to use the Maintenance Tab.

From the dropdown box entitled *“Progress”*, select the appropriate option to indicate the stage that the data collection is at (for example, “complete” or “In progress”). Then select the appropriate option from the *“Maintenance frequency”* dropdown box to indicate how often the dataset is maintained, for example “daily” or “as required”.

Finally after any maintenance has been carried out on the collection, record the date and a brief outline of what was done in the *“Date”* and *“Description”* fields. Select the *“Apply”* button before exiting the metadata screen.



***In summary***

*Select the appropriate option from the “Progress” drop down box ✓*

*Select the appropriate option from the “Maintenance frequency” ✓*

*Record the date and details of any changes made to the collection since it was established under the section entitled “Maintenance history” ✓*

*NOTE: You must select the “Apply” button prior to exiting the metadata screen ✓*

## About the Documents tab.

The documents tab allows you to store links to any documents that are of relevance to the data collection in question. For example, if a creel survey had been conducted and a subsequent journal article had been written from the data collected, a link can be made to an electronic copy of the journal article. This allows you to look at the data set as well as the interpretation and discussion of that data.

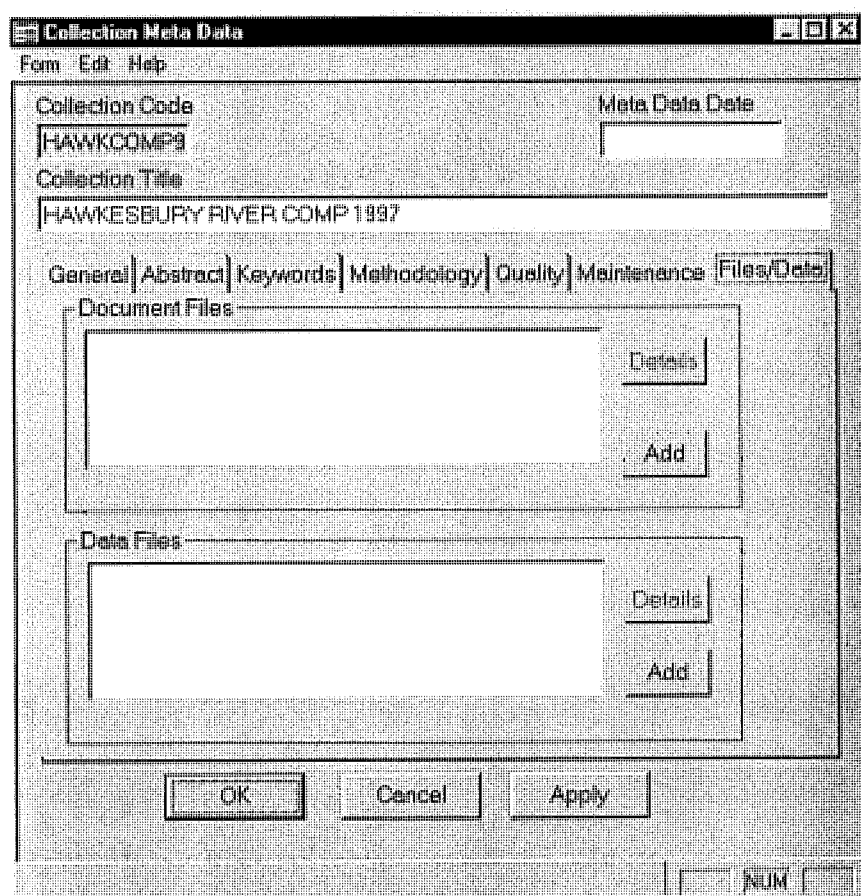


Figure 36 - An example of the documents tab.

## How to use the documents tab

When you want to associate a document with a particular collection, select the “*New*” button shown on the documents screen. This will bring up a sub-screen (refer to figure 37), where you specify the location of the document (in terms of the directory and path).

Once you have specified the location and file name of the document, select the “*Open*” button from the subscreen. This will associate the document with the collection and also bring up the document details screen (which you will then need to complete).

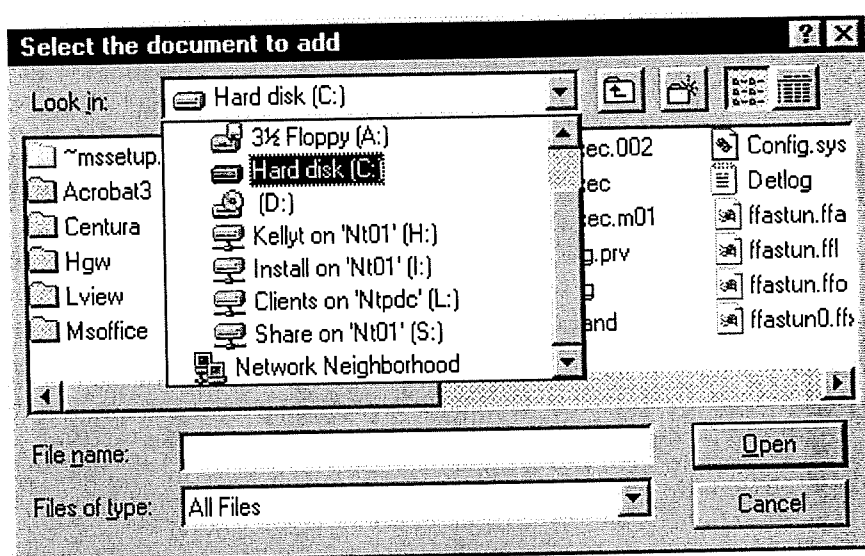


Figure 37 - The metadata documents sub - screen.

## About the Collection security screen

The security screen appears after selecting the “*Security*” button on the SIRFIS main screen. It is used to select from the list of established SIRFIS users, who can have access to particular collections. For example if a researcher sets up a collection and then wants to give his data entry staff access so that they can enter data, the collection security functionality of this screen would be used.

There are four (4) security levels provided by this screen, and each one will be briefly explained below:

*No Access* - As the name implies, users with a no access security level next to their name for a particular collection are not able to access the collection in any way.

*Data Entry* – This level of security allows users to enter data into a collection, however prevents them from extracting and data by way of reports or exporting.

*Retrieval* – This level of security allows the user complete access to the collection, including the ability to generate reports and export data from the collection.

*Owner* – The same rights as the retrieval level of security, with the user being able to enter, retrieve and export data. The important thing to note about this category is that there can only be one owner for a collection, and the owner should be the person who is in control of the study, and hence the collection. If any changes to the collection are required, or questions need to be asked regarding the collection, they should be directed to the owner of the collection.

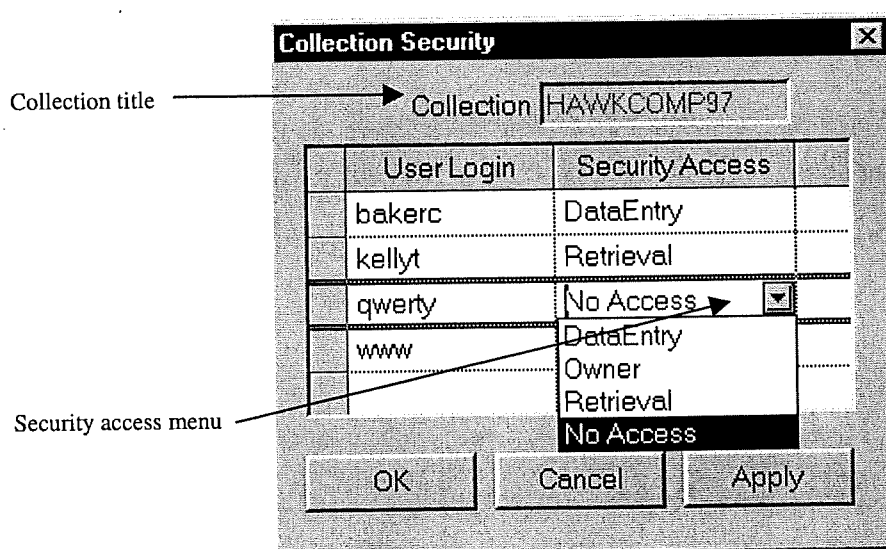


Figure 38 - The collection security screen, showing the different security levels available.

## How to use the Collection security screen

To access the collection security screen, first make sure that in the SIRFIS main screen the collection that you are interested in is highlighted. To do this use the mouse to single click on the collection title listed on the main screen of the Collections Tab. Then click on the “*Security*” button.

The collection security screen will then appear (refer figure 38), listing all the SIRFIS users login names in the column entitled “*User Login*” on the left hand side of the screen. To assign new security access to a user (all users will have no access by default) use the mouse and click in the right hand column (entitled “*Security Access*”) next to the user name that you want to alter. A dropdown arrow will then appear listing the available security access levels. Simply select the desired level using the mouse, hit the “*Apply*” button using the mouse, and the security level for that user will be changed. Please note that you must be the owner of the collection to change the security access level of a user.

### *In summary*

*Highlight the collection using the mouse on the SIRFIS main screen ✓*

*Select the “Security” button on the SIRFIS main screen ✓*

*Click in the security access field next to the user login name of interest ✓*

*Click on the down arrow to reveal the drop down list of security access levels ✓*

*Using the mouse, select the desired security level ✓*

*Select the “Apply” button ✓*

*NOTE: There can only be ONE user per collection with owner level security access.*

## About the Search facility

The search facility available on the SIRFIS main screen allows you to conduct a search for collections using a specific search term. For example if you were only interested in collections that dealt with freshwater species of fish, you could type in “freshwater” as a search term to limit the collections displayed to those related only to freshwater.

You will notice the search facility at the bottom of the SIRFIS main screen. There are two buttons entitled “*all*” and “*restrict*”, as well as a field for entering the search word, and the “*Search*” button used to execute the search.

As a default setting the “*Collections displayed*” will be set to “*all*” – meaning that all the collections within SIRFIS will be displayed on the SIRFIS main screen. When you want to do a search you will need to click the “*Restrict*” button, then type a search word into the field provided and select the “*Search*” button.

When conducting the search, the facility will display any collections with matches to the search word entered in the “*search word*” field. It is important to note that the search facility operates by looking at the keywords defined for each collection in the metadata under the “*keywords*” tab. Therefore, if there are no keywords specified for a particular collection in the metadata, it will not be found by the search facility.

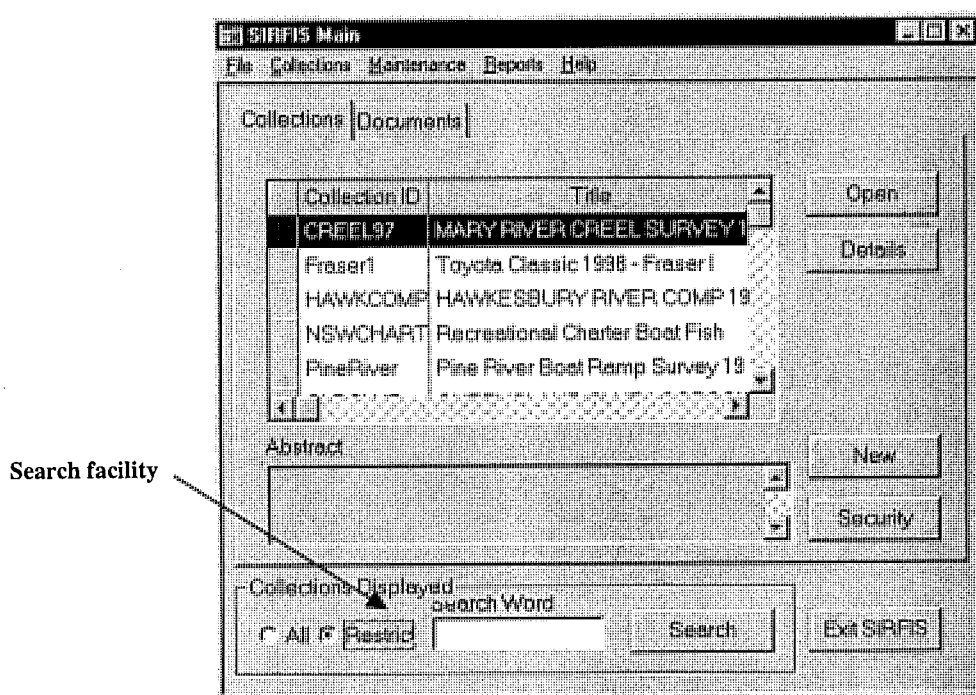


Figure 39 - The SIRFIS main screen, showing the search facility.

## How to use the Search facility

To utilise the search facility on the main screen, select the **“Restrict”** radio button on the main screen using the mouse (under the selection criteria heading on the main screen). Then type in a single search word in the field provided, and select the **“Search”** button using the mouse.

Any collections that have matching keywords associated with them will be displayed in the main screen window. If no collections appear it means the search word you are using doesn't match any of the keywords associated with the collections in SIRFIS. This means that either there are no collections relevant to the subject you are searching for, or you should try another search word.

### *In summary*

*Select the “Restrict” radio button on the SIRFIS main screen ✓*

*Enter a search word in the appropriate field ✓*

*Select the “Search” button using the mouse to commence the search ✓*

*NOTE: If no collections result from the search, try using another search word ✓*

## About the Species Maintenance screen.

The species maintenance screen is used to add or modify information related to fish species used in the SIRFIS database. This feature will allow you to add species details to SIRFIS if they are not included in the list provided.

Additionally a range of names may be applied to a single species of fish, and this has been a commonly recognised problem for people undertaking surveys, is whether the species of the fish has been correctly identified by the angler, or the number of different names the same species may be recorded as. The functionality of this screen allows you to list a number of names associated with a single fish species, as well as designate a preferred common name. This allows multiple names to be linked to the one species code and scientific name.

The search facility also provides you with the ability to search different species through the species lookup screen and look at their common names, species codes or scientific names.

Common Name	Preferred Name
BREAM - Black	<input checked="" type="checkbox"/>
BREAM - Southern	<input type="checkbox"/>
BREAM - Golden	<input type="checkbox"/>
BREAM - Silver	<input type="checkbox"/>

Figure 40 - An example of the species maintenance screen.



## How to use the Species Maintenance screen

To enter a species which does not currently appear in SIRFIS, type the Species code into the appropriate field on the screen, then enter the scientific name, the list of common names and select the preferred common name. To enter the common names use the **“Insert”** button, and once the arrow appears indicating the field is active...type away ! To list the next common name, simply use the **“Tab”** key to move to the next field. When you have finished typing in all the common names click on the **“Apply”** button to save the information into SIRFIS.

If the species is unknown, it is recommended that you use a Family – level code. For example if you have survey results with “Whiting” caught, but the identification of the species wasn’t validated, select the species code for that family of fish and replace the last three digits with “000”. If there is a chance that identification may be made to species level at a later date, you should note in the collection metadata that the family code was used while awaiting more exact identification.

If you do not know the species code for the fish you are entering, you may need to contact the CSIRO in Hobart and request it. Many species however, can be found in the CSIRO Marine Laboratories Report No. 224 entitled “Codes for Australian Aquatic Biota (CAAB): An Upgraded and Expanded Species Coding System for Australian Fisheries Databases”.

The codes used in SIRFIS are the Codes for Australian Aquatic Biota developed by the CSIRO. The CAAB, (an eight-digit system for coding Australian aquatic biota), are managed by the Taxonomy section of the CSIRO Division of Marine Research. It is used by a large and expanding number of governmental and industry groups for fishery purposes and has replaced almost all other national and locally designed systems.

A report detailing the structure and use of CAAB is available from:

Gordon Yearsley  
CSIRO Division of Marine Research  
GPO Box 1538  
Hobart  
TAS 7001  
AUSTRALIA

Tel: 03) 6232 5222  
Fax: 03) 6232 5000  
Email: [gordon.yearsley@marine.csiro.au](mailto:gordon.yearsley@marine.csiro.au)

To examine existing information (such as the list of common names for a particular species), type in the species code for the fish species of interest and hit the **“Tab”** Key. The scientific name and common names for the species will then automatically populate the species maintenance screen. If you do not know what the species code is for the fish you are interested in, select the **“Search”** button. This will bring up the species lookup screen, where you can type the name of the fish you are searching for and select the **“Search”** key. Then select the fish you are interested in from the list provided and the species maintenance screen will be populated with the information you require about that species (i.e. the species code, the scientific name and the list of common names).

### ***In Summary***

#### ***TO ENTER A SPECIES NOT CURRENTLY IN SIRFIS***

*Type the species code into the appropriate field ✓*

*Use the “Tab” key to move to the next field ✓*

*Type the scientific name into the appropriate field ✓*

*Use the “Tab” key to move to the next field ✓*

*Press the “Insert” button to activate the common name field ✓*

*Enter the common name of the fish ✓*

*If there is more than one common name for the species, use the “Tab” key to move to the next field in the common name table ✓*

*Enter any further common names using the above two steps ✓*

*Using the mouse, select the checkbox for the preferred common name of the species ✓*

*Select the “Apply” button to save the new details ✓*

#### ***TO LOOKUP THE DETAILS OF AN EXISTING SPECIES IN SIRFIS***

*If you know the species code, enter it in the appropriate field ✓*

*Press the “Tab” key and the remaining information will populate the screen ✓*

*If you do not know the species code, select the “Search” key ✓*

*Type in the fish common name you are searching for on the species lookup screen ✓*

*Using the mouse, select the “Search” button on the species lookup screen ✓*

*Double click on the fish name of interest from the search results ✓*

*Read the information that populates the species maintenance screen ✓*

*Select the “OK” button to return to the SIRFIS main screen ✓*

## About the Organisation/People Maintenance Screens

The Organisation/People Maintenance screens are used to list details of different organisations and people involved in recreational fisheries activities. These could be people involved in recreational surveys, fishing guides, charter boat operators, or research organisations (just to name a few). The screens are accessible from the “*Maintenance*” menu on the SIRFIS Main screen – select “*People*” from this menu.

There are three screens associated with the organisation/people facility of SIRFIS, therefore I will deal with one screen at a time, and then discuss how they relate to one another.

*The Organisation Screen* – This screen is used to record details relating to organisations. Information such as organisation name, the type of organisation, and the contact details such as address and phone number.

The screenshot shows a window titled "Organisation/People Maintenance" with a tabbed interface. The "Organisations" tab is active. On the left, a tree view lists organisations under categories: ANSA (Hawkins, Nick; Miller, Bob; Mitchell, James; Newman, Andrew), DPI - Fisheries (Clayton, Jim; McLean, Michelle; Porter, Simon; Porter, Simon; Reed, Lou), QFMA (Brewster, Krissi; Daly, John; Gilbert, Kim), SUNFISH (Hawkins, Nick; Miller, Bob; Mitchell, James; Newman, Andrew), and University of Queensland (Doyle, Susan; Gordon, Wendy). The "DPI - Fisheries" entry is selected. The right pane displays the following details:

- Name: DPI - Fisheries
- Type: Government
- Phone: 07 - 3224 78
- Address: GPO Box 2454
- Suburb: Brisbane
- Postcode: 4001

At the bottom of the right pane are buttons for "New", "Save", and "Delete". A "NUM" field is visible at the bottom right of the window.

Figure 41 - The Organisation tab, showing organisation name and contact details.

*The People Screen* - This screen is used to record the details of individuals relating to the collections contained in SIRFIS. These details include the persons name, date of birth, address and contact telephone number. It is designed to be used to record the details of people whom may need to be contacted in relation to a particular collection. For example, you may record the details of the secretary of any fishing clubs whom you receive data from, so that you can contact them to discuss the data received from the club if required.

**Organisation/People Maintenance**

Organisation/People:

- ANSA
  - Hawkins, Nick
  - Miller, Bob
  - Mitchell, James
  - Newman, Andrew
- DPI - Fisheries**
  - Clayton, Jim
  - McLean, Michelle
  - Porter, Simon
  - Porter, Simon
  - Reed, Lou
- QFMA
  - Brewster, Krissi
  - Daly, John
  - Gilbert, Kim
- SUNFISH
  - Hawkins, Nick
  - Miller, Bob
  - Mitchell, James
  - Newman, Andrew
- University of Queensland
  - Doyle, Susan
  - Gordon, Wendy

Organisations: **People** | Organisation/Person

Firstname: Andrew

Surname: Newman

Gender: M | Date of Birth: 03-Sep-1956

Phone: 07-3541 97

Address: 77 Kangaroo Street

Suburb: Caboolture

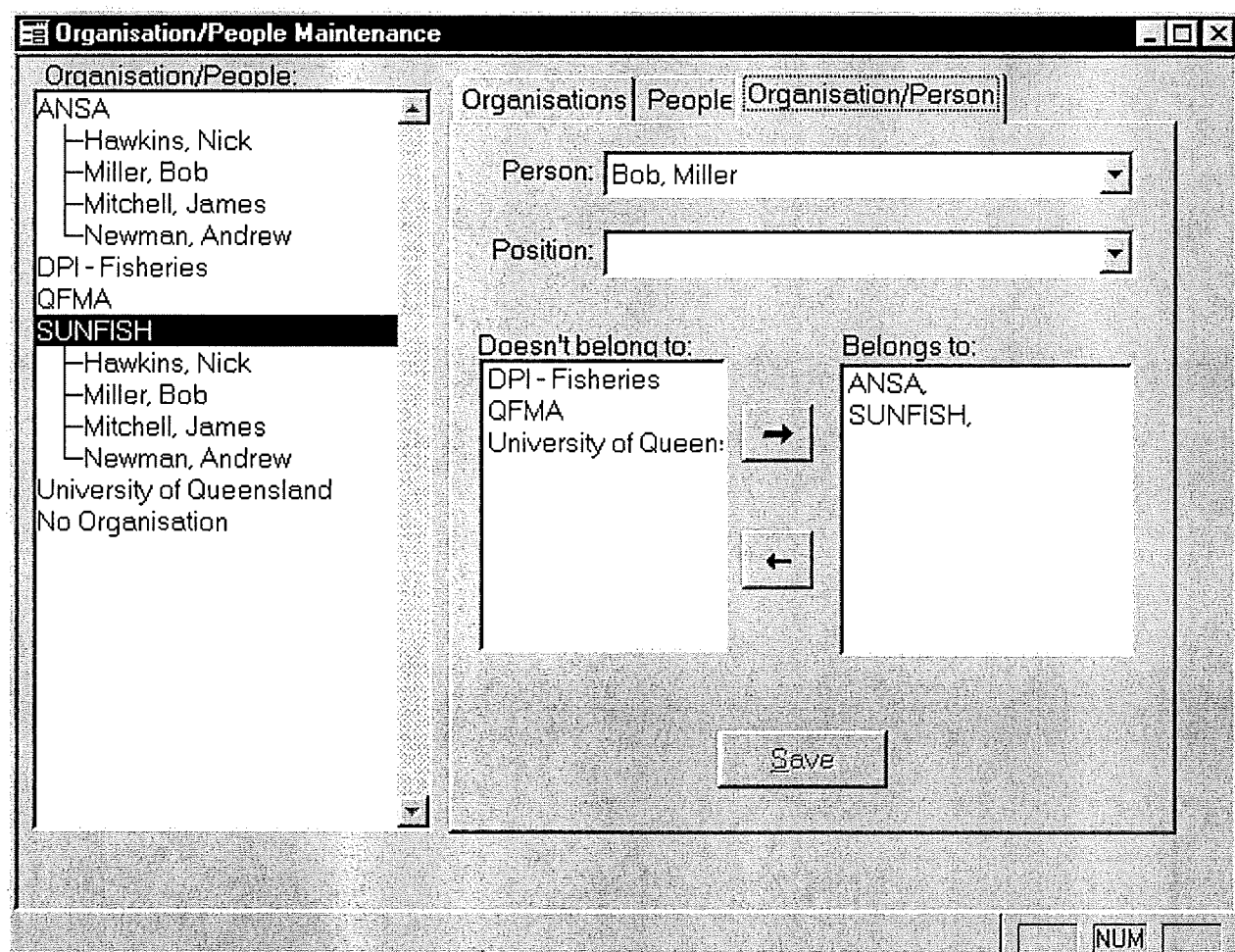
Postcode: 4510

New Save Delete

NUM

**Figure 42 - The people screen - showing the fields for recording contact information.**

*The Organisation/Person screen* – This screen allows you to associate individuals with organisations that are present in the “organisations” screen. For example if you had a number of people who were members of the same fishing club, you could associate them with that organisation, as well as record any position within the organisation that they may have, such as president, secretary etc.



**Figure 43 - The Organisation/People maintenance screen showing the association functionality.**

The three screens relate to one another primarily through the “Person/Organisation” screen, as this is where you are able to associate people with organisations that have been entered into the database. How to do this is explained in the next section.

## How to use the Organisation/People Maintenance Screens

The screens are extremely easy to use, with each having simple free text fields or drop down boxes.

*The organisation screen* – To enter data into the organisation screen simply access the screen by clicking on **“People”** in the **“Maintenance”** menu from the SIRFIS main screen. Ensure that the **“Organisation”** tab is active and start entering data. Simply enter the name of the organisation, then use the drop down menu to select the type of organisation that it is (if the organisation type doesn't appear it can be added through the **“system codes”** by your system administrator). The remaining fields on the screen are free text fields, so simply use the **“Tab”** key to move to the next field and enter the next piece of information. Ensure that you select the **“Save”** button before either exiting the screen or selecting the **“New”** button to start entering a new record.

*The people screen* – The people screen operates in exactly the same manner as the previous screen. Simply enter the data in the appropriate fields, using the **“Tab”** key to move between each field. Ensure that you select the **“Save”** button before exiting the screen or selecting the **“New”** button to start entering a new record.

*The organisation/people maintenance screen* – This screen is slightly different to the previous two screens, however it does not exhibit any features that have not been seen before. The first two fields are simply drop down boxes, requiring you to select the appropriate data from the lists provided. The next section of the screen displays a number of organisations that a person may be associated with. To associate a selected person with the relevant organisation(s), highlight the organisation in the **“Doesn't belong to”** column and using the arrow on the screen move it across to the **“Belongs to”** column. This will then associate that person with the selected organisation(s). Note that a person can belong to more than one organisation.

You will have no doubt noticed a window on the left hand side of all three screens entitled **“Organisation/People”**. Once you have entered your list of people and organisations, and then associated those people with the relevant organisations, you can use the mouse to double click on an organisation name in this window. This will display all the people associated with that particular organisation. This expanding “tree” feature allows you to see at a glance the different people who belong to different organisations associated with data in the SIRFIS database.

If you have the **“People”** or **“Organisation”** tabs active, the information relating to the person or organisation that you select in the “tree” is displayed on those tabs. For example if you have the **“Organisation”** tab active, and you click on ANSA in the “tree”, the details on the organisation ANSA will be displayed.

## ***In summary***

### **ORGANISATION TAB**

*Access the screen by selecting the “People” option under the “Maintenance” menu on the SIRFIS main screen ✓*

*Enter the name of the organisation and use the “Tab” key to move to the next field ✓*

*Select the type of organisation from the drop down menu and use the “Tab” key to move to the next field ✓*

*Enter the phone number and use the “Tab” key to move to the next field ✓*

*Enter the address and use the “Tab” key to move to the next field ✓*

*Enter the suburb and use the “Tab” key to move to the next field ✓*

*Enter the postcode and use the “Tab” key to move to the next field ✓*

*Select the “Save” button ✓*

### **PEOPLE TAB**

*Enter the first name and use the “Tab” key to move to the next field ✓*

*Enter the surname and use the “Tab” key to move to the next field ✓*

*Select the gender from the dropdown box and use the “Tab” key to move to the next field ✓*

*Enter the date of birth and use the “Tab” key to move to the next field ✓*

*Enter the phone number and use the “Tab” key to move to the next field ✓*

*Enter the address and use the “Tab” key to move to the next field ✓*

*Enter the Suburb and use the “Tab” key to move to the next field ✓*

*Enter the postcode and use the “Tab” key to move to the next field ✓*

*Select the “Save” button ✓*

### **ORGANISATION/PERSON TAB**

*Select the person from the drop down list and use the “Tab” key to move to the next field ✓*

*Select a position from the drop down list and use the “Tab” key to move to the next field ✓*

*Highlight an organisation from the list entitled “Doesn’t belong to” ✓*

*Use the arrow button on the screen to move it across to the “Belongs to” column ✓*

*Select the “Save” button before exiting ✓*

### *THE ORGANISATION/PEOPLE "TREE"*

*Select the organisation name in the list using the mouse ✓*

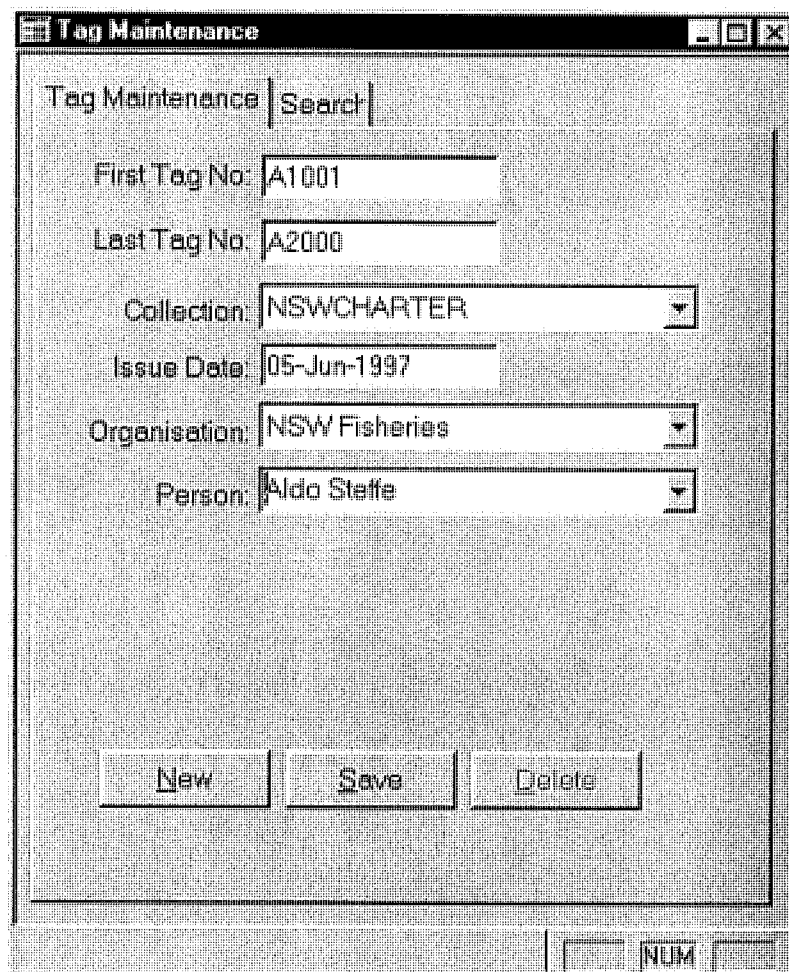
*To display the people associated with that organisation, double click on the organisation name ✓*

*To view a persons' details, click on their name in the list using the mouse ✓*



## About the Tag Maintenance Screen

This screen is designed to be used as an administrative aid to track the use of tags that have been issued by an organisation. It is an extremely simple screen to use, with two tabs associated with it. The first tab ("*Tag maintenance*") provides a screen to record details such as the tag numbers issued, who the tags were issued to, the organisation that person is involved with, the date the tags were issued and the collection that they are associated with.



The screenshot shows a window titled "Tag Maintenance" with a search bar and several input fields. The fields are: "First Tag No:" with the value "A1001", "Last Tag No:" with the value "A2000", "Collection:" with a dropdown menu showing "NSWCHARTER", "Issue Date:" with the value "05-Jun-1997", "Organisation:" with a dropdown menu showing "NSW Fisheries", and "Person:" with a dropdown menu showing "Aldo Steffe". At the bottom of the window, there are three buttons labeled "New", "Save", and "Delete". In the bottom right corner, there is a small box containing the text "NLM".

Figure 44 - The tag maintenance screen, showing tag details.

The second tab (“*Search*”) is designed for using to search for the details of particular tag issues. There are three options for searching: The first is the tag number, whereby you select the first tag number in the range from the dropdown list provided. The second option is to search by organisation, where again you select the the name of the organisation from a drop down list and the tags associated with that organisation will be listed. The third search option is by person, where you can look at all the tags associated with a particular person.

The results of the search are displayed in the table underneath the fields for the search criteria, listing the first tag number, the last tag number, the collection involved, the issue date, the organisation and the person they were issued to.

FIRSTTAGNO	LASTTAGNO	NS
A1001	A2000	NS

Figure 45 - The tag maintenance screen, showing the search facility,

## How to use the Tag Maintenance Screen

To access the tag maintenance screen select it from the “*Maintanance*” menu on the SIRFIS main screen. The “Tag maintenance” screen will then appear and it is simply a case of entering the relevant information in the appropriate fields, which are either free text, or dropdown boxes. As with the other screens in SIRFIS, you are able to move between the fields using the “*Tab*” key, or by using the mouse. To use the “search” screen, click on the tab and follow the same procedure of entering you search criteria (either tag number, organisation or person), then select the “*Search*” button. The results of the search will be displayed in the table in the bottom half of the search screen.

### *In summary*

#### *THE TAG MAINTENANCE TAB*

*Enter the first tag number in the range of the tags issued (for example if the range is A1 to A100, then enter A1) and use the “Tab” key to move to the next field ✓*

*Enter the last tag number in the range (e.g. A100) and use the “Tab” key to move to the next field ✓*

*Select the collection the tags are associated with from the drop down list and use the “Tab” key to move to the next field ✓*

*Enter the date that the tags were issued and use the “Tab” key to move to the next field ✓*

*Select the organisation that the tags were issued to from the drop down list and use the “Tab” key to move to the next field ✓*

*Select the name of the person from the “Search” list ✓*

*Select the “Save” button ✓*

#### *THE SEARCH TAB*

*Select the search option (either tag number, organisation or person – or a combination of these ✓*

*Select the appropriate information from the dropdown lists ✓*

*Select the “Search” button using the mouse ✓*

*Use the scroll arrows at the bottom of the search table to view the results of your search ✓*

## About the Correspondence Maintenance screen

The correspondence screen is designed to keep track of correspondence relating to recreational fisheries collections, (in particular things such as logbooks and logbook returns).

The screen (refer figure 46) allows the recording of details such as the reference number of the correspondence, the collection the correspondence relates to; who the correspondence was sent to and received by and the date sent.

The "page returns" table included on this screen is designed to be used to log the return of a set of related correspondence such as angler diary pages, which are sent in periodically over the duration of a study.

Correspondence Maintenance | Search

Serial No:  Collection:

Addressee:  Date:

Sent By:   Completely Returned

Page Returns:

	First Page	Last Page	Received From	Received By	Date Received

New Save Delete

NUM

Figure 46 - The correspondence maintenance screen.

There is also a correspondence search facility provided with this screen, which is accessed by selecting the “*Search*” tab. This facility allows you to search for correspondence via three parameters; reference number, “sent to” or collection. The resulting search will display all the correspondence and associated details in the table provided on the search screen.

Correspondence Maintenance Search

Search options

Serial No.:

Collection:

Addressee:

Most recent page return is older than

Incomplete correspondence  
 Complete correspondence  
 Both Complete and Incomplete

Serial No.	Collection	Date Issued	Received From	Received E

Search Clear

NUM

Figure 47 - The correspondence search screen showing search parameters

## How to use the Correspondence Maintenance screen

The correspondence screen is a simple screen to use. Fill in the associated fields in the top section of the screen to record details of correspondence sent out, and fill in the details of correspondence received in the “page returns” table. To access the fields in the page returns table, use the mouse to click on the first line (or use your tab key) and hit the “*insert*” button on your keyboard. To move to the next record, use your “*Tab*” key.

## How to use the Correspondence Search screen

To search for correspondence, you should select one of the three search options listed and also choose the type of correspondence you are searching for (e.g incomplete, complete, or both). When you have nominated your search criteria, select the **“Search”** button and your results will be displayed in the columns provided in the bottom half of the search screen (refer figure 47).

### *In summary*

#### *THE CORRESPONDENCE SCREEN*

*Enter a correspondence reference number and use the “Tab” key to move to the next field ✓*

*Select the collection type from the drop down box and use the “Tab” key to move to the next field ✓*

*Enter who the correspondence screen was sent to and use the “Tab” key to move to the next field ✓*

*Enter the date that the correspondence was sent and use the “Tab” key to move to the next field ✓*

*Enter who the correspondence was sent by and use the “Tab” key to move to the next field ✓*

*Enter information relating to page returns using the “Insert” key on your keyboard to access the “page returns table” using the “Tab” key to move to the next record in the table ✓*

*Select the “Save” button to save the records ✓*

#### *THE CORRESPONDENCE SEARCH SCREEN*

*Select a search option to search by using the “Tab” key to move between the fields ✓*

*Select whether you are searching for completed correspondence, or incomplete correspondence ✓*

*Select the “Search” button to commence the search ✓*

*View the search results in the table in the bottom half of the screen ✓*

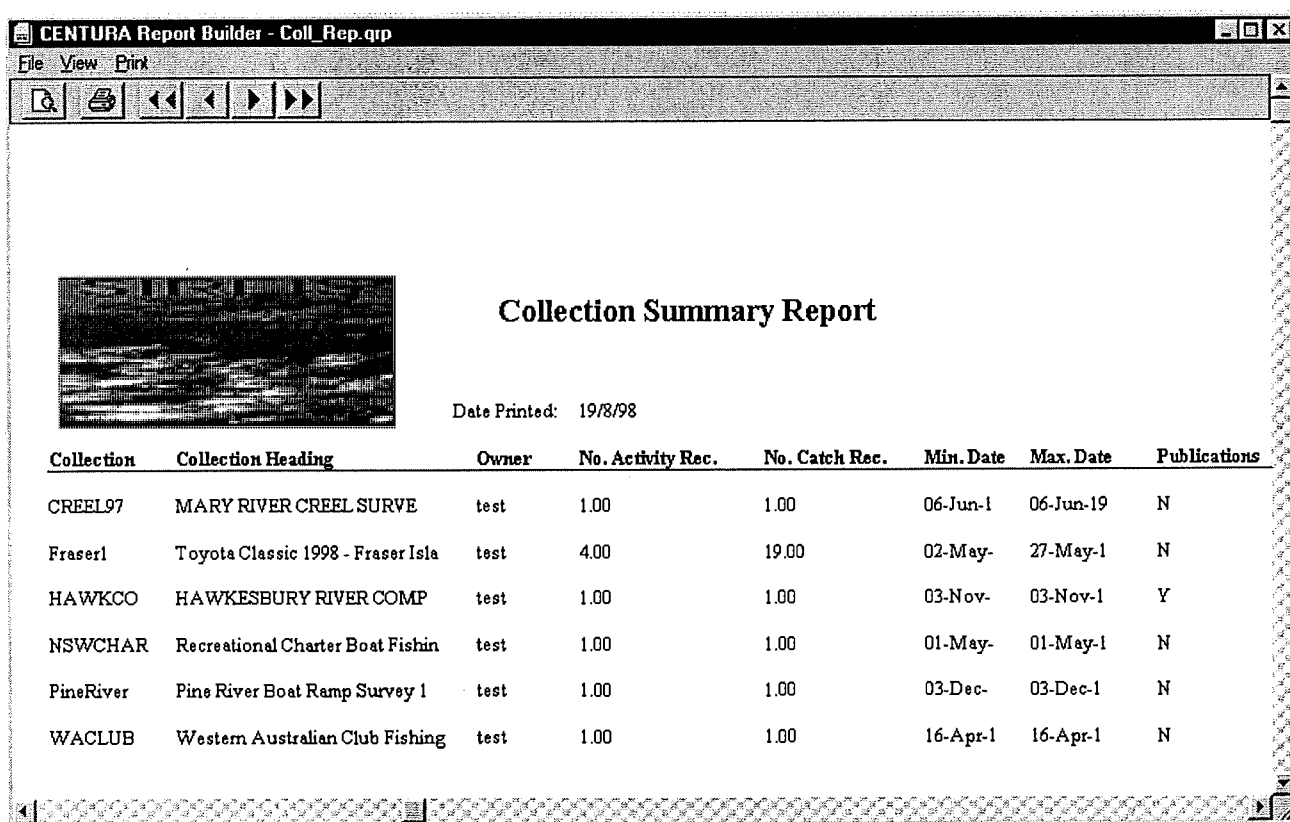
## About the standard reports in SIRFIS.

There are two standard reports provided in SIRFIS. The first is the “collection summary report”, the second is the “collection catch percentage report”.

The collection summary report provides a summary of all the collections in SIRFIS. It is designed to allow a user to obtain broad information relating to all the collections contained within SIRFIS. The information is listed in a table style format and includes the following headings:

- Collection ID
- Collection heading
- Owner
- Number of activity records
- No. of catch records
- Minimum date
- Maximum date
- Publications

An example of the format of the report is illustrated below (figure 48).



**Collection Summary Report**

Date Printed: 19/8/98

Collection	Collection Heading	Owner	No. Activity Rec.	No. Catch Rec.	Min. Date	Max. Date	Publications
CREEL97	MARY RIVER CREEL SURVE	test	1.00	1.00	06-Jun-1	06-Jun-19	N
Fraser1	Toyota Classic 1998 - Fraser Isla	test	4.00	19.00	02-May-	27-May-1	N
HAWKCO	HAWKESBURY RIVER COMP	test	1.00	1.00	03-Nov-	03-Nov-1	Y
NSWCHAR	Recreational Charter Boat Fishin	test	1.00	1.00	01-May-	01-May-1	N
PineRiver	Pine River Boat Ramp Survey 1	test	1.00	1.00	03-Dec-	03-Dec-1	N
WACLUB	Western Australian Club Fishing	test	1.00	1.00	16-Apr-1	16-Apr-1	N

Figure 48 - Illustrating the format of the collection summary report.

The collection catch percentage report provides the user with a breakdown of the species recorded in an individual collection, with an indication of the percentage that each species contributes to the total catch. The report headings are as follows :

- Collection
- Year
- Month
- Species
- Percentage

An example of the report format is shown below in figure 49.

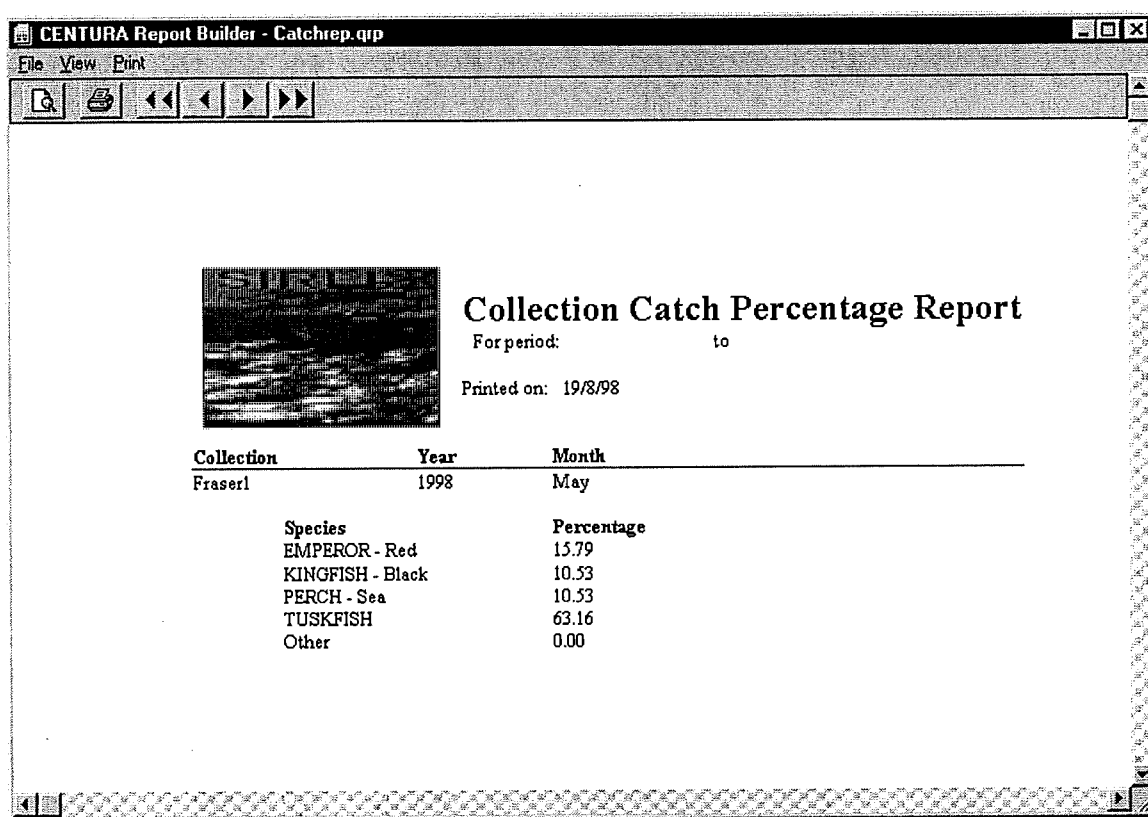


Figure 49 - Showing the collection catch percentage report

## How to use the standard reports in SIRFIS

To access the standard reports in SIRFIS, simply use the mouse to select the “**Reports**” menu from the main screen. If you want to run the “collection summary report”, select it from the drop down menu, you will then be able to preview the report prior to printing when it appears on your screen.



To run the “collection catch percentage report” select it from the drop down menu. A screen will then appear that allows you to specify the criteria of the report (refer figure 50).

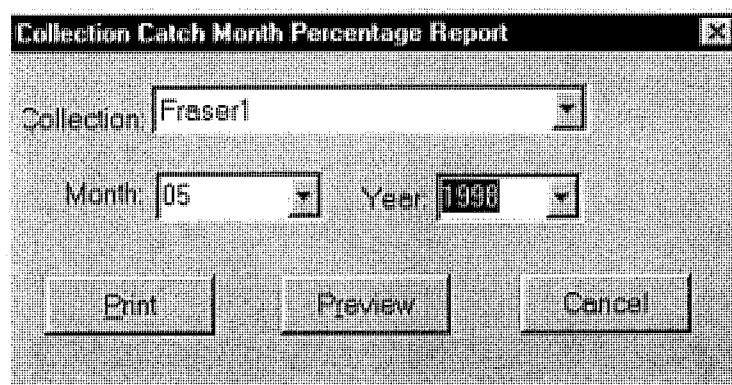


Figure 50 - Showing the screen for setting criteria for the collection catch percentage report.

To select the correct criteria for the report, simply select the appropriate information from the drop down menus on this screen. If you do not want to view the report prior to printing it select the “*Print*” button. If you want to look at the report before printing, select the “*Preview*” button.

To print either of the reports after previewing, select the “*Print*” option from the menu on the menu screen on the report preview screen.

### *In summary*

*Select the “Reports” drop down menu from the SIRFIS main screen ✓*

*Select the desired report from the menu ✓*

*If the “Collection Catch Percentage Report” is selected, define the criteria ✓*

*Select the preview button if you want to view the report prior to printing ✓*

*Select the “Print” option from the menu on the report screen to print your report ✓*

## About the Export facility

The export function allows the exporting of data from SIRFIS. As there is no reporting tool associated with SIRFIS, it is necessary to use the export facility to allow analysis of the data in your analysis tool of choice.

The data is exported in comma separated variable (CSV) format, which is readily accepted and simple format able to be used by a wide variety of applications.

## How to use the Export facility

To use the export facility, select “*Export*” from the “*Collections*” drop down menu on the SIRFIS main screen. The Extraction Wizard will appear.

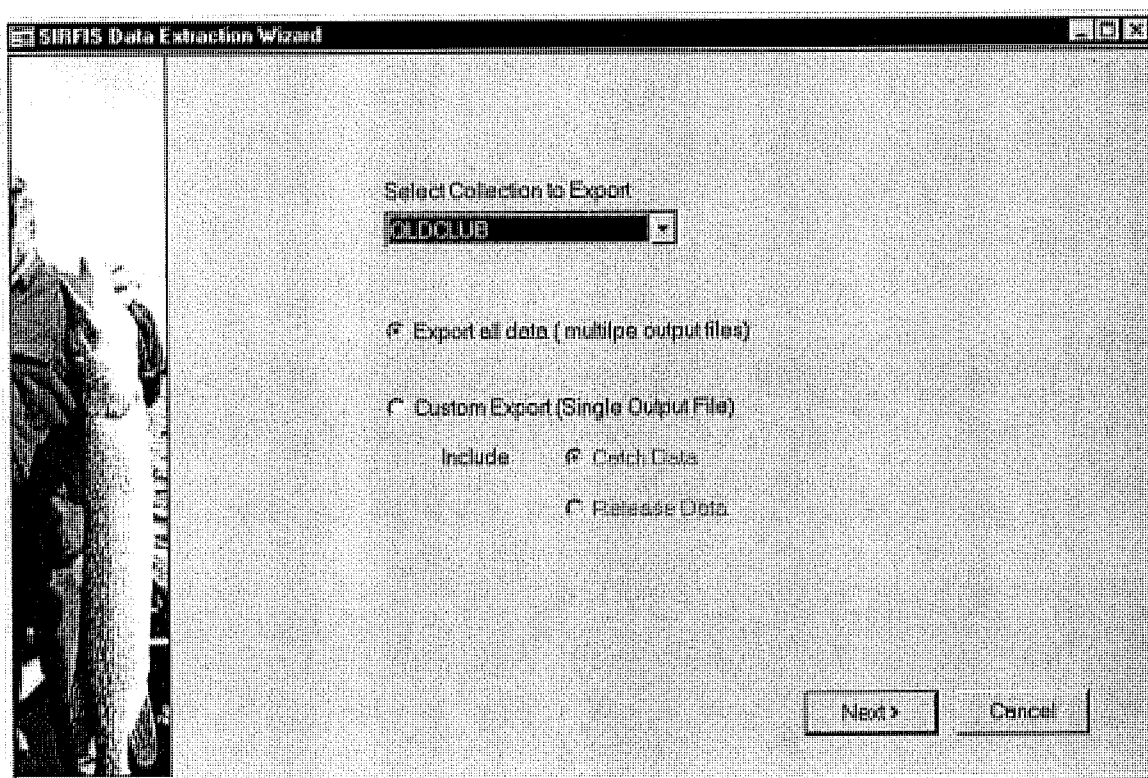


Figure 51. Extraction Wizard

Select the Collection you wish to extract data from. Note that only Collections you have access to and have data entered through SIRFIS data entry screens are available for selection. Any files or documents for a Collection are accessed via the Collection Details Screen.

There are two major options on this screen.

'Export all data' will write all the Collection data as it is contained in the database to files. Each table will be written to a separate file, this includes key values to allow joins to be performed on the data.

'Custom export' allows the user to define a subset of the data to be extracted and joins the data to product a single output file. Because of the structure of the database, catch data and release data cannot be output to the same file. To extract both two extractions need to be done.

Select the 'Next' button to proceed to the next screen. If you are doing a custom extraction the following screen will appear.

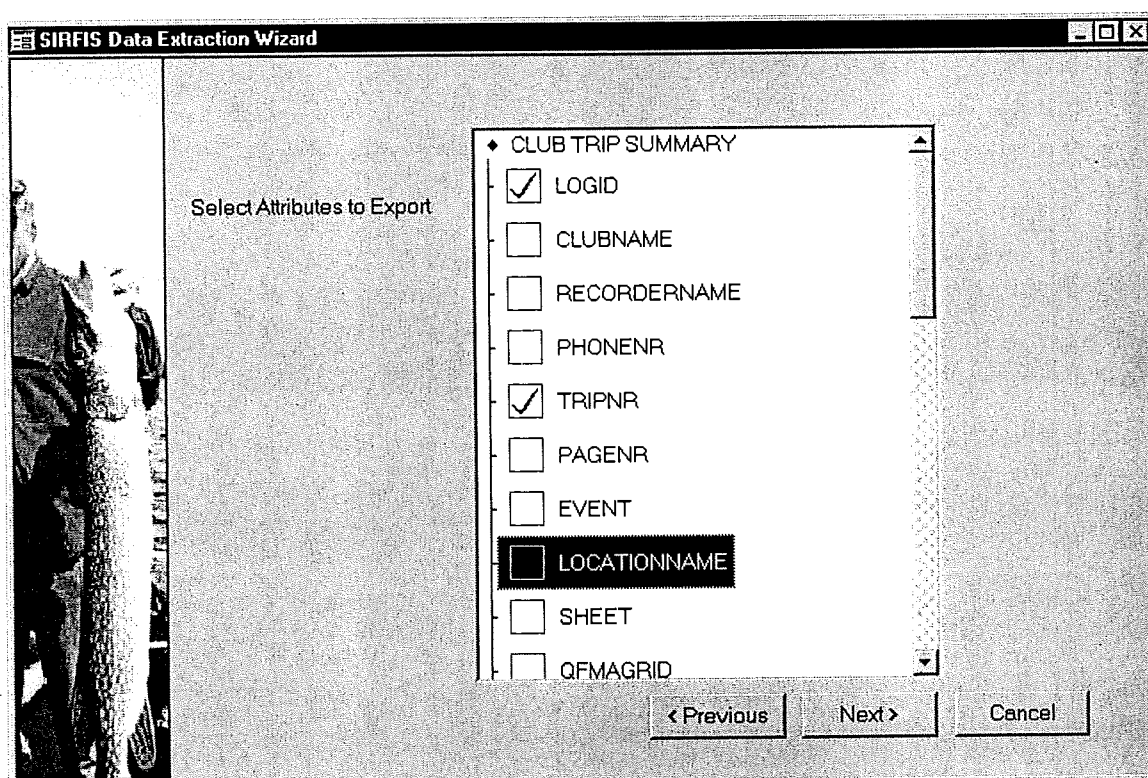


Figure 52.

This screen allows you to select which data you wish to extract. Click on the attribute names to include them in the output.

Select 'Next' button to move to the next screen.

Set any restriction on the data to retrieve

Attribute	Operator	Restriction
→ LOGID		
→ TRIPNR		
→ ACTIVITYDATE	Between	31/12/1998 AND 31/12/1999
→ FISHERNAME		
→ SPECIES	[Dropdown]	
→ SPECIESNR	<	
	>	
	Between	

< Previous    Next >    Cancel

Figure 53.

This screen displays a list of all attributes selected on the previous screen and allows the user to specify restriction on the data. Select an Operator, < (less than), =, > (greater than), or Between. Depending on the attribute, you may have default values written in the Restriction column. You may change the defaults, but ensure that you use the same format. If you place a restriction on the 'SPECIES' or 'COMMONNAME' attributes, a species search screen will appear.

Select the 'Next' button.

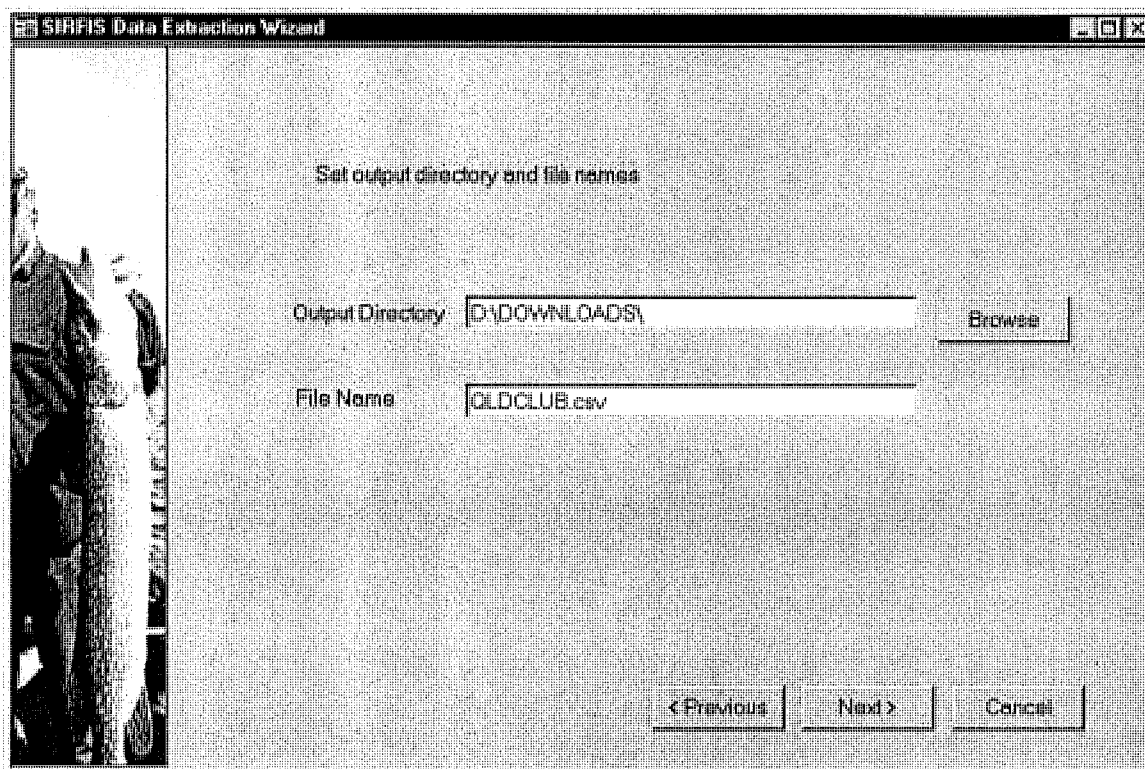


Figure 54.

This screen allows you change the directory and filename/s used for the output. If you are using the 'Extract all data' option, there will be multiple filenames listed on this screen.

Use the 'Browse' button to select a new download directory.

Select the 'Next' button to proceed to the next screen.

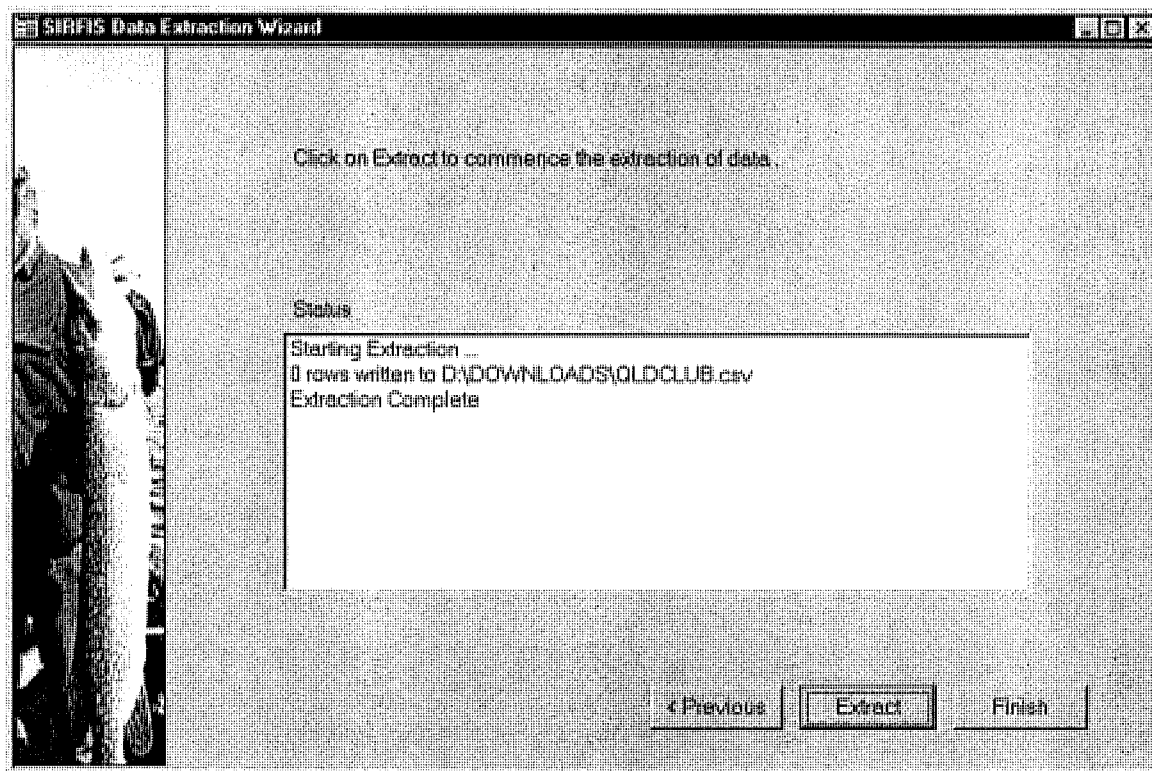


Figure 55.

Select the 'Extract' button to run the extraction. The 'Status' field displays information about the extraction process.

Select the 'Finish' button to close the wizard or use the 'Previous' button to go back through the wizard to define another extraction.

Note - If the format used for restrictions is incorrect an error will be displayed. Go back to change the format and then rerun the extraction.

## *Feedback*

That about wraps it up for this user manual. However I fully expect that as you work through using SIRFIS issues will arise that I may have overlooked, so please feel free to give me feedback in relation to this and I will endeavour to provide more information if required.

Regards

Todd Kelly  
SIRFIS Co-Ordinator

## *Attachment 2*



Requirements Document for the SIRFIS FRDC Project

# Requirements of the Client Agencies for the SIRFIS FRDC Project.

FRDC 95/054

Andrew Thwaites

Queensland Fisheries Management Authority

09 May 1996



FISHERIES  
RESEARCH &  
DEVELOPMENT  
CORPORATION



QFMA  
Queensland Fisheries  
Management Authority



**Recfish**



SOUTH AUSTRALIAN  
RESEARCH AND  
DEVELOPMENT  
INSTITUTE



DEPARTMENT OF  
PRIMARY INDUSTRY  
AND FISHERIES



Department of  
Primary Industry and Fisheries  
TASMANIA



**Requirements of the Client Group of the SIRFIS Project.**

---

**Document :** Requirements of the Client Group for the SIRFIS FRDC Project.

**Project :** FRDC Project 95/054

**Project Title :** Development and implementation of a national standard for a recreational fisheries database by all fisheries agencies.

**Project Name :** SIRFIS (Standardised Integrated Recreational Fisheries Information System)

---

**Purpose of this Document :**

The Requirements Document for the SIRFIS project and will be used by the SIRFIS Team as a tool to develop the Design Document which will detail the proposed database structure and input variables.

A draft of the Requirements Document has previously been forwarded to all members of the SIRFIS Client Group for comment. Additions and corrections to the draft have then been incorporated into this final version of the Requirements Document.

A copy of this document has been forwarded to each member of the Client Group and to FRDC. Now the next stage of the project, the design phase, can proceed.

## Requirements of the Client Group of the SIRFIS Project.

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### Appendix - examples provided

I	Queensland examples
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III	Northern Territory examples
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VIII	Other examples

**1 Introduction**

**1.1 Introduction**

The project entitled “*Development and implementation of a national standard for a recreational fisheries database by all fisheries agencies*” was approved for funding by FRDC in June 1995 (proposal 95/054). The proposal received wide support from all fisheries agencies throughout Australia and officially commenced on the 1st October 1995 once recruitment to the SIRFIS Team had been finalised.

In summary, the project will provide a “front end” and a database structure capable of running on both Microsoft Windows and Macintosh operating systems and accessing whatever database engine an Agency is using (see Figure 1 below). For further information please refer to the FRDC project proposal, a copy of which should be held by each of the Client Group members or a copy can be obtained by contacting the team coordinator. **SIRFIS**

**SIRFIS IMPLEMENTATION OVERVIEW**

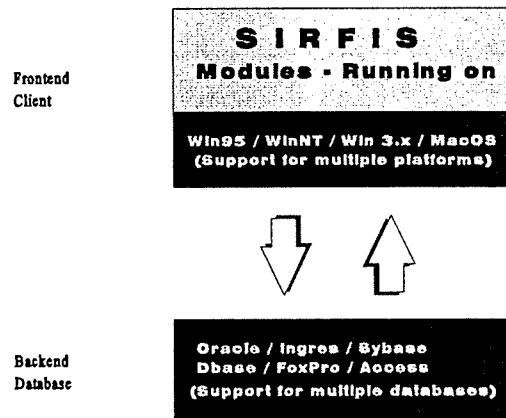


Figure 1 Overview of how the SIRFIS modules will interact with agencies existing resources

The first step of the project was to document the current systems of the participating agencies and produce a Requirements Document (this document). The Requirements Document will be used as a basis for proceeding into the Design Phase of the SIRFIS project.

The information collated from the Client Agencies is presented in this document along with a summary of these requirements and a model of the proposed database.

---

## 1.2 General comments from Client Agencies

In the development of this document there was clearly demonstrated a wide range of commitment and development to the collection of recreational fishing information between agencies.

Comments received from those agencies with a well progressed monitoring/data storage program were encouraging. The majority of Client Agencies who were already storing recreational fisheries information, while happy with internally developed systems, said that they were keen to see the finished product and move to it as a national standard if their needs were met.

Those agencies who had an evolving monitoring/data storage recreational fisheries program commented and showed that they were keen to become involved in the project and provide examples of what data had been collected to date and what would be collected in the future.

Further, there were many common elements in comments received, for example;

- The need to be kept informed. This has been undertaken by the SIRFIS Team in the form of a quarterly newsletter which includes a list of the current SIRFIS Client Group and a current Gantt chart.
- The Client Group should be taking a more pro-active role in the SIRFIS project, ensuring that each of the Client Group members gets the best out of the project for his or her agency.
- That all agencies were in the process of expanding their recreational fish monitoring programs and that some agencies had a well progressed monitoring/data storage program.
- Clear priorities in the development of certain database modules (see section 3) were expressed by the majority of agencies.

## 1.3 Scope of the SIRFIS project

The scope of SIRFIS project is to;

- development of a Recreational Fisheries Database to provide a common structure for the collection, storage and retrieval of recreational fisheries data; and
- ensure that the database can be integrated with commercial catch and effort databases.

The SIRFIS project is not responsible for the collection of data or for the analysis of data collected by the Client Agencies.

During the trip a question was asked on a couple of occasions about whether a stocking module could be included in the database design. Initial reaction from the SIRFIS Team to this question was no, but feedback to this answer was sought in the draft requirements document. After comments on the draft requirements document had been received it was decided that a stocking module would not be incorporated into the SIRFIS project.

- The reasoning behind this answer is that the major objective of the SIRFIS Project is to development of a Recreational Fisheries Database, providing a common structure of the collection, storage and retrieval of recreational fisheries data. Stocking and stocking research programs, while perhaps associated with recreational fishing, are not actually "recreational fishing data" and therefore, it is felt, that storage of data from such programs are beyond the scope of the SIRFIS Project.

#### **1.4 SIRFIS Team**

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---

## 1.5 SIRFIS Client Group members

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### Fresh Water

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1.6 Project Schedule

The current Gantt chart for the SIRFIS Project is shown below in Figure 1. This chart shows the expected schedule for the first year of the SIRFIS Project. Particular attention should be focused on the “% Compl” column which shows how close the SIRFIS Team is to completing each of the goals.

Gantt Chart

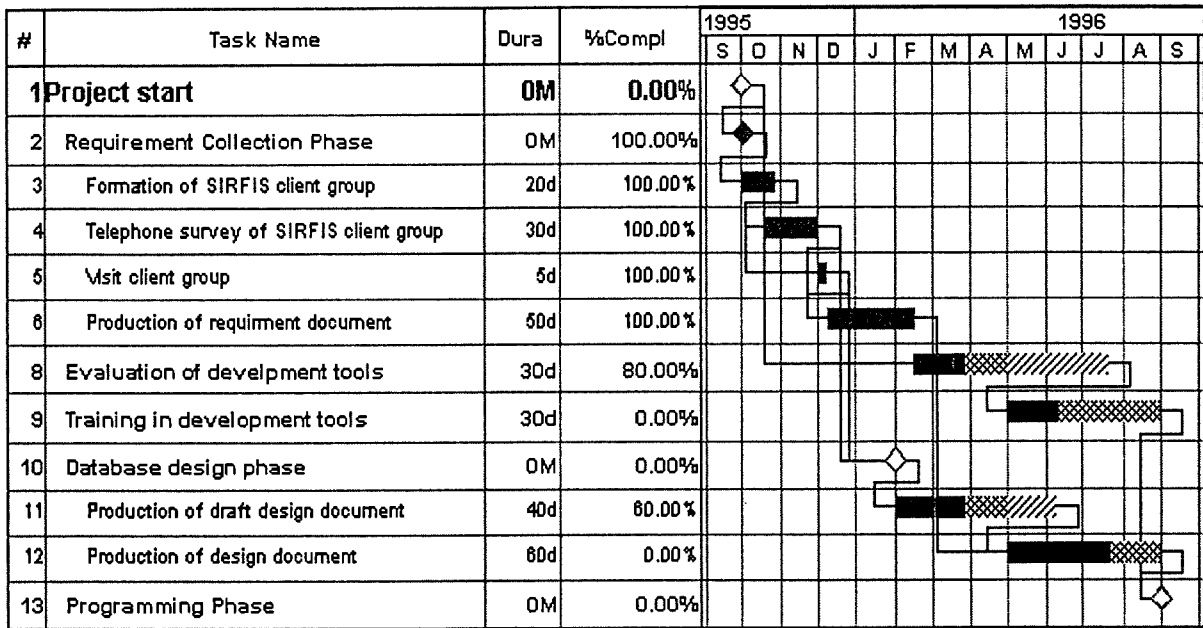


Figure 2 Current Gantt chart for the SIRFIS project.



## 2 Summary of information collated from Client Agencies

The four tables following summarise the current status of recreational fishing data collection for each agency and what resources are available for each agency. A description of the symbols used in the four tables is given below;

- A ✓ shows that the agency is either collecting this type of data and have provided an example or that the agency has the resource available;
- An X indicates that the agency has indicated that they are collecting data but that no examples have been provided; and
- A ✓ shows that the agency has indicated that either this type of data collection will occur in the near future or that the resource will be available in the near future.

### 2.1 Types of data sets collected by each agency

A summary of the main types of recreational fishing data commonly collected by the Client Agencies is provided in Table 1. As shown the majority of agencies are using recreational fishing clubs, charter fishing boats and surveys as their data sources.

Table 1 Comparative summary of what each agency is collecting in terms of recreational fishing data.

	Recreational Club Records	Charter Boat Logbooks	Gear/Angler Licencing	Surveys	Tagging
Qld.	✓	✓		✓	✓
Vic.	✓	✓	X	✓	✓
NT		✓		✓	✓
WA	✓		X	✓	✓
NSW	✓	✓	✓	✓	X
SA	✓	✓	✓	✓	
Tas.	✓	✓	X	✓	
ACT	✓			✓	
AFMA		✓			
BRS					
RecFish					

A more detailed breakdown of the types of surveys each of the Client Agencies have been conducting on recreational fishing is provided in Table 2. At this time access point surveys and creel surveys are being tabulated as different survey methodologies.

Table 2 Comparative summary of what survey methods are used by client states

	Aerial surveys	Access point surveys	Phone surveys	Postal surveys	Creel surveys
Qld.	✓	✓	✓	✓	✓
Vic.	✓	✓			✓
NT	x	✓	✓	✓	✓
WA		x	✓	✓	✓
NSW	✓	✓			✓
SA		✓			✓
Tas.			✓	✓	x

## 2.2 Resources available to each agency

The current hardware configuration/s used by each of the Client Agencies is provided in Table 3. All IBM compatible machines are using Windows 3.X, except Queensland which is running a combination of Windows 3.X and Windows 95. All mini computers are running UNIX as the operating system except Northern Territory which is running Net ware 3.X.

Table 3 Comparative summary of what computer hardware each Client Agency is using

	PC Platform		Mini Computer
	IBM Combatable	Macintosh	
Qld.	✓		✓
Vic.	✓		✓
NT	✓	✓	✓
WA	✓		✓
NSW	✓		✓
SA	✓		✓
Tas.	✓	✓	✓
ACT	✓		
AFMA	✓		✓
RecFish	✓		



The major corporate databases currently in operation with each of the Client Agencies is provided in Table 4. Microsoft Access is the most common PC database, while Oracle and Ingres are the common relational databases which are being run on the mini computers.

Table 4 Summary of what database's each Client Agency is using

	PC Platform			Mini Computer Platform			
	MS Access	MS Foxpro	D-base	Oracle	Ingres	Sybase	Natural ADABAS
Qld.	✓				✓		
Vic.						✓	
NT	✓			✓			
WA	✓		✓			✓	✓
NSW	✓				✓		
SA	✓			✓			
Tas.		✓		✓			
ACT	✓						
AFMA	✓				✓		

*Comment to Client Group Members: Please ensure that ticks or crosses are placed in the appropriate columns in all the tables. If an X appears in a column then please ensure that the appropriate example is forwarded to the SIRFIS Team as soon as possible.*

### 3 Proposed modules of SIRFIS Project

A description of each of the modules follows as well as a diagram (Figure 2) which shows the conceptual overview of the modules within the database framework. They are as follows:

#### *Charter boat module:*

A logbook program for charter boats, collecting information on fishing effort occurring from charter boats, has been introduced, or will be introduced, in all agencies (except WA) which have marine jurisdiction. This module will be designed to store the logbook information collected by these programs.

#### *Licensing module:*

This module will be designed to allow information on both individual angler licences and gear licences to be stored.

*Club module:*

This module will store recreational fishing club competition records. Examples of the forms currently used by recreational fishing clubs are needed to ensure that this module will be able to store freshwater, estuarine, spear fishing and game/sport fishing club records.

*Tagging module:*

This module will store information on scientific recreational tagging programs and on tag returns. The aim of the module is to track the tag from issue through to return and record all associated information. ANSA's tag database will be examined for possibilities of integration into the SIRFIS project, but, it is the aim of the SIRFIS project is to develop an integrated system and this could mean that the tagging module will have to be developed from scratch.

*Survey module:*

This module will have a dynamic structure so that the variety of phone, creel, postal, diary and aerial surveys can all be accommodated. It is imperative that as many examples of survey forms which Client Agencies may have are forwarded to the SIRFIS team. This is seen as the most complex of the modules and as such may be broken down into sub modules during the design phase of the project.

*Meta data module:*

This module will be able store final reports, analyses which have been conducted on the data or just a description of the data set. Fundamentally any text or word processing file will be able to be stored in this module. The module will incorporate a search facility to allow user to identify data sets that meet their requirements.



Figure 3 Conceptual overview of the modules within the database framework.

## 4 Client Requirements

### 4.1 Queensland

#### Client group contacts for discussions.

Sandra Cormack, Darren Cameron, Wayne Sumpton, Daryl McPhee

#### Rec Fishing - Current collection and data sets

Data Type	Description	Database
Club Data	A comprehensive database is currently being established to store recreational club data. Historical club data from South East Queensland and Townsville regions clubs has been collected, with some of these records having been entered into an ingres database.  Further a standard competition club record sheet is being developed in consultation with recreational fishing clubs and groups. It is hoped that recreational fishing clubs throughout Queensland will adopt this sheet and provide the QFMA with information on club competitions in an ongoing process.	Ingres  Ingres
Charter Vessels	A voluntary logbook program was introduced in July 1992. This was replaced with a compulsory logbook program in 1995. The data collected details daily catch and effort and has been entered into an ingres database.	Ingres
Surveys	Many surveys have been conducted in relation to specific projects. Table 5 over page provides a comprehensive list of the surveys which have been conducted.	Moving to Ingres
Licencing	There are currently no recreational gear or angler licences in Queensland.	N/A

#### Rec Fishing - Future collection

- Implementation of a standard collection form for recreational fishing clubs. This is been undertaken and has from fishing Statewide diary survey recreational This is due to September
- with consultation received support clubs. telephone and to assess total fishing effort. commence in 1996.

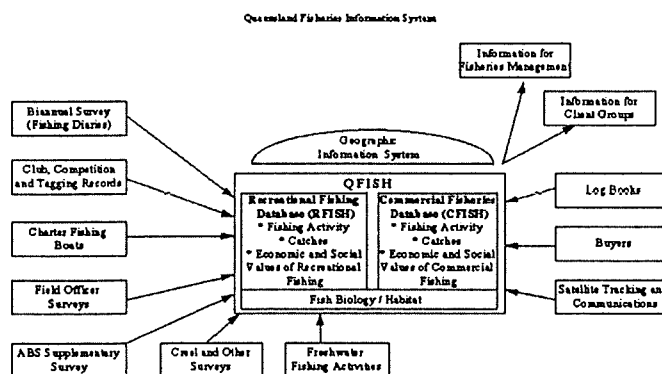


Figure 4 The proposed direction of the QFish database

Table 5 Complete summary of historical surveys conducted in Queensland.

Year	Organisations	Project	State/Region
1980-82	QDPI	Moreton Bay	Moreton Bay
1982	UQ	Creel survey (Rick Moreton)	Bribie Island
1985	ABS	ABS Supplementary Survey	State
1985	Griffith Uni.	Recreational fishing study (Hundloe)	GBRMPA
1986	Griffith Uni.	Moreton Region survey (Handle/Newman)	Moreton Bay
1986	QDPI	Study into Hervey Bay and Great Sandy Straights (Moore)	Hervey Bay and Great Sandy Straits
1990	Griffith Uni.	Recreational fishing study (Blamey)	GBRMPA
1991	Nat. Parks	Lakefield National Park Barramundi Survey	Lakefield National Park
1992-	QFMA	Charter Vessel Logbook Program	State
1992	QDPI	ABS telephone survey on fishing activity	State
1992	ABS	Household Survey of Home Food Production - supplementary Survey	State
1993	ABS	National Monthly Population Survey - Supplementary Survey	State
1993	QDPI	Recreational Club Records (1923-1990)	SE Queensland
1993	WBM consultants	Creel Survey of Pummistone Passage (Moreton/Tilbury)	SE Queensland
1993 -	QDPI	Snapper Study (Wayne Sumpton)	SE Queensland
1994	QDPI	Lesser Mackerel Study - diary (Cameron/Williams)	State
1994	UQ	Biology and fishery of the swallow tail dart (McPhee)	SE Queensland
1994	QDPI	Lesser Mackerel preliminary telephone survey (Williams/Cameron)	State
1994/95	QDPI	impoundment Creel Survey (Hamlyn, Brooks, Thomas)	Lakes Leslie, Cooby & Moogerah
1995	ANSA	Tagging data (1965-present)	State
1995	Dept. Transport	Vessel Registrations (1964-present)	State

---

**Examples of forms/table structures - provided**

- The current QFMA charter vessel logbook.
- Examples of survey forms provided are;
  - Gold coast charter vessel research form. QDPI snapper research project.
  - Creel survey sheet for QDPI snapper research project.
  - Phone survey for QDPI small mackerel project.
  - Caravan park survey for QDPI small mackerel project
  - Questionnaire for QDPI flathead project.
  - Diary of QDPI small mackerel project.
- Examples of 3 different recreational fishing club records.
- The Queensland Boating and Fisheries Patrol field occurrence log.

**Priorities for proposed SIRFIS modules**

- Club modules.
- Survey module.

**Review of Hardware/Software Etc.**

QFMA is currently running

- Ingres database on a UNIX mini computer.
- IBM compatible computers running Windows for Workgroups 3.11.
- IBM compatible computers running Win95.

**Requirements**

- That the database has provision to store Club records, Charterboat logbooks, Fishing Diary information, effort data from fresh water impoundments and creel surveys.



## 4.2 Victoria

### Client group contacts for discussions.

Nick Dow (no longer involved) , Anne Gason

### Rec Fishing - Current collection and data sets

Data Type	Description	Database
Club Data	Have not been examined or collected.	N/A
Charter Vessels	Looking at introducing a logbook system.	N/A
Surveys	Many surveys have been conducted in relation to specific marine projects. This data is being stored on a variety of PC and minicomputer databases. These include creel surveys, mail surveys, aerial surveys and tagging studies.	Variety of packages
Licencing	There is an option to introduce compulsory angler licences in the Victorian legislation. Fresh Water anglers are licenced to collect revenue with no data being stored on licence's issued.	N/A

### Rec Fishing - Future collection.

- Licences could be introduced in the future.

### Examples of forms/table structures - provided

- The survey form for recreational Rock Lobster divers.
- The recreational interview sheet for recreational Rock Lobster divers.
- Creel survey manual (not included in appendix II of this document).

### Priorities for proposed SIRFIS modules

- Licencing module

### Review of Hardware/Software Etc.

- Oracle database on a UNIX mini computer.
- IBM compatible computers running Windows 3.X.
- SIR and Sybase databases are also available.

### Requirements

- That detailed survey work be able to be stored in the database.

### 4.3 Northern Territory

#### Client group contacts for discussions

Rosemary Lea, Anne Coleman, Steve Wilmole, Chris Calogeras.

#### Rec Fishing - Current collection and data sets

Data Type	Description	Database
Club Data	Have not been examined or collected.	N/A
Charter Vessels	A logbook program in place.	Oracle
Surveys	The fishcount survey is been conducted. The data is being entered into a Microsoft Access database running on an IBM compatible machine. Barramundi tagging studies and aerial surveys are sometimes conducted.	MS Access
Licencing	No angler or gear licences exist.	N/A

#### Rec Fishing - Future collection

- A follow up to the fishcount survey every couple of years.

#### Examples of forms/table structures - provided

- Example of the charter boat logbook has been provided.
- Fishcount survey forms have not provided by NT due to copyright restrictions and as such have not included with the examples in appendix III of this document.

#### Priorities for proposed SIRFIS modules

- None at this time

#### Review of Hardware/Software Etc.

- Macintosh computers.
- IBM compatibles running Windows 3.X.
- Oracle running on a Net ware 3.X mini computer. Steve Wilmole, phone (089) 994 321, is the database manager.
- MS Access used at this stage to store Fishcount data.

#### Requirements

- No specific requirements at this stage.

#### 4.4 Western Australia

##### Client group contacts for discussions

Nick Caputi, Richard Steckis

##### Rec Fishing - Current collection and data sets

Data Type	Description	Database
Club Data	A draft fishing club logbook is currently being trialed.	MS Access
Charter Vessels	No data is being supplied by operators without a commercial licence.	N/A
Surveys	Volunteer Fishing Liaison Officer's (VFLO's) are conducting surveys. These officers are conducting angler interviews recording information about catch and effort as well as educating anglers.	MS Access
	Various tagging studies and creel surveys have also been conducted over time. Rock Lobster mail survey and Marron phone surveys are conducted annually.	MS Access
Licencing	Rock Lobster, Abalone, Marron, Netting and Fresh Water anglers are licenced.	Natural ADABAS

##### Rec Fishing - Future collection

- Club records are looking at being standardised and collected on a regular basis.
- Boat creel surveys.
- Angler logbooks.

##### Examples of forms/table structures - provided

- The draft recreational fishing club logbook.
- Table structures for the recreational fisheries database have been provided (not included in appendix IV of this document). This database is running on Microsoft Access.
- A tagged barramundi report.
- A VFLO Tailor released data sheet.
- A Tailor tagging data sheet.
- The Rock Lobster fishing survey questionnaire for 1988/89 season.
- A VFLO interviewers log.
- The Marron telephone survey form.
- A recreational fishers Creel Survey form.

##### Priorities for proposed SIRFIS modules

- None at this time.

---

**Review of Hardware/Software Etc.**

- IBM mini computer running natural ADABAS.
- IBM compatible computers running Windows 3.X.
- Sybase is possible for future mini computer database.
- MS Access. (Richard Steckis, phone (09) 2468 443, maintains rec. database).
- dBase is the PC database department standard.

**Requirements**

- The database store all the information which the current recreational fisheries database (designed using Microsoft Access) stores.

## 4.5 NSW

### Client group contacts for discussions

Aldo Steffe, Ari Grinberg

### Rec Fishing - Current collection and data sets

Data Type	Description	Database
Club Data	Club data is being collected, including spear fishing clubs.	
Charter Vessels	A research logbook program is currently in operation.	
Surveys	Many surveys have been conducted, and continue to be conducted, to assess recreational fishing effort, the range of survey techniques used include creel, aerial, access point and bus route surveys. A variety of tagging studies have also been conducted including game fish tagging, south coast lagoons tagging studies and northern rivers tagging studies.	AREV
Licencing	Fresh water anglers may be licenced in the future.	N/A

### Rec Fishing - Future collection

- Conducting more surveys.
- A logbook scheme for the charter boat industry is being looked at.

### Examples of forms/table structure/users - provided

- Example of NSW research charter logbook.
- Examples of survey forms provided are;
  - Headland count survey form.
  - Headland/beach interview sheet.
  - Aerial survey sheet.
  - Outgoing boats (seaward bound) access point survey sheet.
  - Offshore interview sheet.
  - Offshore boat return sheet.
  - Summaries of data sets (eg. Creel surveys, tagging studies)

### Priorities for proposed SIRFIS modules

- Survey module.

### Review of Hardware/Software Etc.

- Ingres running on a UNIX mini computer.
- IBM compatible computers running Windows 3.X.

- 
- MS Access running on IBM compatibles.

**Requirements**

- Have a length/weight conversion in species tables.
- That complex survey designs are able to be entered into the database.

## 4.6 South Australia

### Client group contacts for discussions.

David McGlennon

### Rec Fishing - Current collection and data sets

Data Type	Description	Database
Club Data	Recreational fishing club records have been collected, but not entered.	N/A
Charter Vessels	Have voluntary logbook scheme in place, but collected data has not been entered onto a database.	N/A
Surveys	Some creel and access point surveys have been conducted.	MS Access
Licencing	There is currently registration of gear (crab pots, nets etc.) rather than individuals.	

### Rec Fishing - Future collection

- Waiting to see if a national survey (by Fishcare) of recreational fishing proceeds.

### Examples of forms/table structure/users - provided

- Examples of survey forms provided are;
  - ramp trailer count access point survey form.
  - ramp trailer interview sheet.
  - ramp trailer creel survey sheet.
- An example of charter vessel research logbook.
- Examples of three fishing club record sheets.
- An example of fish stocking data sheet.
- An example of "application for renewal of registration of devices" sheet.

### Priorities for proposed SIRFIS modules

- Creel Survey module.
- Charter boat module.
- Recreational fishing club module.

### Review of Hardware/Software Etc.

- Oracle database running on a UNIX mini computer.
- IBM compatibles running Windows 3.X.
- MS Access is the PC database running under Windows 3.X.

---

**Requirements**

- That all the examples which have been provided can be entered into the database.



## 4.7 Tasmania

### Client group contacts for discussions

John Smith, Jeremy Lyle, Hillary Revil, Andrew Sanger

### Rec Fishing - Current collection and data sets

Data Type	Description	Database
Club Data	Have not been collected.	N/A
Charter Vessels	A voluntary logbook program for boats conducting tuna fishing charters has been commenced.	
Surveys	Only one known marine creel survey - not known if the data is on a database.	N/A
	10% of fresh water angler licence holders are surveyed in a mail survey.	Foxpro
Licencing	In the marine environment gear such as nets, crab pots are licenced as well as cray and abalone divers. In fresh water anglers are licenced.	

### Rec Fishing - Future collection

- A state wide telephone survey and diary system of recreational anglers is currently being investigated.

### Examples of forms/table structure/users - provided

- Example of voluntary logbook for charter vessel operators have been provided.
- Example of inland fishery mail out survey for 93/94 and 94/95 have been provided.

### Priorities for proposed SIRFIS modules

- Survey module.
- Charter boat module.

### Review of Hardware/Software Etc.

- Oracle database on a UNIX mini computer.
- IBM compatibles at head office running Windows 3.X.
- Mac/OS at marine research labs and inland fisheries.
- Inland fisheries use Foxpro on Mac/OS platform.

### Requirements

- No specific requirements at this stage.



**4.8 ACT****Client group contacts for discussions.**

Mark Linderman

**Rec Fishing - Current collection and data sets**

Data Type	Description	Database
Club Data	Records are not currently collected as there are is a lot of interstate clubs.	N/A
Charter Vessels	There are none.	N/A
Surveys	No surveys to date have been conducted.	N/A
Licencing	No angler of gear licences at this time.	N/A

**Rec Fishing - Future collection**

- Licencing of anglers is probable in the near future.
- Looking at conducting creel surveys of anglers in the future.
- Club records may be looked at in the future.

**Examples of forms/table structure - provided**

- Discussion paper on recreational fishing in the ACT (not included in appendix section of the document).

**Priorities for proposed SIRFIS modules**

- None at this stage.

**Review of Hardware/Software Etc.**

- IBM compatible running Windows 3.X.
- MS Access.

**Requirements**

- No requirements at this stage although would like creel surveys being able to be entered into the survey module.

---

## 4.9 AFMA (Australian Fisheries Management Authority)

### Client group contacts for discussions.

Steve Jackson, Phil Marshall

### Rec Fishing - Current collection and data sets

- Catch and Effort monitoring system for major game fishing tournaments off the east coast. This data has yet to be entered.

### Rec Fishing - Future collection

- Recreational anglers who target pelagic fish (in particular tuna) will have to be monitored.

### Examples of forms/table structure - provided

- Radio schedule catch and effort form (See appendix VIII - other examples)

### Priorities for proposed SIRFIS modules

- None at this stage.

### Review of Hardware/Software Etc.

- HP Unix mini computer running Ingres.
- Visual basic has been used for developing commercial systems.
- IBM compatibles running Windows 3.X.

### Requirements

- Would prefer visual basic a development tool. Would also like access to club record databases collected by State Governments for relevant species.

---

**4.10 RecFish (The Australian Recreational & Sports Fishing Confederation Inc.)**

**Client group contacts for discussions.**

John Harrison

**Rec Fishing - Current collection and data sets**

- N/A.

**Rec Fishing - Future Collection**

- N/A

**Examples of forms/table structure/users**

- N/A.

**Priorities for proposed SIRFIS project**

- N/A.

**Review of Hardware/Software Etc.**

- One IBM combatable running Windows 3.X.

**Requirements**

- No requirements at this stage.

---

**4.11 BRS (Bureau of Resource Sciences)**

**Client group contacts for discussions.**

Phil Stewart

**Rec Fishing - Current collection and data sets**

- N/A.

**Rec Fishing - Future collection.**

- N/A.

**Examples of forms/table structure/users**

- N/A.

**Priorities for proposed SIRFIS project**

- N/A.

**Review of Hardware/Software Etc.**

- N/A.

**Requirements**

- no requirements at this stage.

## **Appendix I**

# **Queensland Examples**





# INDIVIDUAL FISH SIZE FORM

STATION

Officer		Officer		Date	
---------	--	---------	--	------	--

F. No.	Species	Record FORK LENGTHS of individual fish in 1 cm ranges. Please use, for example, for a 24.0 to 24.9 cm fish enter 25 cm.																	
1	Bream	24	25	27.5	—														
1	Mangrove Jack	45																	
1																			
2																			
2																			
2																			

FISHER INTERVIEW FORM

STATION

Officer	Officer	Date	Sector	Wind	Tide

P. No	Interview time	Locality	Platform V, S, J, R	Fishing start time	Hours fished	Trip status C, P	How many fishers	Species	Number fish retained	Fish form F, G or W	Number fish released	Interview before Y, N	Home post code	Number times fishing in the last		
														week	month	three month
1			Vessel			Continue				Fillet						
2			Shore Jetty Rock			Finish				Gut whole						

Comments .....

.....



89-90

JULY 1 → JUNE 30

OCEANIC AMATEUR FISHING CLUB

ANNUAL REPORT

	S	L/G	L/S	<del>Points</del>	Toller	Bream	Flathead	Wating	Others	Total Fish	<del>Points</del>	Total Weight	<del>Points</del>	
L. IRWIN	1	7	2		1.36		108		269	24	401	<del>36</del>	79.525	1196.2
D. BATEMAN	2	7	2	1	1.55	1	156	14	78	38	287	26	85.175	1138.7
J. KAYE	2	7	2	X	2.4		43	1	212	4	260	23	49.2	752.0
P. CRIDLAND	1	4	1		2.84		46		58	7	111	22	28.15	392.5
P. WATSON		5	1		2.71		34		79	3	116	19	24.9	365
G. STANTON	1	3			2.04		43	1	42	15	101	25	25.22	353.25
D. RAPKINS		3			1.52		29		67	3	99	33	21.225	311.25
D. GREENSLADE	1	4		1	2.45		20		47	8	75	15	17.975	254.75
J. FARMER		2	1		1.81		40		36		76	25	15.875	234.75
A. LUXFORD	1	4	1		3.85		13		44		57	9	9.375	150.75
J. IRWIN		5	1		4		15		31	1	47	8	9.7	144
B. DUNSHEA		2	1		3.53		6		26		32	11	6.95	101.5
J. ARMITAGE		2	1	1	3.36		11		15	3	29	10	5.85	87.5
J. MILLS	1	1	1		3.0	1	10	1			12	6	4.25	54.5
J. ALVEY			1		2.49		1			1	2	2	1.95	21.5
K. WALMSLEY		2			4		1		5		6	6	1.25	18.5
J. THOMPSON	1				2.93		2		3		5	5	1.025	15.25
TOTALS	2	7	2			2	578	17	1012	107	1716	156	387.595	5592.0

total →  
trips in  
each category/year.

CASTING RESULTS 3-9-90

D. BATEMAN ..... 400 PTS      T. ARMITAGE ..... 307 PTS  
 D. GREENSLADE ... 363.2 PTS      J. KAYE ..... 293.1 PTS

{ nothing to do  
with fishing

*M. Luxford*  
 A/SECRETARY  
 OCEANIC AFC

Competition held at

Tulsa

Date 19<sup>th</sup> June

COMPETITOR.	H/C.	WHTWG.		BREAM.		PLATHAD.		OTHER FISH.		TOTAL WEIGHT.		TOTAL NUMBER.	TOTAL POINTS.
		Heaviest Single.	No.	Heaviest Single.	No.	Heaviest Single.	No.	Heaviest Single.	No.	Lbs.	Oz.		
J. Turner	35		4		16		2		3	14		25	50
B. H. Korman	10				47.2		2			10	10	6	27.4
H. Jones	40		3		24				1	13	13	28	55.4
W. Deak	10		1		4		9			22	06	14	58.4
H. Hall	10		3		5				1	5	4	9	19.8
V. B. ...					3		1		1	4	1	5	13.2
P. W. ...	15				4		6		1	8	14	11	28.4
E. ...			4		7		2			6	8	13	26
L. ...													
J. ...													
J. ...													
L. ...													
B. ...													
B. ...													
P. ...													
T. ...													
J. ...													
B. ...													
		15		67		22		7	85	8		111	
												back	
												Truck	
												Boats	
												Debit	

"A" GRADE	WHITING	BREAM	DART	FLATHEAD	TAILOR	OTHERS	TOTAL	WEIGHT	POINTS	HEAVIEST FISH	
M. WIGHTON	59						59	6.9	128		HANDICAP WINNER
I. WIGHTON	36						36	4.2	78		P. O'BRIEN 139 PTS
P. WILLIAMSON	27						27	3.4	61		"A" GRADE WINNER
C. KÄHLER	31						31	3.8	69		M. WIGHTON 128 PTS
P. O'BRIEN	49						49	5.5	104		
"B" GRADE											
J. CASEY	22						22	2.5	47		"B" GRADE WINNER
J. ELDRED	14						14	1.7	31		F. BULLEN 72 PTS
P. HODGE	32						32	3.6	68		
B. REED	12						12	1.4	26		
P. FIELDER	18						18	2.1	39		
F. BULLEN	32						32	4.0	72		
S. FOXOVER	19						19	2.2	41		
D. KEEN	24						125	3.2	57		
"C" GRADE											
G. THORPE	10						10	1.2	22		"C" GRADE WINNER
J. NEDWICH	11						11	1.3	24		J. NEDWICH 24 PTS
J. FITZPATRICK	10						10	1.2	22		
M. MASON	9						9	1.2	21		
M. THORPE	7						7	1.5	22		
<small>REPRESENTED THE CLUB OLD NAMES - JOCK TILES BRIGIE ISLAND</small>											
JUNIORS											
G. TATE	8						8	1.3	21	{ 330g } WHITING	JUNIOR WINNER
J. FIELDER	1						1	0.1	2		J. CAMERON 51 PTS
J. CAMERON	23						23	2.8	51		
P. TURNER	0						0				HEAVIEST FISH ON TRIP
G. GILL	0						0				G. TATE 330g WHITING
D. GILL	0						0				
D. CASEY	2						2	0.2	4		
VISITORS											
N. PABBON-JONES	13						13	1.5	28		ATTENDANCE 27
A. DAY	26						26	2.8	54		489 FISH
TOTALS	488										TOTAL WEIGHT 58-1 KG
	WHITING										
	488										
						OTHERS					
						1					
								FULL MOON			
								SAT 18TH			
								LOW WATER 3:32 AM (BRIS-BAR)			
								HIGH WATER 9:42 PM 6'5"			

August 18th 1964



C.C. CARTER  
(WAYNE SUMATION)



**CFA FISHERY RESEARCH FOUNDATION**  
 PO Box 7530 Gold Coast Mail Centre, BUNDALL, QLD, 4217  
 Phone (075) 917582 Support Office: (075) 916656

Boat						Skipper				Address										
DATE	SNAPPER	PEARLIES	JOBFISH	TERAGLIN	Y/T KING	OTHER	FISHING TIME		NO. OF ANGLERS	TIDE TIMES	WIND				CLOUD COVER	WATER TEMP	LOCATION	DEPTH	SEA	CURRENT
							START	FINISH			DIR.		SPEED							
											A	B	A	B						

**VESSEL NAME**

Sea Probe I 1  
 Sea Probe II 2  
 Sea Probe III 3  
 Game Striker 4  
 Hilary Sunset 5  
 Wahoo II 6  
 7

**LOCATION**

SE 1  
 E/SE 2  
 E 3  
 E/NE 4  
 NE 5

**SEA CONDITIONS**

Smooth 0  
 Slight 1  
 Moderate 2  
 Rough 3  
 Not Stated 9

**CURRENT**

No Current or Little Current 0  
 Slight Current ( 1 Knot) 1  
 Moderate Current (>1 & <=2) 2  
 Big Current 3  
 Not Stated 9







[ ] [ ]

*Government Statistician's Office  
on behalf of the Queensland Department of  
Primary Industries*

## Department of Primary Industries Fishing Survey

This questionnaire should be completed by the person who does most of the fishing in your household.

*Please complete the questionnaire by writing on the lines provided and circling the code numbers next to your answers, for example,*

Yes . . . . . 1

**Q. 1** Is the ..... metre boat registered in your household used to go fishing?

Yes . . . . . 1 *Go to Q. 2*

No . . . . . 2 *End of survey. Thank you.  
Please return the questionnaire using the envelope provided.*

**Q. 2** How many days did you go fishing from your boat in Queensland in the last 12 months?

Zero . . . . . 0 *End of survey. Thank you.  
Please return the questionnaire using the envelope provided.*

One or more (please specify) . . . . .  *Go to Q. 3*

**Q. 3** In which environment did you do most of your boat fishing in Queensland in the last 12 months? (Please circle **one** only.)

Freshwater rivers and dams . . . . . 1

Tidal rivers, estuaries and bays . . . . . 2

Offshore reefs and openwater . . . . . 3

Or a combination of tidal rivers, estuaries, bays, offshore reefs and openwater . . . . . 4

**Q. 4** Are you a member of a fishing club?

Yes . . . . . 1 *Go to Q. 5*

No . . . . . 2 *Go to Q. 6*

**Q. 5** What organisation is your club affiliated with?  
(Please circle *one only*.)

- ANSA (Australian National Sport Fishing Association) . . . . . 1
- QAFA (Queensland Amateur Fishing Clubs Association) . . . . . 2
- QGFA (Queensland Game Fishing Association) . . . . . 3
- AUF (Australian Underwater Federation - Spear Fishing Association) . . . . . 4
- Other (please specify) \_\_\_\_\_  
\_\_\_\_\_ 5
- Don't know . . . . . 6

**Q. 6** How many hours do you **actually spend fishing** on an average fishing day in your boat?  
Do not count travel time on water. . . . .

**Q. 7** How many people **including yourself** usually go fishing from your boat? . . . . .

**Q. 8** A major fisheries project at present is looking at the small mackerel species. The project does not involve the large Narrow-Barred Spanish Mackerel. The small mackerel are the Spotted Mackerel, the School or Doggie Mackerel and the Grey or Broad-Barred Mackerel. Have you **been fishing** for any of these small mackerel from your boat in Queensland in the last 12 months?

- Yes . . . . . 1 *Go to Q. 9*
- No . . . . . 2 *Go to Q. 10*

**Q. 9** How many days did you go fishing for these small mackerel from your boat in Queensland in the last 12 months? . . . . .

**Q. 10** Have you **caught** any of these small mackerel while fishing from your boat in Queensland in the last 12 months?

- Yes . . . . . 1 *Go to Q. 11*
- No . . . . . 2 *Go to Q. 16*

**Q. 11** What is the nearest town or city in Queensland to where you mostly fish for or catch **small mackerel** from your boat?  
(Include postcode if known.)

\_\_\_\_\_

**Q. 12** Approximately how many small mackerel were caught and kept by people on your boat in Queensland in the last 12 months? . . . . .

**Q. 13** The Department of Primary Industries is considering forming consultative panels at various locations in Queensland over the next 12 months to discuss management of Queensland small mackerel fisheries.

Do you think this is a good idea?

Yes . . . . . 1 *Go to Q. 14*

No . . . . . 2 *Go to Q. 16*

Don't know . . . . . 3 *Go to Q. 14*

**Q. 14** The panels will probably meet for 3 nights over this 12 month period. If a consultative panel were formed near your home would you be willing to be an unpaid voluntary participant?

Yes . . . . . 1 *Go to Q. 15*

No . . . . . 2 *Go to Q. 16*

**Q. 15** Please provide your name, address and telephone number so the Department of Primary Industries may confirm your details for future contact.

Name \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

Telephone No. \_\_\_\_\_

**Q. 16** If the Department of Primary Industries were to provide you with a fishing diary, would you be willing to keep a basic record of your fishing trips in Queensland over the next 12 months and answer other fisheries surveys like this one?

Yes . . . . . 1 *Go to Q. 17*

No . . . . . 2 *Go to Q. 18*

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Q. 17** Thank you very much for your willingness to assist us. The Department of Primary Industries will send a diary to a sample of volunteers in the next few months.

Please provide your name, address and telephone number, so the Department of Primary Industries may confirm your details for future contact, if it is necessary.

*(Complete only if details have not already been provided in Question 15.)*

Name \_\_\_\_\_

Address \_\_\_\_\_

Telephone No. \_\_\_\_\_

**Q. 18** Do you know the minimum legal length for small mackerel?

Yes . . . . . 1 Go to Q. 19

No . . . . . 2 Go to Q. 20

**Q. 19** What is the minimum legal length for small mackerel?  
*(Please specify in either centimetres or inches.)*

cm

or

inches

**Q. 20** Have you or any other person caught any Narrow-Barred Spanish Mackerel while fishing from your boat in Queensland in the last 12 months?

Yes . . . . . 1 Go to Q. 21

No . . . . . 2 *End of survey. Thank you.  
Please return the questionnaire using the envelope provided.*

**Q. 21** Approximately how many Narrow-Barred Spanish Mackerel were caught and kept by people on your boat in Queensland in the last 12 months? . . . . .

**Thank you for your assistance.**  
**Please return your completed questionnaire**  
**using the reply paid envelope, to:**

**Government Statistician's Office,**  
**PO Box 37, Albert Street, Brisbane Q 4002**

# SMALL MACKEREL SURVEY COUNT - Winter 1995

(Caravan Parks) (\*Only count on-Site Vans if someone is obviously staying at one &  
\* Count all tents in caravan/parks also)

Locality - .....

Caravan Park - .....

Caravan Park Owner and Contact Number - .....

Date - / / 95 .....

Weather - Rain Wind Cloudy Fine (Circle Appropriate)

Time Start - .....

No. of Caravans/Campervans ( Qld and unknown Number Plates ):

Queensland Without Boat	<u>Queensland With Boat</u>	Unknown Without Boat.	<u>Unknown With Boat.</u>
Tot=	Tot=	Tot=	Tot=
	<b>TOT=</b>		<b>TOT=</b>

No. of Caravans/Campervans ( Interstate WITHOUT Boats ):

N.S.W.	Vic.	A.C.T.	S.A.	Tas.	W.A.	N.T.
Tot=	Tot=	Tot=	Tot=	Tot=	Tot=	Tot=
<b>TOT=</b>						

No. of Caravans/Campervans ( Interstate WITH Boats ):

N.S.W.	Vic.	A.C.T.	S.A.	Tas.	W.A.	N.T.
Tot=	Tot=	Tot=	Tot=	Tot=	Tot=	Tot=
<b>TOT=</b>						



TO THAT PARTICULAR PERSON

How many days a year do you go fishing in Moreton Bay for fish such as flathead, whiting, tailor and bream?

[ ] [ ]

(inform Southport, Jumpinpin, Bribie Island, Caloundra are part of Moreton Bay).

12) TO THAT PARTICULAR PERSON

On these occasions how many days a year do you specifically fish for flathead?

[ ] [ ]

and/or have a flathead line out

[ ]

13) TO THAT PARTICULAR PERSON

How many years have you been fishing at this location? (i.e. Jumpinpin/Caloundra)

[ ] [ ]

If less than 2 years go to Question 19

14) TO THAT PARTICULAR PERSON

Over that time would you say flathead fishing here has become? Better  / About same  / Worse

15) TO THAT PARTICULAR PERSON - if worse

Do you judge this decline by:-

- smaller size of flathead caught
- smaller numbers of flathead caught
- both smaller size and numbers of flathead caught

16) TO THAT PARTICULAR PERSON

Over that time would you say fishing in general here has become? Better  / About same  / Worse

17) TO THAT PARTICULAR PERSON - if worse

Do you judge this decline by:-

- smaller size of fish caught
- smaller numbers of fish caught
- both smaller size and numbers of fish caught

18) TO THAT PARTICULAR PERSON

What are two major reasons you attribute this decline in your fishing to?

.....

19) Original person/most experienced angler  
How many flathead do you estimate  
you/your party have released today

Other fish released today

Species Total No. Reason (U or O)

Total	Legal	Undersize
[ ]	[ ]	[ ]

Species	Total No.	Reason (U or O)
[ ]	[ ]	[ ]
[ ]	[ ]	[ ]
[ ]	[ ]	[ ]

20) Do you/your party know the minimum legal length for Dusky Flathead?  
If no - inform 30 cm.

21) Do you/your party think this minimum legal length is appropriate? (Show frozen 30 cm fish)

[ ] [ ] [ ] [ ]

If not, what size then?

[ ] [ ]

cm.

22) When fishing in areas of Moreton Bay where Flathead are caught do you/your party fish for small flathead; eg 40cm/400gr fish (show frozen specimen), large flathead; eg 60cm/2kg fish, or whatever legal length fish jumps on your line?

Small  / Large  / Whatever size available

23) What flathead would you/your party rather catch?

- 12 small flathead of 500g - Total 6kg
- 3 large flathead of 2kg - Total 6kg

24) In less than 5 words what is the most important thing you/your party thinks could be done to improve your flathead fishing and fishing in general? (ie. If you were in our shoes as biologists and managers what do you think should be done?).

.....

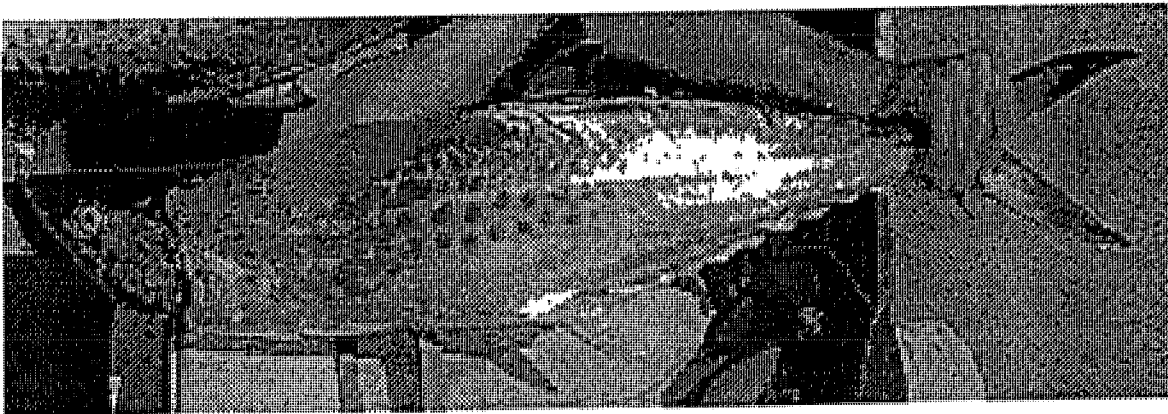
25) When this study is complete would you like us to mail the results of this work? (if yes). Could I please take your name and address?

.....

THANK YOU - FINISH

If found please return to Darren Cameron, Southern Fisheries Centre, Department of Primary Industries, PO Box 76, Deception Bay, Q4508. Ph: (07) 203 1444

Date : 17/9/93	Nearest town : BOWEN	Location fished : Innaminka shoal	
Number of fishers - male : 2 female : 1 Children under 10 : 1		Total number of lines : 5	
Fishing method used : Trolling Anchored <u>Drifting</u> (circle one)		Fishing platform used : Your Boat, <u>Friends Boat</u> Beach Hire Boat, Rocks, Jetty, (circle one)	
<u>Bait</u> or <u>Lures</u> (circle)	If Bait, please specify : PILCHARDS		
Time fishing started : 0600	Time fishing ended : 1030	Hours fished : 3/4	Comments :
Weather: CLOUDY (fine, cloudy, rain)		Wind : 15-30 knots (< 15, 15-30, >30 knots)	
Released fish/crabs (not vermin)	Number	Comments	Total weight of each species kept. Please specify Kg or Lb and whether weight is estimated (E) or measured (M)
Red Emperor	2	undersize	
grass Sweetlip	2	"	
Kept fish/crabs	Number	Fish size (total length in cm)	TOTAL WEIGHT
Narrow Barred Spanish Mackerel	2	85, 79	16 kg (E)
spotted mackerel	1	90	4.5 kg (M)



# Fishing

# D I A R Y

**DPI**  
 DEPARTMENT OF  
 PRIMARY INDUSTRIES  
 LAND USE  
 AND FISHERIES



## **Appendix II**

### **Victorian examples**

# ROCK LOBSTER SURVEY

ALL DIVERS ARE ASKED TO COMPLETE THIS FORM BUT ARE REQUESTED NOT TO COMPLETE MORE THAN ONE PER MONTH.

This survey will remain confidential and will be used solely for Rock Lobster research.

1. In the 1994/95 Rock Lobster season (Nov.'94 - Aug.'95) how many dives you make?

2. For the 1994/95 season how many dives did you make in the following periods?


3. Are you a member of a dive and/or fishing club? Yes  No

If yes, please list

.....

.....

4. How many years have you been diving? <2  2-5  5-10  >10

5. In the last month how many dives did you make from shore or boat? Shore  Charter Boat  Private Boat

6. Estimate your average dive time.  minutes

7. When diving do you actively search for Rock Lobster? Yes  No

If yes, can you estimate the percentage of your dives that you actively search for Rock Lobster?  %

8. When diving do you actively search for Abalone? Yes  No

If yes, can you estimate the percentage of your dives that you actively search for Abalone?  %

9. In the last month how many Rock Lobster have you seen and caught? Seen  Caught

10. In the last month how many Abalone have you taken? G.lip  B.lip

11. How many years have you been diving for Rock Lobster and/or Abalone? Lobster  Abalone

12. Where do you usually dive for Rock Lobster?

Location	Frequency	Date

Thankyou for filling in this questionnaire.

Would you like to become more involved in Rock Lobster research by providing regular catch information?

If so, please ring 1800-659 528 (toll free) and provide your name, address and phone number. You will receive a log book which can be used to record catch information (format demonstrated in diagram below).

## PERSONAL DIVER LOG

## SAMPLE ONLY

(Rock Lobster Catch and Observations)

DATE	TIME	DEPTH	TYPE OF DIVING	WIND	SEA	TEMP	MOON	STAR	ROCK	LOB	AB	OT

Remember: Only what you see! Do not guess!

Additional information about the Rock Lobster Assessment Project can be obtained from:

ROCK LOBSTER ASSESSMENT PROJECT  
 VICTORIAN FISHERIES RESEARCH INSTITUTE  
 P. O. BOX 114  
 QUEENSLIFF 3225

Ph. (052) 580111 Fax. (052) 580270

14-MAR-1996 11:11

# RECREATIONAL DIVER SURVEY SHEETS

(For Dive Clubs and Charter Boat Operations)

Recreational Survey  
 Victorian Fisheries Research Institute



TOTAL F. 03

To be Completed for Each Dive

EXAMPLE

DATE	06/07/94						
LOCATION AND ACCESS DETAILS	Long (WeWa) Boat Porters						
No. in GROUP	6						
DIVE PURPOSE (P-Passive, T-Training, R-Rock Lobster, D-Diving for other species, O-Other)	Purpose Divers R/L 6	Purpose Divers	Purpose Divers	Purpose Divers	Purpose Divers	Purpose Divers	Purpose Divers

To be Completed if Rock Lobsters Observed and/or Caught.

DIVING CONDITIONS	Wind Seas Vis.	Wind Seas Vis.	Wind Seas Vis.	Wind Seas Vis.	Wind Seas Vis.
Wind: 1. Calm 2. Moderate 3. Strong-unrestrictive 4. Strong-restrictive Seas: 1. 0-0.5m 2. 0.5-1m 3. 1-1.5m 4. >1.5m Visibility: 1. Excellent >15m 2. Good 9-15m 3. Fair 4-8m 4. Poor 0-3m					
No. LOBSTER OBSERVED					
DEPTH of SIGHTINGS (m)					
No. LOBSTER CAUGHT					
SEX and SIZE (mm) OF ROCK LOBSTER	F - 100 M - 20	F - M -	F - M -	F - M -	F - M -
DIVE TIME, % EFFORT, EXPERIENCE and CATCH of each diver.	Time % Years Catch 05 30 100	Time % Years Catch	Time % Years Catch	Time % Years Catch	Time % Years Catch
Time: Dive Time of Rock Lobster Catch (minutes) %: An estimate of % Time Looking for Rock Lobster on this Dive Years: Diving Years Experience Catch: Rock Lobster Caught	70 100				

MAR-1996 10:12 FROM VIC FISHERIES RESEARCH

Charter: \_\_\_\_\_ Recorder: \_\_\_\_\_ Contact No.: ( )

## **Appendix III**

### **Northern Territory examples**



DATE ▶ 24-2-95 LIC. No# ▶ D 2 4 6 8 0 GRID No. ▶ 1230 FISHED FROM ▶ Boat  Shore   
 (√ any)

SPECIFIC AREA FISHED (name of reef, bay, river etc.) ▶ ANSON BAY

PERSON DETAILS (all anglers, including yourself)

PERSON NO.	①	②	③	④	⑤	⑥
ORIGIN ▶ Home State (Aust.) Country (O'seas)	<u>NT</u>	<u>TAS</u>	<u>QLD</u>	<u>SA</u>	<u>VIC</u>	
FISHING SKILL ▶ Expert Average Beginner	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

TARGETING AND HOURS FISHED

<u>B</u> = Barramundi	<u>G</u> = Game Fishing	<u>R</u> = Reef Bottom Fishing	<u>C</u> = Crabbing	<u>O</u> = Other
Methods (√ any) Trolling <input checked="" type="checkbox"/> Casting <input type="checkbox"/> Bait <input checked="" type="checkbox"/>	Methods (√ any) Trolling <input type="checkbox"/> Casting <input type="checkbox"/> Bait <input type="checkbox"/>	Methods (√ any) Casting <input type="checkbox"/> Bait <input type="checkbox"/>	Methods (√ any) Pots / Dillies <input type="checkbox"/> Other <input type="checkbox"/>	Methods (please write in) eg: beach seine, cast net etc. <input type="text"/>
(calculation space) <u>5 PEOPLE</u> <u>2 HRS = 10</u> Total Line Hours ▶ <u>10</u>	(calculation space) <u>5 PEOPLE</u> <u>3 HRS = 15</u> Total Line Hours ▶ <u>15</u>	(calculation space) <u>5 PEOPLE</u> <u>3 HRS = 15</u> Total Line Hours ▶ <u>15</u>	(calculation space) Total Pot Hours ▶ <input type="text"/>	(calculation space) Total Hours ▶ <input type="text"/>

CATCH DETAILS (or tick here if NIL CATCH)

Species	Target Fished	No. Caught Kept	Rel.	Species	Target Fished	No. Caught Kept	Rel.	Species	Target Fished	No. Caught Kept	Rel.	Other Species (please write in)	Target Fished	No. Caught Kept	Rel.
Barramundi	<u>B</u>	<u>4</u>	<u>10</u>	Mangrove jack				Sooty grunter							
Bream				Moonfish				Snapper (Golden)	<u>R</u>	<u>6</u>					
Catfish (forktailed)	<u>B</u>		<u>4</u>	Mullet				Snapper (Saddle-T)							
Cobia				Mud crab				Snapper (Tricky)							
Cod (all types)				Queenfish	<u>R</u>	<u>2</u>		Stripey	<u>R</u>	<u>2</u>	<u>3</u>				
Coral trout				Emperor (Red)	<u>R</u>	<u>4</u>		Sweetlip							
Javelin fish				Salmon (Blue)	<u>B/R</u>	<u>1/2</u>		Tarpon							
Jewfish				Threadfin salmon				Trevally							
Spanish mackerel				Saratoga				Tuna							
Mackerel (Other)				Shark/All				Tusk/Parrotfish							

Comments/Notes FULL MOON. WIND 15 KNOTS FROM SW AFTER 1 PM

I ROD BENDER certify that the information provided here is true and complete. Signed: R Bender  
 (print name)

**Appendix IV**  
**Western Australian examples**







**Appendix V**  
**New South Wales examples**

# NSW FISHERIES RESEARCH - CHARTER BOAT LOGBOOK

Log Recorder No.	DATE	DAY TYPE	Total No. Persons FISHING	Total No. Persons INTERVIEWED
A 011	11/2/95	WDAY <input checked="" type="radio"/> WEND <input type="radio"/> PUB. HOL.	MALE: 5	MALE: 5
OPTIONAL BOAT REGISTRATION NO. &/OR NAME			FEMALE:	FEMALE:
			WHAT TIME DID YOU BEGIN FISHING?	WHAT TIME DID YOU STOP FISHING?
			0800	1300

NOTE: USE 24HR CLOCK FOR ALL TIMES e.g. 1pm = 1300

Fishing Type Category	When you fished offshore today, did you fish for:	MAP GRID NO.S					TIME SPENT FISHING	KEEP ANYTHING?	Tag & Release Anything?
A	SQUID: YES <input type="radio"/> NO <input checked="" type="radio"/>						:	YES NO	YES NO
B	PELAGIC FISH: YES <input type="radio"/> NO <input checked="" type="radio"/>						:	YES NO	YES NO
C	REEF FISH: YES <input checked="" type="radio"/> NO <input type="radio"/> >						5:00	YES <input checked="" type="radio"/> NO <input type="radio"/>	YES <input type="radio"/> NO <input checked="" type="radio"/>
D	SAND FISH: YES <input type="radio"/> NO <input checked="" type="radio"/>						:	YES NO	YES NO
E	OTHER (specify below): YES <input type="radio"/> NO <input checked="" type="radio"/>						:	YES NO	YES NO

Fishing Type Category	SPECIES CODE	FISH KEPT			FISH LENGTHS (Fork Length cm)										COMMON NAME		
		No. Fish tagged & Released	No. Fish counted only	No. Fish measured only	1	2	3	4	5	6	7	8	9	10			
	C S N A P			1	31												
	C S W E P			3	25	28	28										
	C A B C H			2	34	30											
	C L R E F			1	29												

GROUP DETAILS											
Group No.	SUBURB & STATE	FISHING CLUB MEMBERS?		TOURNAMENT/COMP TODAY?		Group No.	SUBURB & STATE	FISHING CLUB MEMBERS?		TOURNAMENT/COMP TODAY?	
1	PENRITH	<input checked="" type="radio"/> YES	<input type="radio"/> NO	<input checked="" type="radio"/> YES	<input type="radio"/> NO	3		<input type="radio"/> YES	<input type="radio"/> NO	<input type="radio"/> YES	<input type="radio"/> NO
2		<input type="radio"/> YES	<input type="radio"/> NO	<input type="radio"/> YES	<input type="radio"/> NO	4		<input type="radio"/> YES	<input type="radio"/> NO	<input type="radio"/> YES	<input type="radio"/> NO

COMMENTS:

SITE:  
Sheet No.:

NSW FISHERIES OFFSHORE RECREATIONAL FISHING SURVEY  
HEADLAND COUNT SHEET



COUNTER	DATE:	DAY TYPE:	SHIFT:	PAGE Number
W1	19.04.95	W/DAY	EARLY	1 OF 1

Day Month Year

USE 24hr CLOCK e.g.  
1pm = 13:00

BOAT TYPES

	PORT RETURN TIME	Small	Medium - Large	Cruisers & Gamefish Launches	Charter (party boats)	Dive & Spear	Other	Other boat types & comments
1	09:08	1	2	3	4	5	6	BW
2	09:15	1	2	3	4	5	6	BW
3	09:30	1	2	3	4	5	6	BW
4	09:40	1	2	3	4	5	6	
5	09:55	1	2	3	4	5	6	
6	10:00	1	2	3	4	5	6	
7	10:08	1	2	3	4	5	6	
8	10:30	1	2	3	4	5	6	B-W
9	11:20	1	2	3	4	5	6	
10	11:50	1	2	3	4	5	6	
11	11:55	1	2	3	4	5	6	
12	11:58	1	2	3	4	5	6	BW
13	12:06	1	2	3	4	5	6	
14	12:10	1	2	3	4	5	6	BW
15	12:14	1	2	3	4	5	6	BW
16	12:16	1	2	3	4	5	6	BW
17	12:20	1	2	3	4	5	6	BW
18	12:25	1	2	3	4	5	6	BW
19	12:28	1	2	3	4	5	6	
20	12:30	1	2	3	4	5	6	BW
21	13:08	1	2	3	4	5	6	BW
22	13:10	1	2	3	4	5	6	
23	13:12	1	2	3	4	5	6	
24	:	1	2	3	4	5	6	
25	:	1	2	3	4	5	6	
26	:	1	2	3	4	5	6	
27	:	1	2	3	4	5	6	
28	:	1	2	3	4	5	6	
29	:	1	2	3	4	5	6	
30	:	1	2	3	4	5	6	
31	:	1	2	3	4	5	6	
32	:	1	2	3	4	5	6	
33	:	1	2	3	4	5	6	
34	:	1	2	3	4	5	6	
35	:	1	2	3	4	5	6	

NEW FISHERIES NORTHERN RIVERS ROCKY HEADLANDS AND BEACHES  
RECREATIONAL FISHING SURVEY - INTERVIEW SHEET



INTERVIEWER A. H.	DATE 21.02.95	DAY TYPE <input checked="" type="radio"/> W/DAY <input type="radio"/> W/END		INTERVIEW No. 1	INTERVIEW TIME 08:06	
LOCATION Lennox Hd		FISHING PLATFORM <input checked="" type="radio"/> ROCKS <input type="radio"/> BEACH <input type="radio"/> BREAK WALL		No. OF PERSONS in fishing party (that are actively fishing or have actively fished):	MALE 1	FEMALE <input checked="" type="checkbox"/>
Have you or any member of your fishing party been interviewed before for this survey of rock and beach fishing? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	At what time did you start fishing today? 06:00	At what time do you intend to stop fishing today? 10:00			COMMON NAMES	
Today, what is your main target fish? 1 BIRUM 2						
Did you or other members of your party catch anything today?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>					
Are you or other members of your party members of a fishing club?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	MALE: club members			FEMALE: club members	
What is your home post-code?	2478					
Suburb/town if not known:						

Interview Appraisal:	<input checked="" type="radio"/> Fully co-operative    2 - Refusal	If refusal, give reason:

COMMENTS:

# WEEKDAY LATE

## 1(B) BRUNSWICK AERIAL SURVEY (SIMPSONS CREEK TO MULLUM)

AEROPLANE START TIME : 15:44

SURVEY START TIME : 16:02 DATE : 9/12/94

SECTIONS	NUMBER SHORE BASED ANGLERS	NUMBER OF BOATS	
		HOUSE BOATS AND CRUISERS	TRAILABLE
6 SIMPSONS CREEK NORTH OF THE WRECKERS	3	0	0
5 MARSHALLS CREEK UP TO THE IRON BRIDGE	4	0	0
4 NORTH AND SOUTH BREAKWATERS	13	0	0
3 JUNCTION WALL TO HIGHWAY BRIDGE	24	0	0
2 HIGHWAY BRIDGE TO SEWAGE OUTFALL	28	0	1
1 SEWAGE OUTFALL TO MULLUM	28	0	2

SURVEY FINISH TIME : 16:12

BASE: KINGSLIFF

DUTY OPERATORS:

TIME ON TIME OFF

BAR CONDITION  
(if applicable)

DATE: 5 | 12 | 93

0500 - 0900 D BRITZ  
0900 1300 M JONES  
& 1300 1700 D BYERS

1322

Use 24hr clock e.g. 1pm = 13:00

OUTGOING BOATS (SEAWARD BOUND)

HOURLY SLOT	Small recreational fishing craft (trailerable boats & small wooden-hulled vessels (clinkers))	Total	Cruisers & Gamefishing boats	Total	Charter Boats (Party boats for reef fishing trips)	Total	Dive & Spearfishing boats
05:00 to 06:00	11	2					
06:00 to 07:00	11	2					
07:00 to 08:00	1111	4					
08:00 to 09:00	1	1					
09:00 to 10:00	1	1					
10:00 to 11:00	1	1					
11:00 to 12:00	---	0					
12:00 to 13:00	---	0					
13:00 to 14:00	---	0					
14:00 to 15:00	---	0					
15:00 to 16:00	---	0					
16:00 to 17:00	---	0					

Use 24hr clock e.g. 1pm = 13:00

INCOMING BOATS (LANDWARD BOUND)

HOURLY SLOT	Small recreational fishing craft (trailerable boats & small wooden-hulled vessels (clinkers))	Total	Cruisers & Gamefishing boats	Total	Charter Boats (Party boats for reef fishing trips)	Total	Dive & Spearfishing boats
05:00 to 06:00	---	0					
06:00 to 07:00	---	0					
07:00 to 08:00	---	0					
08:00 to 09:00	---	0					
09:00 to 10:00	1	1					
10:00 to 11:00	111	3					
11:00 to 12:00	1111	5					
12:00 to 13:00	111	2					
13:00 to 14:00	---	0					
14:00 to 15:00	---	0					
15:00 to 16:00	---	0					
16:00 to 17:00	---	0					

ULLADULLA

NSW FISHERIES OFFSHORE RECREATIONAL FISHING SURVEY



St No.: B 582

INTERVIEW SHEET

INTERVIEWER:	DATE:	DAY TYPE:	SHIFT:	INTERVIEW No.:
G. B	09.02.95	W/DAY	EARLY	1
Today, did you go:		OTHER ACTIVITY TIMES:	RAMP RETURN TIME:	No. OF PERSONS:
1	Offshore line fishing	/	09:45	1
2	Estuary line fishing			
3	Spearfishing			
4	Scuba diving			
5	Rec. boating			
BOAT REGISTRATION NUMBER:			MALE:	BOAT TYPE:
			FEMALE:	1 Small
				2 Medium-Large
				3 Cruiser-Launches
				4 Other (specify)

Have you been interviewed for this survey before?	What time did you launch your boat today?	How long did the trip from the ramp to your first offshore fishing spot take?	How long did the trip from your last offshore fishing spot to the ramp take?
YES NO	06:45	0:20	0:20

Fishing Type No.	When you fished offshore today did you fish FOR:	MAP GRID NUMBERS:	TIME SPENT FISHING	CATCH ANYTHING?:	Baitfish species (codes):	Estimated No. Baitfish:		
1	SQUID?: YES NO	/	/	YES NO	/	/		
2	BAITFISH FOR USE TODAY?: YES NO			YES NO				
3	PELAGIC FISH?: YES NO			YES NO				
4	REEF FISH?: YES NO			YES NO				
5	SAND FISH?: YES NO			7			2:15	YES NO
6	FISHING TYPE SPLIT IMPOSSIBLE?: YES NO			/			/	YES NO

SPECIES CODE	No. fish COUNTED only	No. fish MEASURED	FISH LENGTHS (fork length cm)										COMMON NAME	FISHING TYPE No.
			1	2	3	4	5	6	7	8	9	10		
T.L.G.F.	/	/	49	90	38	34	33	41	35	37	35	33		5
	/	12	37	33										5
F.B.L.U.	/	2	48	39										5

Home postcode of the boat owner:	Suburb/town if not known:	Are any of you members of a fishing club?:	IF YES how many club members:	FEMALE: club members
2151318		YES NO	MALE: club members	/
Were you fishing in a club tournament / competition today?:	Interview Appraisal:	If refusal, give reason:		
YES NO	1 - Fully co-operative 2 - Refusal			

INTERVIEWER:	DATE:	DAY TYPE:	SHIFT:	PAGE Number
G 18	09 10 2 19 15	(W/DAY) W/END	(EARLY) LATE	1 OF 1
Day Month Year		DO NOT RECORD LFB, YACHTS, JETSKIS, SURF SKIS ETC.		

Boat No.	ACTIVITY	CONTACT?	RAMP RETURN TIME	PORT RETURN TIME	BOAT TYPES				
	O, E, OREC or EREC	I, Y or N	USE 24Hr CLOCK e.g. 1pm = 13:00	USE 24Hr CLOCK e.g. 1pm = 13:00	Small	Medium - Large	Cruisers & Gamefish Launches	Charter (party boats)	Dive & Spear
1	O	I	09:45	:	1	2	3	4	5
2	O	I	09:45	:	1	2	3	4	5
3	O	I	11:15	:	1	2	3	4	5
4	O	I	11:15	:	1	2	3	4	5
5	O	N	11:15	:	1	2	3	4	5
6	O	I	11:20	:	1	2	3	4	5
7	O	I	11:20	:	1	2	3	4	5
8	O	I	11:30	:	1	2	3	4	5
9	O	I	12:05	:	1	2	3	4	5
10	O	I	12:35	:	1	2	3	4	5
11	O	I	12:40	:	1	2	3	4	5
12	O	I	12:45	:	1	2	3	4	5
13	O	I	12:50	:	1	2	3	4	5
14	O	N	:	13:20	1	2	3	4	5
15	O	N	:	13:25	1	2	3	4	5
16	O	N	:	13:30	1	2	3	4	5
17	O	I	13:30	:	1	2	3	4	5
18			:	:	1	2	3	4	5
19			:	:	1	2	3	4	5
20			:	:	1	2	3	4	5
21			:	:	1	2	3	4	5
22			:	:	1	2	3	4	5
23			:	:	1	2	3	4	5
24			:	:	1	2	3	4	5
25			:	:	1	2	3	4	5
26			:	:	1	2	3	4	5
27			:	:	1	2	3	4	5
28			:	:	1	2	3	4	5
29			:	:	1	2	3	4	5
30			:	:	1	2	3	4	5
31			:	:	1	2	3	4	5
32			:	:	1	2	3	4	5

COMMENTS:



**Appendix VI**  
**South Australian examples**

# RAMP TRAILER COUNTS (Use 24-hour clock throughout)

\* (Please complete an environmental observation form on arrival at ramp and staple it to this sheet.)

DayType Ramp no.

--	--

DATE: \_\_\_\_\_ RAMP: \_\_\_\_\_

Ramp arrive time:  Depart time:

No. trailers on arrival:  on departure:

Vessel type  
-----  
RF - Recreational fisher  
CF - Commercial fisher  
NF - Non fishing

Launch times: ..... e.g. 

21	time	no. people	vessel type
----	------	------------	-------------

1				11				21			
2				12				22			
3				13				23			
4				14				24			
5				15				25			
6				16				26			
7				17				27			
8				18				28			
9				19				29			
10				20				30			

Retrieval times:

1				11				21			
2				12				22			
3				13				23			
4				14				24			
5				15				25			
6				16				26			
7				17				27			
8				18				28			
9				19				29			
10				20				30			



MARINE SCALEFISH LENGTH FREQUENCY DATA SHEET

SPECIES		SPECIES		SPECIES		SPECIES		SPECIES	
	No.		No.		No.		No.		No.
0		0		0		0		0	
1		1		1		1		1	
2		2		2		2		2	
3		3		3		3		3	
4		4		4		4		4	
5		5		5		5		5	
6		6		6		6		6	
7		7		7		7		7	
8		8		8		8		8	
9		9		9		9		9	
0		0		0		0		0	
1		1		1		1		1	
2		2		2		2		2	
3		3		3		3		3	
4		4		4		4		4	
5		5		5		5		5	
6		6		6		6		6	
7		7		7		7		7	
8		8		8		8		8	
9		9		9		9		9	
0		0		0		0		0	
1		1		1		1		1	
2		2		2		2		2	
3		3		3		3		3	
4		4		4		4		4	
5		5		5		5		5	
6		6		6		6		6	
7		7		7		7		7	
8		8		8		8		8	
9		9		9		9		9	
TOTAL		TOTAL		TOTAL		TOTAL		TOTAL	
Propn. measured		Propn. measured		Propn. measured		Propn. me. red		Propn. measured	

## ENVIRONMENTAL OBSERVATION FORM

Using the following codes, please record environmental observations for each ramp.

DATE    /    /

RAMP NO	WD	WS	WG	CL	WC	SC

CL	CLOUD COVER	0	1/8	2/8	3/8	4/8	5/8	6/8	7/8	8/8
----	----------------	---	-----	-----	-----	-----	-----	-----	-----	-----

WD	WIND DIRECTION	N	NE	E	SE	S	SW	W	NW
----	-------------------	---	----	---	----	---	----	---	----

WS	WIND SPEED	0-5	5-10	10-15	15-20	20-25	25-30	>30
		1	2	3	4	5	6	7

WG    WIND GUSTS    If gusting, up to what speed?    [ Refer table above ]

- |    |                       |    |   |
|----|-----------------------|----|---|
| WC | WEATHER<br>CONDITIONS | SY | Sunny   |
|    |                       | CL | Cloudy [ no precipitation and not sunny ]   |
|    |                       | SH | Showers [ intermittent rain ]   |
|    |                       | RN | Rain [ continuous rain ]  |
|    |                       | HR | Heavy rain  |
|    |                       | HL | Hail  |
|    |                       | SQ | Squalls [ strong gusting winds usually associated<br>with heavy rain, thunder and lightning ] |

SC    SEA  
CONDITION

SEA CONDITION	CODE	SEA CONDITION	CODE
Calm	C	Moderate	M
Slight	S	Moderate - Rough	MR
Slight - Mod	SM	Rough	R

# SOUTH AUSTRALIAN CHARTER BOAT FISHERS RESEARCH LOG

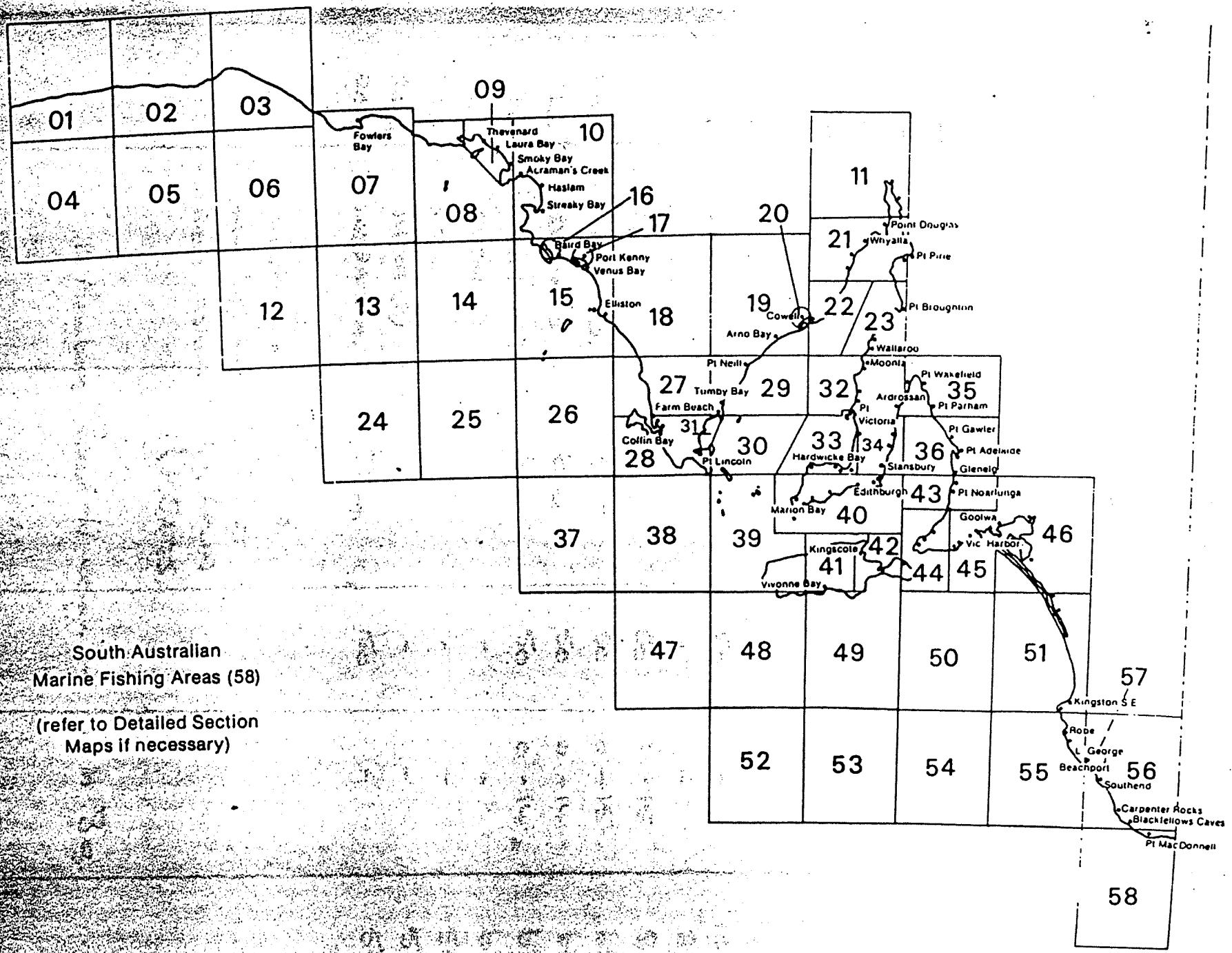
Charter Boat Operator's Name .....

Month ..... Year .....

			No. of fish caught			
Date	Area *	Number of fishers	King George Whiting	Snapper	Salmon	Other **

\* Please record the area fished, according to the attached map.  
\*\* Please record the name of the other species and the numbers in this column. If there are more than one "other species", then use more than one line

PLEASE RETURN THIS FORM AT THE END OF EACH MONTH TO:  
SARDI (Aquatic Sciences)  
PO Box 120  
HENLEY BEACH, SA 5025



South Australian  
 Marine Fishing Areas (58)  
 (refer to Detailed Section  
 Maps if necessary)

PORT RICKABY.

15<sup>th</sup> Sept. 1968.

Position	NAME	Position on TRIP	Abundance Points	WEIGHT.	AGGREGATE
1.	F. BOWMAN	-	-	-	599
2.	C. DOIG.	2	50	2 <sup>lb</sup> 4 <sup>oz</sup> .	524
3.	P. GATES.	4	50	1 - 5	421
4.	R. APLIN	1	50	9 - 5	232
5.	G. McMARTIN	7 eq.	50	-	170
6.	N. McMARTIN.	7 eq.	50	-	161
7.	E. FABRICH	7 eq.	50	-	150
8.	J. WHITE	-	-	-	144
9.	V. GODLEMAN.	7 eq.	50	-	112
10.	S. PLAYFORD.	-	-	-	107
11 eq	S. BOWERING.	7 eq.	50	-	100
11 eq	B. DUNN	-	-	-	100
11 eq	R. SCHWANCK.	7 eq.	50	-	100
14.	G. PLAYFORD.	-	-	-	82
15.	D. APLIN.	3	50	1 - 15	81
16.	P. GREENLAND.	5	50	0 - 15	65
17 eq	T. DELSANTO	6 eq.	50	0 - 14	64
17 eq	H. PLAUMAN	6 eq.	50	0 - 14	64
19.	L. VELTMAN	-	-	-	61
20 eq	B. STEEL	-	-	-	50
20 eq	J. WHITE (B)	-	-	-	50
20 eq	M. ANSPATCH.	7 eq.	50	-	50

Heaviest Bag - R. APLIN.  
 Runner Up. - C. DOIG.  
 Heaviest Fish - Tie { R. APLIN  
 { P. GATES.

14 Members fished to weigh in 17 lb 8 oz.







94									
				22 MEMBERS	2 VISITORS				
50		DIV I	H/BAG	G HAY	15/	4.900			
50		DIV II		P PEDERSEN	41/	4.900			
50		VETERANS		LAERTZEE	21/	6.450			
50		JUNIORS		B KEYLOW	20/	2.850			
0		H/FISH		K CEDRES	1.950	KC TREMMER			
0		H/UNSCHEDULED FISH		P GRIMELEY	4.440	SCHOOL SHARE			
0		CLUB RECORD		P GRIMELEY	" "	" "			
0				TOTAL	30 FISH	60.600 KC.			

		TOMMIES	116						
0		Rock Cod	40	22 MEMBERS	CAUGHT	58.850	297		
		L/JACKET	30	4 VISITORS	"	1.750	4		
		SWEET	29						
		MULLET	27	TOTALS		60.600	301		
		S/TROUT	18						
		GAR	17						
		ZEBRA	16						
		DROMER	5						
		FLATHEAD	2						
		GUANARD	1						
		TOTAL	301						

RECEIPT

Date 27-3-94<sup>42</sup>

Received from G. HAY

The sum of THREE HUNDRED & SIXTY ONE dollars

Being for PT. DEBURG TRIP

\$ 361.00

	NAMES	NO. FISH	WEIGHT	SCORE	POINTS	TOMMIES	SWEEP	QARFISH
1	B FREEMAN							
2	B HUTCHINSON							
3	K MC ALPINE							
4	G. MERCHANT							
5	R MUNCHENBERG							
6	P PROW.	13	5.4	67	11	6		
7	L SARGEANT	20	9.6	116	19	4	1	
8	F. SARGEANT.	5	.900	14	2	1	2	
9	L PATTERSON.							
10	B SWEENEY	42	24.6	288	46	4	1	
11	B WILLISS	263	35.7	620	100 <sup>(1)</sup>	31		
12	B WISEMAN.							
13	B WRIGHT							
14	M. MOSS	8	1.1	19	3	5		
15	J WILKSHIRE	3	.900	12	2			
16	R CHARITY							
17	B KLAEBE.							
18	T. DUDLEY							
19	D COOPER							
20	T QAMEAU.	8	4.1	49	8	2		
21	B NITSHKE							
22	J OREB	52	7.4	126	20	5		
23	K PARKER	19	3.1	50	8	17	1	
24	J WARGING							
25	B TAYLOR.							
26	B WHITE							
27	T TIERNEY	227	30.5	<del>535</del>	86 <sup>(2)</sup>	35		1
28	G LEIBLICH							
29	G CAMPBELL	7	1.4	21	3	5		
30	M. J. ...							



## **Appendix VII**

### **Tasmanian examples**

# Voluntary Logbook For Charter Boat Operators

## General Information

### Purpose:

This logbook is designed to be used by charter boat operators in order to provide a daily record of charter operations throughout each season.

The data collected will provide information which is essential to the development and management of the charter industry in the future. Some information, with the permission of participants will be made available to the charter boat operators involved, thus benefiting the industry.

### Who needs to use this logbook ?

In 1994, Tuna charter operators participated in an initial survey conducted by The Marine Resources Division of the Department of Primary Industry and Fisheries. The need for accurate records was acknowledged. All operators indicated their willingness to keep a voluntary logbook of their charter operations.

As the logbook is voluntary there is no legal obligation for operators to complete the log, but it is hoped that all operators will recognise its potential benefit to the industry.

### Confidentiality :

The completed logsheets will remain strictly confidential, and no information related to individual boats will be released to any party without the prior consent of the charter boat operator.

## Charter Fishing Operations :

This logbook is to be used to record position and catch only on those days when your vessel is operating as a charter vessel, and not as a commercial fishing boat. (commercial catch must still be entered on relevant commercial logbooks).

## More Information :

If you have any questions about the completion of the logbook or the future uses of the logbook then please telephone the Senior Recreational Officer, on Ph. (002) 33 3523, or Fax (002) 231539

## Returning The Logbook :

The Charter Fishing logbook is designed to be returned at the end of each charter season. The logbooks can be returned by mailing to :

Senior Recreational Officer  
Department of Primary Industry & Fisheries  
Marine Resources Division  
Recreational Fishing Section  
G.P.O. Box 619 f  
Hobart 7001

**Completing the Logbook :**

1) **Block / Estuary :** This column provides details of the location of the majority of catch and can be determined firstly by locating the general area as depicted by the general reference map, and then by pinpointing your location on one of the locality maps provided.

2) **Gear Code :** This column is intended to provide some idea of the type of fishing being conducted from your charter boat. A list of codes for different fishing gear is included in the general fishing logbook and these same codes will be retained along with some new ones relating directly to charter. The most common codes to be used would be:

- |                    |                                   |
|--------------------|-----------------------------------|
| TR : Trolling      | Others; MN : Small mesh gillnet ✓ |
| GN : Graball Net   | SL : Shark longline ✓             |
| HL : Hand Lines    | BL : Bottom longline ✓            |
| CP : Cray Pot      | TL : Trotline ✓                   |
| SS : Sightseeing   | DL : Dropline ✓                   |
| DC : Dive Charter  | BS : Beach seine ✓                |
| PC : Picnic cruise | PS : Purse seine ✗                |
|                    | DS : Danish seine ✗               |
|                    | LS : Lampara/Ring net ✗           |
|                    | FP : Fish trap                    |
|                    | SJ : Squid jig ✓                  |
|                    | SP : Spear ✓                      |

*Collect*

3) **Number of Lines :** The number of fishing lines used gives an indication of the fishing effort on a given day and is simply the number of lines which were trolled during the day. If nets or pots were used then the number of nets or pots set should be recorded in this column.

4) **Hours fished :** This column relates to the length of time (hours:minutes) that the lines are trolled. If Nets or craypots are being used for charter operations then the average soak time per pot or net (hours:minutes) can be used as a measure of effort.

5) **No. of Clients :** This column simply asks the number of clients in the charter party on this day of fishing.

6) **Weight :** This is the combined weight of all fish of this type caught on this day in Kilograms

7) **No. of Fish :** This is the total number of fish of each species.

8) **Estimated catch :** This section already contains the names of common tuna species caught in Tasmanian waters and space is allowed for non-tuna species caught under charter, these species should be written in the space provided and a list of common names is given at the back of this logbook.

**Recording Daily Fishing Operations**

Only record the details for those days spent fishing under charter. Use a new line for each day of fishing operations. For each line used record the date of the month in the space provided.

In some cases it may be necessary to use more than one line to cover a days fishing activities. This will happen when:

- Catches are taken from more than one grid location on the maps provided, or
- When more than one type of gear is used in the same day of charter .

**New Pages :**

Please ensure that each new month of charter begins on a fresh page of the logbook.

Another page may need to be used when there are not enough species columns available for the days catch.

<b>Voluntary Charter Fishing Log</b>		Please return to G.P.O. Box 615F HOBART 7001
Month of fishing:	February	
Year:	2001	
Charter Name:	CHARTER B.	
Skipper's Full Name:	John Smith	
		Page Number <span style="border: 1px solid black; padding: 2px 5px;">1</span>



# Voluntary Charter Fishing Log

HOBART 7001

Month of Fishing: February  
 Year: 1995

Vessel Name: CHARTER B.  
 Registration Number: L111

Skipper Full Name: John Smith  
 Distinguishing Mark (if applicable): -

Page Number: 1  
 Total number of pages for this month: 1

Estimated Catch - all fish retained

Date of Month	Block/Estuary	Gear Code	No. of Lines	Hours Fished	No. of Catches	Somerset (Quinn) Nuna		Yellowfin Nuna		Albacore		Skipjack Tuna		Species Flathead		Species Jackass Morwong		Species Cod	
						Weight (kg)	No. of Fish	Weight (kg)	No. of Fish	Weight (kg)	No. of Fish	Weight (kg)	No. of Fish	Weight (kg)	No. of Fish	Weight (kg)	No. of Fish	Weight (kg)	No. of Fish
1	7H1E	TR	6	5	8	70	3			52	10	3	1	42	7	1.8	2		
1	7H1E	HL	4	2	8														
6	7H1E	TR	6	6	10	35	1	50	1			13	4						
18	7G2D	TR	5	4	6					6	2								
21	7G2H	TR	6	6	9	170	5			15	4								
28	7H1E	TR	6	3	7					8	2					4	5	25	12
28	7H1E	HL	6	3	7														

ONLY ONE

If you had NIL return for this month please tick the main reason why:

- Other Commercial Fishing
- Bad Weather
- Non Charter Activities
- Maintenance
- Closed Season
- Other (please specify)

Main Ports of Operation:  
Prakes Bay

I, Master of this Vessel, certify that the above information is complete and correct.

Signature: [Signature]  
 Date: 15/4/95

Comments:

## Inland Fisheries Commission 1993/94 Angling Questionnaire

1. What is your postcode?

2. In the table below we would like you to list your trout fishing for the 1993/94 fishing season, for **STREAMS and RIVERS only** - please combine information for freshwater and estuary catches for each stream or river. Please list only **YOUR OWN** fishing.

(a) In the first column (headed **LOCATION**), please list all the streams or rivers that you can remember visiting during the 1993/94 season;

(b) In the second column (headed **NUMBER OF DAYS FISHED**), please indicate the total number of days that you spent fishing each stream last season;

(c) In the third, fourth and fifth columns (headed **TOTAL NUMBER OF FISH CAUGHT**), please indicate the number of brown trout, rainbow trout or Atlantic Salmon you personally caught during the season. Write 0 if you caught no fish at this water last season.

If there is not enough room, please attach an extra sheet with the details.

LOCATION STREAM, RIVERS OR ESTUARIES ONLY	TOTAL NUMBER OF DAYS FISHED AT THIS WATER	TOTAL NUMBER OF FISH CAUGHT BY ME		
		BROWN TROUT	RAINBOW TROUT	ATLANTIC SALMON

3. In the table below we would like you to list your trout fishing for the 1993/94 fishing season, for **LAKES ONLY**. Please fill in the table in the same way as for rivers.

LOCATION LAKES ONLY	TOTAL NUMBER OF DAYS FISHED AT THIS WATER	TOTAL NUMBER OF FISH CAUGHT BY ME		
		BROWN TROUT	RAINBOW TROUT	ATLANTIC SALMON

**PLEASE TURN OVER THE PAGE**

**4. LAKE SORELL FISHERY**

a) If you fished Lake Sorell, please indicate below;  
 i) the number of weekend days (including long weekends) and your catch on those days; and  
 ii) the number of week days and your catch on those days.

LAKE SORELL	TOTAL NUMBER OF DAYS	TOTAL NUMBER OF FISH CAUGHT BY ME	
		BROWN TROUT	RAINBOW TROUT
WEEKEND DAYS ONLY			
WEEKDAYS ONLY			

b) Were you interviewed by an Inland Fisheries Commission officer during the angling survey conducted at Lake Sorell last season? Please tick the appropriate box.

YES

NO

c) If you answered yes to question b), how many times were you interviewed?

**5. MERSEY RIVER FISHERY**

If you fished the Mersey River last season, how many days did you fish and what was your catch in each of the following river reaches?

MERSEY RIVER	TOTAL NUMBER OF DAYS	TOTAL NUMBER OF FISH CAUGHT BY ME	
		BROWN TROUT	RAINBOW TROUT
Upstream of Kimberley			
Between Kimberley and the Latrobe Bridge			
Downstream of the Latrobe Bridge			

**6. LOBSTER FISHING**

If you fished for FRESHWATER LOBSTER during the past season, please indicate below the streams you fished at, the number of days you fished at each stream and the number of lobster you caught and kept.

STREAM FISHED FOR LOBSTER	NUMBER OF DAYS FISHED THERE	NUMBER OF LOBSTER CAUGHT AND KEPT

**MANY THANKS FOR YOUR INFORMATION**

## Inland Fisheries Commission 1994/95 Angling Questionnaire

1. What is your postcode?

2. In the table below we would like you to list your trout fishing for the 1994/95 fishing season, for STREAMS and RIVERS only - please combine information for freshwater and estuary catches for each stream or river. Please list only YOUR OWN fishing.

(a) In the first column (headed LOCATION), please list all the streams or rivers that you can remember visiting during the 1994/95 season;

(b) In the second column (headed NUMBER OF DAYS FISHED), please indicate the total number of days that you spent fishing each stream last season;

(c) In the third, fourth and fifth columns (headed TOTAL NUMBER OF FISH CAUGHT), please indicate the number of brown trout, rainbow trout or Atlantic Salmon you personally caught during the season. Write 0 if you caught no fish at this water last season.

If there is not enough room, please attach an extra sheet with the details.

LOCATION STREAM, RIVERS OR ESTUARIES ONLY	TOTAL NUMBER OF DAYS FISHED AT THIS WATER	TOTAL NUMBER OF FISH CAUGHT BY ME		
		BROWN TROUT	RAINBOW TROUT	ATLANTIC SALMON

3. In the table below we would like you to list your trout fishing for the 1994/95 fishing season, for LAKES ONLY. Please fill in the table in the same way as for rivers.

LOCATION LAKES ONLY	TOTAL NUMBER OF DAYS FISHED AT THIS WATER	TOTAL NUMBER OF FISH CAUGHT BY ME		
		BROWN TROUT	RAINBOW TROUT	ATLANTIC SALMON

PLEASE TURN OVER THE PAGE

**4. ACCESS TO FISHERIES**

In the last 5 years have you experienced any difficulties gaining access to fishing localities due to changes in traditional access e.g. permanent road closure or property owners enforcing laws of trespass? If so, please provide the following details in the table below; the locality, type of access problem, if this lack of access forced you to fish elsewhere and the year in which the access problem began?

Please use the following code in the second column:

TYPE OF PROBLEM: A=locked gate, B=permanent road closure, C=trespassing on private property, D-other (please specify in the table below).

LOCALITY	TYPE OF PROBLEM	ALTERNATIVE FISHING LOCATION	YEAR

**SPECIFY OTHER TYPE OF PROBLEM:**

--

**5. MERSEY RIVER FISHERY**

If you fished the Mersey River last season, how many days did you fish and what was your catch in each of the following river reaches?

MERSEY RIVER	TOTAL NUMBER OF DAYS	TOTAL NUMBER OF FISH CAUGHT BY ME	
		BROWN TROUT	RAINBOW TROUT
Upstream of Kimberley			
Between Kimberley and the Latrobe Bridge			
Downstream of the Latrobe Bridge			

**6. LOBSTER FISHING**

If you fished for FRESHWATER LOBSTER during the past season, please indicate below the streams you fished at, the number of days you fished at each stream and the number of lobster you caught and kept.

STREAM FISHED FOR LOBSTER	NUMBER OF DAYS FISHED THERE	NUMBER OF LOBSTER CAUGHT AND KEPT

**MANY THANKS FOR YOUR INFORMATION**

## **Appendix VIII**

### **Other examples**

Name

No.	BOAT NAME (Including school boat, if fishing)	No. on board	Log on Time or <input checked="" type="checkbox"/>	Time started gear fishing (Date)	Sched Details					Space Column for Club's Use Eg. Extra School or other Comments	Time Stopped Hauling (Date)	Log off Time or <input checked="" type="checkbox"/>	Ask: TOTAL DAY'S CATCH • All Gamefish caught or tagged incl. any 'non point species' • Write in no. of each species • T = Tagged; W = to weigh N = not to be weighed
					T D A	T D A	T D A	T D A	T D A				
					T D A NH 000	T D A NH 000	T D A NH 000	T D A NH 000	T D A NH 000				T W N
					T D A NH 000	T D A NH 000	T D A NH 000	T D A NH 000	T D A NH 000				T W N
					T D A NH 000	T D A NH 000	T D A NH 000	T D A NH 000	T D A NH 000				T W N
					T D A NH 000	T D A NH 000	T D A NH 000	T D A NH 000	T D A NH 000				T W N
					T D A NH 000	T D A NH 000	T D A NH 000	T D A NH 000	T D A NH 000				T W N
					T D A NH 000	T D A NH 000	T D A NH 000	T D A NH 000	T D A NH 000				T W N
					T D A NH 000	T D A NH 000	T D A NH 000	T D A NH 000	T D A NH 000				T W N
					T D A NH 000	T D A NH 000	T D A NH 000	T D A NH 000	T D A NH 000				T W N
					T D A NH 000	T D A NH 000	T D A NH 000	T D A NH 000	T D A NH 000				T W N
					T D A NH 000	T D A NH 000	T D A NH 000	T D A NH 000	T D A NH 000				T W N
					T D A NH 000	T D A NH 000	T D A NH 000	T D A NH 000	T D A NH 000				T W N

TOTAL p. 08

Please note: should you have insufficient space to answer any questions, feel free to add separate pages.

## THE CLUB

o Full name of your club:

o Year in which your club was formed:

o Current affiliations with state, national, and international angler associations:

## CLUB MEMBERSHIP

o Total current membership (including social members & juniors):

MEMBERS	BOATS
<input type="text"/>	<input type="text"/>

o Of these, about how many would fish in more than 2 or 3 club events per year? (best estimate please)

MEMBERS	BOATS
<input type="text"/>	<input type="text"/>

## COMPETITIONS RUN BY YOUR CLUB

o Please give a brief description of the different types of competitions/fishing events which are actually run by your club in the 'normal' club year (type of event, how often, restrictions on species, size, tackle, and so on). Include any special events, e.g. the annual 'challenge' with another club, charity outings.

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NOTE: If available, sample copies of club calendars, rules, etc. would be appreciated and can be either returned or retained, if necessary.

o Areas and activities covered by all the events described above (tick as many categories as apply)

Freshwater - rivers	SHORE	BOATS
Freshwater - lakes, dams, etc.	<input type="checkbox"/>	<input type="checkbox"/>
Saltwater - estuaries, lakes, bays	<input type="checkbox"/>	<input type="checkbox"/>
Saltwater - ocean waters	<input type="checkbox"/>	<input type="checkbox"/>

o Total number of actual fishing days for the club year:   
please total up the number of different days (i.e., dates) covered by club events



**Other Sources of Information**

o Does your club publish ...

An annual report ? (if so, please describe ... or please supply a copy)

Regular newsletters ? (if so, please describe ... or supply a copy)

Please describe any *other* information collected or recorded

.....

.....

.....

.....

**HISTORICAL INFORMATION**

o For the information which is currently recorded for club events, please describe the following .....

Earliest year for which information is kept:

Since then, do any gaps occur or has data collection changed in any way during this time ?

Membership registers

Boat registers

Catch (i.e. fish caught & kept)

Tagged or lost fish

'Effort' information

Annual reports

Newsletters

Any other historical information ?

.....

.....

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.....

.....

o The Bureau of Rural Resources is particularly interested in tuna and billfish. For the most recent whole club year, please provide the following information .....

Dates of most recent club year: from

.....

to

.....

**SPECIES**

Were any 'caught and kept' during club events in that year ?

If yes, please give best estimate of total number 'caught and kept' in club events during that year:

YES

NO

UNSURE

NUMBER

Yellowfin tuna

.....

Albacore

.....

Marlin (black, blue, or striped)

.....

Other billfish (eg. sailfish)

.....

Other tuna (eg. striped tuna)

not required

**OTHER FISHING CLUBS**

o Are you aware of any other fishing clubs in your region which are unaffiliated with state or national associations (eg, the local hotel fishing club) ... or perhaps have only recently been formed ? (please give details)

.....  
.....  
.....

**CLUB CONTACT OFFICERS**

o Please provide details of club contact officers - should any queries arise regarding this survey .....

	CONTACT #1	CONTACT #2
Name:	.....	.....
Position held:	.....	.....
Postal address:	.....	.....
Telephone number:	..... post code	..... post code

**ANY OTHER INFORMATION ?**

o Please use the space provided below to describe any other information that you believe might be relevant to our survey or to make any other comments

.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....

- Many thanks for helping with the survey.
- Also, please ensure that any documents you wish to be returned are appropriately noted.

**INFORMATION CURRENTLY COLLECTED**

Please *describe* any information which is currently collected for club events for each of the categories listed below. Again, sample copies of any completed documents, such as weigh-master records and radio school sheets, would be helpful.

**Catch (fish which are 'caught & kept')**

o Are *all fish* weighed and recorded ... or only those which weigh ... or best fish only ... ?

.....  
.....  
.....

o For *each fish* caught and kept in club events, what details are collected

- Groupings of species (e.g. flathead) ... or precise species name (e.g. dusky flathead)
- Fish weighed whole ... or gilled and gutted
- Weight recorded in kg's and gm's ... or lb's and oz
- Location of capture (if so, how is it recorded)
- Date of capture
- Tackle/line class
- Bait/lure type
- Angler's name
- Boat name
- Any other information?

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**Tagged, Released, or Lost Fish**

o What details, if any, are recorded for

- Fish tagged and released in club events (species, size, location, etc)
- Fish released, but not tagged
- Sightings, stakes, or hookups

.....  
.....  
.....

**Effort** (a term used by scientists to calculate catch rates, e.g. number of flathead caught per 1000 angler hours)

o Please describe any effort information which is currently recorded for club events

- Total number of people participating including crew
- Number of actual anglers
- Number of boats
- Number of days/hours of eligible fishing for each club event
- Number of days/hours actually fished
- Number of lines used
- Any other effort information?

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## *Attachment 3*

SIRFIS FRDC Project document

# Selection of a Client/Server Application Development Environment for the SIRFIS FRDC Project.

FRDC 95/054

Cameron Baker

Queensland Fisheries Management Authority

14 May 1996



FISHERIES  
RESEARCH &  
DEVELOPMENT  
CORPORATION



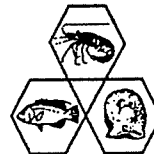
QFMA  
Queensland Fisheries  
Management Authority



**Reefish**



SOUTH AUSTRALIAN  
RESEARCH AND  
DEVELOPMENT  
INSTITUTE



DEPARTMENT OF  
PRIMARY INDUSTRY  
AND FISHERIES



Department of  
Primary Industry and Fisheries  
TASMANIA



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## Overview

The selection of an appropriate *Client/Server Application Development Environment (CADE)* will have a major effect on the ability of the SIRFIS project to reach its goals.

The following products were identified as possibly being suitable for use as the CADE for the SIRFIS project :-

- CA-OpenRoad 3.5 from Computer Associates
- Delphi from Borland
- Visual Basic 4.0 from Microsoft
- Centura Team Developer  
from Centura Software Corporation (formerly Gupta Corporation)
- Jam 7 from JYACC
- PowerBuilder 5.0 from PowerSoft

An evaluation of these products was carried out over a number of months. A summary of the results of this evaluation is presented in the next section.

As a result of the evaluation I recommend Centura Team Developer as the CADE for the SIRFIS project.

For additional information on Centura please refer to Appendix 2.

Client Group feedback on this document is welcomed. **If you have any comments regarding the recommendation please contact Cameron Baker on (07) 32277434 or E-mail bakerc@qfish.cbd.dpi.qld.gov.au by Thursday 23rd May.** If no reply is received I will assume you are happy with the recommendation.

## Evaluation

Information on the various CADEs was collected over a number of months. This information has been used to assess the suitability of the CADE for use in the SIRFIS project and is presented below summarised in a table format.

### Mandatory Features

The following table lists features the tool must have to enable us to meet the requirements of the project.

The features listed are described in more detail in appendix 1.

	Open Road	Delphi	Visual Basic	Centura	Jam7	PowerBuilder
<b>Platform Independence</b>						
• Windows 95	✓	✓	✓	✓	✓	✓
• Windows NT	✓	✓	✓	✓	✓	✓
• MacOS				1997	✓	✓
<b>Database Independence (Native Support)</b>						
• Oracle	✓	✓		✓	✓	✓
• CA-Ingres/CA-OpenIngres	✓			✓	✓	
• Sybase	✓	✓		✓	✓	✓
ODBC		✓	✓	✓	✓	✓
Minimal Runtimes	\$250?	\$0	\$0	\$0	\$0	\$0

### Table 1 Comments

- Windows 3.x is not included in the list of mandatory platforms supported. It is envisioned that when the SIRFIS modules are delivered most users will have moved to a 32 bit version of Windows.



- Only Centura and Jam 7 meet all the mandatory requirements listed in the above table.
- Powerbuilder did meet the requirements in most areas but did not provide native support for Ingres databases. The Powerbuilder sales representatives have suggested using ODBC to attach to an Ingres database, however anecdotal evidence would suggest that this approach is fraught with problems.
- We were advised by the local distributor that a version of Centura for the Mac should be released by the end of the year.

## Desirable Features

The following table lists what we consider desirable features for the tool. These features, while not essential would aid either development, deployment, useability, maintainability or scalability of the product.

Only the tools that have met the mandatory requirements in the above table are included in this table.

	Centura	Jam7
Platform Independence		
• Motif	✓	✓
• OS/2		✓
Object Oriented	✓	✓
RAD	✓	✓
Repository Based	✓	✓
Team Development Features	✓	✓
Integrated Reporting Tool	✓	✓
2/3 Tier Architecture	✓	✓
Support	Local	International
WWW Capabilities	✓	✓
Development costs	\$14K	\$11K
Availability	June 96	Now

### Table 2 Comments

- Jam 7 does not have a distributor in Australia and therefore there is no local training or support. Support would be via E-mail or fax.
- Centura, which is a 32 bit upgrade to Gupta's SQL Windows, won't be available in Australian until June.
- As Jam 7 is basically unknown within Australia, it would be impossible to find experienced contract staff if required. I see this as a major drawback.

## Recommendation

After careful consideration and evaluation of the options I recommend that **Centura Team Developer** be used for the SIFIS project.

Centura not only meets the selection criteria, but exceeds it in many areas, making it useful for any future development or enhancements.

Centura is a major upgrade to Guptas SQL Windows which is widely used. Organisations that I am aware of using SQL Windows include, Suncorp, Qld Education Dept, and Telstra. Qld Dept of Primary Industries have also named SQL Windows as a department standard.

For additional information on Centura please refer to Appendix 2.

## Appendix 1. Description of Features

### Mandatory Features

Feature	Description/Comments
<b>Platform Independence</b>	Refers to the application being able to run on different client platforms.
<ul style="list-style-type: none"> <li>Windows 95</li> </ul>	The majority of agencies in the client group have indicated that MS Windows in some form will be its preferred client platform. Considering the expected roll-out dates for this project, we feel that support for 16bit Windows 3.x to be unnecessary.
<ul style="list-style-type: none"> <li>Windows NT</li> </ul>	
<ul style="list-style-type: none"> <li>MacOS</li> </ul>	Macs are used by a few of the agencies and is the main platform used by Tasmanian Inland Fisheries
<b>Database Independence (Native Support)</b>	The CADE must provide drivers for connecting to different databases and the applications produced must be easily moved across different databases.
<ul style="list-style-type: none"> <li>Oracle</li> </ul>	Oracle is the preferred database of Tasmania and NT.
<ul style="list-style-type: none"> <li>CA-Ingres/CA-OpenIngres</li> </ul>	CA-Ingres is used by QFMA, NSW Fisheries, South Australian Research and Development Institute and AFMA.
<ul style="list-style-type: none"> <li>Sybase</li> </ul>	Sybase is the preferred database in Victoria.
ODBC	ODBC is useful in connecting with PC based databases such as FoxPro, Dbase etc.
Minimal Runtimes	The aim is for distribution of the SIFIS application to be as of little cost as possible to the client group. Most of the CADEs considered provide free runtime licences.

## Desirable Features

Feature	Description/Comments
Platform Independence	
• Motif	
• OS/2	
Object Oriented	Object Oriented
RAD	Rapid Application Development allows for the rapid generation of screens and application with basic functionality. This is very useful for prototyping applications.
Repository Based	This ties in closely with OO and the Team Development features. It also encourages reuse of object.
Team Development Features	The CADE needs to provide support for multiple programmers working on the same application.
Integrated Reporting Tool	The CADE should have an integrated report tool, this will not only ensure the SIFIS application has a more consistent interface, but also reduces the problems involved with integrating third party software.
2/3 Tier Architecture	Multi- tier support, while probably not necessary for the SIFIS project, does make a CADE much more scalable and flexible. This would become more important if the CADE is used for other future development work.
Support	
WWW Capabilities	
Development costs	The cost of purchasing the required developers licences and associated software for 2 programmers.
Availability	

## **Appendix 2. Centura - Additional Information**

Attached is a copy of a press release and a Centura white paper. I know they are tainted by marketing hype, but they will give an indication of Centura's capabilities and architecture.

## Telstra Signs Corporate Software License With Gupta

**MENLO PARK, Calif., March 12** -- Gupta Corporation (Nasdaq: GPTA) in Australia Pty. Ltd., the leading independent client/server vendor, today announced that it has signed a three year software agreement with Telstra. The agreement specifically licenses up to 500 copies of either SQLWindows or Centura Team Developer and provides Telstra with access to support services and the full range of Gupta products at preferential rates.

Gupta supplies products to more than 40 percent of large organizations in Australia, providing a highly scalable growth path to enterprise wide, platform and database independent, client/server solutions.

"We are very pleased to have been selected by Telstra as a supplier of GUI-based application development technology. This agreement clearly consolidates Gupta's position as a supplier to the professional developer segment in large organizations," said Roy Brady, managing director, Gupta Australia.

According to Ian Hughes, national manager, Commercial and Product Management, IT Group at Telstra, "This corporate software license represents considerable savings to Telstra in product acquisition and additional savings through standardization across the organization. In addition, the agreement represents a flexible approach to acquiring software and provides us with access to new technology as it becomes available."

As one of the largest users of IT in Australia, Telstra is generally regarded as a leader in the exploitation of IT to support business strategies. The move to a GUI-based client/server development environment was made following an analysis of Telstra's requirements and its extensive direct experience with most products on the market.

Gupta was chosen based on its ability to meet Telstra's current and future needs. In particular, the capability of scaling into 3-Tier architectures.

"We have been using the Gupta client/server technology successfully in a 2-Tier environment for some time and were very comfortable in selecting it as the standard for this style of application. Our interest in 3-Tier scalability based on DCE (Distributed Computing Environment), led us to an extensive evaluation of SQLWindows in conjunction with our strategic middleware to ensure that it would meet our ongoing requirements in this area," said Mac Lemon, national manager, Technology Planning, IT Group at Telstra.

According to Brady, "It was a team effort with Gupta's business partners Open Environment and Xpedite providing extensive sales and support assistance throughout the decision making process -- we couldn't have done it without them."

Centura Team Developer, one of four major products to be launched by Gupta later this month is a powerful component-based application development environment with features that deliver tremendous application scalability, Internet integration and the ability to connect all databases and users.

### About Gupta Corporation

Founded in 1984 and traded on the Nasdaq exchange, Gupta is a leading provider of client/server development and deployment software. Worldwide, more than 100,000 developers have licensed its award-winning SQLWindows application development environment and more than a million users have deployed its SQLBase database management system. The company's customers include United Parcel Service, United Airlines, Allstate Insurance, Citibank, Toyota, Singapore Airlines,

Siemens-Nixdorf, Daimler-Benz, and Ford Motor Company.

Gupta's second generation development and deployment environment known as Centura, was launched in January of 1996 and plans are underway to rename the company in line with this new range of products to Centura Software Corporation.

Gupta Australia Pty Ltd. is a subsidiary of Gupta Corporation. The Centura range of products, service and support are available through its Authorized Business Partners, AlphaWest Pty Ltd. in Western Australia, Maxim Technology Pty Ltd. in NSW, Object Laboratories in Queensland, Open Environment Australia Pty Ltd. in NSW, Victoria and the ACT, Powernet Client/Server Solutions in NSW, Xpedite Professional Services Pty Ltd. in Victoria and South Australia and Delta Software Ltd. in New Zealand.

Upgrades to new products as well as updates and maintenance releases to Gupta's full line of products are available solely through these Gupta Business Partners.

###

In Australia, contact Roy Brady.

**Contact for U.S. press inquiries:**

Kirsten Kappos  
Shafer Public Relations  
(415) 989-0595, ext. 103  
E-mail: [Return to top](#) | [Return to home page](#)

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## Centura White Paper

# Challenges in Next-Generation Client/Server Application Development and Deployment

### ABSTRACT

As information systems gain strategic importance, IS organizations face the challenge to create larger, more scalable client/server applications that connect to diverse data sources across the globe. Development teams need more powerful software that is flexible enough to support emerging application architectures such as three-tier, and to embrace the new challenges of the Internet. This white paper examines these new challenges and discusses the technology required to help developers **scale up** their applications, **reach out** beyond the corporate LAN, and **connect it all** -- from corporate data to mobile users.

Click here to [download this document](#). (File is in Microsoft Word format, zipped.)

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#### Introduction

#### I. The Challenge to Scale Up

Manage large development teams without a decline in productivity

Maintain high performance, even with more end users

Deliver applications more quickly without compromising maintainability

#### II. The Challenge to Reach Out

Interact with others directly from core MIS systems

Publish SQL data for widespread yet secure end-user access

Extend application usage with secure access by occasional end users

#### III. The Challenge to Connect it All

Decentralize beyond the corporate perimeter

Integrate diverse databases yet access all their advanced features

Design databases and develop stored procedures easily

#### Conclusion

## Introduction

### Information systems are gaining strategic business importance

More than ever before, information is a strategic corporate asset that businesses can translate into significant competitive advantage. As we move into the next century, the reliance of businesses on information systems will increase. To fully harness the power of information in today's highly competitive economy, companies need to build better information systems in less time.

In the late 1980s and early 1990s, client/server technology spawned a revolution in information systems delivery. The early years of client/server resulted in so-called "first-generation" systems. Although not without shortcomings, these systems have conclusively demonstrated adequate business benefits to warrant the adoption of client/server for a broader and more challenging set of information

flexible architecture upon which information managers can rely into the next century.

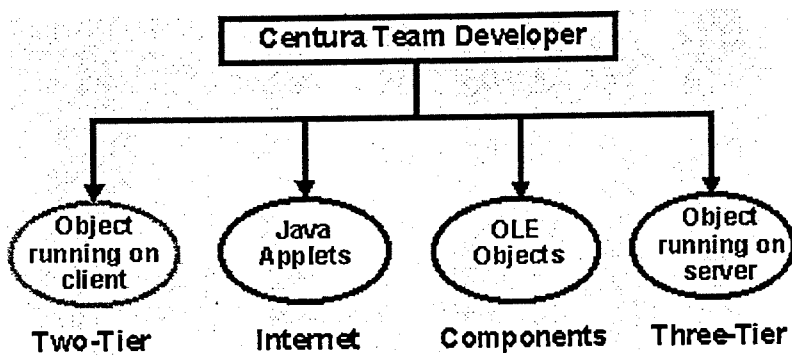
## Centura meets the next-generation challenge

The Centura product family was specifically designed to meet the rigorous challenges of next-generation application development and deployment. It embodies a unique, flexible architecture that was refined based upon the experiences over the last 10 years of more than 100,000 developers and a million end users worldwide. While Centura's next-generation technology offers all the power and scalability promised by contemporary second-generation environments, it surpasses them because it does not sacrifice the benefits customers appreciated most in first-generation products.

The power, scalability and richness of Centura is within the reach of most customers. It's easy to use (featuring a new, intuitive graphical user interface) and offers a small footprint, open architecture, backward compatibility, and broad-based community support from third-party vendors. Centura's unprecedented power and scalability is within the reach of the majority of users today. And Centura's flexible application architecture, unique among development and deployment environments, protects a company's investment in information technology.

Because of the proliferation of complex technologies in recent years, many customers -- and even industry experts -- simply are not sure which technology will dominate the next century. Will it be a two-tier or three-tier world? Will it be a world based on OLE components or on Java applets?

To protect the investment businesses will make in valuable information systems, Centura's flexible architecture insulates customers from technology shifts. Centura will include a Java-based interpreter acquired from JavaSoft, a division of Sun Microsystems. This means that Centura-based applications can be deployed in any architecture, including two-tier or three-tier, and can embrace both OLE component and Java applet technologies. This means your information systems will continue to thrive into the next century, no matter which direction the technology shifts.



*A flexible architecture underlies Centura, ensuring that your applications are compatible with all major technologies of the present and future.*

## A comprehensive product line meets current and future needs

The Centura product line includes several key products that meet all your business needs, both today and in the future.

system challenges.

Now, client/server technology needs to build upon its successes and vault past its failures. To help businesses use information better than they have ever before requires the *next generation* of client/server applications.

## The challenges for next-generation client/server systems

How can the next generation of client/server systems meet business needs? First, they should automate more complex business processes and reliably support more end users. In other words, they need to scale up to deliver more functional and more widely deployed business solutions. Second, they need to encourage teamwork within the organization and help strengthen relationships with customers, suppliers, distributors, and others outside the organization. Therefore, they should reach out to all entities involved in the business process, ranging from the customer to the CEO. Finally, they need to work together in a highly integrated manner to place all information resources at the command of decision makers and staff members. To do that, next-generation systems must connect it all - integrate the disparate information technologies throughout an organization to deliver greater business value than could be achieved if these technologies were used separately.

In summary, if next-generation client/server systems *scale up*, *reach out*, and *connect it all*, they will deliver unprecedented business benefits that result in measurable and sustainable competitive advantage.

## Next-generation systems should encompass first-generation merits

How will next-generation systems be built? Clearly, next-generation systems require more capabilities than were available with first-generation solutions, including more

- Power
- Scalability
- Robustness
- Performance
- Links to the Internet and groupware systems
- Integration of disparate technologies in the enterprise

At the same time, these systems must deliver a new set of capabilities without sacrificing the benefits that first-generation solutions have delivered in recent years.

While a few vendors claim to offer new products based purely on "second-generation" technology, these products invariably do not offer the benefits first-generation products clearly deliver, including, among others,

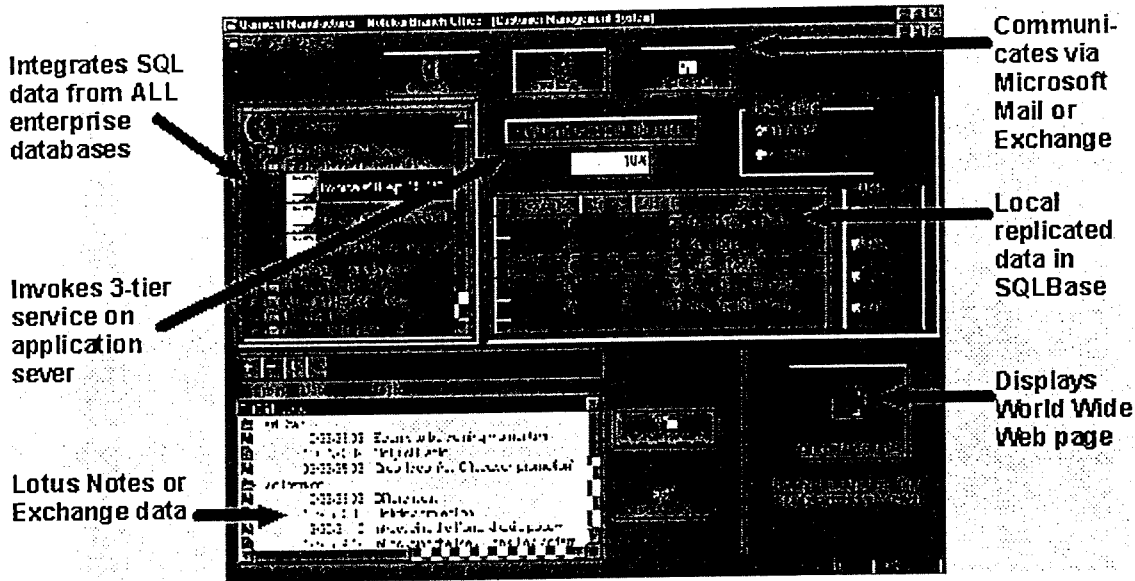
- Ease of use
- Small footprint
- Open architecture
- Large installed base
- Cost effectiveness and others

Without first-generation benefits, the client/server environment is beyond the reach of mainstream customers. The challenge to vendors of application development and deployment solutions is to offer a next-generation system that is within the reach of most developers and end users, and that has a

Centura Team Developer's scalability and power derive from a carefully designed, repository-driven, component-based architecture that you can rely on to build whatever kinds of applications your business will demand in coming years..

## Centura applications offer unrivaled flexibility

Centura applications give you the flexibility to reach out beyond the traditional boundaries of the corporate network to integrate emerging technologies such as the Internet, as well as groupware systems including electronic mail, Lotus Notes, and Microsoft Exchange. Centura applications can work with data in different databases, and are capable of replicating data between different end-user locations, whether users are on the road with mobile laptops, in the branch office, or at corporate headquarters.



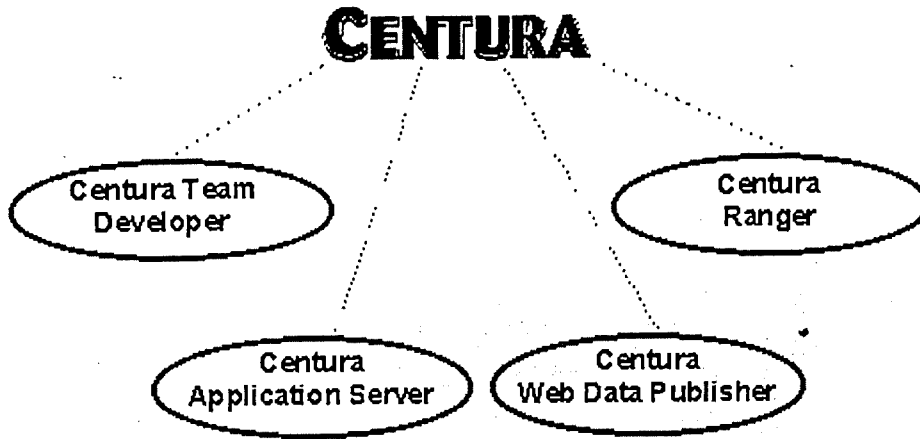
With Centura, you can build versatile applications like these. Scale up with three-tier integration with application servers. Reach out to customers and colleagues with links to the Internet, e-mail, Lotus Notes and Microsoft Exchange. Connect it all with data replication and advanced SQL database connectivity.

The remainder of this document examines in greater depth the challenges of next-generation client/server application development and deployment, and how Centura meets them.

## I. The Challenge to Scale Up

Many client/server projects completed to date using first-generation products have been small- or medium-scale projects built by a small development team. Typically, these applications were much less complex than systems built in the past on minicomputers or mainframes, and supported a relatively small number of concurrent end users. Today, customers want to build more complex client/server systems. Larger teams of developers must deliver applications that manage significantly higher end-user workloads, while delivering fast response time, in both concurrent and decentralized situations.

First-generation applications also often necessitated a trade-off between rapid delivery and long-term maintainability. For success with large projects, long-term maintainability is important. Developers have successfully employed object-oriented programming (OOP) to enhance productivity and simplify application maintenance. But as projects grow larger, OOP poses new challenges in managing hundreds or thousands of objects. Next-generation application must scale up to support dozens of



*Centura offers a comprehensive and robust product line to help you scale up, reach out, and connect it all.*

**Centura Team Developer** is a powerful, component-based application development environment with features that deliver tremendous application scalability, Internet integration, and the ability to connect all your databases and users.

**Centura Ranger** delivers universal data replication facilities that can synchronize disparate corporate or mobile databases. Ranger's unique technology allows developers to embed this functionality in applications developed with any OLE-compliant development tool, including Centura Team Developer.

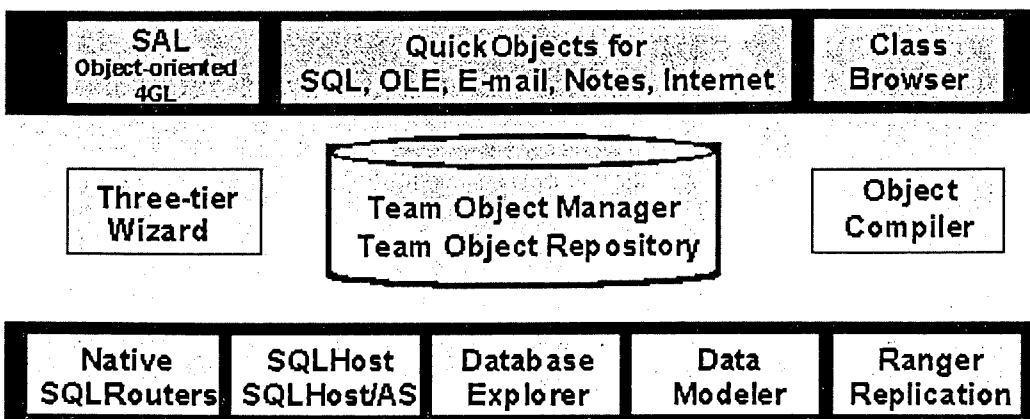
**Centura Web Data Publisher** allows organizations to easily and securely publish data from corporate systems over the Internet or Intranet.

**Centura Application Server** provides application partitioning facilities, allowing developers to achieve unprecedented performance and ease of administration.

## A repository-driven, component-based architecture

Centura Team Developer's architecture is scalable, repository-driven, and component-based. Teams of developers can collaborate to develop large-scale applications to deploy to hundreds of end users in a two-tier or three-tier architecture. These applications can also integrate Java applets.

Full support of object-oriented programming and the OLE component standard ensures maximum productivity without sacrificing maintainability. Compilation to native machine code insures high performance, no matter how complex the business rules in the application are.



developers, hundreds of end-users, thousands of objects, and both centralized and decentralized configurations.

## Manage large development teams without a decline in productivity

As the size of a project and its development team grows, it is common for productivity-per-developer to decline due to information overload and communication breakdown. In large projects, team members create more code fragments or "components," manage more data items, and must track more relationships among components or data items. The amount of information increases exponentially with project size.

In object-oriented projects, it is especially important to manage the sharing and reuse of objects. A key promise of OOP is greater productivity through increased reuse, rather than re-creation, of code. Team members should share and reuse components among themselves, thereby leveraging each others' efforts and skills.

In a typical large corporate environment, the development team will create thousands of reusable objects. This raises countless questions. Can we reuse components between unrelated projects? Where do we store these objects for easier sharing? How can we identify the relationship of one to another? What is the impact of changing one object on the others? In smaller applications it is possible to track such information manually. However, the complexity of large projects calls for automated management facilities based on a shared object repository.

**Requirement:** To support large teams in large-scale projects, a next-generation environment should be based on a shared object-oriented repository with comprehensive object and project management tools.

Centura includes the industry's most comprehensive and powerful team and object management environment called Team Object Manager. Based on a shared team object repository, it allows you to manage large projects with dozens of developers, hundreds of end users, and thousands of objects. Unlike other development environments that claim team programming support but support only external version control through third-party tools such as Intersolv's PVCS, Centura not only offers built-in version control support, but goes far beyond it to include features such as

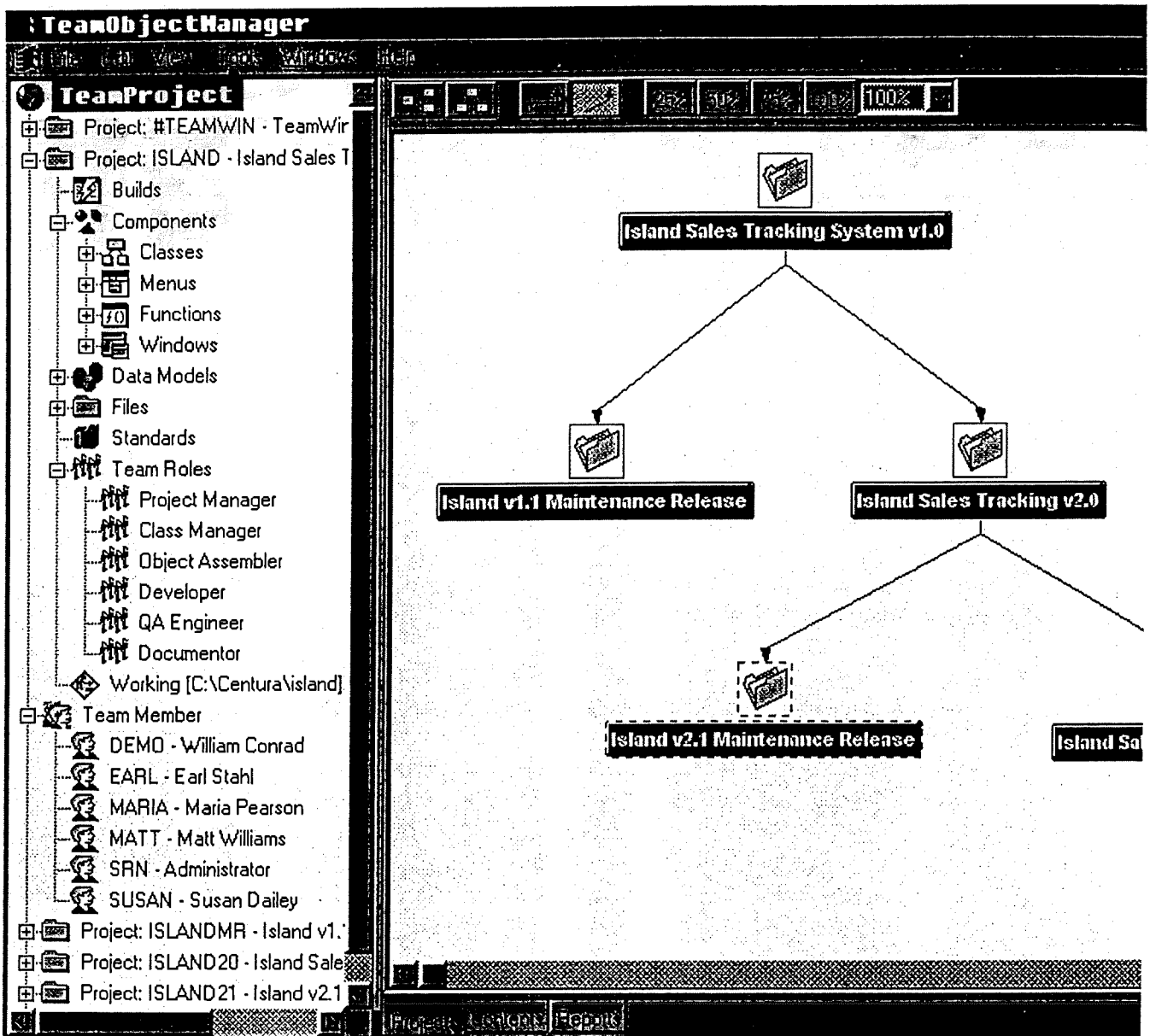
- project branching
- diff and merge
- coding standards management
- deployment management
- impact analysis
- audit trails
- management reporting

For openness, it also supports PVCS. Team Object Manager is a truly comprehensive project and object management environment -- a project manager's dream come true.

### Controlling versions

Project and configuration management is easy with Centura, even when you are working with multiple versions of a project. The project branching feature allows you to work on multiple versions concurrently. For example, after developing version 1 of an application, you might want to simultaneously work on version 1.1 and version 2. With Centura, you can visually branch your applications. Sophisticated version control at the file and object levels ensures that all your team members can securely coordinate their work, no matter how large the project.

Since the typical application development team includes members with different roles, Centura allows you to assign and manage roles and privileges to various team members.



*Centura's Team Object Manager offers comprehensive project and object management features that let you manage large-scale projects. Your projects can span multiple versions, dozens of developers, and thousands of objects.*

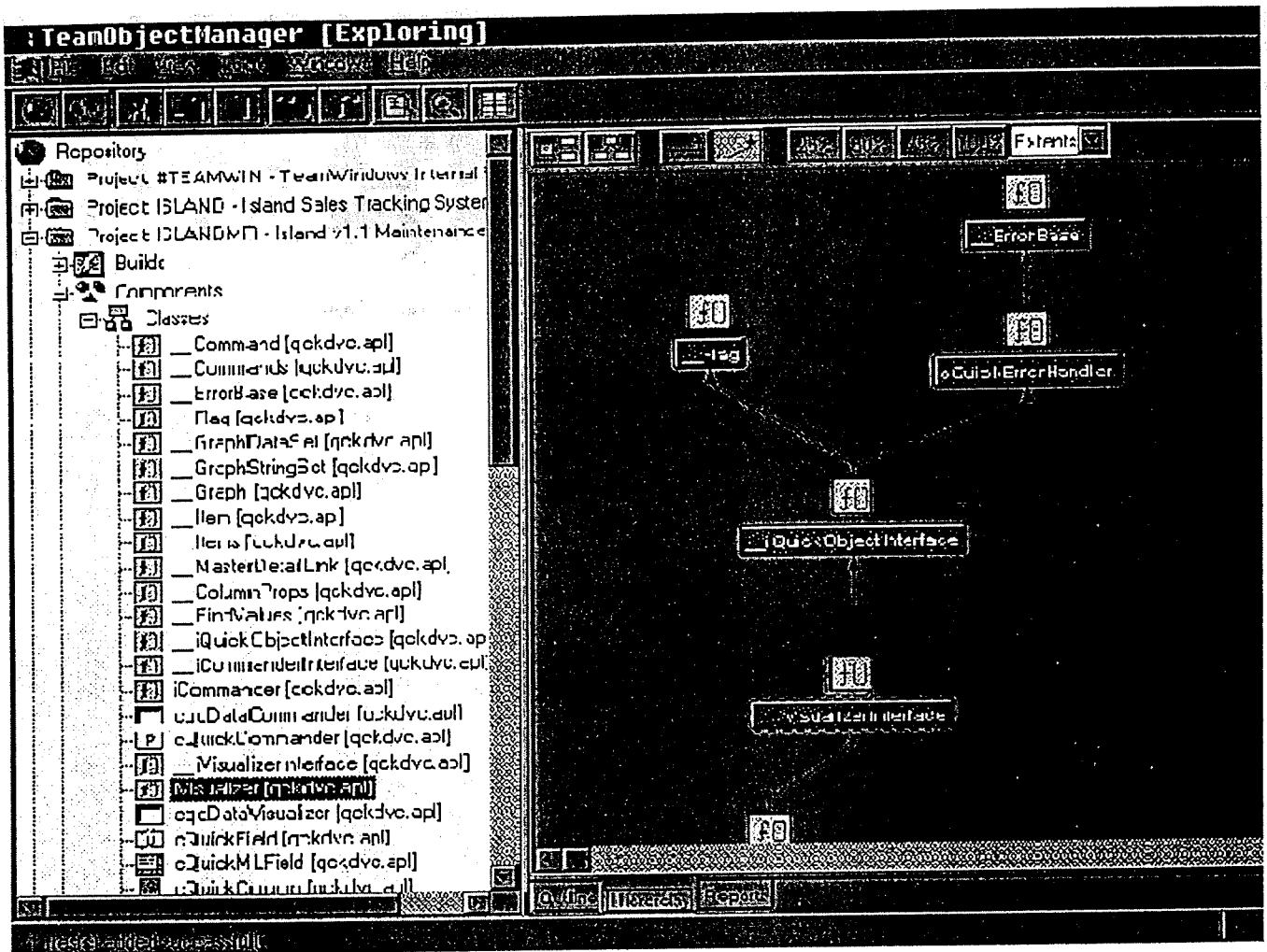
## Automating deployment

Deployment of large applications is a challenging task due to the many files involved, especially when a large development team is developing multiple versions of an application concurrently. Centura simplifies application deployment with its build management feature. You can specify how different files come together to constitute a deployable application, and create executables to go with them. By automating the deployment process, Centura minimizes deployment errors and ensures end-users are up and running robustly in the shortest time possible.

## Managing objects

Managing objects poses a special challenge that goes beyond ordinary project management. Centura's

comprehensive object management features include a graphical class browser that visually describes inheritance relationships among objects and classes, management reports that detail where an object is used in an application, ownership information on objects, the assignment of separate roles to team members who function as class engineers or object assemblers, version control of objects, and much more.



*A graphical class browser simplifies the management of complex object inheritance hierarchies, leading to greater productivity and fewer design errors. Visually manage both single (multi-level) inheritance and multiple inheritance with the easy-to-use class browser.*

## Maintain high performance, even with more end users

### Scalability benefits of a multitier architecture

Your choice of application architecture -- two-tier or three-tier -- have an impact on scalability and performance. Unlike a two-tier architecture, in which all application logic resides on the client, in a three-tier or multitier architecture, application logic may be distributed between a client and one or more powerful application server machines. The benefits of such an architecture include 1) faster performance (because complex application logic is executed on a more powerful machine) and 2) the ability to support more concurrent end users (because the architecture potentially generates less network traffic). In addition, application maintenance is simpler. Code common to multiple clients can now be centralized, with changes made at a single location benefiting all clients.

### Performance enhancements of native compilation



Regardless of whether you employ a two-tier or three-tier system, there's no doubt that a sluggish system will inhibit end-user productivity. Therefore, applications should run quickly, even when the application logic includes complex computations, and regardless of whether that logic is located on the client or an application server. Most large-scale applications are developed today in 4GLs, which are inherently slow, because they are interpreted at pseudo-code level rather than compiled down to native machine code. 4GL performance can be significantly enhanced by native compilation of compute-intensive processes.

## Support for decentralized scalability

Today, scalability is required in both centralized and decentralized configurations. Many mainframe applications deliver a high degree of centralized scalability. They support hundreds or thousands of concurrent end users. In the centralized computing paradigm of past decades, support for decentralized scalability was not an important concern. However, as decentralization sweeps through corporate organizational structures, and client/server technology decentralizes IS infrastructures, the need to support a large number of concurrent but decentralized end-users has become much more important.

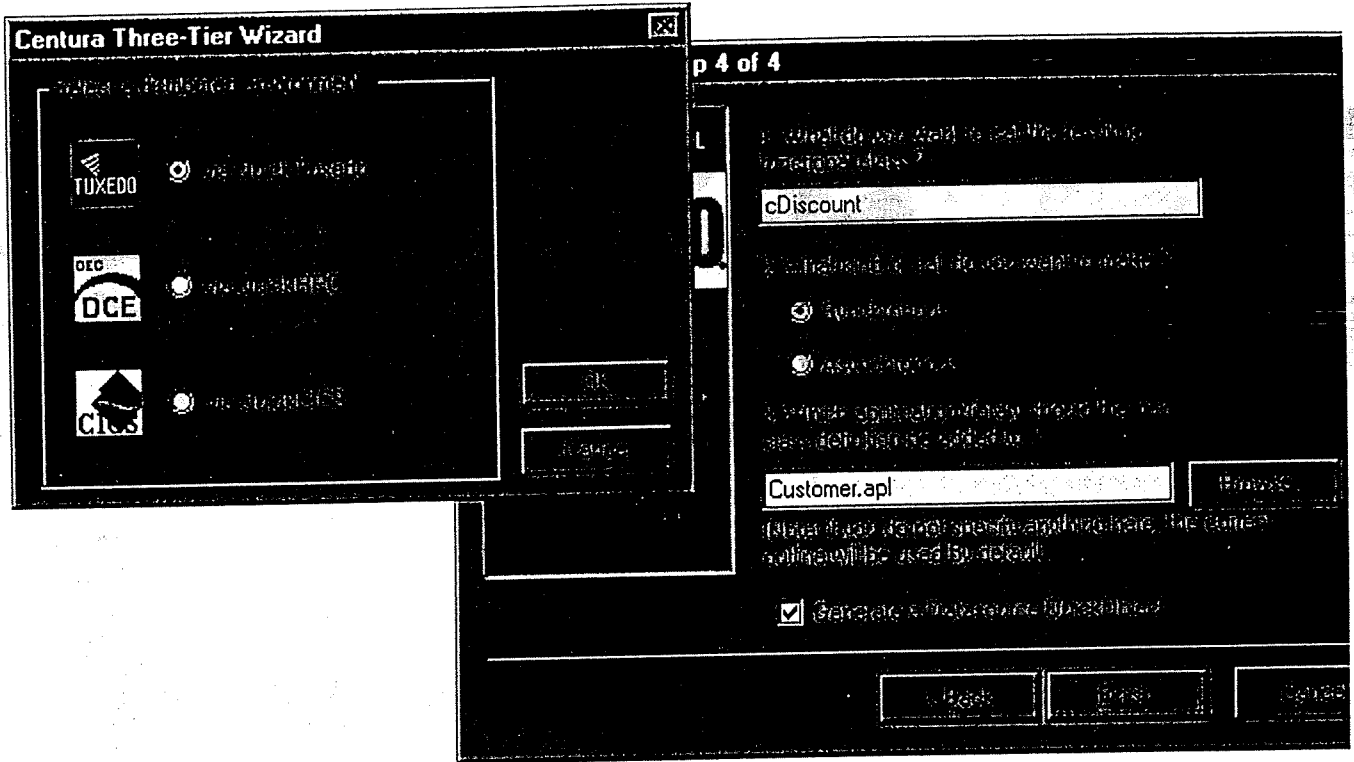
Some of the requirements for achieving decentralized scalability differ from those for centralized scalability. In a decentralized environment, the data staging architecture of the system is as important a consideration as application architecture. You can improve overall system throughput by decentralized data staging. This requires support for heterogeneous data replication (described later in this paper). Decentralized scalability also requires the ability to manage transactions involving multiple data sources distributed across the decentralized organization, relying on facilities such as transaction processing monitors.

**Requirement:** To help customers build more scalable applications, a next-generation environment should support advanced features such as a three-tier architecture, application servers, integration of transaction processing monitors, and native compilation. Not only should it address scalability in application architecture, but also should promote scalability through decentralization of data across a set of replicated sites.

Centura lets system architects choose whether to employ a two-tier or three-tier application architecture. The sidebar on that follows discusses when to consider each.

## Centura makes it easy to implement a three-tier architecture

A key feature that enables Centura's three-tier architecture is the new and innovative Three-Tier Wizard, which steps the developer through the task of building a three-tier application. With the Three-Tier Wizard, developers can create scalable applications using a range of application servers without complex programming. For example, a developer can use the Three-Tier Wizard to integrate a Centura application with a Novell TUXEDO-based application server. The Centura TUXEDO Application Deployment Suite manages transactions between the client application and TUXEDO server. The Wizard makes this possible without requiring the developer to write a single line of code in Centura.



*Use Centura's unique three-tier wizard to access distributed services like transaction processing monitors or DCE application servers. With this easy point and click wizard, Centura greatly simplifies three-tier development.*

### Which To Use: Two-Tier or Three-Tier Architecture?

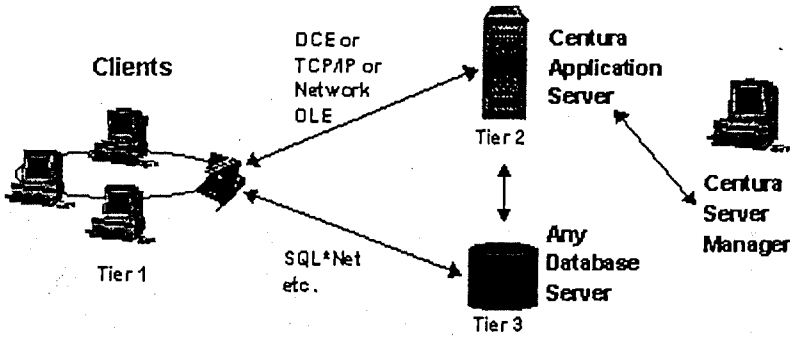
Both two-tier and three-tier architectures offer attractive benefits. Which to use depends on such factors as the complexity of your project, the skill of your staff, and your delivery deadline.

While many applications are best implemented with two tiers, very large applications can benefit from a third tier. The key is to weigh the costs of a three-tier setting against projected benefits. For example, you should ensure that excessive network traffic or an extra software layer does not reduce application performance or lower overall network throughput.

Another consideration is the skill level of developers. Generally, two-tier applications require less skilled developers than do three-tier applications. However, with a tool such as the three-tier wizard in Centura, which minimizes the difficulty inherent in developing scalable three-tier applications, developer skill can be a smaller factor in your decision.

### Flexible application partitioning

The Centura Application Server will allow flexible application partitioning. Developers can create a Centura application independent of the deployment configuration, and, before deployment, can partition the application to execute on different machines. Typically, Centura developers will place business rules and other data management code in a "business object," which is implemented in Centura using the functional class feature. This business object, which is written in the same Scalable Application Language (SAL) as the rest of the application, can be partitioned to run on a database-independent application server. The network interface between the client and remote business object is managed automatically using the Centura Application Server via use of Remote Procedure Call (RPC) mechanisms based on DCE, TCP/IP, and other industry standards.



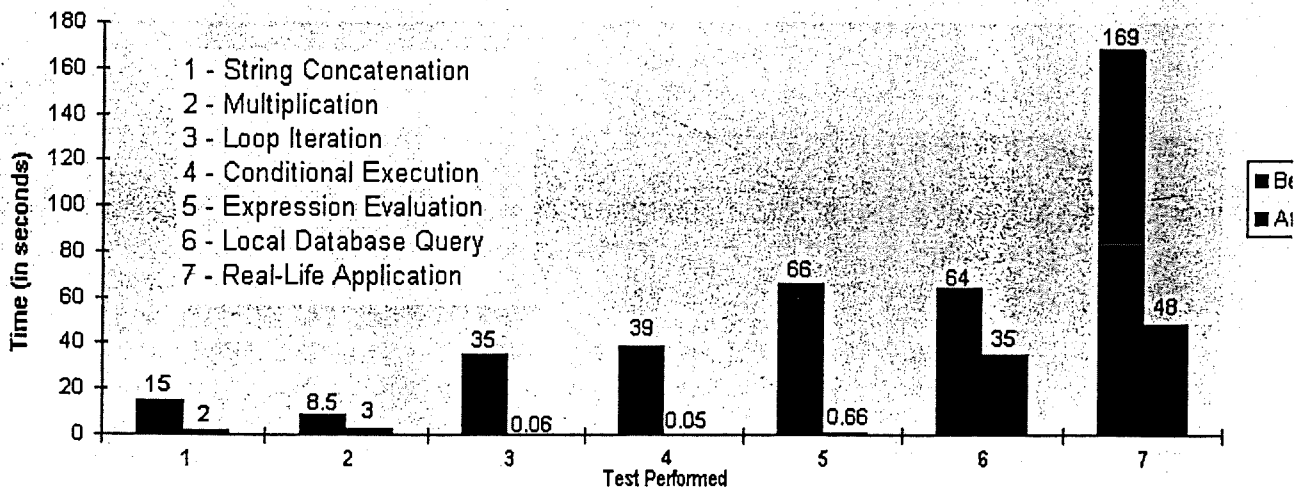
*Centura's application server architecture is based on industry standards and offers practical application partitioning. Now you can support more concurrent end users while reducing your application maintenance burden.*

What are the benefits of using Centura's three-tier architecture?

1. Given Centura's present and future support of this architecture, developers are now encouraged, but not forced, to separate the graphical interface (tier one) from the business logic (tier two) and the database layer (tier three), resulting in more modular and maintainable application design.
2. The Three-Tier Wizard makes it easy to integrate with transaction processing monitors and with DCE, TCP/IP, or other industry standards based application servers.
3. The Centura Application Server will pave the way to locate each tier of an application on any popular hardware, including locating each tier on a separate machine.

All this results in greater application scalability, improved performance, greater network security, and easier administration than can be achieved with a simpler, two-tier application model.

Finally, it is important to note that three-tier architecture alone can not deliver application scalability. Other critical prerequisites for scalability are robust object orientation, repository-based team support, project management tools, high performance through compilation of business rules to native machine executables, native links to databases, and a three-tier data architecture, all of which are described in the sections that follow.



*Performance testing of the Centura Object Compiler showed impressive gains offered by compilation to native machine code. Now Centura applications run quickly, no matter how complex the business*

logic.

## Deliver applications more quickly without compromising maintainability

First-generation applications often required a trade-off between rapid delivery versus long-term maintainability. Is it possible to retain the benefits of rapid application development while delivering easily maintained next-generation applications? The answer is yes, if you take advantage of pre-built objects and object-oriented inheritance.

Client/server developers can specialize (see sidebar on the following page) as "object creators" who employ object-oriented programming to produce reusable objects. "Object assemblers" can then reuse and combine pre-built objects using techniques like single inheritance through multiple levels (also known as multi-level inheritance) and the more powerful form of inheritance -- multiple inheritance. By reusing pre-built objects, an object assembler can rapidly deliver an application prototype. When the application needs to be modified or scaled up, the object assembler can extend the prototype by refining its constituent objects using inheritance, or by adding new objects. Using inheritance eliminates the discontinuity between early and subsequent versions. In particular, multiple inheritance allows the combination and reuse of dissimilar objects -- coming in handy in dealing with previously unforeseen scenarios.

**Requirement:** To maximize short-term productivity without compromising long-term maintainability, a next-generation environment should include pre-built objects and implement both multi-level and multiple inheritance to benefit both the object assemblers and object creators on the project team.

### The emerging role of object creators and object assemblers

Object-oriented specialization is an emerging trend certain to reshape the future of application development. Today's client/server developers perform a broad range of tasks, ranging from writing database transaction management code to piecing together the final application to meet business needs. In the same way labor specialization delivered a significant productivity boost to manufacturing and other industries decades ago, specialization in application development tasks will boost both short-term and long-term productivity.

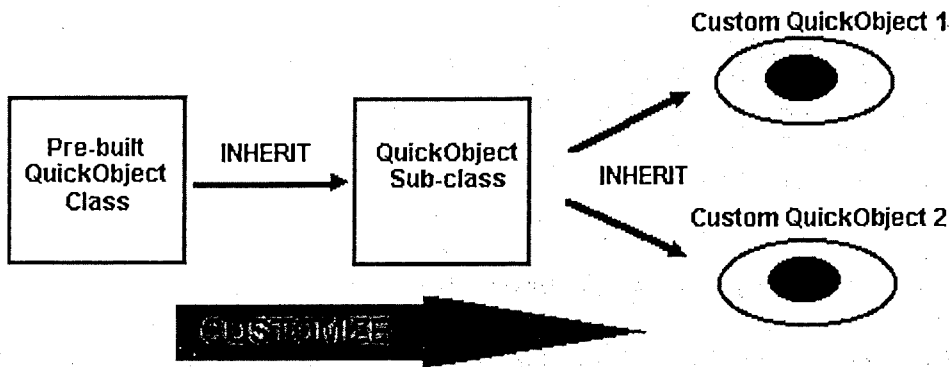
Client/server developers are likely to specialize as *object creators* or *object assemblers*. Object creators will be employed by vendors of development tools, other independent software vendors, and by some IS departments. They will have specialized knowledge of issues related to database transaction management, operating system integration, and other application-independent technologies. Object assemblers will be business solution-oriented rather than technology-oriented, and will be employed by the IS department and other functional departments. They will have specialized knowledge of the functional areas of the business, and a keen understanding of end-user needs. In short, the object creators will produce building blocks, which the object assemblers will assemble into user-friendly solutions that precisely meet business needs.

Centura's next-generation object-oriented technology includes dozens of pre-built objects called QuickObjects, which get you started with application development quickly. Since each of these QuickObjects has code inside, you can start developing applications without writing code, and minimize the amount of time you spend coding and debugging. Now, object assemblers can become productive instantly because QuickObjects are versatile -- they include functionality for automating these the following processes and more:

- Database transaction management tasks such as commit and rollback
- Data visualization tasks such as the use of drop-down list boxes and radio buttons

- Integration with OLE objects
- Code-free access to e-mail, groupware, and external systems such as the Internet

Most importantly, QuickObjects were written in Centura's Scalable Application Language (SAL). The source code to implement them is fully documented and automatically included in Centura. This means that you can clearly understand how QuickObjects operate and flexibly modify or extend their behavior using object-oriented inheritance. The object creator can also develop custom QuickObjects. QuickObjects grace Centura with a unique combination of power and ease.



*Centura's QuickObjects architecture brings instant productivity even to novice developers. You can also powerfully extend QuickObjects with inheritance, and can customize or enhance them to your specific business needs.*

### **Centura's advanced inheritance model**

To maximize object reuse and application maintainability, Centura includes an advanced inheritance model. Like some other development environments, it includes single inheritance through multiple-levels, also known as multi-level inheritance, which lets you can easily modify or extend the behavior of any Centura object, including QuickObjects.

Centura also includes unique support for multiple inheritance, which maximizes the reusability of objects -- and consequently the productivity of developers. With multiple inheritance, it is easy to combine dissimilar or unrelated objects to create new, more powerful objects. Centura is unique in its support for advanced multiple inheritance, delivering unmatched developer productivity and application maintainability. With Centura, the object assemblers and object creators in your organization can team up to deliver robust applications quickly.

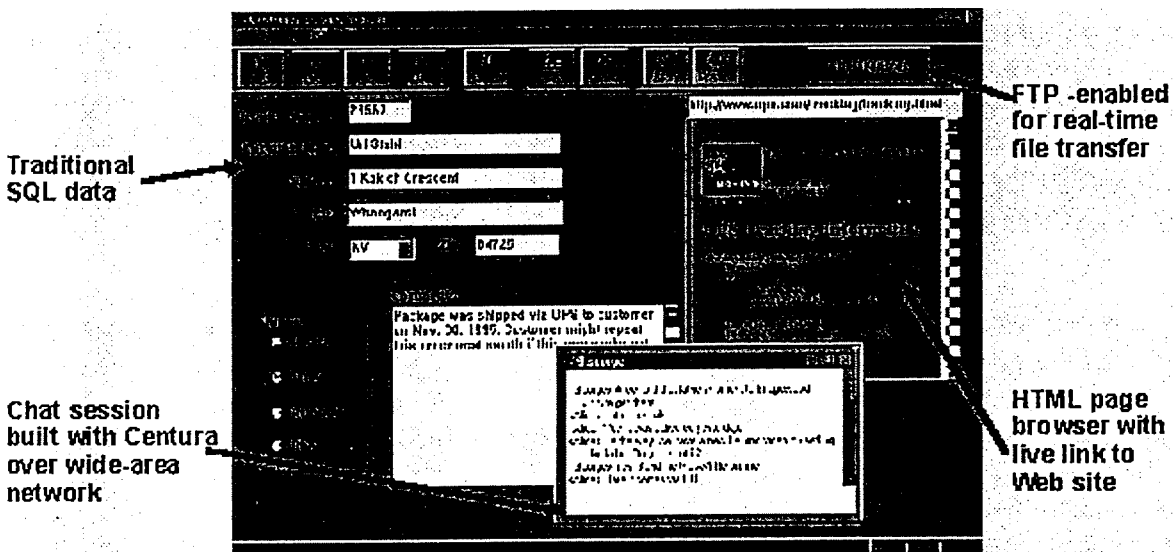
development environments support the popular new Java programming language? Can integrated applications work with structured data in SQL databases -- and also go beyond SQL to simultaneously integrate unstructured data in e-mail and groupware systems? How will MIS and end users benefit from all these new technologies and possibilities?

**Requirement:** To enable end users to directly interact with colleagues and customers, a next-generation system should include features to integrate core MIS applications with person-to-person interaction technologies like e-mail, Lotus Notes, Microsoft Exchange, and the Internet.

Centura will allow you to develop applications that manage traditional SQL data and that integrate with Internet and other groupware data, all with a single, seamless, data-rich user interface. Not only can you access the Internet and Intranet, you also can integrate with groupware systems such as e-mail, Lotus Notes, and Microsoft Exchange.

The technology that makes this is the Internet QuickObjects technology in Centura Team Developer. With QuickObjects such as HTML display QuickObject, an HTTP parsing QuickObject, and an FTP QuickObject, you can build applications that integrate Web data and SQL data with the same user interface as SQL data. Other QuickObjects support integration with popular e-mail systems such as Microsoft Mail and Lotus cc:Mail, and link to groupware tools such as Microsoft Exchange and Lotus Notes.

Since QuickObjects are ready-made objects that already have code inside, you don't need to write any code to use these features. With just a few mouse clicks, you can enhance your Centura client/server application to reach out to customers and colleagues.

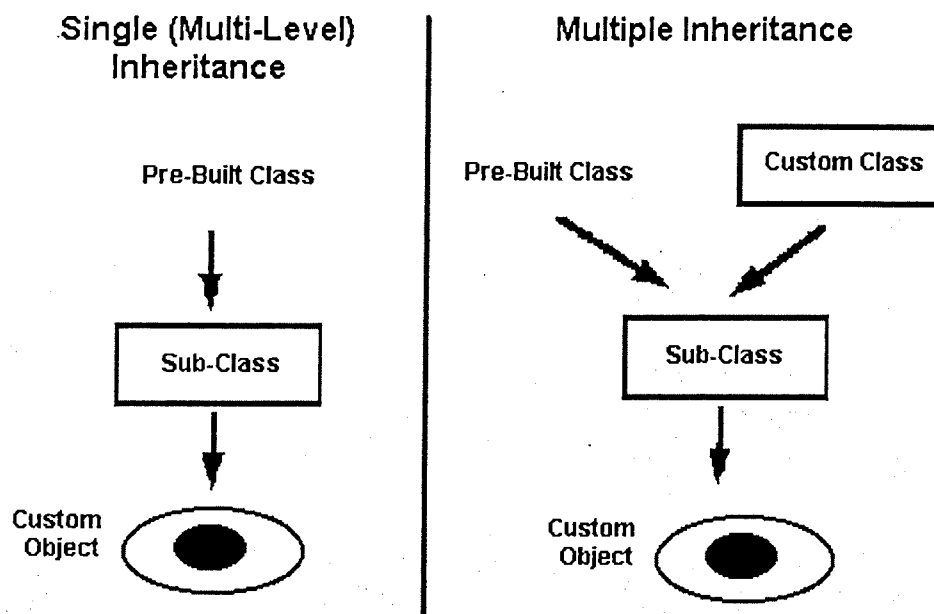


*With Centura's Internet QuickObjects, you can develop innovative applications like these. Browse Web pages, converse over chat sessions, or transfer files to remote locations -- all from within an integrated Centura application.*

## **Publish SQL data for widespread yet secure end-user access**

Most organizations today have large amounts of valuable data residing in SQL databases. The only way to access this data is to develop custom applications or use specialized database query and reporting tools. Although this works well, it assumes that the end-user has the appropriate software installed.

But what if you want to make that data accessible to users inside your company who do not have that



*Centura goes beyond simple, single inheritance through multiple levels. It uniquely offers powerful multiple inheritance to permit greater code reuse, and therefore maximizes developer productivity.*

Finally, Centura implements an open object model through the support of the OLE and OCX industry standards. You can easily incorporate into Centura OLE servers and OLE custom controls (OCXs), and manage them through features like OLE automation and menu merging. This allows you to integrate Centura with other desktop applications. Centura will also include OLE generation capabilities, allowing you to convert Centura objects to OLE automation server and OCX objects for use in other environments. With these OLE capabilities, your investment in Centura is fully protected against future changes in object technology.

## II. The Challenge to Reach Out

Modern businesses are critically dependent on the proper management of information. Most business processes operate on data to generate, transform or route information among employees, customers, suppliers, distributors and many others.

Today, business information is a competitive weapon, more so than ever before. Yet, most information systems inadequately leverage the power of data in their business activities. Now, next generation client/server technology provides end-users an opportunity to reach out to all people involved in the activities of the business and thereby better leverage information. By reaching out to customers, business partners, and others, corporations can improve customer service, enhance operating efficiencies, reduce the time to make decisions and, most importantly, embrace new business paradigms, resulting in sustainable competitive advantage.

### Interact with others directly from core MIS systems

The Internet and World Wide Web technologies have ignited the imaginations of many. Since the Internet serves as the world's largest WAN (wide-area network), users can now reach out not just across their workgroups but across the world.

The possibilities are intriguing, but the questions are many. How will client/server applications integrate with the Internet to deliver new business benefits? How will present-day application

application or query tool installed? What if a customer or business partner outside your organization needs access to that data? In both cases, installing the application or purchasing a query tool might be inconvenient or expensive. Since most users in the future will have easy access to a Web browser, wouldn't it be nice if you could set access privileges that would allow a Web browser to query your SQL database? You could enhance the value of your SQL data by publishing subsets of it to a wider audience, without special software requirements.

Another key issue in such a scenario is data security. You can achieve a certain level of security by encrypting the corporate data that is transmitted over networks outside your organization. You also can opt to keep your production databases behind the corporate security firewall, then replicate subsets of data to a smaller database. This smaller database resides outside the firewall and safely publishes data to the outside world, ensuring that your large corporate databases are totally secure from outside access.

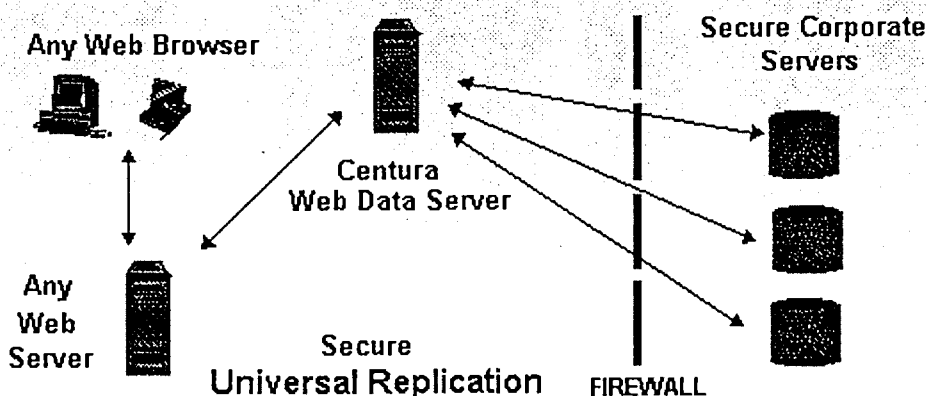
**Requirement:** To maximize the utility of data to a large end-user population inside and outside the corporation, a next-generation system should include easy-to-use data publishing features. Security should be preserved both in terms of the data transmitted over the network, and in terms of which databases end users can access.

The Centura product family includes the Web Data Publisher, which allows Web browsers to access SQL databases easily and securely.

Today, the only way to create an interface between a Web browser and a database is to write a lot of custom code in the HTML (Hypertext Markup Language) and CGI (Common Gateway Interface), both of which are primitive and difficult technologies.

The Web Data Publisher is an innovative product that dramatically simplifies the publishing of SQL data to Web users. Today, Web browsers can directly access only Web servers. The Web Data Publisher integrates Web servers with SQL databases by converting HTML commands into SQL statements and returning the SQL data in an HTML format, which the Web browser can conveniently display. By simplifying the interaction between Web clients and SQL databases, Centura gives you the power to make much better use of existing information and allows you to design innovative new solutions to meet business needs.

Since data security is of great concern to IS managers, and opening important corporate databases to Web-based end users poses security risks, Centura allows you to replicate data (using replication functionality described later) from popular databases like Oracle into a SQLBase database that lives outside a firewall. By protection your sensitive corporate databases in this manner, you can securely publish selected corporate data to Web users, building stronger links with customers and business partners.





*The Centura Web Data Publisher offers easy access to all corporate data, no matter which Web browser you use. Securely publish data from your corporate databases to customers and colleagues in remote locations.*

## **Extend application usage with secure access by occasional end users**

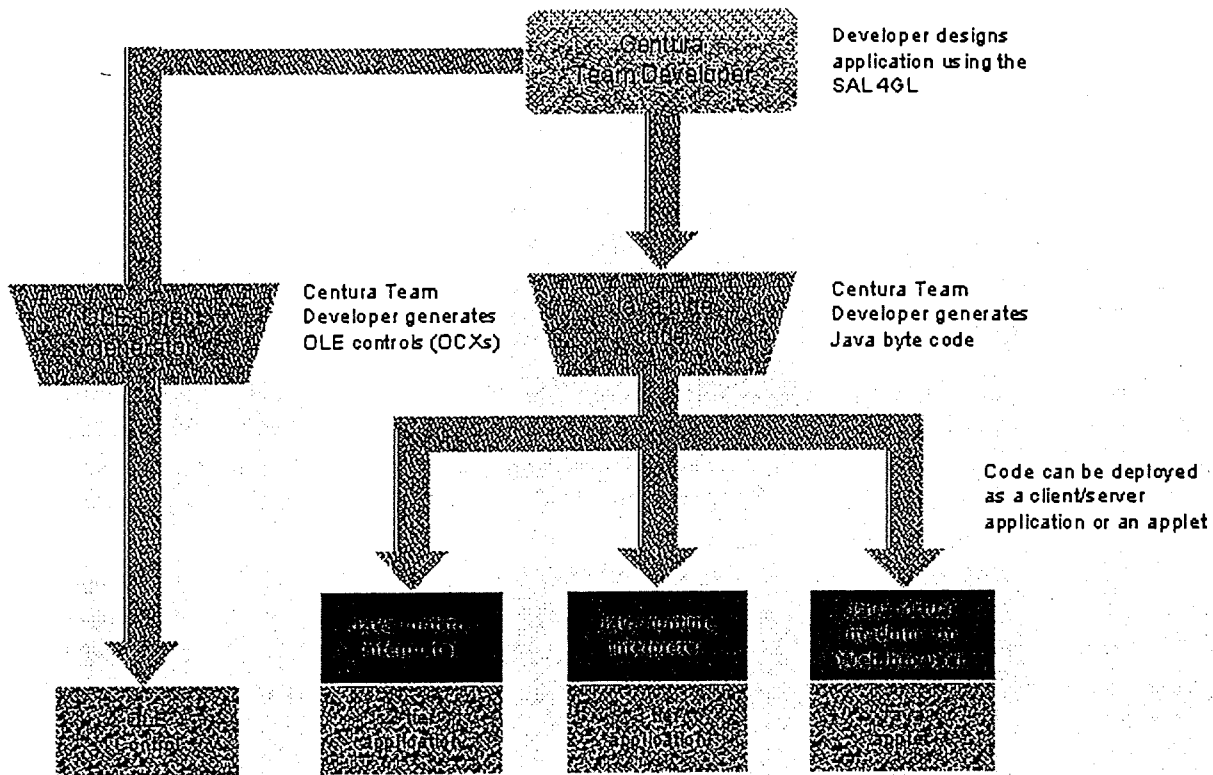
In addition to the end users who frequently use a set of data or execute an application, most businesses must accommodate end users who need to access data or execute applications but who are only occasionally connected to the corporate network.

For example, an employee in a large multilocation company may want occasionally to access the human resources (HR) database to view his or her vacation log, benefits accrued, and other such information. If users simply wants to browse such data, the Web Data Publisher solution outlined above is adequate. However, suppose you want a system that allows employees to update HR data with recent vacation information or change a contribution amount to the employee stock purchase plan. In these cases, the employee needs to interact with an application. If the employee and the HR database reside at the same location, the employee could invoke and execute the appropriate application from the LAN-based file sever. However, employees at remote locations may not have the application installed. Instead of requesting the necessary application from the IS organization (and waiting for help to install it), MIS to help install it, it would be much more efficient to provide the most recent application version or a subset of it for automatic downloading via the Web. The application could then be remotely executed over the Internet WAN using the HR database. Such a scenario extends application usage without increasing the software installation and maintenance for IS.

**Requirement:** To make corporate applications accessible to a large number of end users, both inside and outside the traditional corporate network boundaries, a next-generation system should allow developers to package applications to support occasional users, freeing IS from additional installation and maintenance chores.

Centura extends application usage to occasional end users with two alternative solutions -- (1) by conversion of Centura applications to Java applets, and (2) by integration with Open Environment Corporation's Internet launcher technology.

The Java interpreter, licensed from JavaSoft, is built into Centura. The benefit of this is the ability to convert Centura objects into Java applets -- portable self-contained programs that can be invoked by any Web browser on any platform. This means that even if an occasional end user does not have all the supporting files required by Centura installed on a workstation, he or she can invoke a Java applet that resides in a Web server. The applet is downloaded over the Internet and disappears after execution is complete.



*By integrating a Java engine, Centura will protect your application investment, no matter which way technologies shift in coming years. Java applet generation offers customers the flexibility to support occasional end users who can now access business data from any Web browser.*

As an alternative, Open Environment Corporation offers Entera Internet Launcher, a product that will integrate with Centura. Entera Internet Launcher will allow occasional users to download three-tier Centura applications from a remote Web server and execute them over the Internet. The Entera Internet Launcher will automatically download to the end user's workstation all the supporting files required to run the application. This means that occasional users can readily access Centura applications at a moment's notice, no matter where they are located.

### III. The Challenge to Connect it All

Over the years, most businesses have captured huge amounts of data in various storage systems. And new data continues to pour in at an even greater pace. Where is this data being stored? Is all of it accessible? Can it be readily shared? How much flexibility do you have in deploying, accessing and sharing this data? Can you gain competitive advantage or enhance operating efficiency by decentralizing data?

#### Decentralize beyond the corporate perimeter

Traditionally, data has been centralized in a few large databases, much of it at corporate headquarters. However, the location of data storage is evolving. Since the 1970s we have, for a number of business reasons, witnessed corporate organizational structures decentralize. Today it is common to find corporate headquarters operations supplemented by branch offices worldwide. To support this decentralized structure, data needs to be pushed out beyond headquarters, and all data locations need to be kept in sync.

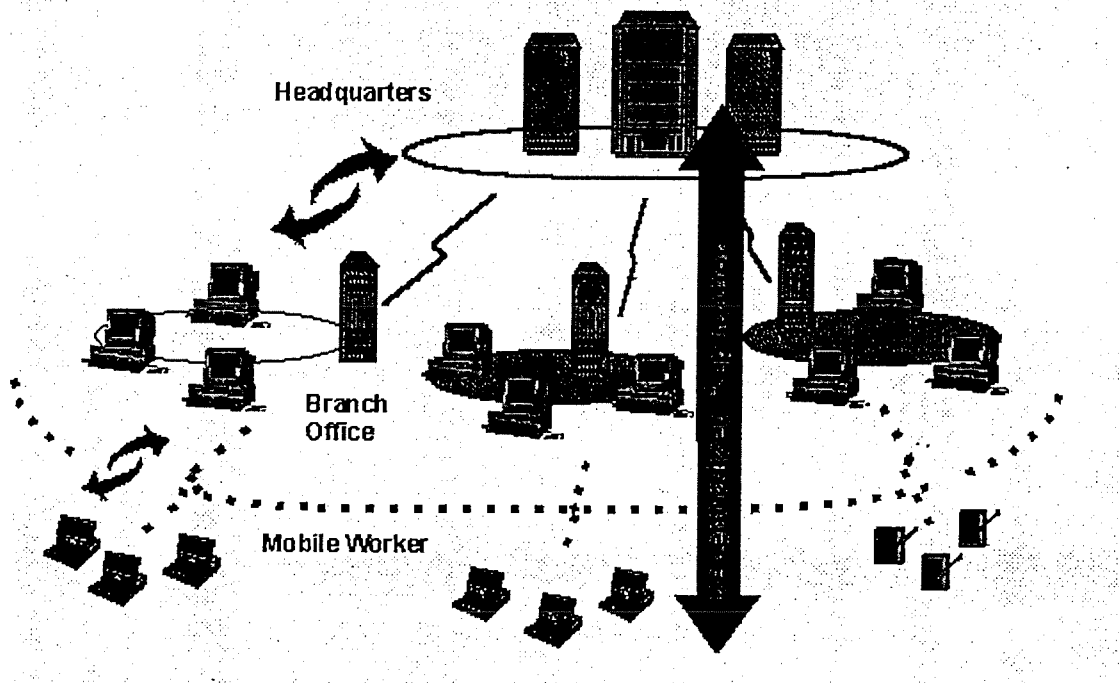
More recently, we have witnessed even more data decentralization with the emergence of mobile workers who take data beyond the traditional corporate perimeter. Even though they may be only occasionally connected to the branch office or headquarters, these workers want to be part of the

corporate data mainstream. And they want to use the same applications being used by employees on the corporate LAN. For example, the same application that connects to a mainframe database at headquarters should be usable by the mobile worker on a disconnected laptop running a local mobile database, which carries a subset of the data on the mainframe.

With data decentralization, data is pushed closer to customers, resulting in greater operating efficiencies while enhancing customer satisfaction. Better information support means quicker and better decisions and more customer data funneled back to management for improved policy making. The organization as a whole can be more responsive to customer needs.

**Requirement:** To help corporations push data closer to their customers, a next-generation environment should support data decentralization and heterogeneous replication. Workers at any location, even those beyond the corporate perimeter, should be able to use the same application and a consistent set of data, and any data conflicts across locations should be easily resolvable.

Centura Ranger includes universal data replication and allows you to decentralize your data and keep it synchronized throughout all locations using a publisher-subscriber model. For example, headquarters might be the publisher to several remote branch office subscribers. Or the branch office might be the publisher to several mobile worker subscribers. With the convenient publisher-subscriber model, you can take subsets of your enterprise or departmental data, no matter which vendor's database it lives in, and push it closer to the customer. Your branch offices will now be in sync with headquarters, and your mobile workers can be in sync with the branch office. Centura Ranger is ideally suited for integrating mobile systems with corporate systems because of its small footprint, ease of use, and compatibility with remote access software from third-party vendors. Note that by allowing the decentralization of data between headquarters, branch office and mobile worker tiers, Centura supports a 3-tier data architecture to complement support for its 3-tier application architecture discussed earlier.

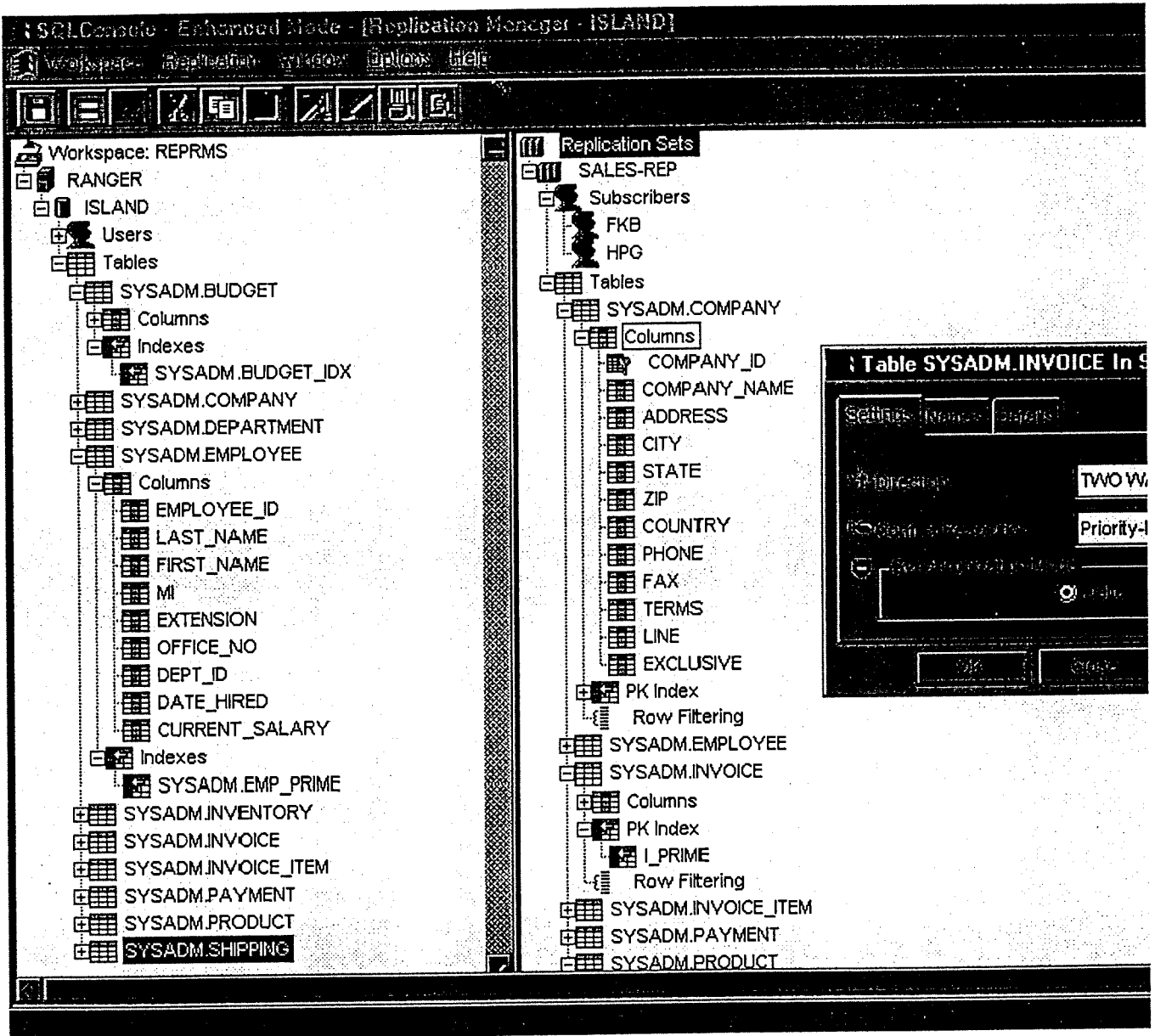


*Centura's Ranger replication technology enables you to manage a decentralized environment with data integrity. Universal replication to all popular databases is supported. Centura Ranger is also ideal for enabling mobile computing.*

Centura Software Corporation's SQLBase replication solution provides a store-and-forward replication solution specifically designed to support decentralized data, and allows synchronization to occur when appropriate. SQLBase replication supports heterogeneous databases and insures data integrity and

transaction consistency, even when transactions are performed against the same data on two or more different databases. It is well suited to support mobile or occasionally connected applications that perform transactions against a compact local database, then synchronize with a central database with the updates from those transactions, either through a LAN connection (when possible) or through a messaging service.

A complete solution, SQLBase replication provides point-and-click management and monitoring tools for easy implementation and administration. In addition, the synchronization process is programmable, meaning the application developer controls how the process is exposed to - or hidden from - the end user. The replication functionality is packaged as an OLE custom control (OCX) for ready access from any other environment that supports OCXs as well.



*You can very easily manage replication with Centura Ranger with an intuitive graphical interface. Even complex tasks like conflict management are automated through easy graphical setup.*

An important concern in any replicated data environment is the integrity of data. Centura Ranger insures data integrity in two ways. First, Centura Ranger replicates data by transaction, meaning no data is replicated unless the entire transaction is replicated. Second, Centura Ranger provides mechanisms to avoid data conflicts (when the same data is updated in more than one location) or to resolve them if they occur. Conflict management is implement through very easy to use graphical

facilities. Both automatic and manual conflict resolution techniques are available for maximum productivity and flexibility.

## **Integrate diverse databases yet access all their advanced features**

In most organizations today, there is no single storage format for data. Much data resides in modern relational databases, but even more resides in non-relational legacy systems like VSAM, DataCom, and others. Quite often, an organization purchases SQL databases from different vendors, resulting in incompatible data formats.

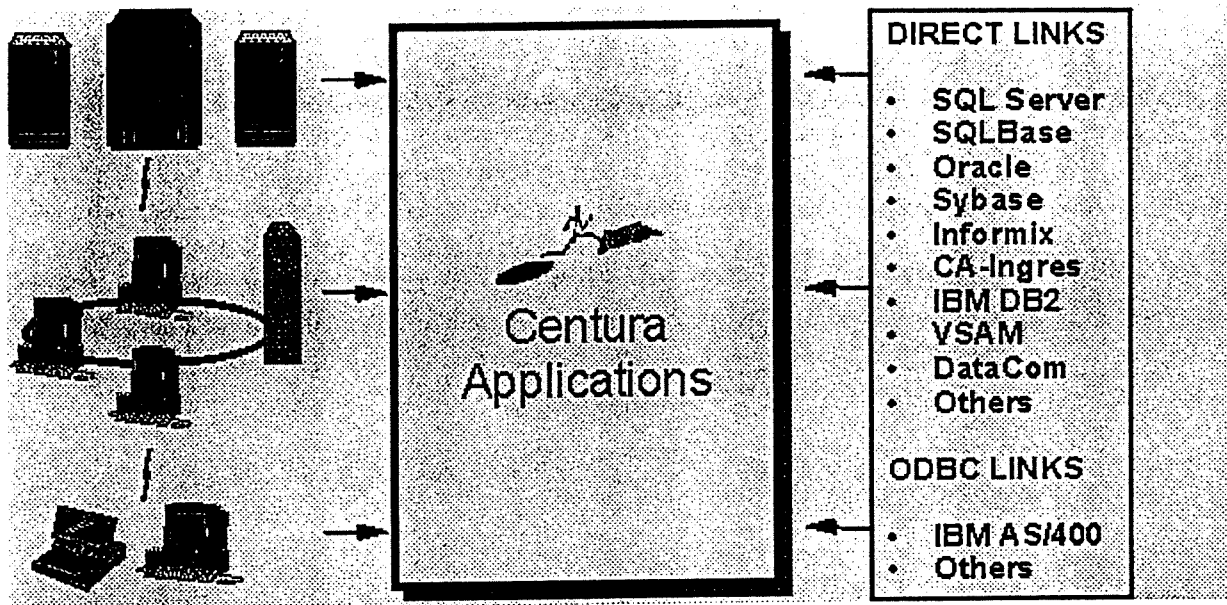
How can users access all this data without regard to its format? Some applications will need to simultaneously access multiple databases from the same application. How easy is it to convert an application that has been built against one database to operate against another database? Can you integrate multiple databases without sacrificing performance or advanced functionality? This is not an easy task because each vendor's database brand has unique features and is incompatible with other brands. For example, some databases implement ROWIDs, while others use timestamps. Locking models often differ. Differences like these and many others pose a special challenge to developers who want to access the advanced features of a particular database, and yet maintain application portability.

**Requirement:** The fractured, multidatabase environment of a typical organization requires that a next-generation client/server environment integrate with all popular databases, including mainframe and legacy databases. Applications should be able to access these data sources separately or concurrently, use all their advanced features, and switch among data sources easily without sacrificing performance or functionality.

The Centura product line gives you high-performance native connectivity to popular enterprise databases so you can make the best use of your data. Centura Team Developer includes high-performance native routers for Oracle, Sybase, Informix, and SQLBase that fully support all features of each database. These native routers yield higher performance than standards-based connectivity solutions.

Centura Team Developer also includes ODBC connectivity in those cases where the database vendor recommends ODBC as the native API. For example, Microsoft has implemented SQL Server's native API using ODBC -- so ODBC is the only way to connect to SQL Server. But in most other cases, the database vendor recommends the use of a native API, such as OCI for Oracle or CT-LIB for Sybase, rather than ODBC. In such cases, the native API is directly and fully supported.

Unlike other multidatabase solutions that take a "lowest common denominator" approach, Centura connectivity supports the "highest common denominator" Each database link is engineered as a separate router. The specific targeting of each database with custom links ensures maximum integration. Access to mainframe databases like DB2, and legacy data sources like VSAM, is directly supported through a companion product, SQLHost.



*Centura Team Developer accesses most popular data sources and supports concurrent data connections. Now you can build applications that integrate data from all databases in your organization.*

## Design databases and develop stored procedures easily

Database design and stored procedure management are both necessary parts of the development process. Unfortunately, these tasks are not always simple, for the reasons outlined below.

- Implementation differences inherent in different vendors' databases can make designing a database schema an irksome task. SQL syntax often varies between vendors.
- As database schemas grow larger, keeping track of the many tables, their columns, and the relationships among them becomes difficult. You'd like the ability to create -- or at least view -- the schema visually to help you understand and maintain it. To do so, you need data modeling facilities.

Wouldn't it be nice if you could use a intuitive graphical interface to create the database schema in any database with a consistent approach? With database schema increasing in complexity, a simple interface is becoming a necessity, not a nicety.

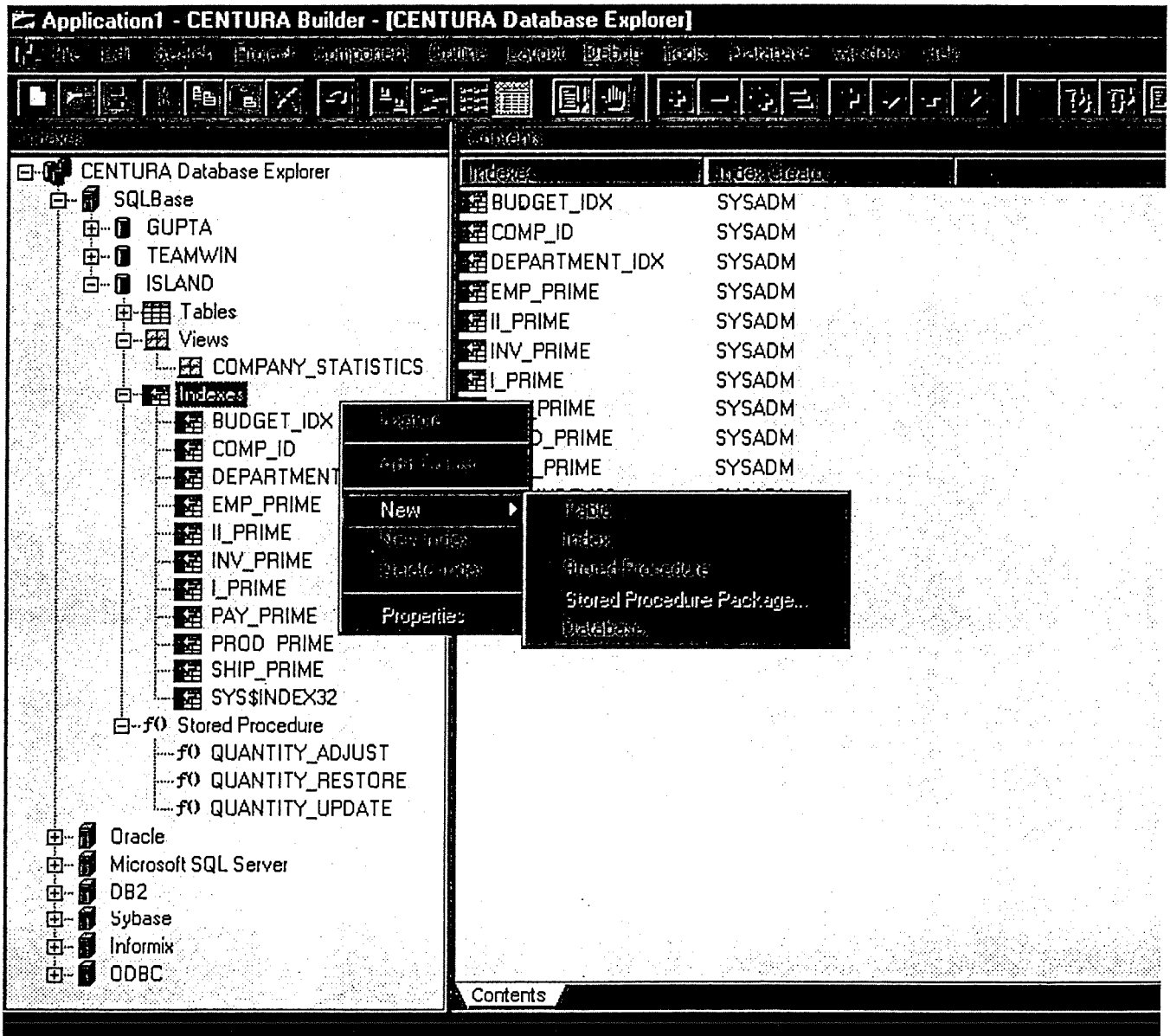
- In the same way that database SQL syntax or locking models differ, stored procedure implementations vary widely from database to database. For example, Oracle's language for stored procedures is PL/SQL, while Sybase's is Transact SQL. The capabilities of databases to manage stored procedure results varies. The syntax of the function call from most programming languages that provide stored procedure access varies between databases. Can you invoke these stored procedures without learning all the proprietary function call syntax each database requires?
- Finally, the tools provided by most database vendors for creating and managing stored procedures are not only incompatible, but also hard to use.

Wouldn't it be nice to have an easy and consistent user interface for creating, browsing, and managing stored procedures in all popular databases?

As stored procedures are increasingly used in client/server development, especially for larger applications, advanced facilities for stored procedure management are not simply nice to have, they're essential to the development process.

**Requirement:** Based on the problems described above, a next-generation environment should have consistent and easy facilities to create, visualize, and document database schemas, and to manage stored procedures in popular databases.

To help developers work with all database schemas, whether simple or complex, Centura includes easy-to-use schema management functionality. Centura's Database Explorer allows you to browse, create, or modify database objects such as tables, views, and indexes. Since it is based on an intuitive "explorer" metaphor, it makes navigating database structure very easy. It also includes full data preview capabilities for quickly reviewing database content. The Database Explorer works with all popular data sources in the same easy and consistent manner.



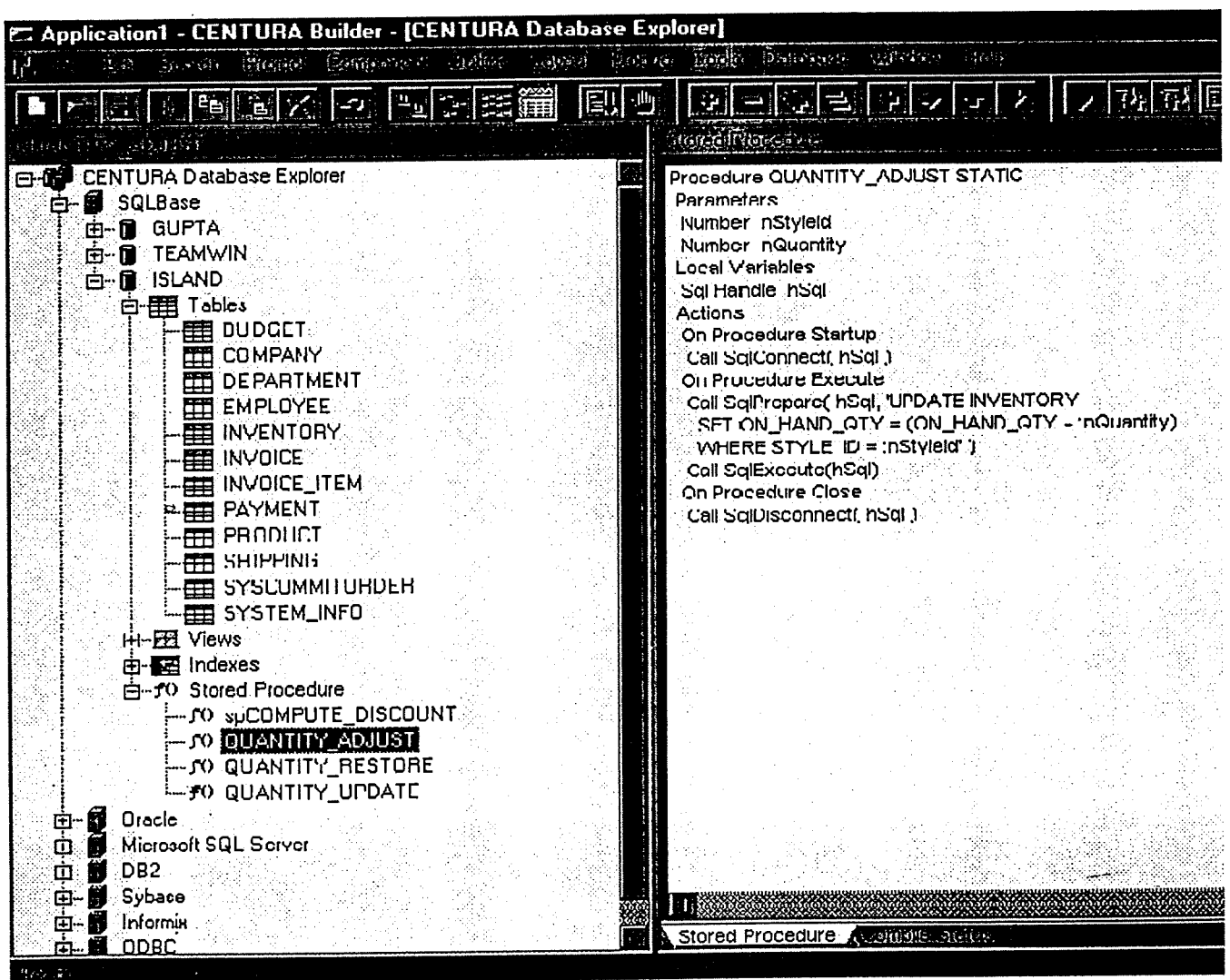
*The Database Explorer allows you easily and consistently manage any database schema. Create and maintain database objects without tedious SQL programming.*

When developing large applications, database schemas often become complex due to a proliferation of database tables and associated relationships. Centura's Data Model Viewer helps you manage large-scale schemas. It allows you to reverse engineer the database schema into a ER (entity relationship) layout. The ER layout visually represents entities (tables), their attributes (columns), and relationships (primary/foreign key links). By using a structured notation and graphical representation,

the Data Model Viewer lets you abstract the complexity of your database schema into a more easily comprehensible format. It is particular useful to maintain schemas created by others. It also serves as an excellent documentation tool. Overall, the Data Model Viewer helps you easily manage much larger database schemas than you could using manual techniques.

To manage stored procedures in any vendor's database, Centura's multidatabase stored procedure manager offers some unique functionality. It allows you to browse, edit, create, compile and debug stored procedures in popular databases using a consistent and attractive user interface. Once you have fully developed a stored procedure, Centura Team Developer offers a highly productive way to integrate it into applications. It includes QuickObjects for stored procedure access, which allow you to invoke stored procedures and display results without writing any code.

For example, you can create a pushbutton to automatically fire off a stored procedure and display the retrieved data set in a tablewindow graphical object. This unique capability works in the same easy and consistent way across popular databases, and is a huge productivity enhancing factor. Now even novice developers can integrate stored procedures into their Centura applications with just a few mouse clicks.



*Centura's stored procedure manager greatly simplifies the development and maintenance of stored procedures. It lets you work with many popular databases with ease and consistency, and thus enhances your productivity.*

## Conclusion



To build larger and more strategic information systems, businesses require more powerful, scalable, and flexible client/server technology. The next generation of client/server must vault past the limitations of the first generation, but without sacrificing first-generation merits. Next-generation client/server should be within your reach.

Key objectives for next-generation client/server include the ability create scalable applications without sacrificing ease or team productivity, to move beyond traditional corporate networks to embrace the Internet, and to unite disparate databases and integrate mobile users in your decentralized enterprise.

The Centura product line offers next-generation client/server capabilities without sacrificing the merits of first generation products that customers liked most. The power, scalability, and richness of Centura is within the reach of most customers because it is easy to use with an intuitive graphical user interface, a small footprint, open architecture, backward compatibility, and broad-based community support from third-party vendors. A flexible architecture underlies Centura to ensure that your applications will last into the next century, regardless of shifts in underlying technologies.

Centura lets you scale up, reach out, and connect it all.

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*Last updated 12 February 1996*

*Attachment 4*

SIRFIS FRDC Project Document

# SIRFIS Design Document.

FRDC 95/054

Cameron Baker/Gary Mandelkow

Queensland Fisheries Management Authority

05 September 1996



FISHERIES  
RESEARCH &  
DEVELOPMENT  
CORPORATION



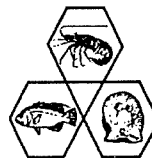
QFMA  
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DEPARTMENT OF  
PRIMARY INDUSTRY  
AND FISHERIES



Department of  
Primary Industry and Fisheries  
TASMANIA



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Appendix 2: Object Descriptions	
Appendix 3: Logical Schema (Tables)	
Appendix 4: Standard Codes	

## INTRODUCTION/SCOPE

The aim of the 'SIRFIS Draft Design Document' is to provide the client group with a base document from which the final design document will be produced. It is hoped that this document will stimulate discussion and involvement of the client group, and that all design issues can be resolved prior to the production of the final document.

Please view this document and inform the SIRFIS team of changes that are necessary to properly incorporate your organisations needs into the SIRFIS database. These changes, big or small, are necessary during THIS STAGE, THE DESIGN STAGE OF THE PROJECT CYCLE AND NOT DURING THE DEVELOPMENT STAGE. Therefore we hope to have all changes compiled within a month of clients receiving the document. The 'Final Design Document' will be distributed soon after.

When referring to the design we are mainly interested in the database design and this is the main focus of this document. The design of the screens for the system will only be touched on in this document to give an indication of the possibilities. The programming tools we are using make an integrative prototyping approach to screen design much more effective. We intend to evolve the screen design through a consultative process with the client group.

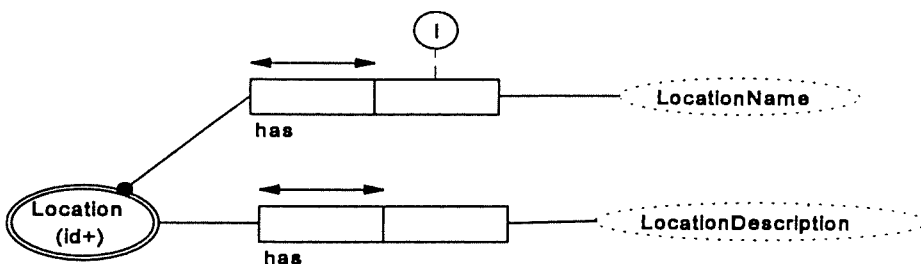
Once the final design document has been produced the database design will be signed off. If members of the client group wish to make changes or enhancements after this time, such requests will have to be treated on a case by case basis. It therefore is very important that each member of the client group review this document carefully, in particular paying close attention to the modules which are of interest to their organisation.

In the design process and in this document we have used FORML (Formal Object Role Modelling Language) for data modelling. FORML is briefly explained in the next section. The main advantage of FORML is that it maps plain English statements to a data model. The use of normal language makes it easier for users to check the validity of the model. These statements (facts) are all listed in Appendix 1. We suggest that after reviewing the summary for each module, that you refer to Appendix 1 to review the facts associated with that module.

We need your feedback.

## EXPLANATION OF CONCEPTUAL MODELLING

The aim of producing a conceptual model, is to model the structure of the SIRFIS database to be issued in each State/Territory. Asymmetrix's InfoModeler was used to draw the SIRFIS conceptual model. InfoModeler uses the Formal Object Role Modelling Language (FORML). The following explanatory diagrams display and describes the use of predicates and entities.



**Figure 1:** An explanatory conceptual model of Location using FORML

The above conceptual model of the Location look up table offers grammatic and graphical analysis. Examples of grammatic analysis include 'Location with ID has LocationName'. An explanation of the graphical analysis requires the definition of the graphical items used in the model. Location is an object, and is normally represented by a single lined ellipse. However in this case the double lines mean that the Location is used in another diagram within the same model. LocationName and LocationDescription are attributes linked to the Location object, and therefore the ellipses are dotted. Each object must link to another object or an attribute through a predicate. The predicate consists at least one rectangular box called a role, and lines linking the roles to the objects/attributes.

Constraints can also be applied to the roles by adding a variety of constraints onto the predicates. In Figure 1 we can derive that Location must have a LocationName because of the dot placed on the left side of that relationships predicate. The arrows on the left role of all the predicates shown in Figure 1, constrain each occurrence of Location(id) to be unique. The 'I' constraint attached to the CategoryName role indicates that a non-unique index is to be applied to that attribute. 'P's can be used with these constraints to indicate primary keys.

Figure 1 only gives examples of one type of uniqueness constraint, that being many to one (LocationID can not repeat but the LocationName, and LocationDescription). Figure 2 provides more examples of the different types of uniqueness. The relationship between PersonID and Club is many to many as instances can repeat in both columns, but the combinations of values from both columns can not repeat. The example reinforces this, as many Persons be members of the one Club. Another possibility is that many Clubs enlist the one person. The relationship between Club and Description is one to one in that a ClubID can not repeat and the Description of the Club should never repeat also. Ensure you understand these uniqueness constraints before viewing the SIRFIS conceptual schemas.

How the four roles shown in Figure 2, are example of how those roles (columns) could be populated. Note the columns where repeating values can and can not repeat, as assigned by the uniqueness constraints.

Subset, frequency, equality and other constraints can be applied to conceptual models and give greater depth to the models. These constraints will not be explained in this document, however for further explanation of the conceptual models listed below, please do not hesitate to contact the SIRFIS team.

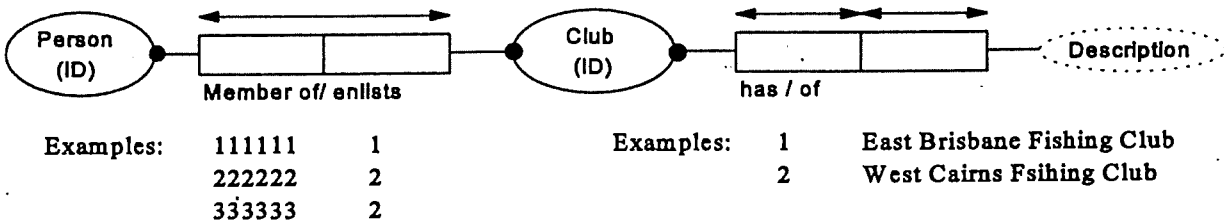


Figure 2: A conceptual model with different uniqueness constraints.

Figure 1 would map to the logical format shown below:

Location(LocationID, LocationName, LocationDescription)

The table Location has primary key LocationID, mandatory field LocationName, and the LocationDescription field. A non unique index would also be created on the field LocationName.

Figure 2 would map to the logical format shown below:

PersonCompany(PersonID,CompanyID)  
Company(CompanyID,Description)

The many to many relationship between Person and Company leads to the concatenated key in the PersonCompany table.

## DESIGN OVERVIEW

In the Requirements Document the project was split into the following modules:-

- ▶ Meta Data
- ▶ Security
- ▶ Charter
- ▶ Club Data
- ▶ Surveys
- ▶ Tagging
- ▶ Licencing

As the analysis and design phase of the project has proceeded this breakdown of modules has evolved. The Charter, Club Data and parts of the Survey module have been found to contain similarities in the type and structure of their data. They all fit a structure of Operation/Catch. An operation being an event or action (eg. a days fishing, a fishing competition, etc). The data describing an operation includes information such as: when, where, who, effort measures and environmental factors. A catch is, as you would expect, details of the catch resulting from an operation.

The revised SIRFIS modules will be as shown below in Figure 3.



Figure 3: The Modules that form the SIRFIS database.



## MODULE DESCRIPTIONS

Each module will be given an overview, this will then be followed by the conceptual schema and a breakdown of the conceptual schema. Each conceptual schema maps to logical tables which are displayed in Appendix 3 (pink) as the Tables Report. Individual facts are elaborated on in Appendix 1. Some objects involve the use of codes. Most of these codes will be assigned a set of standard values, which can also be viewed in Appendix 4 (white).

Security Module

collection

The security module will provide a standard access control for SIRFIS. Users can be assigned to differing security levels within each module. A user can therefore be limited to access only certain collection and within each those collections access may be limited to certain level of functionality. This module, shown in Figure 4 below, will also handle logging in to the database.

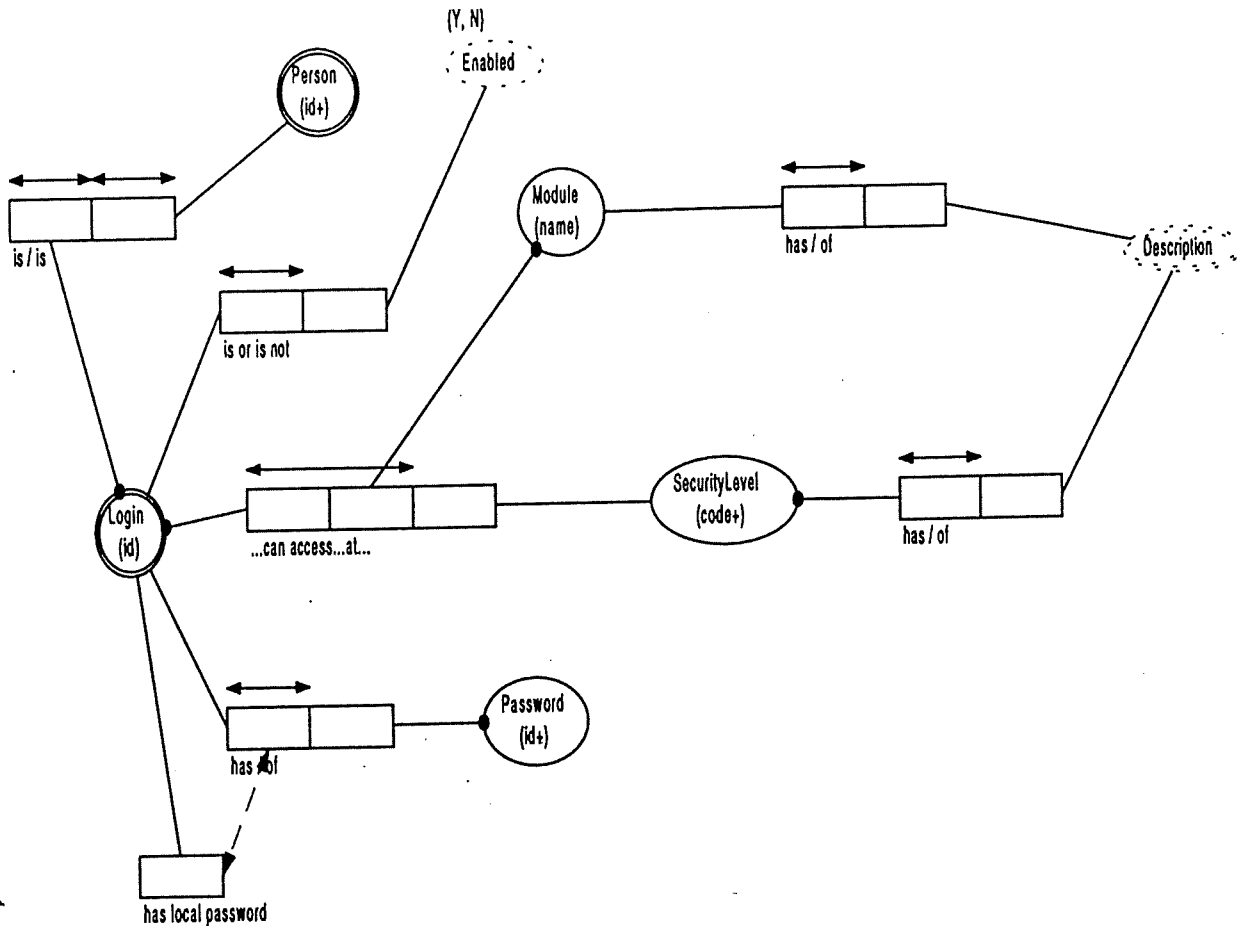


Figure 4: Conceptual Schema of the Security module.

Several new concepts are used in the Security Module's conceptual schema. The first of those being the range displayed above the 'Enabled' object. This simply means that only 'Y' or 'N' values can exist within that object. Numeric ranges can be shown using these brackets.

Secondly a dotted arrow links the 'has' and 'has local password' roles attached to the Login(id) object. This equality constraint explicitly requires that you must record a local password when you record a general password.

A screen layout based on this schema can be found in the 'Security Maintenance Screen Layout' section of this document.

Security levels will be issued against a collection and not a module.

### Meta Data Module

The Meta Data Module will be used to store information about the data sets held in the SIRFIS database. ~~Each data set is referred to as a 'Collection' of data and must be assigned a~~ ~~CollectionId.~~ Information stored about the collection will include such things as the temporal and spacial constraints of the data set, the collection method used, the person responsible for the data, any limitations of the data, etc. This module will also be able store final reports and analyses which have been conducted on the data. Fundamentally any text or word processing file will be able to be stored in this module. The module, shown in Figure 5, will incorporate a search facility to allow user to identify data sets that meet their requirements.

spatial

+

no collection ID ←  
for licencing module  
∴ how will it be accessed  
if security is via "collection"

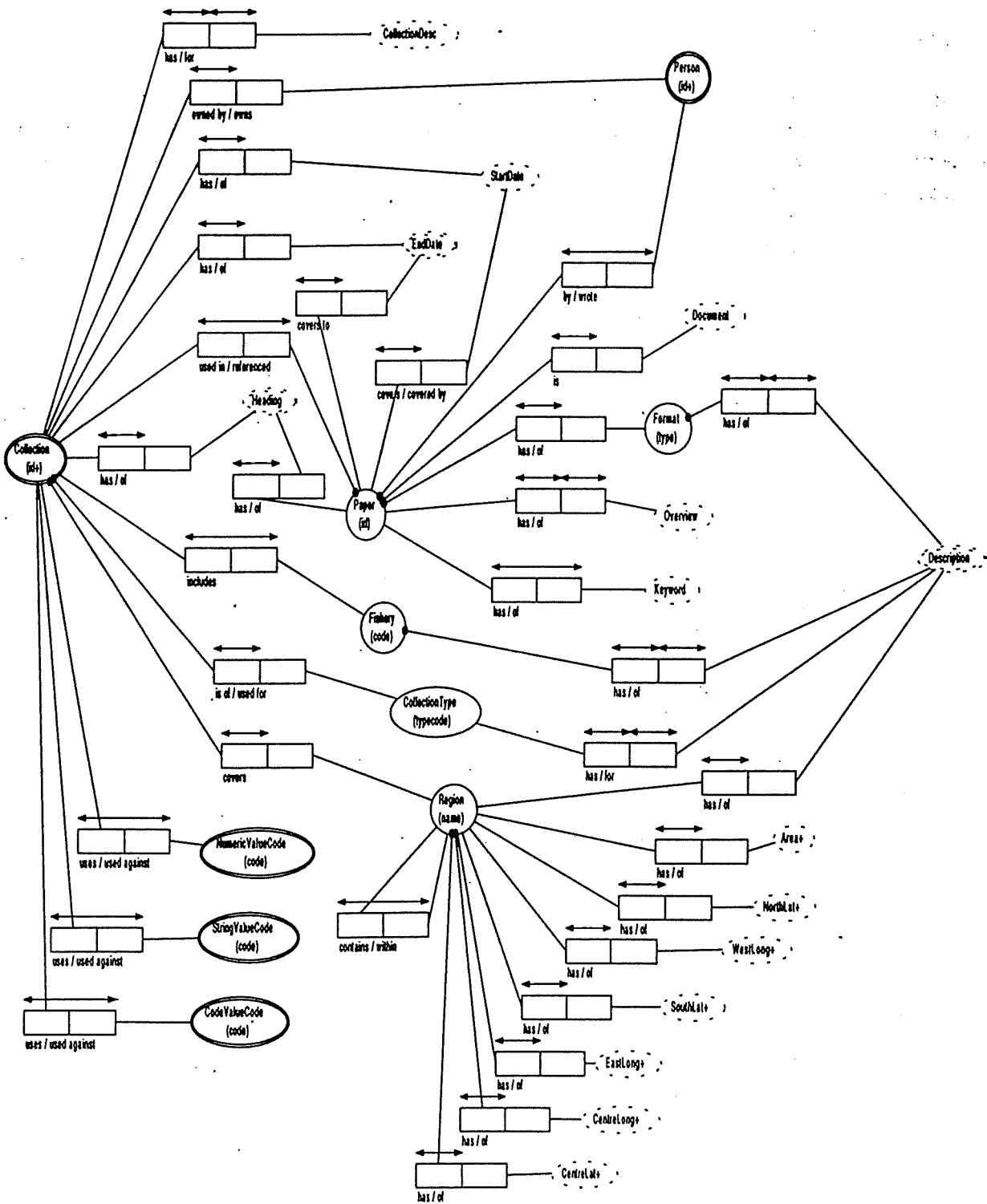


Figure 5: The Conceptual representation of the Meta Data Module

### Tagging Module

This module will store information on scientific recreational tagging programs and on tag returns. The aim of the module is to track the tag from issue through to return and record all associated information. This module does not use the operation, Catch or Release modules which are shared by other modules such as Club Data, Charter Vessel and Field Survey modules. Figure 6 shows the conceptual schema. Note the nested object 'TagEvent' formed by objectifying the Tag and Event roles. Other roles can be attached to the new nested object. The Tag and Event object therefore make a key.

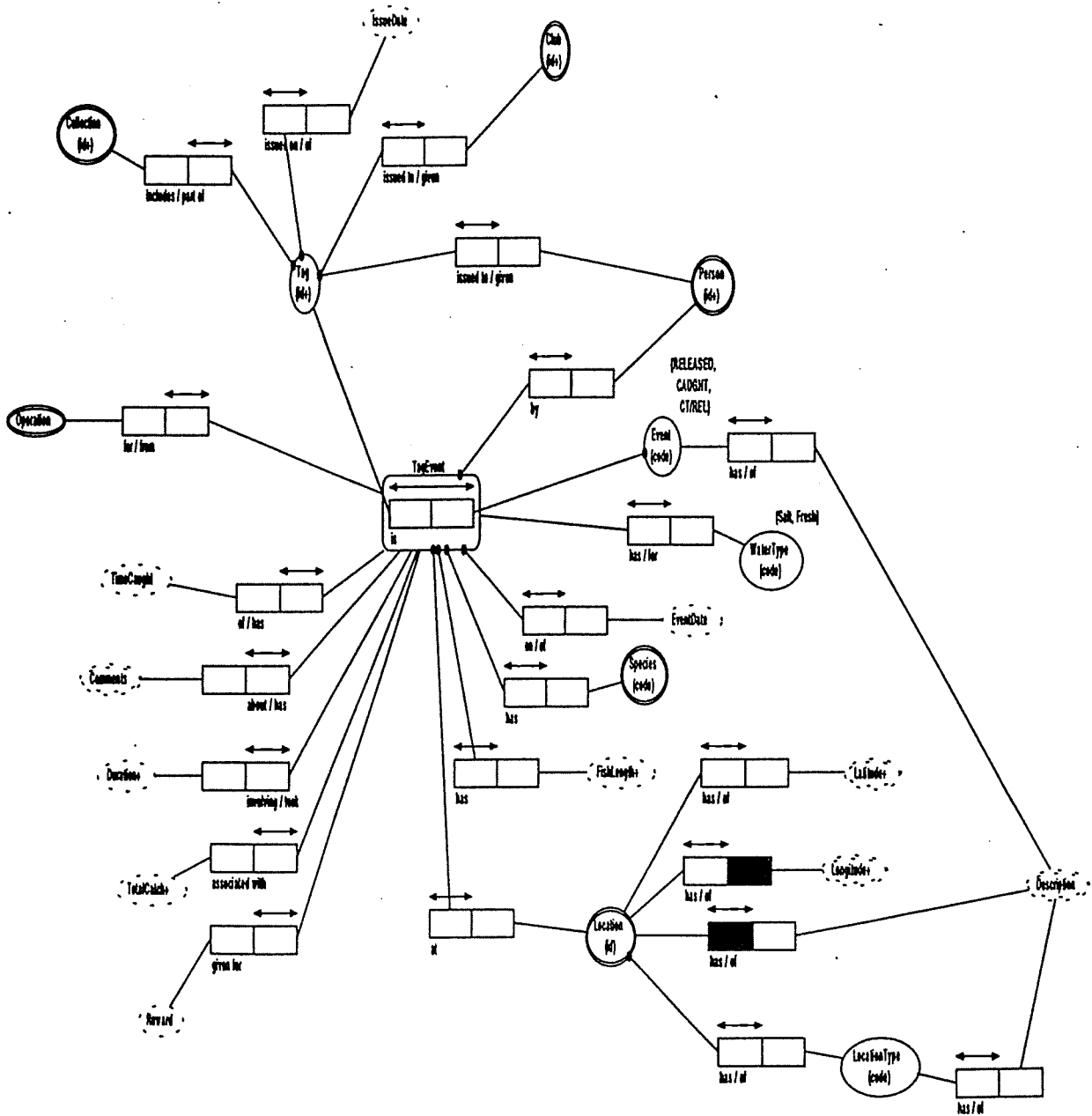


Figure 6: The Tagging Module's Conceptual Schema featuring the TagEvent nested object.

Licencing Module - No Collection ID in module.

This module will be designed to allow information on both individual fishing licences and gear licences to be maintained. The licence may be defined and attached to the gear and/or to the individual fisherman to suit the requirements of the particular fishery. ~~No allowance has been made to include or integrate with any receipting functions, however this could be done if there is a need.~~ Figure 7 illustrates the conceptual schema.

*There is a need.*

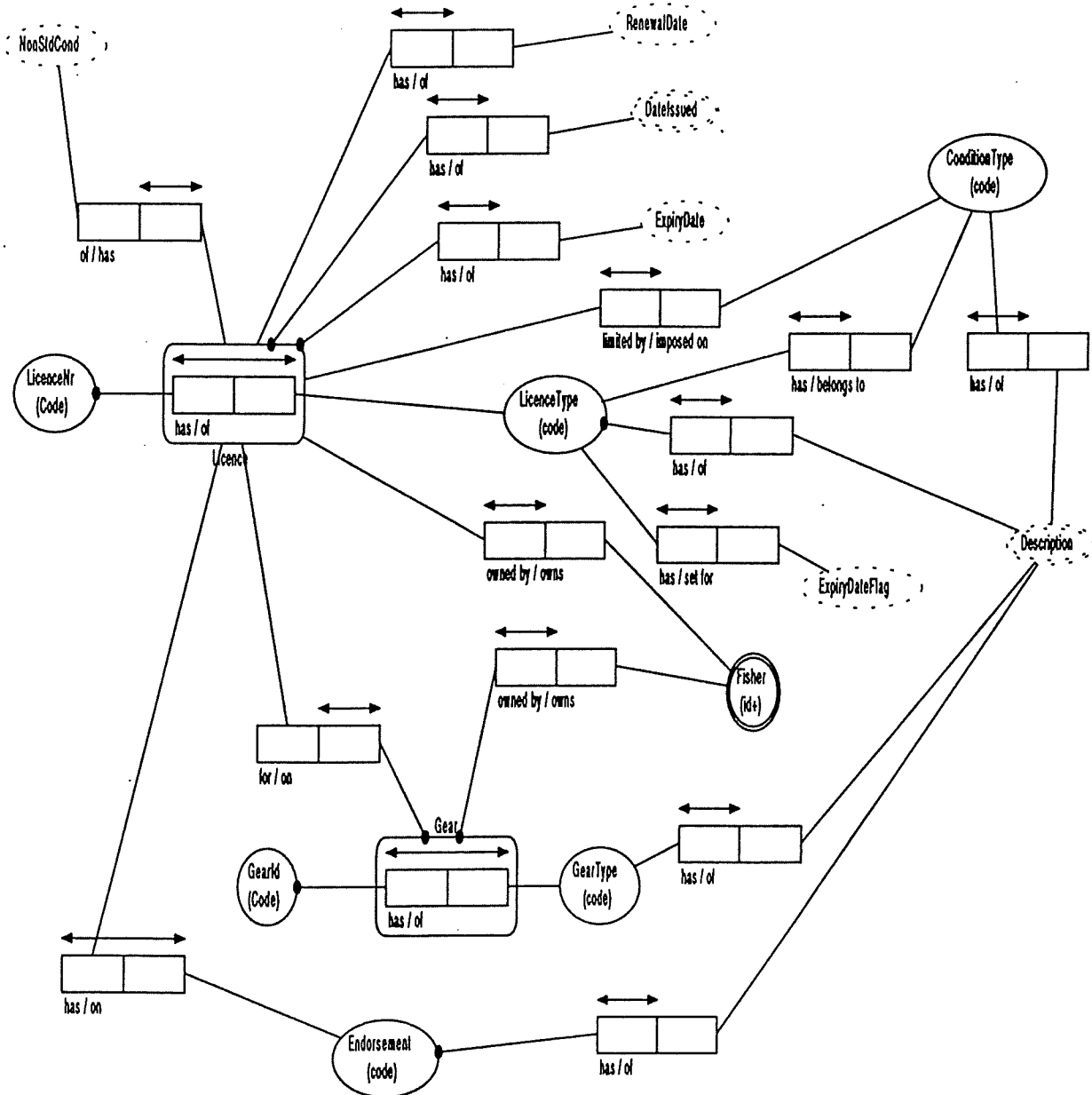


Figure 7: The Licencing Module's conceptual Schema featuring the Licence and Gear nested objects. Licences can be issued against a fisher, gear or both.

## Survey Module

The survey module will be for anecdotal surveys, such as phone surveys. As surveys of this type need to be totally flexible we have decided to provide a facility to aid the user in the construction of survey forms. The user will be able to construct questions or select from previously constructed questions, and order them into a survey. The product of this process will be both data input screens and printed forms as required. It is intended to use wizards to aid in the construction of the questions and surveys. The on-line survey form will not only be used for data entry but also as the primary interface for querying the data.

To provide a common structure for a question, we have decided that a survey question is made up of 2 basic parts. The first is the text of the question itself and the second is a table or spreadsheet like structure for accepting the answer. In questions requesting just a single piece of information, such as:

What is your age? \_\_\_\_\_

the answer structure will be a table of 1 row and 1 column.

If the question was:

In which age bracket do you fall	1-10	—
	10-20	—
	20-30	—
	30-50	—
	I'd rather not say	—

then the answer structure will be a table of 5 rows and 1 column.

If the question was:

Please supply the number in each age group, both male and female		
	MALE	FEMALE
0-15	—	—
16-30	—	—
30-100	—	—

then the answer structure will be a table of more than 3 rows and 2 columns.

Each column or row can have a heading (eg. MALE, 0-15) and also has a mechanism to change the flow of the form depending on the answer given (eg. If 'no' go to question 5).

As each question is constructed a table to hold the answers for that question will be dynamically created in the database. Because of this there are no object or relationships in the conceptual model showing how the answers will be stored. However the name of a dynamically created table will be based on the associated question and the expected structure for each table will be AnswerId, QuestionId, RowNr, col 1 value [,col x value].

Figure 8 shows the Conceptual Schema which stores Questions, Valid Answers, and Interviews against a Collection (survey).



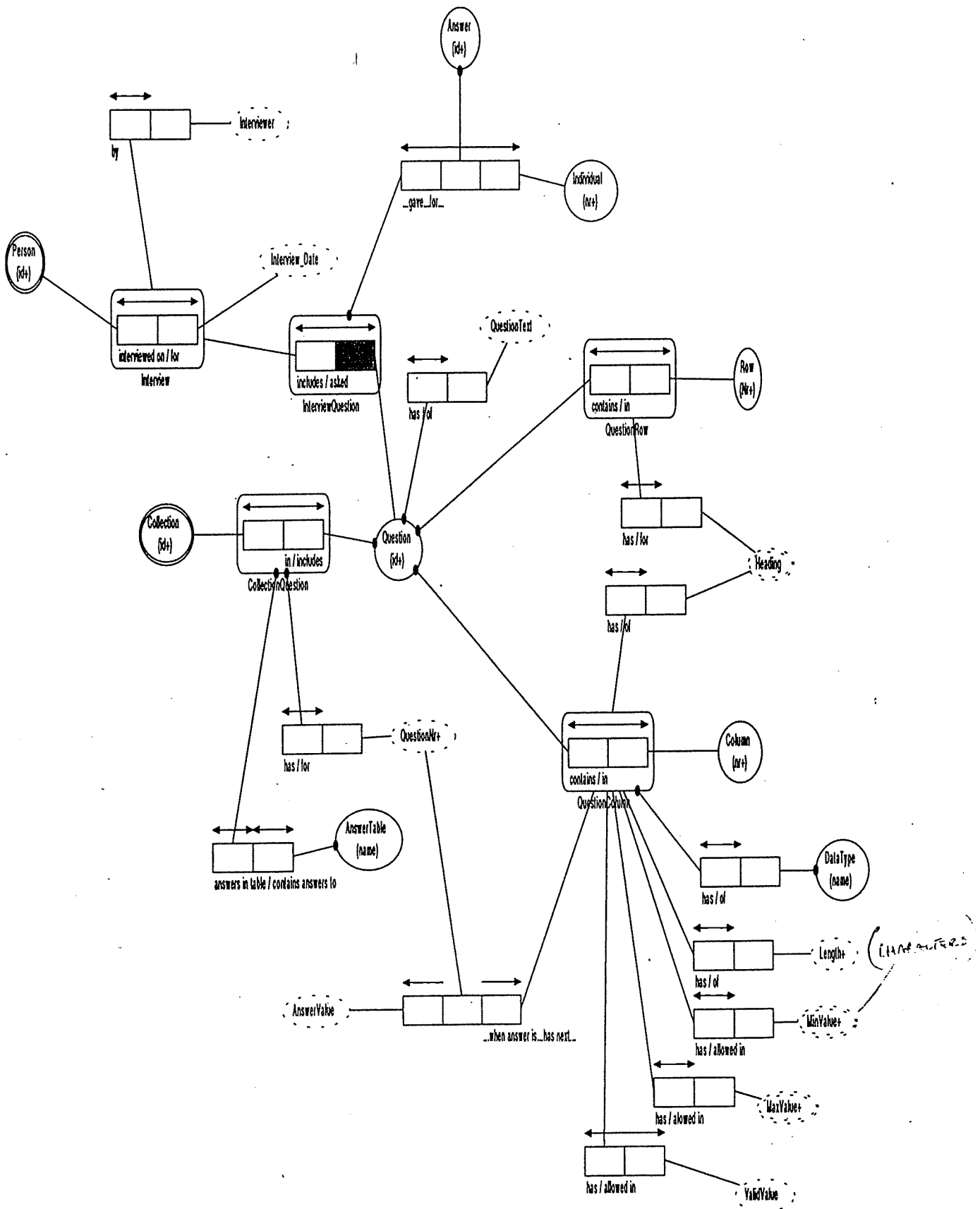


Figure 8: The (Anecdotal) Survey Module Conceptual Schema

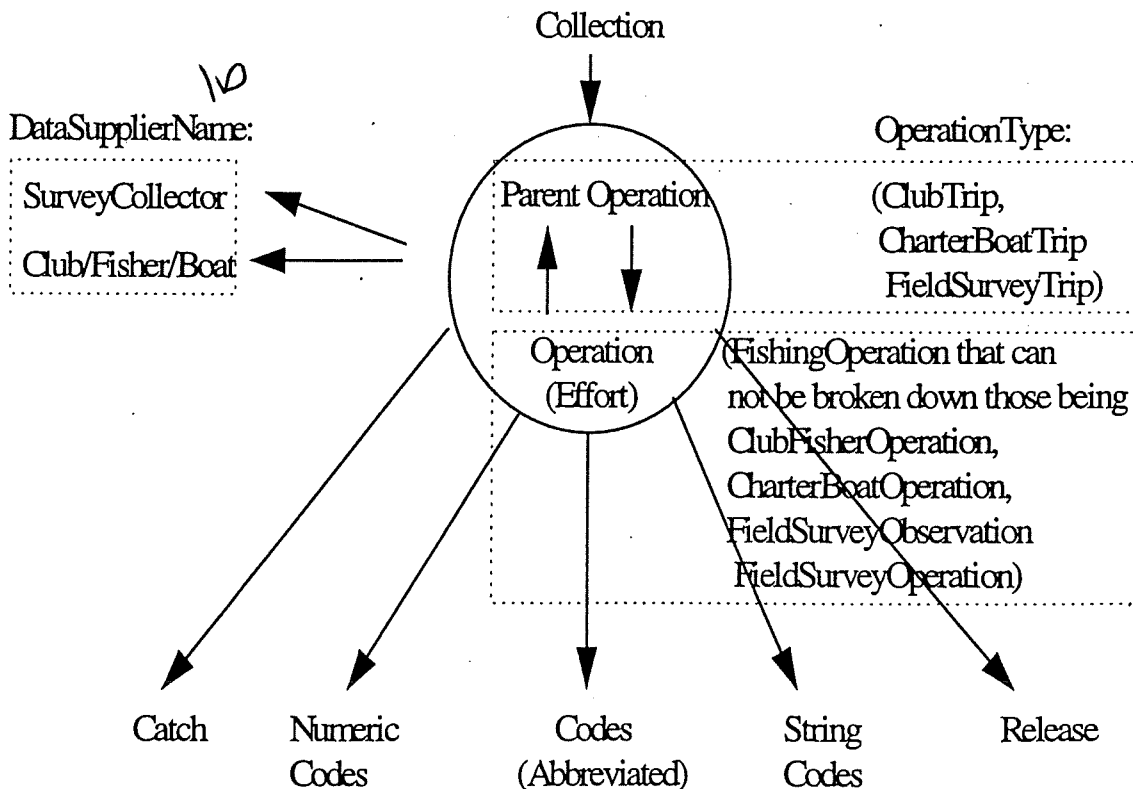
### Operation/Catch Modules

The Operation/Catch Modules can be broken down to lower levels within the database. While the end user will not see this difference (hence the one 'Operation/Catch' level illustrated in Figure 9) the difference on the application/database level is described below, against each Module individually. The modules that form the Operation/Catch entity are Operation, Catch, Release and Club Data.

### Operation (Effort) Module

It is expected that this module will accommodate data from **charter logbooks, fishing logbooks, club records, aerial surveys and field surveys**. This module will handle all data related to a fishing operation (effort). It will be configurable and extensible. For example, standard effort measures, such as 'number of lines' will be defined and can be selected as a data entry field by the user. The user can also define non-standard effort measures such as 'cartons drunk' and include that as a data field.

This module has very close links with the Catch and Release modules mentioned below. Figure 9 illustrates the relationship of the Operation/Catch/Release modules in a hierarchical layout. Understanding this diagram should certainly assist in an overall understanding of the SIRFIS database structure.



Note: The Tagging and Survey Modules do not use the Operation Definition or any child definitions.

Figure 9: The Hierarchical perspective of the Master-Detail relationships within the Operation/Catch Module, including the iterative aspect of the Operation table.

The concept of an operation is much the same as AFMA's Australian Fishing Zone Information System (AFZIS) database, however it has been broadened slightly by allowing operations to include other operations. For example, when a fishing club goes on a trip, the trip can be recorded as an operation, and the effort details of each fisher on the trip can also be recorded as operations with each referring to the trip as the master operation. Each operation is to be declared as an operation type, those master operation types being ClubTrip, CharterBoatTrip and FieldSurveyTrip and detail operation types being ClubFishingOperation, CharterBoatOperation, FieldSurveyObservation and FieldSurveyOperation. You may add more Operation Types to the database if necessary.

The Operation table primary key (CollectionID + OperationID) will be generated by the system. The join between the Operation table and the Catch, Release, NumericCodes, StringCodes, and Codes tables involve this key as Operation is the master in the relationship.

While Operation is master to the Catch, Release, NumericCodes, StringCodes and Codes tables, it also allows a parent-child relationship within itself. If the ParentOperationID contains a value, then the row in question is a child of the Operation row identified by that OperationID. Examples of this iterative relationship include:

- ▶ many Field Survey Observations can be made during one Field Survey Trip Operation
- ▶ many Field Survey Operations can be observed during one Field Survey Operation
- ▶ many CharterBoat Operations can be performed during one Charter Boat Trip Operation
- ▶ many Club Fisher Operations can be performed during one Club Trip Operation
- ▶ many miscellaneous type Operations can be performed during one miscellaneous type Trip Operation

From this explanation we can conclude that the operation table is generic enough to contain Field Surveys, any logbook information and Club data. However it is not generic enough to contain Tagging or anecdotal Survey data.

Any valid code can be kept against an operation. However these valid codes can be of different data types and therefore three tables are used to attach codes to an operation, which are:

- ▶ the OpCodeValues table stores abbreviated alphabetic codes against an operation
- ▶ the OpNumericValues table stores numeric codes and associated quantities
- ▶ the OpStringValue table stores codes for text strings stored against an operation

The Operation Module's Conceptual Schema can be viewed in Figure 10.

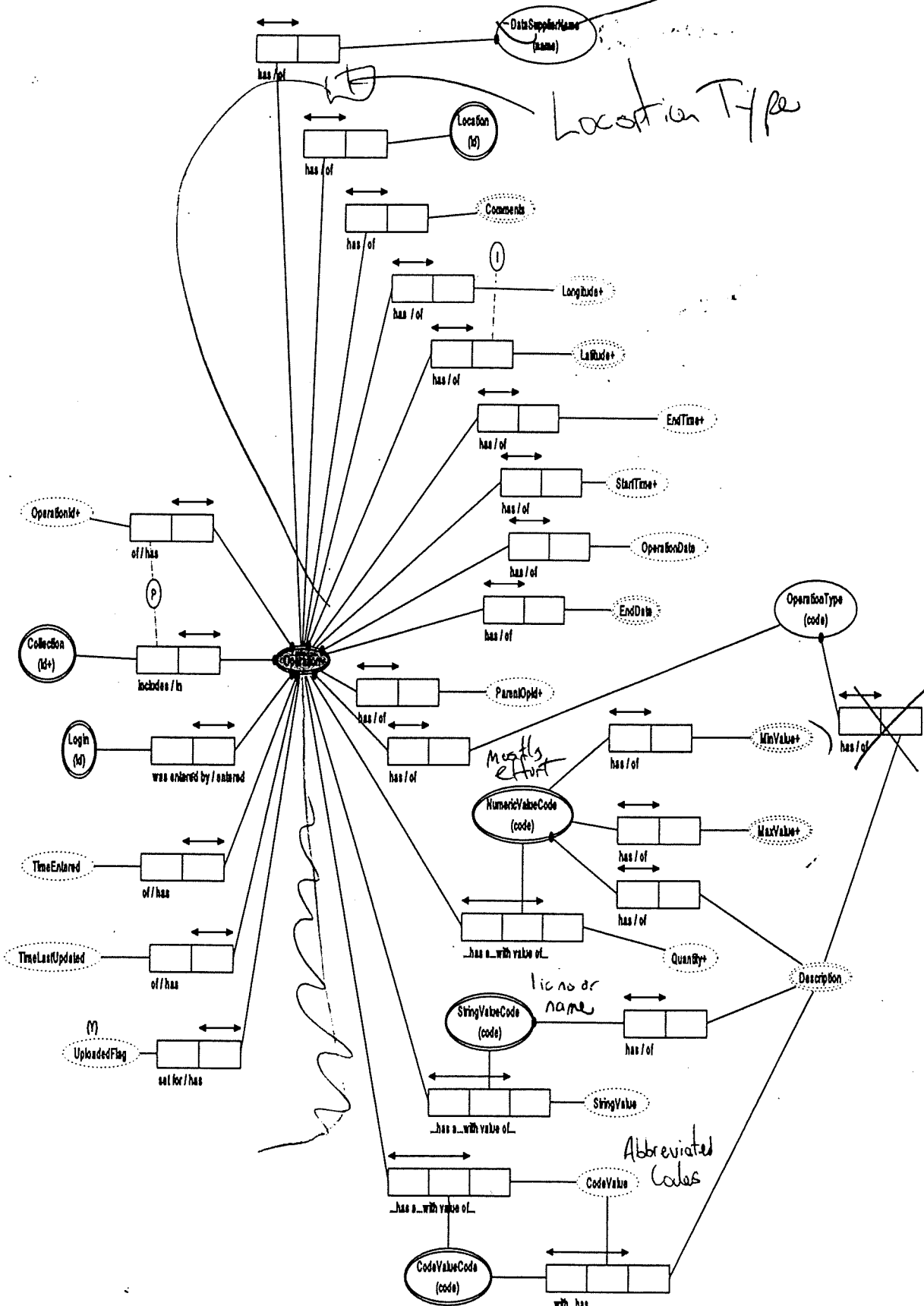


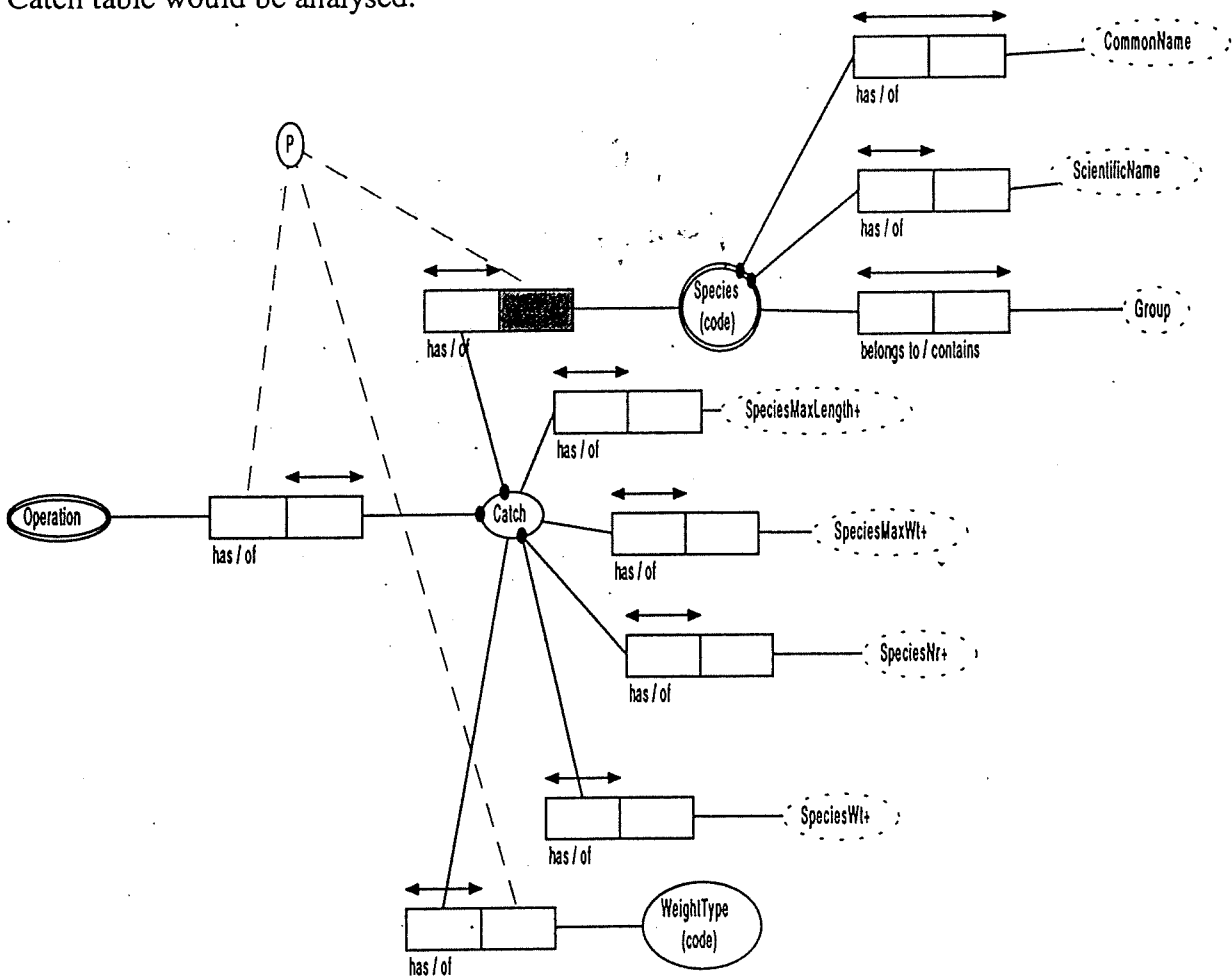
Figure 10: The Operation Module's Conceptual Schema which incorporates logbook, club data and Field Survey (not Anecdotal Survey) information collection.

UP TO HERE

**Catch Module (Catch)**

The relationship the Catch table has with the Operation table has been discussed above in the 'Operation Module' section. If catch is obtained during an operation, it is stored in the catch table and joined to the operation table. This is a one to many relationship as many species can be caught during the one operation. If no catch was obtained then no related catch record will be kept. Figure 11 shows the Catch Module.

Note that only catch that is kept is stored in this table. Any released catch is stored in the Release table (see below). Therefore if analysis was required on harvested then only the data from this Catch table would be analysed.



**Figure 11:** The Catch Module and its Conceptual representation. The key is formed by appending SpeciesCode and WeightType to the associated Operation row's key.

**Release Module (Release)**

The relationship the Release table has with the Operation table has been documented above in the 'Operation Module' section. If catch is obtained during an operation and is released (during that same operation), it is stored in the Release table, joined to the operation table. This is a one to many relationship as many species can be released during the one operation for different reasons. This relationship can be noted in Figure 12 below. If no releases occurred then no related release record will be kept.

Note that records of fish that are released are kept in the Release table only, and not in both the Catch table and Release table. This would lead to duplication of catch and effort. Therefore if analysis was required on fishers catch per unit of effort, then data in the Release table and the Catch table would have to be aggregated.

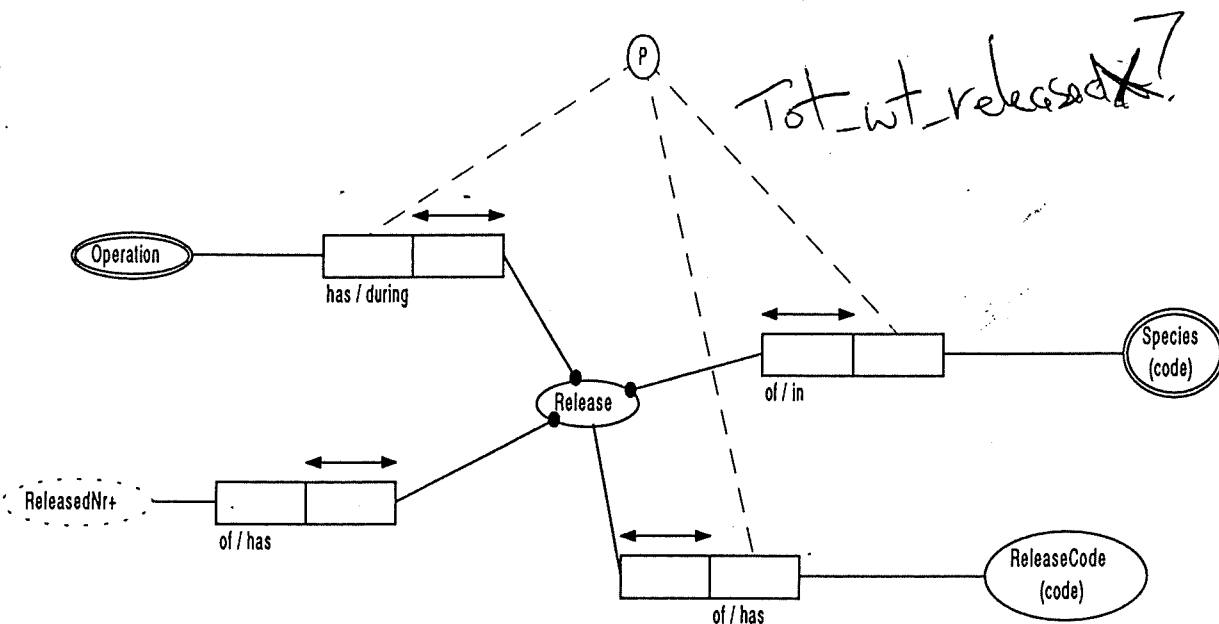


Figure 12: The Release Module Conceptual Schema, is of a similar nature to the Catch Module, especially in terms of the keys definition.

Standard ReleaseCodes to be used in the database include Tagged, Undersized, BagLimit, Surplus and PreservationOfStocks. See the Standard Codes in Appendix 4 (white pages).

Person Module

This module is used to store information about individuals. This could include their addresses and their relationships with any organisations, such as fishing clubs. Catch of the individual fishers (and club) is then linked to catch and effort information stored in the Operation and associated tables. Figure 13 illustrates the conceptual link between a person, a fisher, a club and any catch associated to a club and/or fisher.

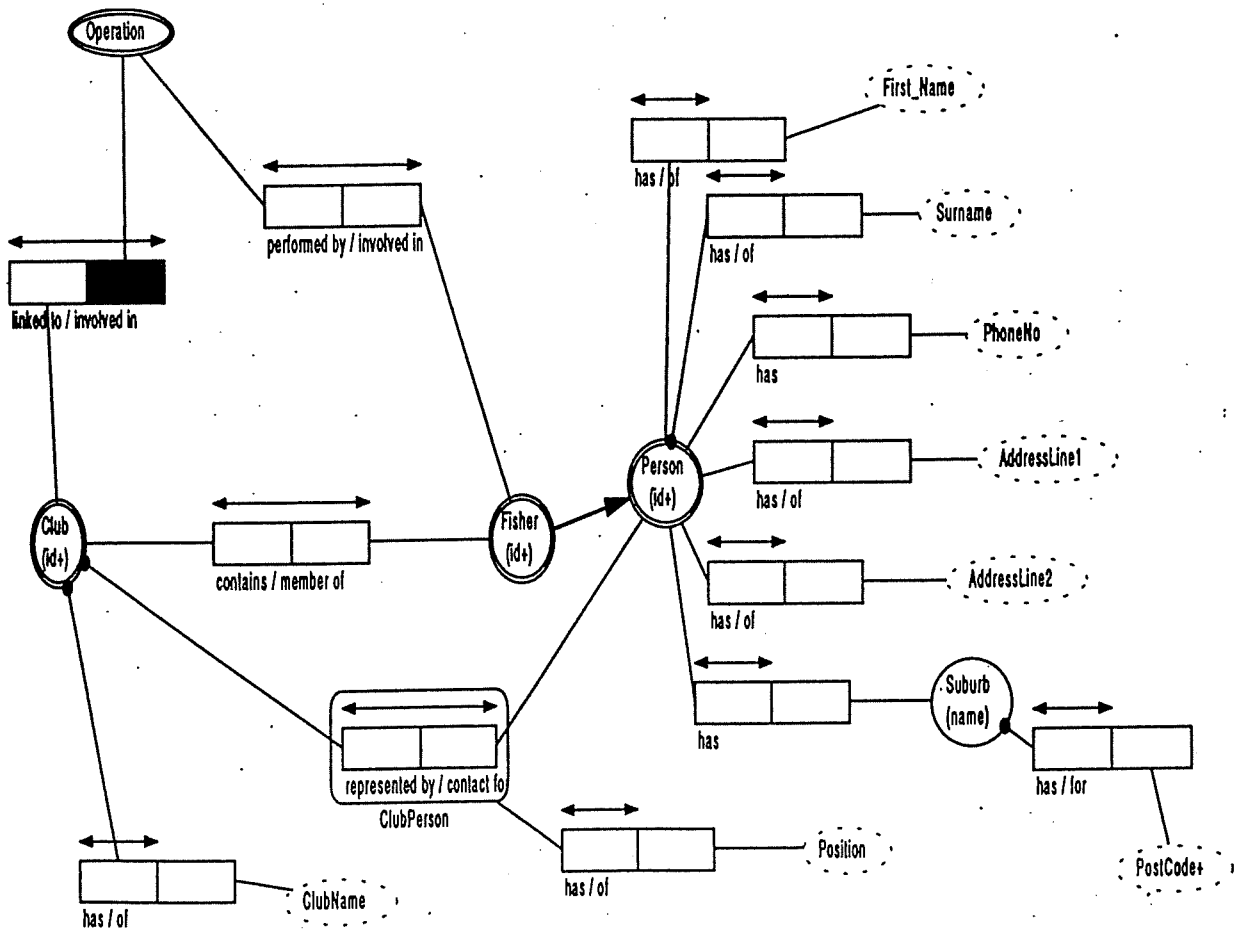


Figure 13: The Conceptual representation of the Person Module and the links a person has with Clubs and catch/effort.

Collection ID required?

### Correspondence Control Module

This module is used to provide a record of what correspondence is sent to which people and which organisations. This correspondence may include logbooks, anecdotal surveys, tags, tagging forms or any form or document that belongs to a Collection of information. Most of these dispatched items are returned for information gathering reasons, and therefore tabs can be kept on whether a survey or logbook has been returned on time or at all. In summary this module records what is sent to who, when it was sent, by whom it was sent, when part or all of the item was returned and when that part was received. Figure 14 shows the Conceptual Schema of the Correspondence Module.

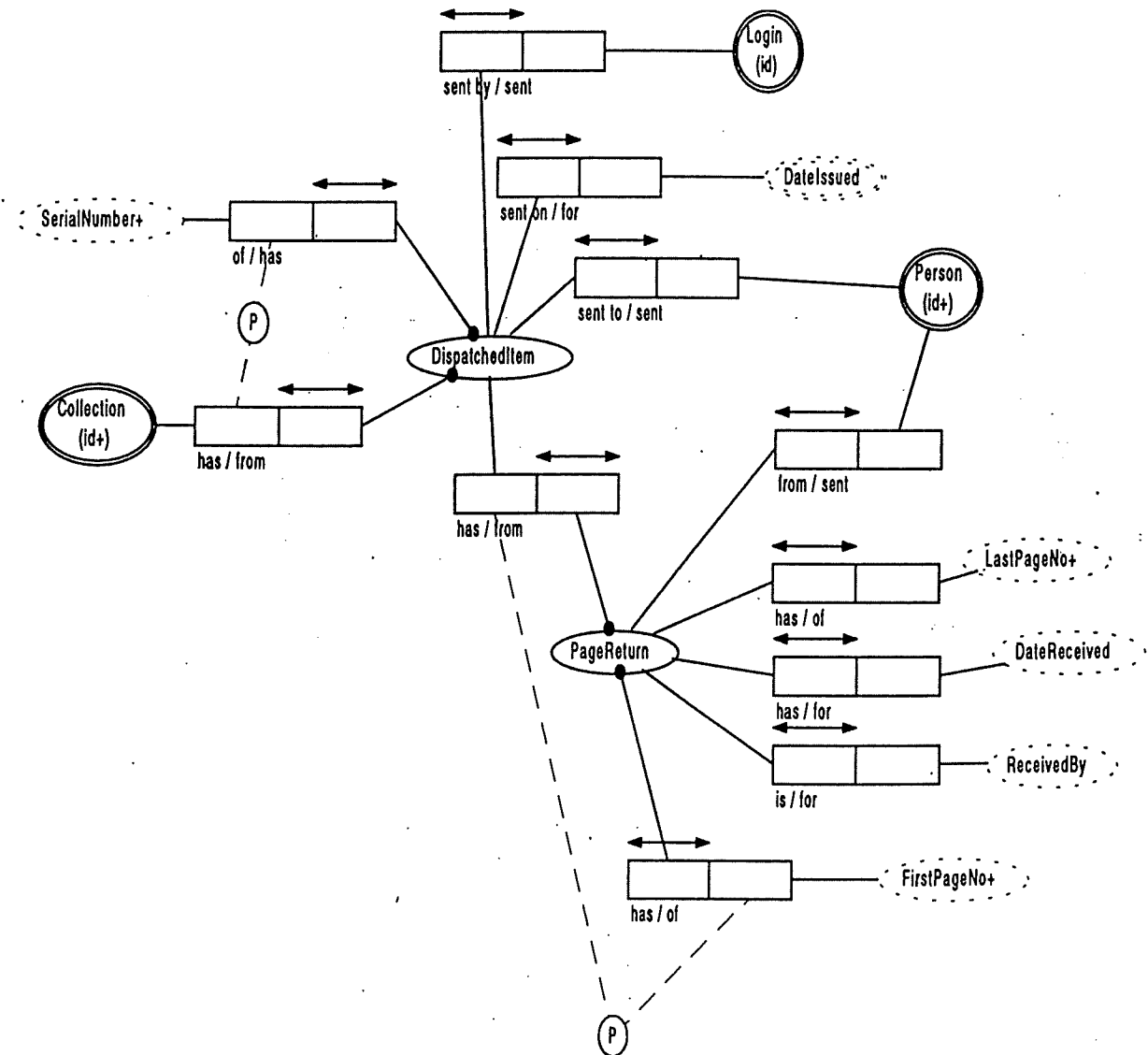


Figure 14: The Conceptual Schema of the Correspondence Module, which shows correspondence sent and received.



## DATA DICTIONARY

This data dictionary has been derived from the conceptual models listed above. Three of the four Appendices form the data dictionary, those being:

- ▶ Appendix 1 (Green): Fact reports which describe each relationship contained in the SIRFIS database.
- ▶ Appendix 2 (Yellow): Object descriptions give detailed descriptions of each object/attribute within the SIRFIS database.
- ▶ Appendix 3 (Pink): Logical Model showing all tables within the SIRFIS database.

These appendices can be used when viewing the Conceptual Schemas to aid understanding. The Object descriptions are especially useful for giving an idea of data type, and also offer a description of each object.

## STANDARD CODES

The standard codes section found in Appendix 4 describes the codes that will be issued with the database and associated applications. Your organisation may add codes to this list, however these codes have been derived from all documentation compiled by the SIRFIS team with the intention of canvassing all codes that will be possibly used. If all clients are using these standard codes, this will add to the effectiveness of a standard database.

## EXAMPLE SCREEN LAYOUTS

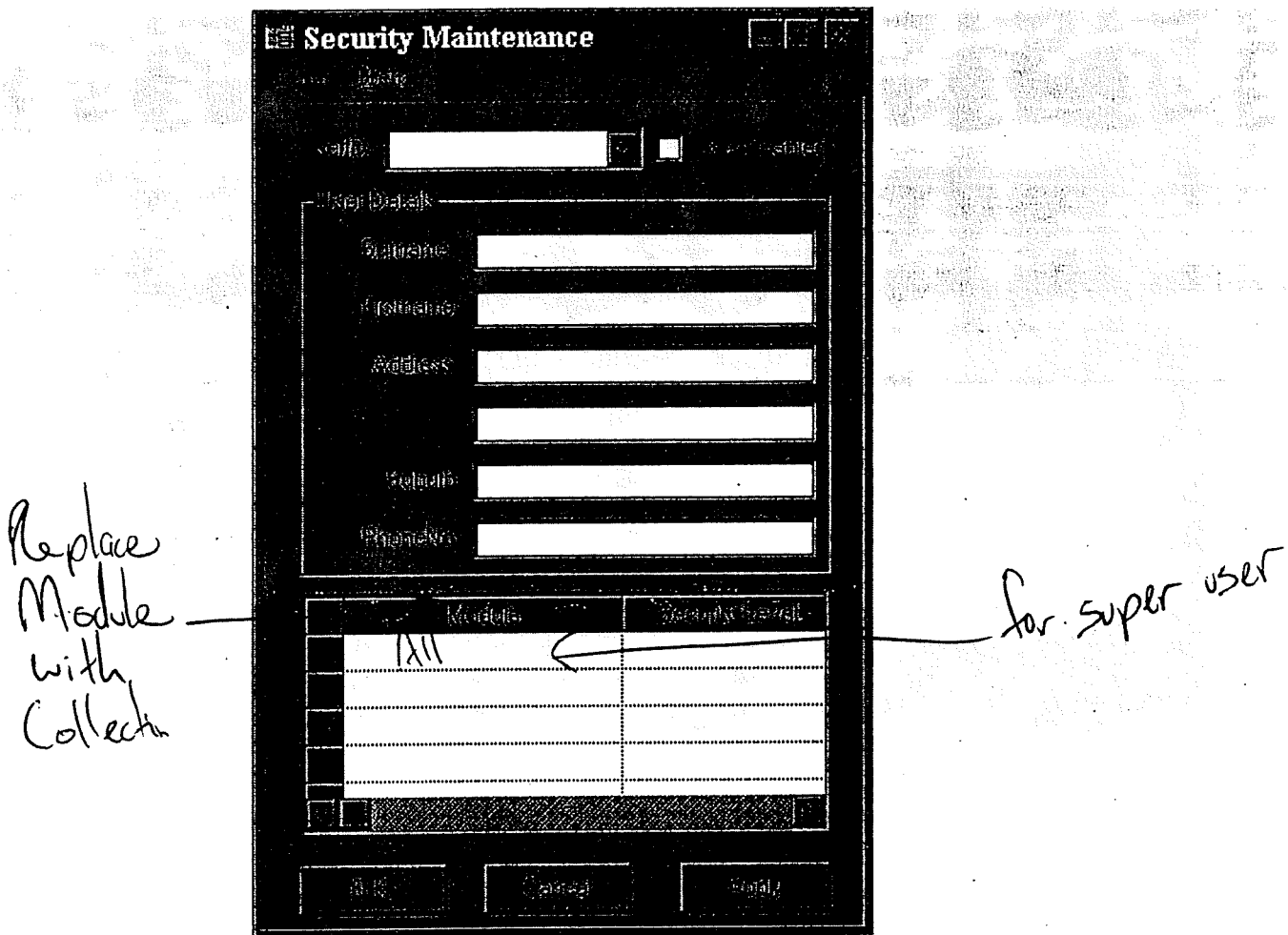
The following screen layouts are based on the draft data dictionary. The screens can be used to aid the understanding of both the conceptual and logical models previously mentioned. Three screens are shown. The first relates to the security module, which is one of the easiest modules to follow conceptually. The others relate to the Licensing module. For each screen illustrated, details are discussed below.

### Security Maintenance Screen Layout

This screen, illustrated in Figure 15, is used to set the permissions for each user against each module in the database. A drop down list of existing users is presented on activating the UserID dropbox. Alternatively, a new user can be entered into this field. Once the UserID field is populated, then the user details will also populate or can be added in the case of a new user. The user can be enabled or disabled in a click of a button. Security levels for different modules can be adjusted in the table field at the bottom of the screen. Typical security levels are Data Entry, Data Retrieval, Administrator and Head Administrator. For example a data entry person would have permissions such as those shown in Table 1. Note that this screen is based on the conceptual schema titled 'Security'.

Module	Security Level
Club Data	Data Entry
Tagging	Data Entry
Correspondence Control	Data Entry
Correspondence Control	Data Retrieval

**Table 1:** An example of Security permissions for a typical user.

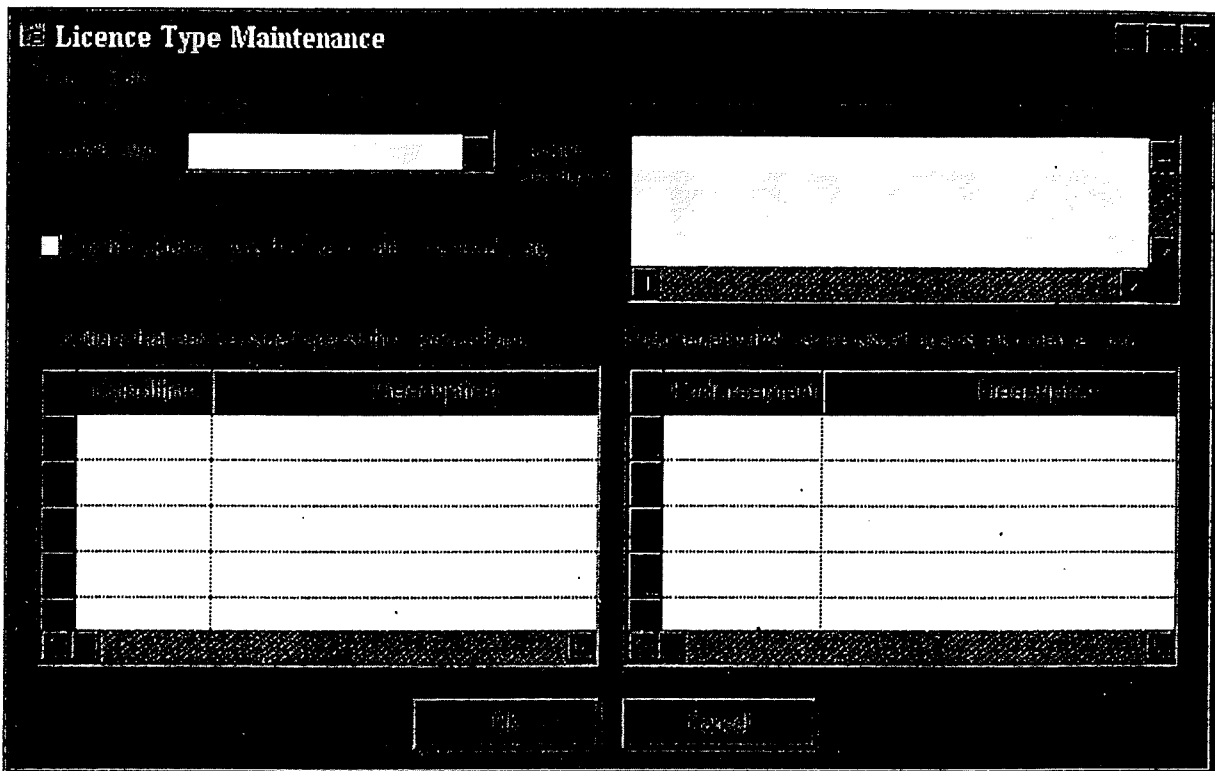


**Figure 15:** The Security Maintenance screen allows user permissions to be set against each module in the database.

The only entity not shown in the above screen that is presented in the Security module of the conceptual schema, is the password. Passwords can only be cleared in another screen that is only used by the Head Administrator.

### Licence Type Maintenance Screen Layout

Figure 16 shows the Licence Type Maintenance screen, which is used to maintain licences types (not individual licences) that your organisation may issue. Upon choosing an existing licence type using the Licence Type dropbox, all other fields will be populated with the current details, which can then be amended. New types of licence can be added in this screen also. For each Licence Type, there is a description, a flag indicating whether Expiry Date is the same as Renewal Date, conditions and endorsements that apply to all licence holders of the particular licence. The fields on this screen relate directly to the conceptual schema titled 'Licence', which can be viewed in the document above.



**Figure 16:** The Licence Type Maintenance screen is used to maintain the different type of licences that your organisation may issue. Standard conditions and endorsements can be attached to a licence here.

### Licence Maintenance Screen Layout

The Licence Maintenance screen, shown in Figure x below, is where all individual licences are added, modified and deleted. As with all screens illustrated in this document, the link between the screen and the conceptual schema should be noted. A licence can only be of a licence type added using the Licence Type Maintenance screen. If a new licence type is added in the Licence Maintenance screen (that is it is not listed in the Licence Type dropdown), then the Licence Type Maintenance screen will be loaded. Else an existing licence can be chosen from the Licence Type dropdown. An existing licence number can be chosen, or a new licence number added and the appropriate details can be added or updated.

**Licence Maintenance**

Licence Type  Licence Description

Issue Date  Renewal Date  Expiry Date

Issued Against

Owner Name  Address

Licence No.  Suburb

Phone Number  Post Code

Licence Endorsements

Condition	Description

Licence Standard Conditions

Condition	Description

Licence Standard Conditions of this Licence

**Figure 16:** The Licence Maintenance Screen is used to maintain individual licences.

These details include the issue, renewal and expiry dates for the licence. If the 'For this Licence Type Renewal Date = Expiry Date' checkbox was ticked in the 'Licence Type Maintenance' screen when setting up the licence type being entered, then once the renewal date was entered, the expiry date would automatically populate with the same date as the renewal date.

From the information gathered by the SIRFIS team, licences are issued against people, gear or potentially both. Therefore the owner and gear tabs allow the user to enter the owners and/or gears details the licence was issued against. Similarly, a list of endorsements (normally a fishery and/or location related restriction) and standard conditions are listed in two table fields. For new licences, these tables would populate with the default endorsements and standard conditions for that licence type. The user could then add or delete any of these standard endorsements and conditions. This should rarely happen depending on how a licence type is defined within your organisation, but that flexibility is provided for.

Finally any non standard conditions can be added/modified using the Licence Maintenance screen. This field is used to add conditions that typically would not be applied to another licence. This allows for a range of non standard conditions that may arise due to any kind of circumstance.

## **DOCUMENTATION PLAN**

All user aspects of the SIRFIS database will be documented in the User Manual. This manual will be deployed with the database and applications. The major sections of the User Manual will be General Introduction and Explanation, Data Entry for each module, Data Retrieval for each module, Troubleshooting Section, Administration of the SIRFIS database and Security of the SIRFIS database. All sections will use diagramming extensively to aid understanding. On line help will be provided with the software also.

The information that your local database administrator requires will be provided in the final version of this document, the Design Document. Any updates to this document after its original distribution will be distributed closer to the time of deployment.

## **DEPLOYMENT PLAN**

Your feedback would be appreciated as to which modules should be completed the earliest, and as to if you would prefer module by module implementation or the whole SIRFIS database in one hit. We will weight up the priorities of all our clients and develop the modules accordingly.

**Address**

**Primary Key**

Address integer, mandatory

**Field(s)**

PhoneNr varchar 12, optional  
 Fact:  
*"Address has PhoneNr" on model-page 2*

Suburb varchar 20, optional  
 Foreign Key To:  
*Suburb*  
 Fact:  
*"Address has Suburb" on model-page 2*

AddressLine1 varchar 30, optional  
 Fact:  
*"Address has AddressLine1" on model-page 2*

AddressLine2 varchar 30, optional  
 Fact:  
*"Address has AddressLine2" on model-page 2*

PostCode smallint, optional  
 Fact:  
*"Address has PostCode" on model-page 2*

**Incident Foreign Keys**

Table	Field(s)	Relationship
PersonAddress	Address	1:m
ClubAddress	Address	1:m



**Catch****Primary Key**

Collection	varchar 10, mandatory Foreign Key To: <i>Operation</i>
OperationId	longinteger, mandatory Foreign Key To: <i>Operation</i>
CatchId	integer, mandatory

**Field(s)**

WeightType	varchar 10, optional Fact: <i>"Catch has WeightType" on model-page 9</i>
Species	varchar 10, mandatory Foreign Key To: <i>Species</i> Fact: <i>"Catch has Species" on model-page 9</i>
SpeciesMaxLength	integer, optional Fact: <i>"Catch has SpeciesMaxLength" on model-page 9</i>
SpeciesMaxWt	float, optional Fact: <i>"Catch has SpeciesMaxWt" on model-page 9</i>
SpeciesNr	integer, optional Fact: <i>"Catch has SpeciesNr" on model-page 9</i>
SpeciesWt	float, optional Fact: <i>"Catch has SpeciesWt" on model-page 9</i>
TargetSpeciesFlag	char 2, optional Rule: IN ("Y", "N") Fact: <i>"TargetSpeciesFlag of Catch" on model-page 9</i>
Gender	varchar 6, optional Fact: <i>"Catch has Gender" on model-page 9</i>

**Rule**

([SpeciesNr] IS NOT NULL OR [SpeciesWt] IS NOT NULL )  
/\*At least one of [SpeciesNr],[SpeciesWt] must contain a value.\*/

**ClubAddress**

**Primary Key**

Organisation	integer, mandatory Foreign Key To: <i>Organisation</i>
AddressType	varchar 10, mandatory

**Field(s)**

Address	integer, mandatory Foreign Key To: <i>Address</i> Fact: <i>"Organisation has AddressType of Address" on model-page 2</i>
---------	--

**ClubOpSpecies****Primary Key**

Organisation	integer, mandatory Foreign Key To: <i>Organisation</i>
Collection	varchar 10, mandatory Foreign Key To: <i>Operation</i>
OperationId	longinteger, mandatory Foreign Key To: <i>Operation</i>
Species	varchar 10, mandatory Foreign Key To: <i>Species</i>

**Field(s)**

MinimumSize	float, optional Fact: <i>"ClubOperationSpecies has MinimumSize" on model-page 2</i>
MaximumSize	float, optional Fact: <i>"ClubOperationSpecies has MaximumSize" on model-page 2</i>
BagLimit	integer, optional Fact: <i>"ClubOperationSpecies has BagLimit" on model-page 2</i>

### CodeValueLookup

#### Primary Key

CodeValueCode	varchar 20, mandatory
CodeValue	varchar 10, mandatory

#### Field(s)

Description	varchar 50, mandatory
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Fact:  
*"CodeValueCode with CodeValue has Description" on model-page 8*

**Collection****Primary Key**

Collection varchar 10, mandatory

**Field(s)**

CollectionType character 10, mandatory  
Fact:  
*"Collection is of CollectionType" on model-page 1*

CollectionDesc varchar 200, optional  
Fact:  
*"Collection has CollectionDesc" on model-page 1*

Person varchar 25, optional  
Foreign Key To:  
*Person*  
Fact:  
*"Collection owned by Person" on model-page 1*

StartDate date, optional  
Fact:  
*"Collection has StartDate" on model-page 1*

EndDate date, optional  
Fact:  
*"Collection has EndDate" on model-page 1*

Region varchar 30, mandatory  
Foreign Key To:  
*Region*  
Fact:  
*"Collection covers Region" on model-page 1*

Heading varchar 30, optional  
Fact:  
*"Collection has Heading" on model-page 1*

DefaultLocationTyp varchar 30, optional  
Fact:  
*"Collection has DefaultLocationType" on model-page 11*

**Incident Foreign Keys**

Table	Field(s)	Relationship
CollectionPaper	Collection	1:m
CollectionFishery	Collection	1:m
LoginSecurityLevel	Collection	1:m
FrameConfig	Collection	1:m
TagEvent	Collection	1:m
TagIssue	Collection	1:m
CollectionQuestion	Collection	1:m
Operation	Collection	1:m
DispatchedItem	Collection	1:m

**CollectionFishery**

**Primary Key**

Collection	varchar 10, mandatory Foreign Key To: <i>Collection</i>
Fishery	varchar 10, mandatory

**CollectionPaper**

**Primary Key**

Collection

varchar 10, mandatory  
Foreign Key To:  
*Collection*

Paper

char 10, mandatory  
Foreign Key To:  
*Paper*

**CollectionQuestion****Primary Key**

Question	longinteger, mandatory Foreign Key To: <i>Question</i>
Collection	varchar 10, mandatory Foreign Key To: <i>Collection</i>

**Field(s)**

QuestionNr	smallint, mandatory Fact: <i>"CollectionQuestion has QuestionNr" on model-page 4</i>
AnswerTable	varchar 20, mandatory Fact: <i>"CollectionQuestion answers in table AnswerTable" on model-page 4</i>

**Secondary Indexes**

CollectionQuestionIdx2	Simple alternate unique index over: <i>AnswerTable</i>
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**CollectionSpecies****Primary Key**

Config	varchar 10, mandatory
Frame	varchar 30, mandatory
Species	varchar 10, mandatory Foreign Key To: <i>Species</i>

**Field(s)**

DisplayOrder	smallint, optional Fact: <i>"CollectionSpecies has DisplayOrder" on model-page 11</i>
--------------	---

**DispatchedItem**

**Primary Key**

SerialNr long, mandatory  
 Collection varchar 10, mandatory  
 Foreign Key To:  
*Collection*

**Field(s)**

DateIssued date, optional  
 Fact:  
*"DispatchedItem sent on DateIssued" on model-page 7*

Person varchar 25, optional  
 Foreign Key To:  
*Person*  
 Fact:  
*"DispatchedItem sent to Person" on model-page 7*

Login varchar 12, optional  
 Foreign Key To:  
*Login*  
 Fact:  
*"DispatchedItem sent by Login" on model-page 7*

**Incident Foreign Keys**

Table	Field(s)	Relationship
PageReturn	SerialNr Collection	1:m

**FieldNameConfig****Primary Key**

FieldName	varchar 30, mandatory
Config	varchar 10, mandatory

**Field(s)**

Visible	char 1, mandatory Fact: <i>"FieldNameConfig is Visible" on model-page 11</i>
TextLabel	varchar 30, mandatory Fact: <i>"FieldNameConfig has TextLabel" on model-page 11</i>
CodeName	varchar 30, mandatory Fact: <i>"FieldNameConfig has CodeName" on model-page 11</i>
FieldType	varchar 10, mandatory Rule: IN ("number", "string", "code") Fact: <i>"FieldNameConfig has FieldType" on model-page 11</i>
ScreenPosition	integer, mandatory Fact: <i>"FieldNameConfig has ScreenPosition" on model-page 11</i>

**FrameConfig****Primary Key**

Collection	varchar 10, mandatory Foreign Key To: <i>Collection</i>
Config	varchar 10, mandatory
Frame	varchar 30, mandatory

**Gear****Primary Key**

GearId	char 10, mandatory
GearType	varchar 10, mandatory

**Field(s)**

Fisher	varchar 25, mandatory Foreign Key To: <i>Person</i> Fact: <i>"Gear owned by Fisher" on model-page 5</i>
LicenceNr	char 10, mandatory Foreign Key To: <i>Licence</i> Fact: <i>"Licence for Gear" on model-page 5</i>
LicenceType	varchar 10, mandatory Foreign Key To: <i>Licence</i> Fact: <i>"Licence for Gear" on model-page 5</i>
Quantity	float, optional Fact: <i>"Gear has Quantity" on model-page 5</i>

**Interview**

**Primary Key**

Person	varchar 25, mandatory Foreign Key To: <i>Person</i>
Interviewdntrw_Dt	datetime, mandatory

**Field(s)**

Interviewer	char 20, optional Fact: <i>"Interview by Interviewer" on model-page 4</i>
-------------	---

**Incident Foreign Keys**

Table	Field(s)	Relationship
InterviewAnswers	Person Interviewdntrw_Dt	1:m

**InterviewAnswers****Primary Key**

Person	varchar 25, mandatory Foreign Key To: <i>Interview</i>
Interviewdntrvw_Dt	datetime, mandatory Foreign Key To: <i>Interview</i>
Question	longinteger, mandatory Foreign Key To: <i>Question</i>
Answer	longinteger, mandatory
Col0	smallint, mandatory

**Licence****Primary Key**

LicenceNr	char 10, mandatory
LicenceType	varchar 10, mandatory Foreign Key To: <i>LicenceType</i>

**Field(s)**

Fisher	varchar 25, optional Foreign Key To: <i>Person</i> Fact: <i>"Licence owned by Fisher" on model-page 5</i>
ExpiryDate	date, mandatory Fact: <i>"Licence has ExpiryDate" on model-page 5</i>
DateIssued	date, mandatory Fact: <i>"Licence has DateIssued" on model-page 5</i>
ConditionType	varchar 3, optional Fact: <i>"Licence limited by ConditionType" on model-page 5</i>
RenewalDate	date, optional Fact: <i>"Licence has RenewalDate" on model-page 5</i>
NonStdCond	varchar 200, optional Fact: <i>"NonStdCond of Licence" on model-page 5</i>

**Incident Foreign Keys**

Table	Field(s)	Relationship
LicenceEndorsement	LicenceNr LicenceType	1:m
Gear	LicenceNr LicenceType	1:m



**LicenceEndorsement****Primary Key**

LicenceNr	char 10, mandatory Foreign Key To: <i>Licence</i>
LicenceType	varchar 10, mandatory Foreign Key To: <i>Licence</i>
Endorsement	varchar 5, mandatory

**LicenceType****Primary Key**

LicenceType varchar 10, mandatory

**Field(s)**

ConditionType varchar 3, optional  
Fact:  
*"LicenceType has ConditionType" on model-page 5*

ExpiryDateFlag char 2, optional  
Fact:  
*"LicenceType has ExpiryDateFlag" on model-page 5*

**Incident Foreign Keys**

<b>Table</b>	<b>Field(s)</b>	<b>Relationship</b>
Licence	LicenceType	1:m

**LocationDefinition****Primary Key**

Location	varchar 20, mandatory
LocationType	varchar 10, mandatory

**Field(s)**

Latitude	double precision, optional Fact: <i>"LocationDefinition has Latitude" on model-page 3</i>
Longitude	double precision, optional Fact: <i>"LocationDefinition has Longitude" on model-page 3</i>
Description	varchar 50, optional Fact: <i>"LocationDefinition has Description" on model-page 3</i>
PositionPrecision	float, optional Fact: <i>"LocationDefinition has PositionPrecision" on model-page 3</i>

**Login**

**Primary Key**

Login varchar 12, mandatory

**Field(s)**

Password smallint, optional  
 Fact:  
 "Login has Password" on model-page 6

Person varchar 25, mandatory  
 Foreign Key To:  
 Person  
 Fact:  
 "Login is Person" on model-page 6

Enabled varchar 1, optional  
 Rule:  
 IN ("Y", "N")  
 Fact:  
 "Login is or is not Enabled" on model-page 6

**Secondary Indexes**

LoginIdx2 Simple alternate unique index over:  
 Person

**Incident Foreign Keys**

Table	Field(s)	Relationship
LoginSecurityLevel	Login	1:m
Operation	Login	1:m
DispatchedItem	Login	1:m

## LoginSecurityLevel

### Primary Key

Login                      varchar 12, mandatory  
Foreign Key To:  
    *Login*

Collection                varchar 10, mandatory  
Foreign Key To:  
    *Collection*

### Field(s)

SecurityLevel             smallint, mandatory  
Fact:  
    *"Login can access Collection at SecurityLevel" on model-page 6*

**NextQuestion****Primary Key**

Question	longinteger, mandatory Foreign Key To: <i>QuestionColumn</i>
Column	smallint, mandatory Foreign Key To: <i>QuestionColumn</i>
AnswerValue	varchar 10, mandatory

**Field(s)**

QuestionNr	smallint, mandatory Fact: <i>"QuestionColumn when answer is QuestionNr has next AnswerValue" on model-page 4</i>
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**NumericValueCode****Primary Key**

NumericValueCode                      varchar 20, mandatory

**Field(s)**

MaxValue                                  integer, optional  
 Fact:  
   *"NumericValueCode has MaxValue" on model-page 8*

MinValue                                  integer, optional  
 Fact:  
   *"NumericValueCode has MinValue" on model-page 8*

Description                                varchar 50, mandatory  
 Fact:  
   *"NumericValueCode has Description" on model-page 8*

**Incident Foreign Keys**

<b>Table</b>	<b>Field(s)</b>	<b>Relationship</b>
OpNumericValues	NumericValueCode	1:m

**OpCodeValues****Primary Key**

Collection	varchar 10, mandatory Foreign Key To: <i>Operation</i>
OperationId	longinteger, mandatory Foreign Key To: <i>Operation</i>
CodeValueCode	varchar 20, mandatory

**Field(s)**

CodeValue	varchar 10, mandatory Fact: <i>"Operation has a CodeValueCode with value of CodeValue" on model-page 8</i>
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**Operation****Primary Key**

Collection	varchar 10, mandatory Foreign Key To: <i>Collection</i>
OperationId	longinteger, mandatory

**Field(s)**

PageNr	integer, optional Fact: <i>"PageNr records Operation" on model-page 8</i>
SerialNr	long, optional Fact: <i>"SerialNr records Operation" on model-page 8</i>
OperationDate	date, mandatory Fact: <i>"Operation has OperationDate" on model-page 8</i>
EndDate	date, optional Fact: <i>"Operation has EndDate" on model-page 8</i>
StartTime	datetime, optional Fact: <i>"Operation has StartTime" on model-page 8</i>
EndTime	datetime, optional Fact: <i>"Operation has EndTime" on model-page 8</i>
WorkUnitId	varchar 25, optional Fact: <i>"Operation has WorkUnitId" on model-page 8</i>
Location	varchar 20, optional Fact: <i>"Operation has Location" on model-page 8</i>
Latitude	double precision, mandatory Fact: <i>"Operation has Latitude" on model-page 8</i>
Longitude	double precision, optional Fact: <i>"Operation has Longitude" on model-page 8</i>
OperationType	varchar 10, mandatory Fact: <i>"Operation has OperationType" on model-page 8</i>
ParentOpId	longinteger, optional Fact: <i>"Operation has ParentOpId" on model-page 8</i>

Login	varchar 12, mandatory Foreign Key To: Login Fact: "Login was entered by Operation" on model-page 8
TimeEntered	datetime, mandatory Fact: "TimeEntered of Operation" on model-page 8
TimeLastUpdated	datetime, optional Fact: "TimeLastUpdated of Operation" on model-page 8
UploadedFlag	varchar 1, optional Rule: IN ("Y") Fact: "UploadedFlag set for Operation" on model-page 8
Comments	varchar 50, optional Fact: "Operation has Comments" on model-page 8
LocationType	varchar 10, optional Fact: "Operation has LocationType" on model-page 8
CatchError	smallint, optional Rule: IN (0, 1) Fact: "CatchError in Operation" on model-page 8
PositionError	smallint, optional Rule: IN (0, 1) Fact: "PositionError of Operation" on model-page 8
EffortError	smallint, optional Rule: IN (0, 1) Fact: "EffortError in Operation" on model-page 8
WorkUnitType	varchar 15, optional Fact: "Operation has WorkUnitType" on model-page 8

**Secondary Indexes**

OperationIdx2                      Compound alternate non-unique index over:  
  Longitude, Latitude

**Incident Foreign Keys**

Table	Field(s)	Relationship
OpNumericValues	Collection OperationId	1:m
OpCodeValues	Collection OperationId	1:m
OpStringValue	Collection OperationId	1:m

TagEvent	Collection0 OperationId	1:m
Catch	Collection OperationId	1:m
Release	Collection OperationId	1:m
ClubOpSpecies	Collection OperationId	1:m

**OpNumericValues****Primary Key**

Collection	varchar 10, mandatory Foreign Key To: <i>Operation</i>
OperationId	longinteger, mandatory Foreign Key To: <i>Operation</i>
NumericValueCode	varchar 20, mandatory Foreign Key To: <i>NumericValueCode</i>

**Field(s)**

Quantity	float, mandatory Fact: <i>"Operation has a NumericValueCode with value of Quantity" on model-pag 8</i>
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**OpStringValue****Primary Key**

Collection	varchar 10, mandatory Foreign Key To: <i>Operation</i>
OperationId	longinteger, mandatory Foreign Key To: <i>Operation</i>
StringValueCode	varchar 20, mandatory Foreign Key To: <i>StringValueCode</i>

**Field(s)**

StringValue	varchar 25, mandatory Fact: <i>"Operation has a StringValueCode with value of StringValue" on model-pac</i> <i>8</i>
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**Organisation****Primary Key**

Organisation integer, mandatory

**Field(s)**

OrganisationName varchar 30, mandatory  
Fact:  
*"Organisation has OrganisationName" on model-page 2*

OrganisationType blob, mandatory  
Fact:  
*"Organisation has OrganisationType" on model-page 2*

**Incident Foreign Keys**

<b>Table</b>	<b>Field(s)</b>	<b>Relationship</b>
OrganisationFisher	Organisation	1:m
ClubAddress	Organisation	1:m
TagIssue	Organisation	1:m
OrganisationPerson	Organisation	1:m
ClubOpSpecies	Organisation	1:m

## OrganisationFisher

### Primary Key

Organisation

integer, mandatory  
Foreign Key To:  
*Organisation*

Fisher

varchar 25, mandatory  
Foreign Key To:  
*Person*

**OrganisationPerson****Primary Key**

Organisation

integer, mandatory  
Foreign Key To:  
*Organisation*

Person

varchar 25, mandatory  
Foreign Key To:  
*Person***Field(s)**

Position

varchar 35, optional  
Fact:  
*"OrganisationPerson has Position" on model-page 2*



**PageReturn****Primary Key**

SerialNr	long, mandatory Foreign Key To: <i>DispatchedItem</i>
Collection	varchar 10, mandatory Foreign Key To: <i>DispatchedItem</i>
FirstPageNo	integer, mandatory

**Field(s)**

LastPageNo	integer, optional Fact: <i>"PageReturn has LastPageNo" on model-page 7</i>
ReceivedBy	varchar 12, optional Fact: <i>"PageReturn is ReceivedBy" on model-page 7</i>
Person	varchar 25, optional Foreign Key To: <i>Person</i> Fact: <i>"PageReturn from Person" on model-page 7</i>
DateReceived	datetime, optional Fact: <i>"PageReturn has DateReceived" on model-page 7</i>

**Paper****Primary Key**

Paper char 10, mandatory

**Field(s)**

Format char 10, mandatory  
Fact:  
*"Paper has Format" on model-page 1*

Overview text, optional  
Fact:  
*"Paper has Overview" on model-page 1*

Document blob, mandatory  
Fact:  
*"Paper is Document" on model-page 1*

StartDate date, optional  
Fact:  
*"Paper covers StartDate" on model-page 1*

EndDate date, optional  
Fact:  
*"Paper covers to EndDate" on model-page 1*

Heading varchar 30, optional  
Fact:  
*"Paper has Heading" on model-page 1*

DateProduced datetime, optional  
Fact:  
*"Paper has DateProduced" on model-page 1*

**Incident Foreign Keys**

Table	Field(s)	Relationship
CollectionPaper	Paper	1:m
PaperPerson	Paper	1:m
PaperKeyword	Paper	1:m

**PaperKeyword**

**Primary Key**

Paper

char 10, mandatory  
Foreign Key To:  
*Paper*

Keyword

varchar 20, mandatory

**PaperPerson**

**Primary Key**

Paper

char 10, mandatory  
Foreign Key To:  
*Paper*

Person

varchar 25, mandatory  
Foreign Key To:  
*Person*

**Person****Primary Key**

Person varchar 25, mandatory

**Field(s)**

FirstName varchar 20, mandatory  
Fact:  
*"Person has FirstName" on model-page 2*

Surname varchar 30, mandatory  
Fact:  
*"Person has Surname" on model-page 2*

Gender varchar 6, optional  
Fact:  
*"Person has Gender" on model-page 2*

DateOfBirth date, optional  
Fact:  
*"Person has DateOfBirth" on model-page 2*

**Incident Foreign Keys**

Table	Field(s)	Relationship
OrganisationFisher	Fisher	1:m
PaperPerson	Person	1:m
PersonAddress	Person	1:m
Collection	Person	1:m
TagEvent	Person	1:m
Login	Person	1:1
TagIssue	Person	1:m
Licence	Fisher	1:m
Gear	Fisher	1:m
PageReturn	Person	1:m
DispatchedItem	Person	1:m
Interview	Person	1:m
OrganisationPerson	Person	1:m

**PersonAddress****Primary Key**

Person	varchar 25, mandatory Foreign Key To: <i>Person</i>
AddressType	varchar 10, mandatory

**Field(s)**

Address	integer, mandatory Foreign Key To: <i>Address</i> Fact: <i>"Person has AddressType of Address" on model-page 2</i>
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**Question****Primary Key**

Question

longinteger, mandatory

**Field(s)**

QuestionText

varchar 200, mandatory

Fact:

*"Question has QuestionText" on model-page 4***Incident Foreign Keys****Table****Field(s)****Relationship**

InterviewAnswers  
CollectionQuestion  
QuestionRow  
QuestionColumn

Question  
Question  
Question  
Question

1:m  
1:m  
1:m  
1:m

**QuestionColumn****Primary Key**

Question	longinteger, mandatory Foreign Key To: <i>Question</i>
Column	smallint, mandatory

**Field(s)**

Heading	varchar 30, optional Fact: <i>"QuestionColumn has Heading" on model-page 4</i>
DataType	varchar 20, mandatory Fact: <i>"QuestionColumn has DataType" on model-page 4</i>
Length	integer, optional Fact: <i>"QuestionColumn has Length" on model-page 4</i>
MaxValue	integer, optional Fact: <i>"QuestionColumn has MaxValue" on model-page 4</i>
MinValue	integer, optional Fact: <i>"QuestionColumn has MinValue" on model-page 4</i>

**Incident Foreign Keys**

Table	Field(s)	Relationship
QuestionColValid	Question Column	1:m
NextQuestion	Question Column	1:m



**QuestionColValid****Primary Key**

Question	longinteger, mandatory Foreign Key To: <i>QuestionColumn</i>
Column	smallint, mandatory Foreign Key To: <i>QuestionColumn</i>
ValidValue	varchar 20, mandatory

**QuestionRow**

**Primary Key**

Question

longinteger, mandatory  
Foreign Key To:  
*Question*

Row

smallint, mandatory

**Field(s)**

Heading

varchar 30, optional  
Fact:  
*"QuestionRow has Heading" on model-page 4*

**Region****Primary Key**

Region varchar 30, mandatory

**Field(s)**

Description varchar 50, mandatory  
Fact:  
*"Region has Description" on model-page 1*

CentreLat double precision, optional  
Fact:  
*"Region has CentreLat" on model-page 1*

CentreLong double precision, optional  
Fact:  
*"Region has CentreLong" on model-page 1*

Area float, optional  
Fact:  
*"Region has Area" on model-page 1*

**Incident Foreign Keys**

Table	Field(s)	Relationship
SuperRegion	Region	1:m
SuperRegion	Region0	1:m
Collection	Region	1:m
RegionPointNo	Region	1:m

**RegionPointNo****Primary Key**

PointNo	integer, mandatory
Region	varchar 30, mandatory Foreign Key To: <i>Region</i>

**Field(s)**

Latitude	double precision, mandatory Fact: <i>"RegionPointNo has Latitude" on model-page 1</i>
Longitude	double precision, mandatory Fact: <i>"RegionPointNo has Longitude" on model-page 1</i>

**Release****Primary Key**

ReleaseId	integer, mandatory
Collection	varchar 10, mandatory Foreign Key To: <i>Operation</i>
OperationId	longinteger, mandatory Foreign Key To: <i>Operation</i>

**Field(s)**

ReleasedNr	longint, mandatory Fact: <i>"ReleasedNr of Release" on model-page 10</i>
Gender	varchar 6, optional Fact: <i>"Release has Gender" on model-page 10</i>
SpeciesWt	float, optional Fact: <i>"Release has SpeciesWt" on model-page 10</i>
Species	varchar 10, mandatory Foreign Key To: <i>Species</i> Fact: <i>"Release has Species" on model-page 10</i>
ReleaseCode	varchar 2, mandatory Rule: IN ("T", "U", "B", "P", "O") Fact: <i>"Release has ReleaseCode" on model-page 10</i>

**Species****Primary Key**

Species varchar 10, mandatory

**Field(s)**

ScientificName varchar 35, mandatory  
 Fact:  
*"Species has ScientificName" on model-page 9*

**Incident Foreign Keys**

Table	Field(s)	Relationship
SpeciesGroup	Species	1:m
TagEvent	Species	1:m
Catch	Species	1:m
Release	Species	1:m
ClubOpSpecies	Species	1:m
CollectionSpecies	Species	1:m
SpeciesCommonName	Species	1:m

**SpeciesCommonName****Primary Key**

Species varchar 10, mandatory  
Foreign Key To:  
*Species*

CommonName varchar 35, mandatory

**Field(s)**

PreferredNameFlag varchar 1, optional  
Fact:  
*"PreferredNameFlag of SpeciesCommonName" on model-page 9*

**SpeciesGroup**

**Primary Key**

Species	varchar 10, mandatory Foreign Key To: <i>Species</i>
SpeciesGroup	varchar 35, mandatory



**StringValueCode**

**Primary Key**

StringValueCode                      varchar 20, mandatory

**Field(s)**

Description                      varchar 50, mandatory  
Fact:  
    *"StringValueCode has Description" on model-page 8*

**Incident Foreign Keys**

<b>Table</b>	<b>Field(s)</b>	<b>Relationship</b>
OpStringValue	StringValueCode	1:m

**Suburb****Primary Key**

Suburb                                  varchar 20, mandatory

**Field(s)**

PostCode                              smallint, mandatory  
Fact:  
    *"Suburb has PostCode" on model-page 2*

**Incident Foreign Keys**

Table	Field(s)	Relationship
Address	Suburb	1:m

**SuperRegion**

**Primary Key**

Region

varchar 30, mandatory  
Foreign Key To:  
*Region*

Region0

varchar 30, mandatory  
Foreign Key To:  
*Region*

**TagEvent****Primary Key**

Collection	varchar 10, mandatory Foreign Key To: <i>Collection</i>
Tag	integer, mandatory
Event	varchar 10, mandatory Rule: IN ("RELEASED", "CAUGHT", "CT/REL")

**Field(s)**

EventDate	datetime, mandatory Fact: <i>"TagEvent on EventDate" on model-page 3</i>
Person	varchar 25, mandatory Foreign Key To: <i>Person</i> Fact: <i>"TagEvent by Person" on model-page 3</i>
Species	varchar 10, mandatory Foreign Key To: <i>Species</i> Fact: <i>"TagEvent has Species" on model-page 3</i>
FishLength	float, mandatory Fact: <i>"TagEvent has FishLength" on model-page 3</i>
Location	varchar 20, mandatory Fact: <i>"TagEvent at Location" on model-page 3</i>
WaterType	varchar 5, optional Rule: IN ("Salt", "Fresh") Fact: <i>"TagEvent has WaterType" on model-page 3</i>
TimeCaught	time, optional Fact: <i>"TimeCaught of TagEvent" on model-page 3</i>
Comments	varchar 50, optional Fact: <i>"TagEvent about Comments" on model-page 3</i>
Duration	float, optional Fact: <i>"TagEvent involving Duration" on model-page 3</i>
TotalCatch	double, optional Fact: <i>"TotalCatch associated with TagEvent" on model-page 3</i>

Reward	varchar 20, optional Fact: <i>"Reward given for TagEvent" on model-page 3</i>
Collection0	varchar 10, optional Foreign Key To: <i>Operation</i> Fact: <i>"Operation for TagEvent" on model-page 3</i>
OperationId	longinteger, optional Foreign Key To: <i>Operation</i> Fact: <i>"Operation for TagEvent" on model-page 3</i>

**TagIssue****Primary Key**

Collection	varchar 10, mandatory Foreign Key To: <i>Collection</i>
IssueNo	smallint, mandatory
IssueDate	date, mandatory

**Field(s)**

Organisation	integer, optional Foreign Key To: <i>Organisation</i> Fact: <i>"TagIssue issued to Organisation" on model-page 3</i>
Person	varchar 25, optional Foreign Key To: <i>Person</i> Fact: <i>"TagIssue to Person" on model-page 3</i>
FirstTagNo	integer, optional Fact: <i>"FirstTagNo has TagIssue" on model-page 3</i>
LastTagNo	integer, optional Fact: <i>"TagIssue has LastTagNo" on model-page 3</i>

DATED:

BETWEEN:  
FISHERIES RESEARCH AND  
DEVELOPMENT CORPORATION  
"FRDC"

AND:  
QUEENSLAND FISHERIES MANAGEMENT  
AUTHORITY  
"QFMA"

AND:  
FARVIEW TECHNOLOGY PTY LTD  
ACN 073 158 040  
"FARVIEW"

## INTELLECTUAL PROPERTY AGREEMENT

### BARWICKS WISEWOULDS

Lawyers  
Level 14  
141 Queen Street  
BRISBANE QLD 4000  
Telephone: (07) 3238 8888  
Facsimile: (07) 3221 4358  
Our reference: WJ:PLD  
Draft No: (1)  
27/10/97



This Agreement is made the

day of

199 .

BETWEEN: **FISHERIES RESEARCH AND DEVELOPMENT CORPORATION** of 25  
Geils Court, Deacon, ACT, 2600;

"FRDC"

AND: **QUEENSLAND FISHERIES MANAGEMENT AUTHORITY** of level 6, 40  
Tank Street, Brisbane, Queensland;

"QFMA"

AND: **FARVIEW TECHNOLOGY PTY LTD ACN 073 158 040** care of Ernst &  
Young, 6th floor, 54 Marcus Clarke Street, Canberra City, ACT.

"Farview"

**RECITALS:**

- A. FRDC funded the SIRFIS Project to its present stage of completion.
- B. QFMA is the manager of the SIRFIS Project.
- C. In order to complete the SIRFIS Project, QFMA has requested Fairview for assistance.
- D. Fairview has proposed a strategy for completing the project which has been accepted by QFMA and FRDC.
- E. The parties wish to enter into this Agreement to record the arrangements between them.

**THE PARTIES AGREE AND DECLARE AS FOLLOWS:**

**1. DEFINITIONS AND INTERPRETATION**

1.1 **Definitions.** In this Agreement, unless the context or subject matter otherwise require:

"**Agreement**" means this agreement, (including the recitals to it), as it may later be amended or supplemented by the parties in writing;

"**Agreement Date**" means the date specified above the parties names on page 1 of this Agreement, or if not specified in that place, the date of execution or signature (as the case may be) by the last party to execute or sign (as the case may be) this Agreement;

"**Authorised Representative**" means:

- (a) in respect of a party which is a corporation:
  - (i) a company secretary or director or any officer of the corporation whose title or office includes the words "manager" or "director"; or
  - (ii) a person acting with the title or in the office of manager or director;





- (b) in respect of a party which is a Government Authority, the executive officer of the Government Authority or a person delegated with appropriate authority; and
- (c) in respect of each party, a solicitor of that party or a person nominated by Notice to the other party as an authorised representative;

"**Business Day**" means a day, not being a Saturday, Sunday or gazetted public holiday, on which banks are open for commercial business at Brisbane and in the place or places where performance of a relevant Obligation is or is required to take place;

"**Claim**" means, in relation to a person, a claim, demand, remedy, suit, injury, damage, loss, cost, liability, action, proceeding, right of action, claim for compensation or reimbursement or liability incurred by or to be made or recovered by or against the person, however arising and whether ascertained or unascertained, or immediate, future or contingent;

"**Client**" means any member of the Client Group;

"**Client Group**" means the various State and Commonwealth fisheries agencies/organisations defined in the original FRDC contract for the SIRFIS Project;

"**Consultancy Agreement**" means the consultancy agreement entered or intended to be entered on the Agreement Date, between QFMA as principal and Farview as consultant, for the supply of consultancy services to QFMA in relation to the SIRFIS Project;

"**Government Authority**" means any local, State or Federal government, a Minister or government department of each of those governments, a corporation or authority constituted for a public purpose, the holder of an office for a public purpose, a local authority and any agent or employee of any of them;

"**Intellectual Property**" means jointly and severally the trade marks, trade mark rights, patents, patent rights, designs, future rights, copyright, or any other forms of confidential information or their physical expression that is recognised by Australian law to be worthy of protection either now or at any time in the future after the date of this Agreement in relation to the SIRFIS Project and as otherwise defined in clause 7 of the Principal Agreement;

"**Notice**" means a notice, consent, approval, direction, order or other communication, which is in writing;

"**Notice Address**" means in respect of a party:

- (a) the following address or facsimile number:

**FRDC**                      **Service address:**            25 Geils Court, Deacon, ACT, 2600  
**Facsimile number:**        (02) 6285 4421  
**Attention:**

**QFMA**                      **Service address:**            Level 6, 40 Tank Street, Brisbane, Queensland  
**Facsimile number:**        (07) 3225 1823  
**Attention:**                    Executive Officer

Handwritten signatures and initials at the bottom of the page, including a large signature on the left, a signature in the middle, a signature on the right, and a set of initials on the far right.

**FARVIEW**      **Service address:**      Level 11, Advance Bank Building  
60 Marcus Clarke Street, Canberra, ACT 2601

**Facsimile number:**      (02) 6243 5153

**Attention:**      Geoffrey Zuber

- (b) where a party gives Notice to all other parties of another address or number, the last address or facsimile number so notified;

"**Obligation**" means any legal, equitable, contractual, statutory or other obligation, agreement, covenant, commitment, duty, undertaking or liability;

"**Phase 3**" means that status of the SIRFIS Project described as such in the schedule to the Consultancy Agreement;

"**Principal Agreement**" means the agreement entered before the Agreement Date between QFMA and FRDC in relation to the SIRFIS Project;

"**Right**" includes a legal, equitable, contractual, statutory or other right, power, authority, benefit, privilege, remedy, discretion or cause of action;

"**SIRFIS Project**" means the project (95/054) titled "Development and implementation of a national standard for a recreational fisheries database for all fisheries agencies", which is the three year project being undertaken by QFMA, as the principal investigator, in accordance with the Principal Agreement; and

"**SIRFIS System**" means the system developed for the SIRFIS Project, including intellectual Property, as the system exists from time to time.

1.2 **Interpretation.** In the interpretation of this Agreement, unless the context or subject matter otherwise require:

- (a) singular includes plural and vice versa and any gender includes every gender;
- (b) a reference to a person includes corporations, trusts, associations, partnerships, a Government Authority, and other legal entities, and where necessary, include successor bodies;
- (c) references to writing include printing, typing, facsimile and other means of representing or reproducing words, figures, drawings or symbols in a visible and tangible form, in English;
- (d) references to months mean calendar months;
- (e) references to statutes include statutes amending, consolidating or replacing the statutes referred to and all regulations, orders-in-council, rules, by-laws and ordinances made under those statutes;
- (f) headings and the table of contents are used for convenience only and are to be disregarded in the interpretation of this Agreement;
- (g) each paragraph or sub-paragraph in a list is to be read independently from the others in the list; and

- (h) a reference to a party includes that party's executors, administrators, substitutes, successors and permitted assigns.

## 2. ACKNOWLEDGEMENT

The parties acknowledge and agree that:

- (a) QFMA has been appointed the manager of the SIRFIS Project and has authority to make decisions about its implementation and completion in accordance with the Principal Agreement; and
- (b) QFMA has the right, without the consent of Farview, at any time and from time to time to use, licence Clients to use and upgrade or modify the SIRFIS System as it sees fit in its absolute discretion, subject to clause 6.1 of this Agreement.

## 3. OWNERSHIP, PROFITS AND FUNDING

3.1 **Ownership.** It is acknowledged and agreed that the Intellectual Property of the SIRFIS Project shall be owned by the following parties in the proportions specified opposite their names:

Farview	10%
FRDC	30%
QFMA	42%
Client Members	18%

3.2 **Profits.** Any profits received from royalties from the sale of the SIRFIS System, under clause 6.1(b), must be shared and distributed in accordance with the ownership proportions listed in clause 3.1.

3.3 **Funding.** QFMA and FRDC are solely responsible for funding the development of the SIRFIS System to Phase 3. If Farview wishes to exercise its Right to market, further develop or modify the SIRFIS System, or sell it to non-Clients, Farview shall be responsible for the costs of doing so.

## 4. CLIENT GROUPS

4.1 **Changes to Clients.** The parties acknowledge that Clients may change over time with administrative changes within the relevant jurisdictions and may include associations acting in support of or on behalf of them.

4.2 **Register of Client Group.** QFMA will maintain a register of each Client included from time to time in the Client Group, which may be inspected by any party.

4.3 **FRDC and QFMA authority.** QFMA will act on behalf of Client Members in all dealings with Farview relating to the SIRFIS Project and Farview will not, before the completion of Phase 3, accept directions from a Client without the consent of QFMA.

4.4 **Acceptance of benefit.** It is acknowledged that each Client accepts the benefit of the agreements made in this Agreement in favour of the Client Group and each Client.

## 5. CLIENT RIGHTS AND OBLIGATIONS

5.1 **Copy of SIRFIS System.** Clients will receive full copies of the source code of the SIRFIS System upon completion of Phase 3 and any future release and will not be subject to any licensing/royalty provisions.

5.2 **Client Developments.** A Client may modify or enhance the Client's version of the SIRFIS System and any developments negotiated between a Client and an external service provider to modify or enhance the Client's version of the SIRFIS System will not be subject to the royalty fee.

5.3 **Restrictions of conduct.** Each Client must, at the request of QFMA, enter an agreement with the parties to this Agreement, restricting the rights of a Client to use or deal with the Intellectual Property or the SIRFIS System. This Agreement will include provisions restricting a Client from releasing, using or distributing the Intellectual Property of the SIRFIS System, other than for purposes of that Client.

## 6. FARVIEW'S RIGHTS AND OBLIGATIONS

6.1 **Farview's Rights.** Farview has the right:

- (a) to market and make sales of the SIRFIS System in the form which has been approved upon completion of Phase 3 by QFMA or in a modified form, to any person (other than Clients), and if a sale is made, to enter any agreement reasonably required to complete the sale;
- (b) to exclusively use the Intellectual Property of the SIRFIS System for the purpose of further developing uses outside Client Group; and
- (c) of first refusal to undertake further development and or maintenance of SIRFIS for the purposes of clause 5.2 of this agreement, but in that case, the terms of that development and/or maintenance shall be as agreed at the time with QFMA.

6.2 **Farview's Obligations.**

- (a) If Farview makes a sale of the SIRFIS System either in the approved form or in a modified version, then Farview:
  - (i) must pay a royalty of 5% of the gross sale price, in respect of any developments outside the Australian fishing industry as defined in the *FRDC's Research and Development Plan, 1996 to 2001*; and
  - (ii) shall not be required to pay any royalty if developed for use within the Australian fishing industry.
- (b) Where a royalty fee becomes payable under clause 6.2(a), such royalty fees shall be based on gross revenue and shall be payable to QFMA on an annual basis by 31 July each year. Farview must by 31 July each year lodge a report with QFMA detailing all sales and

developments on the Intellectual Property during the previous 12 months end the immediately preceding 30 June.

- (c) If requested by QFMA, Farview must do all things and sign, execute and deliver all deeds and other documents as may be legally necessary or reasonably required of it by QFMA, in relation to dealings with the Intellectual Property, so long as the Rights of Farview under this Agreement are not materially adversely affected. If Farview defaults in taking such requested action within a reasonable time, Farview appoints QFMA as its attorney to do all things and sign, execute and deliver all deeds and other documents as may be legally necessary or reasonably required of Farview under this clause.

## 7. RE-NEGOTIATION

Each party acknowledges that they may re-negotiate any of these principles at any time with the other parties but any amendment must have the agreement of all of Farview, FRDC and QFMA.

## 8. TERMINATION

8.1 **Events of Default.** Farview commits an event of default upon the occurrence of any of the following events ("Events of Default"):

- (a) Farview fails to pay any sum of money due under this Agreement by it to QFMA within seven days from the due date for payment;
- (b) Farview has property seized under any distress or execution or makes an arrangement with or assignment for the benefit of its creditors or is the subject of any winding up proceedings or makes any arrangements or composition with its creditors;
- (c) Farview has a receiver or a receiver and manager appointed over the whole or any part of its property or undertaking or has an official manager appointed pursuant to the provisions of the *Corporations Law*;
- (d) Farview is a party to the doing of any act, matter or thing whereby any Intellectual Property is disclosed except as authorised by this Agreement or the Consultancy Agreement;
- (e) Farview fails to submit when due any report required by QFMA under this Agreement; or
- (f) Farview wilfully or fraudulently misrepresents any fact, condition or report required to be made by this Agreement.

If an Event of Default occurs and continues for 14 days after service of a Notice on Farview requiring it to remedy that breach, QFMA (in its absolute discretion) may terminate this Agreement by Notice without prejudice to any remedy QFMA may have against Farview.

8.2 **Consequences of termination.** Upon the termination or expiration this Agreement for whatever reason, Farview must:

- (a) immediately pay to QFMA all moneys due under this Agreement;

- (b) immediately deliver to QFMA or otherwise at the request of the Manufacturer dispose of or destroy all or any data, disks, tapes, manuals, instruction books, technical pamphlets, catalogues, product manuals, advertising material, sales leaflets, sales aides, promotional materials and all other materials, documents and papers whatsoever (other than correspondence between QFMA and Farview) which may be in its possession, custody or control of Farview in relation to the Intellectual Property.

## 9. INTERDEPENDENT AGREEMENTS

9.1 **Acknowledgement.** The parties acknowledge that at the same time as execution of this Agreement, the Consultancy Agreement was entered.

9.2 **Conditional Agreement.** This Agreement is subject to and conditional upon:

- (a) the Consultancy Agreement not being terminated before the completion of Phase 3; and  
 (b) Farview assisting QFMA in completing the SIRFIS Project to Phase 3 within a reasonable time after the Agreement Date,

the failing which any party to this Agreement may terminate it.

9.3 **Cross default - Farview.** Should there be default by Farview under the Consultancy Agreement, then such default is deemed to be default by Farview under this Agreement.

9.4 **Termination.** If for any reason whatsoever the Consultancy Agreement ceases to be of full force and effect or is terminated before the completion of Phase 3, then that termination shall also act as a termination of this Agreement.

## 10. COSTS

Each party shall pay and bear its own costs of and incidental to the preparation, negotiation and execution of this agreement, but Farview must pay all stamp duty on this Agreement and on documents contemplated by it.

## 11. ASSIGNMENT

No party shall be entitled to assign its Rights or Obligations under this Agreement without the prior written consent of the other parties, which consent shall not be unreasonably withheld.

## 12. NOTICES

12.1 **Form of Notices.** Notices given under this Agreement shall be:

- (a) in writing;  
 (b) signed by the party giving the Notice or its Authorised Representative; and  
 (c) addressed to the Notice Address of the person to whom it is to be given.

12.2 **Method and address for giving Notices.** Notices must be either:

- (a) delivered by hand;
- (b) posted by pre-paid security or certified mail; or
- (c) transmitted by facsimile,

to the Notice Address of the person receiving the Notice.

12.3 **Time of receipt.** A Notice given to a person in accordance with this Agreement is deemed to have been given and received if:

- (a) delivered, on the day of delivery if delivered before 5:00pm on a Business Day, otherwise on the next Business Day;
- (b) posted by pre-paid security mail or certified mail, on the second day after the day on which the Notice was accepted by the post office from the party sending the Notice; or
- (c) transmitted by facsimile:
  - (i) the transmission report states that it was sent in full and without error; and
  - (ii) no objection is received from the recipient,

on the day of transmission if that report states that the transmission was completed before 5:00pm on a Business Day, otherwise on the next Business Day.

12.4 **Objection to facsimile.** A party receiving a facsimile transmission may object to the facsimile transmission as not being fully intelligible. If a valid objection is made to a facsimile transmission and that party requests re-transmission before 5:00pm on the next Business Day after completion of the facsimile transmission, the party sending the facsimile transmission shall re-transmit it, but any re-transmission is deemed to have been made at the time of completion of the original facsimile transmission. If a time restriction is placed, by reference to the date of receipt of the facsimile transmission, on the performance of an Obligation or the exercise of a Right by the party who makes the valid objection to a facsimile transmission, the time restriction for performance of the Obligation or the exercise of the Right is deemed extended by a corresponding time period to the time between the original transmission and re-transmission of the facsimile.

### 13. PROPER LAW, JURISDICTION

13.1 **Choice of law.** This Agreement is governed by and construed in accordance with the laws of Queensland.

13.2 **Jurisdiction.** Actions, suits or proceedings relating in any way to this Agreement or documents or dealings contemplated by it, may be instituted, heard and determined in a court of competent jurisdiction in Queensland.

13.3 **Submission to jurisdiction.** Each party irrevocably submits to the non-exclusive jurisdiction of such court for the purpose of any such action, suit or proceeding.

13.4 **Service of process.** A party may by Notice appoint another person at a specified address in Queensland to receive service of process in connection with proceedings and process served on that person is taken to be served on the party making the appointment.

#### 14. GENERAL PROVISIONS

14.1 **Variations.** No variation of this Agreement nor consent to a departure by a party from a provision, shall be of effect unless it is in writing, signed by the parties or (in the case of a waiver) by the party giving it. Any such variation or consent shall be effective only to the extent to or for which it may be made or given.

14.2 **Waiver.** The non-exercise of or delay in exercising a Right of a party shall not operate as a waiver of that Right, nor does a single exercise of a Right preclude another exercise of it or the exercise of other Rights. A Right may only be waived by Notice, signed by the party (or its Authorised Representative) to be bound by the waiver.

14.3 **Further assurances.** Each party to this Agreement shall do all things and sign, execute and deliver all deeds and other documents as may be legally necessary or reasonably required of it by Notice from another party to carry out and give effect to the terms and intentions of this Agreement and to perfect, protect and preserve the Rights of the other parties to this Agreement.

14.4 **Liability of parties.** If a party consists of more than one person:

- (a) an Obligation of those parties is a joint Obligation of all of them and a several Obligation of each of them;
- (b) a Right given to those parties is a Right given jointly and severally to each of them, and if exercised by one of them, is deemed to be exercised jointly; and
- (c) a representation, warranty or undertaking made by those parties is made by each of them.

14.5 **Counterparts.** This Agreement may be signed or executed in a number of counterparts, with the same effect as if the signatures to or execution of each counterpart were on the same instrument.

14.6 **Warranty of authority.** Each person signing this Agreement:

- (a) as attorney, by so doing, warrants to the other parties that, as at the date of signing, the signatory has not received notice or information of the revocation of the power of attorney appointing that person; and
- (b) as an Authorised Representative, agent or trustee of a party, warrants to the other parties that, as at the date of signing, the signatory has full authority to execute this Agreement on behalf of that party.

14.7 **Severability.** This Agreement shall, so far as possible, be interpreted and construed so as not to be invalid, illegal or unenforceable in any respect, but if a provision, on its true interpretation or construction is held to be illegal, invalid or unenforceable:



- (a) that provision shall, so far as possible, be read down to the extent that it may be necessary to ensure that it is not illegal, invalid or unenforceable and as may be reasonable in all the circumstances so as to give it a valid operation; or
- (b) if the provision or part of it cannot effectively be read down, that provision or part of it shall be deemed to be void and severable and the remaining provisions of this Agreement shall not in any way be affected or impaired and shall continue notwithstanding that illegality, invalidity or unenforceability.

Handwritten signatures and initials at the bottom of the page. There are three distinct signatures or sets of initials, written in dark ink. The first is a large, stylized signature, the second is a smaller signature, and the third is a set of initials.

Executed as an agreement.

SIGNED for and on behalf of FISHERIES RESEARCH AND DEVELOPMENT CORPORATION by authorised officers, in the presence of:

*[Signature]*  
Name: P. DUNDAS-SMITH  
Position: EXECUTIVE DIRECTOR

*[Signature]*  
Witness  
Name (printed): MELAN KWA

Name:  
Position:

SIGNED for and on behalf of QUEENSLAND FISHERIES MANAGEMENT AUTHORITY by authorised officers, in the presence of:

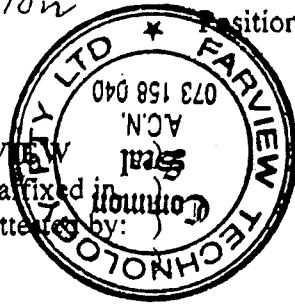
*[Signature]*  
Name: JAMES GORDON MILLER  
Position: CHAIRMAN



*[Signature]*  
Witness  
Name (printed): P. L. Appleton

Name: P. L. Appleton  
Position: Acting Chief Executive Officer

THE COMMON SEAL of FARVIEW TECHNOLOGY PTY LTD was affixed in the presence of and the sealing is attested by:



*[Signature]*  
Director/Secretary  
Name (printed): *[Signature]*

*[Signature]*  
Director  
Name (printed): MICHAEL GEORGE

*[Signature]* *[Signature]*

***Attachment 5***

SIRFIS FRDC Project Document

# The SIRFIS Client Handbook.

FRDC 95/054

Cameron Baker/Gary Mandelkow  
Todd Kelly  
Queensland Fisheries Management Authority

08 January 1997



FISHERIES  
RESEARCH &  
DEVELOPMENT  
CORPORATION



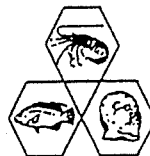
QFMA  
Queensland Fisheries  
Management Authority



**Recfish**



SOUTH AUSTRALIAN  
RESEARCH AND  
DEVELOPMENT  
INSTITUTE



DEPARTMENT OF  
PRIMARY INDUSTRY  
AND FISHERIES



MARINE & FRESHWATER  
RESOURCES INSTITUTE



Department of  
Primary Industry and Fisheries  
TASMANIA



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### **Glossary of terms.**

Activity - the term used to describe fishing effort or the recording of that effort. For example, a charter boat day trip, individual club fisher effort, a boat ramp survey or individual effort extracted during a survey.

Anecdotal survey - the term used to describe surveys do not collect information via direct observation/interview in the field. Phone surveys or mail surveys are examples of anecdotal surveys.

Attribute - the characteristics of a particular activity or object. For example, skippers name, fishing method code, no. of fishers.

Collection - the term used to describe a data set.

Location - a single point with associated latitude and longitude coordinates. For example, Waddy Point on Fraser Island. Locations may have variations in accuracy (e.g. within 1km) which may result in them being represented as a circle.

Region - a geographical area defined by boundaries of longitude and latitude. A region is represented as a polygon. An example of a region is the Ningaloo Marine Park in Western Australia.

Module - a module is comprised of a set of screens related to a collection type such as a fishing club data set.

Schema - a technical representation of the database design. Examples of these schema can be viewed in the SIRFIS design document.



## Scope of this Document

The purpose of this document is to provide a summary of the project to date, in particular focussing on the modules being developed in the SIRFIS application. It is designed to provide an understanding of the basic elements and functions of the application, and stimulate discussion on the design.

## Project Background

The 1992 Queensland Government Inquiry into Recreational Fishing identified the need for a comprehensive database to assist with the monitoring of recreational fishing catch and effort data to contribute to the sustainable management of those species targeted by recreational anglers.

The need for a coordinated and national approach to the development of a standard for a recreational fishery's database was identified at the Recreational Fishing Workshop in Canberra entitled 'Recreational Fishing: What's the Catch?' (30-31 August 1994). Further, it was considered a high priority at the preworkshop gathering entitled 'Best Available Information - Its Implications for Recreational Fisheries Management' held in conjunction with the 2nd National Fisheries Management Workshop (Bribie Island, 18-21 October 1994).

The Standing Committee on Fisheries and Aquaculture (SCFA) Fisheries Statistical Working Group (FSWG) agreed that the development of a national standard for a Recreational Fisheries database would provide a common structure for the collection, processing, storage and retrieval of recreational fisheries data. Such a standard would enable common baseline data to be stored by each agency. This would ensure that the minimum catch and effort data is available for each agency to assist with management of the major recreational fisheries in each State or Territory.

With the support of State fisheries agencies and the Fisheries Statistical Working Group, an application entitled "*The development and implementation of a national standard for a recreational fisheries database by all fisheries agencies*" was submitted to the Fisheries Research and Development Corporation in December 1994. The project commenced on 1 October 1995.

Consultation with representatives from key stakeholder groups (e.g. State fisheries agencies, recreational fishing organisations and Bureau of Resource Sciences) was conducted in December 1995. As a result of this consultation, a document outlining user requirements was completed in April 1996. From this document, a Draft Database Design document for SIRFIS (Standardised Integrated Recreational Fisheries Information System) was completed and circulated for comment amongst the client group in September 1996.

Comments on the "Draft Design Document" were received by most agencies by mid November and after incorporating this feedback the final "Design Document" was completed on 4 December 1996

## Associated Documents

- "Review of the requirements outlined by the client group for the SIRFIS FRDC Project" 10 April 1996.

- "Selection of a Client/Server application development environment for the SIRFIS FRDC project" 14 May 1996.
- "SIRFIS draft design document" 5 September 1996.
- "Draft design document supplement - Graphical User Interface Standards and Conventions" 19 September 1996.
- "Final SIRFIS design document" 6 December 1996.

### **Project Scope**

To develop a standardised relational database capable of storing, manipulating and retrieving recreational fishing data collected by State and National fishing agencies.

### **Project team members**

#### ***Development Team***

Cameron Baker - Senior Programmer  
 Gary Mandelkow - Programmer/Analyst  
 Todd Kelly - Team Coordinator  
 Neil Trainor - Project Leader

#### ***Agency Representative members***

Aldo Steffe & Ary Grinberg - NSW Fisheries Research Institute  
 Sandra Cormack - Queensland Fisheries Management Authority  
 Anne Gason - Victorian Dept. Of Conservation and Natural Resources.  
 Jeremy Lyle - Tasmanian Marine Research Division  
 Andrew Saenger - Tasmanian Inland Fisheries Commission  
 Nick Caputi - Western Australian Fisheries  
 David McGlennon - South Australian Research and Development Institute  
 Rosemary Lea - Northern Territory Fisheries Management Branch  
 Mark Linderman - ACT Dept of Urban Services  
 Steve Jackson - Australian Fisheries Management Authority  
 John Harrison - Australian Recreation and Sportsfishing Confederation  
 Phil Stewart - ACT Bureau of Resource Sciences  
 Stephen Kerr - ACT Dept. Of Primary Industries (Fishcare)  
 Annette Lyons - Fisheries Research and Development Corporation

### **Project Objectives**

- i. To provide a tool to facilitate the development of an on going national information base - "a store of knowledge" as recommended by the National Fisheries Working Group.
- ii. To provide a common structure for the collection, processing, storage and retrieval of recreational fisheries data, suitable for use by all fisheries agencies irrespective of their current hardware and database server facilities (i.e. mainframes, mini computers and

PC's) through the incorporation of a custom front end.

- iii. To undertake quality assurance through retrospective examination of requirements, application testing, IT support during deployment.

### Development Process/Logic

Development of the SIRFIS database to date involved the following steps:

- identification of user requirements
- review of existing databases in operation
- collection of the types of recreational fishing information gathered by different agencies
- development of user matrix and review of data types and their location in SIRFIS

This information allowed a holistic view of the processes, infrastructure and information currently used by fisheries management agencies in capturing, storing and analysing recreational fishing information. Incorporation of these factors into the design process will result in an application which allows flexibility for present and future needs, whilst maintaining standardised formats for data storage and retrieval. The diagram below is a basic representation of the SIRFIS application.

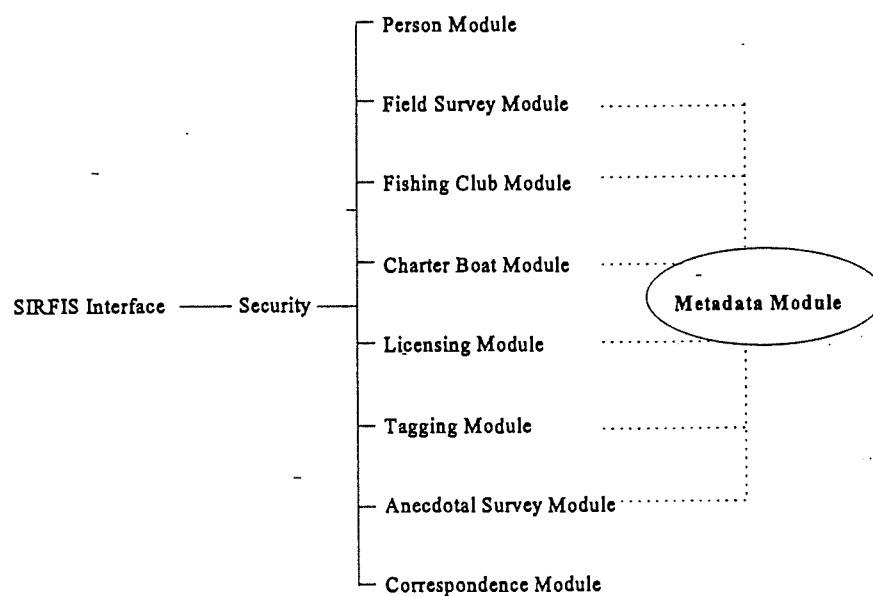


Figure 1. Diagrammatic representation of the SIRFIS application.

## Evolution of SIFIS

The term "activity" is now used to describe the various actions undertaken by fishers or organisations such as a club trip, charter boat trip, field survey trip etc. These activities were formerly described as operations.

The creator of a data collection in the database will have control over who has access to the collection. Previously this was the responsibility of the data base administrator.

Polygons can now be used to define a region.

The SIFIS application has the capability for users to develop their own screens to meet future needs. If required, screens will be developed in consultation with individual States/Territories to customise screen designs, and to ensure that only the necessary screens are provided.

A change in the use of the term module has occurred. Previously a module had been used to represent the schema (or graphical representation of the database design). This caused some confusion and a module now refers to a component of the database developed to store data relating to specific aspects of recreational fishing, for example fishing club information. There will however, be information which is common across different activities, such as location fished which will transcend individual modules and will therefore be stored in other tables within the application.

## Module Outlines

**Security module** - The security module governs user access to SIRFIS. Users can be assigned different levels of access in different modules if required, for example data entry staff may be assigned different levels of access to that of a manager or researcher. Access to the database will be through a user defined password. As mentioned previously, the creator of a data collection will determine access to the collection. An example of the security screen is illustrated below.

The screenshot shows a window titled "Security Maintenance" with a menu bar containing "File" and "Help". Below the menu bar, there is a "Name:" label followed by a text box containing "mandelg" and a checked checkbox labeled "Local Tables".

Below this is a section titled "User Details" containing several text boxes with labels: "Surname:" (Mandekow), "Firstname:" (Gary), "Address:" (21 Van St), "City:" (Capalaba), and "Phone No:" (07 222111).

At the bottom of the form is a table with two columns: "Collection" and "Security Level".

Collection	Security Level
CV02	DataRetrieval
WhitingTag1996	DataEntry

At the bottom of the window are three buttons: "OK", "Cancel", and "Apply".

Figure 2. The security maintenance screen illustrating user details, collection name and security level..

- **Metadata module** - The metadata module will be used to store details relating to individual data collections in the database. For example, if a researcher wishes to record specific details regarding the methodology used during a particular study, the metadata module is where these details would be stored. This information will be linked to the relevant data set via a collection ID. This module will also be able to store links to documents containing results, analyses and final reports related to the data set. Key words can be defined here for use with a search facility which will allow users to identify data collections which meet their requirements. The collection description field (figure 3) will allow the entry of up to 200 hundred characters.

**Collection Setup**

File Help

Collection ID: BreamFieldSurvey1997

Start Date: 1.1.97

End Date: 21.1.97

Region/Wharf: Central Coast

Survey Type: Field Survey

Owner: maineb

Collection Description: 22 days were spent surveying the Central Coast, targeting boat ramps. Data was aggregated by boats encountered, and therefore catch and effort is record per boat. All catch is measured as fork length. All lengths are stored in centimetres. Aim is to measure CPUE during the holiday period.

Heading: Bream Central Coast Boat Ramp Survey January 1996

References Involved:

- Inshore FinFish

References Involved:

- BreamFldSurvey97.xls
- BoardPresBream97.doc

Keywords:

- Bream
- Boat Ramp Survey

Search    Details/Collection

OK    Cancel

Figure 3. The collection setup screen showing fields for recording collection details.

**Correspondence module** - The correspondence module provides the facility to record correspondence sent and received by your organisation. For example, logbooks, surveys, tagging forms or any other document which will be associated with a collection of information in the database. As many of these documents are requested back when completed with information, this module allows documents to be tracked to determine if a response has been received. In summary, this module records what is sent to who, when it was sent, by whom it was sent, what was returned and when it was received. Please note that information associated with the issue of tags to fishing clubs or other organisations will be kept in the tag module.

**Correspondence Dispatch**

CollectionID: CV02Logbook SerialNo: 234

Date Sent: 12.12.96 Sent By: mandelg

Surname: Baker Firstname: Johnny

Address: 123 Applet St Suburb: Mona Vale

PostCode: 2103

OK Cancel

Figure 4. Correspondence dispatch screen showing recipient and correspondence details.

**Correspondence Page Returns**

CollectionID: CV02Logbook SerialNo: 234

First Page: 1 Last Page: 14

Date Received: 21.12.96 Received By: qfmaxxx

Surname: Baker Firstname: Johnny

Address: 123 Applet St Suburb: Mona Vale

PostCode: 2103

OK Cancel

Figure 5. Correspondence returns screen showing sender and correspondence details.

**Activity modules** - Activity modules are designed to store data from charter boat logbooks, recreational fishing logbooks, fishing club records and field surveys e.g. creel surveys, aerial surveys etc. These modules will store data related to a fishing activity/effort. Standard effort measures such as the number of lines or hours fished are provided by the SIRFIS database, however the application will also allow additional fields to be entered which may be unique to a particular study, for example “cartons drunk” during a trip.

Activities stored in the Activity Modules can also have parent - child relationships. For example, when a fishing club goes on a trip, there are individuals on the trip involved in catch and effort activities. In this situation the club trip is the parent activity, whilst the fishing individuals efforts are child activities of the club trip.

A number of Parent Activity types are stored in the database, e.g. ClubTrip, CharterBoatTrip, FieldSurveyTrip. The associated Child Activity types stored are ClubFishing Activity, CharterBoat Activity, and FieldSurvey Activity. Additional Activity types may be added to the database if necessary. Catch and release data are also stored in the modules.

**Fishing Club Module** - The fishing club module will store information provided by fishing clubs (logbooks and competition sheets). Figure 6 below, illustrates some of the data able to be held in this module. SIRFIS allows users to design additional screens if required to allow input of information not shown in this club screen.

The screenshot shows a software interface titled "Club Entry". It contains several input fields and a table. The fields include: Club1996 (dropdown), 1 (text), 3 (text), Oceanic (dropdown), Cemor (text), 5 (text), 1 (text), Ladies Beach Comp (text), Springfield Beach (text), Beach (dropdown), 1.1.96 12:00 (text), 2.1.96 18:00 (text), Beach (dropdown), Moderate (dropdown), Calm (dropdown), Cloudy (dropdown), 21 (text), Full (dropdown), 1.1.96 (text), Sangita Patel (text), and a table with columns: Species, Weight, Number, Length, Mass/Count, and Release. The table contains two rows: Bream (3, 2, .8, 34) and Whiting (5, 2.1, .5, 28). There are also some control buttons and a small panel on the right side of the screen.

Species	Weight	Number	Length	Mass/Count	Release
Bream		3	2	.8	34
Whiting		5	2.1	.5	28

Figure 6. Club entry screen showing details of a club event, including catch, location, event type etc.



**Charter Vessel module** - The Charter Vessel module stores information obtained from charter vessels logbooks. As seen in figure 7, a range of information is kept in this module and links are provided to other modules such as the tagging module and the club module. While a charter trip may be conducted over a two week period, the information relating to the individual days of that trip are also able to be recorded in this module. As with other activity modules users will be able to design additional screens if required to allow input of information not shown in this format.

**Charter Vessel Entry**

Location: CV02Logbook Log No: 223 Page No: 32

Charter Vessel: Minow Month: August Year: 1996

Charter No: FZZ Skipper: Giligan

**Catch and Effort Details**

Date: 1.8.96 Effort: 4.8.96 Trip No: N

Location: Location Type: Grid Reference: W16  
Latitude: 23.5 Longitude: 145.45

Time: No. of Fish: 3 No. of Skins: 8 Number of Bait: 9

Bait: Bait Lure

Species: 1 14

Species	Weight Type	Number	Weight	Max Weight	Max Length
→ Coral Trout		23		.75	
→ Red Throat Empo		12	2.5		
→ Sharkey Mackerel		3		1.05	

Figure 7. Charter vessel screen showing catch and effort details, location, effort and catch & release details.

**Field Survey Module** - Information collected from field surveys such as creel and ramp surveys will be stored within this module. Figure 8 below illustrates a field survey screen, with users able to design additional screens if required to allow input of information not shown in this format.

The screenshot shows a software window titled "Field Survey". It contains several input fields and sections:

- Interviewer:** mandelg
- Depth:** 13.5.96
- Interview No.:** 1
- Start Time:** 16:00
- Location:** Hook Point
- Platform:** Break Wall
- No. of Males:** 2
- No. of Females:** 3
- Start Time:** 12:00
- End Time:** 17:00
- Species List:** A scrollable list containing Bream, Flathead, Mulloway, Red Emperor, Sharkey Mackerel, and Snapper.
- Checkboxes:**
  - Interviewed before
  - Length
  - Date of Birth
- Additional Fields:**
  - No. Males:** 2
  - Males:** (empty field)
- Postcode Table:**

Postcode	Suburb
4305	Brisbane
2000	Parramatta
- Catch & Release Table:**

Species	Number	Weight	Max Weight	Max Length
Corol Trout	1	1.5		30
Red Throat Emporer				
Sharkey Mackerel				

Figure 8. Field survey entry screen illustrating interview details, species information and catch & release details.

**Tagging module** - The tagging module will store information on recreational tagging programs and tag returns. The objective of the module is to track the tag from issue to a person or organisation, through to the return and recording of associated information.

The screenshot shows a software window titled "Tag Issue". The window contains several input fields and buttons. At the top, there are three window control buttons (minimize, maximize, close). Below the title bar, there are two tabs: "Person" and "Club", with "Club" currently selected. The form fields are organized as follows:

- Collection:** A text box containing "DartTag1996".
- Issue Date:** A text box containing "12.12.96".
- Issue No.:** A text box containing "1".
- Range:** A sub-section containing:
  - Start Tag No.:** A text box containing "1".
  - Last Tag No.:** A text box containing "300".
- Club Name:** A text box containing "Oceanic".
- Phone No.:** A text box containing "07 2222 3333".
- Address:** A text box containing "32 Alice St".
- Suburb:** A text box containing "Brisbane".
- Post Code:** A text box containing "4305".

At the bottom of the window, there are two buttons: "OK" and "Cancel".

Figure 9. The tag issue screen showing tag details and the tabs for person and club details.

**Licensing module** - The Licensing module will store information relating to licences for fishers and fishing gear. The licence may be defined and attached to the gear and/or to the individual fisher, to suit the requirements of the fishery. As illustrated below, both owner and gear details are stored on a single screen, with facility for endorsements, conditions and non standard conditions also included.

**Licence Maintenance**

Licence Type:  Licence Description:   
 Licence Number:   
 Issue Date:  Renewal Date:  Expiry Date:

**Licence Applicant**

Name:  First Name:   
 Phone Number:   
 Address Details:  
 Address:  Suburb:   
 Post Code:

**Endorsements**

Endorsement	Description
A	Phillip Bay only

**Special Conditions**

Condition	Description
1	Max take per 24 hrs: 10 lobster
2	Only to 15 metres diving depth

**Non Standard Conditions for this Licence**

Figure 10. Illustrating licence details such as licensee, conditions and endorsements and issue date.

**Person module** - The person module is used to store information about individuals who are related to data collections held in the database. Details stored in this module may include things such as an individual's address and contact telephone number and their involvement in any organisations such as fishing clubs. This enables a link to be developed between an individual fishers' (or fishing club) catch and effort information stored in other modules of the database. This allows the details of a person, fisher, club and catch associated with the fisher/club to be determined from records held in the database

### General maintenance

There are several screens in the SIRFIS application that are utilised by numerous modules, for example the screen illustrated below which stores fish species information. This screen will provide a list of codes for currently recognised species (which will be the CSIRO 8 digit codes). The list can be added to to include common names of fish about which information is collected by an agency. Only one common name can be assigned a "preferred name", and this will be identified and used in reporting from SIRFIS. For example, if 20 Kg of "Greenbacks" were entered as a catch, this will be selected as "tailor" in a report if tailor is the preferred name. Scientific names will be maintained and associated with common names.

Species Maintenance

Species Common Name: Tailor

Scientific Name: Pomatomus Saltatrix

	Common Names	Preferred Name
1	Tailor	<input checked="" type="checkbox"/>
1	Greenbacks	<input type="checkbox"/>
1	Choppers	<input type="checkbox"/>

Note only one common name should be preferred.

Link to Scientific Groups

New:

Existing:

Add >

< Remove

Members of Groups

Pomatomus

Cancel

Figure 11. Illustrating input fields for species information.

## Additional information about SIRFIS

### Colours

The default colours of all the windows will be the same as your default window settings. If you are unsure of these settings, check your screen setup through your PC's operating system. For those who wish to change these default colours, a palette will be offered to where you may drag and drop colours to change the appearance of the screen.

### Data entry error handling

Background data field colours and the status bar will be used to inform of errors and warnings.

Orange background - warning.

Red background - error.

For both errors and warnings an audible alarm should sound, the error message display in the status bar and the cursor remain in the current field. The user should then be able to leave the field without making changes if they desire. Data can be saved to the database if it has warnings but not if it has errors. These must be corrected before the save can take place.

At the database level, error within the operation table is identified by flagging any effort, location and catch associated errors. 0 (zero) will indicate no error, and 1 will indicate error. This method will make identifying erroneous data easier using SQL.

### Mouse behaviour

The mouse will work much the same as in Windows. A single left click selects an object and a double click performs the default action on the object. The right button will be used to access a pop up menu associated with the object the mouse cursor is pointing to.

### Field formats

- ▶ Time: hh-mm (24 hour time)
- ▶ Date: dd-mm-yy
- ▶ DateTime: dd-mm-yy-hh-mm (24 hour time)
- ▶ No leading zeros
- ▶ latitude (always decimal): float with 3 decimal places      eg: 25.993
- ▶ longitude (always decimal): float with 3 decimal places      eg: 145.501

Note these examples of decimal latitude/longitude readings to degree/minute latitude/longitude readings.

- ▶ 25.993 (decimal) is equivalent to 25°596'
- ▶ 145.501 (decimal) is equivalent to 145°301'

Conversion utilities will be used to convert real latitude/longitude into decimal format.

## Tab order

Tab order for all forms will be from top left, moving horizontally to the right, until reaching the lower right data field or push button. Once leaving the last field/button on the form, then the top left data field will become current. This may vary in appropriate circumstances.

## Reports

Some standard reports are to be provided with the SIRFIS application. The following are textual descriptions of some the major reports to be provided with the system.

- ▶ Licence Listing: For a particular licence type, all licence and licence holders/gear details will be shown in order of licence number, including standard and non standard conditions and summary information.
- ▶ User Security Levels: a list of user ids, user details, module/collection permissions available to the administrator.
- ▶ Collection Listing: List of collections including descriptions, start and end dates and all associated details
- ▶ Tag Events Report: List of Tag numbers, species, all events (catch/releases) associated with those tags, showing dates and locations of the events. All grouped by collection and tagging number. See the example below in Figure 22.
- ▶ Anecdotal Survey Report: listing of responses and counts of common responses for a question or group of questions.
- ▶ General Catch Per Unit of Effort Report: aggregate catch and effort for each species caught within a collection, including grouping by collection id, fishing method, effort type and total kgs caught. See the example below in Figure 23.
- ▶ General Release Per Unit of Effort Report: aggregate release and effort for each species caught within a collection, including grouping by collection id, fishing method, effort type and total kgs released.
- ▶ Club Report: A listing of clubs, position holders and facts such as the number of members or number of trips.
- ▶ Correspondence Report: A listing of all sent and received correspondence for a particular collection. Sent date, received date and identification details will be shown.
- ▶ Correspondence Sent but not Received: A listing of all correspondence that has not been returned, being able to specify the lag between issue and lack of response.

Following are some examples of the above reports.

Table 1. The Tag Events Report shows all tag events grouped by Collection and tag number.

CollectionID	TagNo	Species	TagEvent	Date	Location	Lat/Long
DartTag96	1	Dart	Release	1.1.96	Fraser Island	25/153.5
	1		Catch/Release	2.1.96	Moreton Bay	27.5/153.5
	1		Catch	3.1.96	Eurong	25/153.53
	2	Dart	Release	9.1.96	Fraser Island	25.5/153.5
	3	Dart	Release	9.1.96	Fraser Island	25.5/153.5
SnapperTag96	111	Snapper	Release	4.4.96	Main Reef	27.5/153.3
	111	Snapper	Catch	5.8.96	South Reef	27.5/153.5

Note that the grouping by tag number allows an historical view of when a fish has been tagged (released), caught/released and eventually harvested. The report could be restricted to one collection if so desired.

Table 2. General Catch per unit of Effort Report

Start Date: 1.1.95      End Date 31.12.95

CollectionID	Fishing Method Code	Gear Type	Units of Effort	Effort	Species	CPUE	Total Catch (kgs)
CharterVessel01	Line	HandLine	Hrs	1056	Whiting	15.15	16000
		Rod/Reel	Hrs	7000	Whiting	7.142	50000
	Diving	SpearGun	Dives	957	Snapper	10.45	10000
					<b>Total Catch:</b>		<b>76000</b>
ClubData01	Line	Rod/Reel	Hrs	16000	Bream	5.625	90000
				19000	Flathead	3.42	65000
				4000	Snapper	7.25	19000
				<b>Total Catch:</b>		<b>174000</b>	
Survey01	Pots/Dillies	CrabPot	Dories	650	Mud	33.8	22000
	SquidJig	SquidJig	Hrs	100	Squid	3.0	300
	<b>Total Catch:</b>						<b>22300</b>



## **Interaction with a financial system**

The SIRFIS application will not directly interact with any financial system. The only request for a financial element within SIRFIS was within the Licencing module. Facilities for basic receipt writing (on A4 paper) will be provided with reports indicating monies received for a desired accounting period.

## **Performance**

Performance is difficult to address due to the different operating systems, database backends and large numbers of variables that occur from organisation to organisation, but we are using a basic benchmark to ensure the performance of the application is sufficient. Pentium 100 PC's with 16MB of memory are being used for all development, and therefore our goal is to ensure that the SIRFIS application runs quickly on these machines. We suggest that by the time of deployment, this would be the minimum configuration of any PC the application is to run on.

## **Documentation plan**

All user aspects of the SIRFIS database will be documented in the User Manual. This manual will be deployed with the database and applications. The major sections of the User Manual will be General Introduction and Explanation, Data Entry for each module, Data Retrieval for each module, Troubleshooting Section, Administration of the SIRFIS database and Security of the SIRFIS database. All sections will use diagramming extensively to aid understanding. On line help will provided with the software also.

The information that your local database administrator requires will be provided in a document issued at the time of deployment.

## **Development/deployment plan**

Modules will be deployed one by one. The urgency of desired modules will determine the order of development. All modules will be alpha (first version) tested internally by the SIRFIS team for one month. Then selected clients (especially those who intend on using that module) will test the beta (second version) of the module for a month. Weekly feedback will be expected during that period so that iterative updates/bug fixes can be issued during the period of the beta test. Once this testing process has completed, the module will be distributed/installed to all clients intending on using the module.

Todd Kelly will coordinate all alpha/beta testing and deployment needs for all clients. A timetable indicating the intended development plan (module by module) is provided below.

## **Project Schedule**

Outlined below is a project timetable with deadlines for development and testing of SIRFIS modules. More detail will be provided regarding deployment and installation as the time approaches.

<u>Date</u>	<u>Item/Module</u>
31 January 1997	Security/Person module complete
28 February 1997	Metadata/Screen behaviour modules complete
31 March 1997	Club/correspondence alpha testing complete
30 April 1997	Club/correspondence beta testing complete
30 April, 1997	Charter alpha testing complete
7 May 1997	Deployment of Security, Metadata, Screen behaviour, Club and Correspondence modules
31 May, 1997	Charter beta
July 97	Fish biol conference. Talk/presentation + PC display.
15 September, 1997	Diary beta.
31 October, 1997	Field survey beta.
October/November 1997	Anecdotal survey, tagging, licensing modules (workshop ideas)
1 April 1998	All modules installed
30 October 1998	End of project.

## Questions and Answers

Below is a list of questions asked by various agency representative members of the project team. Answers to these questions have been provided.

Can multiple tag releases be accounted for ? *Yes. All capture/release events are linked to the tag ID of the fish concerned.*

Is the type of length measurement selectable e.g. fork/total length ? *Yes.*

Is the gear of capture for tagged fish accounted for ? *Yes. It will be incorporated into the tagging module.*

If survey data was skewed and therefore required correction factors being applied to it, can the secondary data set be stored after adjustment to eliminate the requirement for people having to reapply the correction factors in the original data set ? *SIRFIS will store links to data stored in applications such as Excel, Lotus and Quattro Pro. If further storage capabilities are required, clients will need to discuss their needs individually with the SIRFIS team.*

Is there a check to ensure that fish recapture length is greater than fish release length (tag) ? *Yes.*

Is there a field for weight at recapture ? *Yes.*

Is there an option to create polygons to aggregate results into areas flexibly ? *Yes, this will be through entry of latitude and longitude coordinates.*

Is there a field to record whether or not a lobster is berried or not ? *Yes, as an attribute of a fishing activity.*

Is any economic information able to be stored ? *Yes, primarily this information will be stored at the metadata level.*

Is there a field to record if a fish from a stocked water body has been fin clipped or not (natural of stocked population) ? *Yes. It is stored as an attribute of the fishing activity.*

Is there a range of different effort measures available ? *Yes, and you may add to the list that is provided in SIRFIS.*

Can angler information also be stored e.g. years of experience etc ? *Yes, it will also be an attribute of a fishing activity.*

How will you ensure that all information collected is able to be stored in the database ? *To date, the survey forms you provided have been used to develop many of the existing fields in SIRFIS. Additionally the feedback received from you has assisted this process. The capability of SIRFIS to allow the addition of new attributes will greatly assist the flexibility of the application to meet your needs, however some responsibility also falls to you as a client member to provide feedback on any aspects of your data collection which you feel is not catered for.*

Can fishing effort (metres of net x no. of hours fished) be stored in SIRFIS ? *Yes.*

Will SIRFIS store valuation data ? *Yes.*

What post deployment support will be offered ? *Options for post deployment support are being investigated and discussed at present.*

Will SIRFIS run on a Macintosh platform ? *During the review of the application development tools in May 1996, indications from Centura Software Corporation were that an application for Macintosh would be developed in 1997. Unfortunately, indications at present are that the corporation may be waiting to determine the future of Macintosh in the marketplace, and this may be delaying development of this operating system. Alternative options for those clients using Macintosh platforms are being examined in the event that Centura do not produce a version of the application for the Macintosh operating system.*

Will SIRFIS handle CPUE information from survey questionnaires ? *Yes.*

Will the licensing module have a receipting function provided with it ? *Yes, a basic receipting function will be provided.*

Can SIRFIS store two different types of effort observed during the same survey e.g. total effort and individual effort. *Yes.*

Can length of all species be stored as well as the largest species caught ? *Yes.*

Will SIRFIS accommodate the data collected in the Queensland Rec fishing survey and the national rec fishing survey ? *SIRFIS will store the data from the Queensland Survey if required, however any statistical analysis will be required to be conducted in a suitable application.*

When are we providing face to face presentations ? *Commencing January.*

Will we need to be trained in CENTURA to use SIRFIS ? *No.*

How many licences will we need to buy ? *None.*

How will data be transferred from existing systems into SIRFIS ? *Small data sets will be able to be sent on disk to the SIRFIS team for formatting and any translating required for the SIRFIS tables. Larger data sets will be handled on site by the SIRFIS team during installation visits, or phone support during the transfer process will be given.*

Are we able to obtain SIRFIS one module at a time ? *To a degree. The initial deployment will include a number of modules which are essential for the operation and behaviour of the application. These will all be provided at the one time. After this time you will be able to nominate which of the following modules you require, and these will be deployed one at a time.*

What kind of reports can we get from SIRFIS ? *A list of standard reports available from SIRFIS are listed in the information outlined in this document. Other reports can be developed if requested prior to completion of the project. Any additional reports required after this time will require an ad hoc report writing tool.*

### **User Information Matrix**

Attached to this document (appendix 1) is a matrix showing data fields extracted from forms provided by the client group. The location of the data fields in SIRFIS is also shown by both database address and module type.

## **Appendix 1. User Information Matrix**

Data Item	Agency								Module						
	NSW	QLD	VIC	TAS (marine)	TAS (Fresh)	SA	WA	NT	Méta data	Correspondence	Person	Activity modules	Survey	Tag	Licence
Location	*	*	*	*	*		*	*	✓			✓	✓	✓	✓
Lat /Long		*					*					✓	✓	✓	✓
Grid number	*	*					*	*				✓	✓	✓	✓
Block/estuary				*			*					✓			
Within a stream					*							✓			
Postcode	*	*			*	*	*			✓	✓	✓	✓		
Nearest town		*										✓	✓		
Suburb	*	*								✓	✓	✓	✓		
Water body name					*			*				✓	✓		
State	*							*		✓		✓	✓		
Area						*			✓			✓	✓		
Region				*				*	✓			✓			✓
Boat ramp		*										✓	✓		
Access point			*									✓	✓		
Usual diving spots			*									✓	✓		
Venue							*					✓	✓		
Map grid numbers	*					*						✓			

Data Item	Agency								Module						
	NSW	QLD	VIC	TAS (marine)	TAS (Fresh)	SA	WA	NT	Meta data	Correspondence	Person	Activity modules	Survey	Tag	Licence
Location within a water body		*			*							✓			
Time (e.g. activity observed)		*										✓			
Trip start time		*										✓			
Trip end time		*										✓			
Fishing start time	*	*					*					✓			
Fishing end time	*	*					*					✓			
Total fishing time	*	*		*			*					✓			
Port return time	*											✓			
Date	*	*	*			*	*	*	✓	✓		✓	✓	✓	✓
Start date							*		✓			✓			
End date							*		✓			✓			
Month		*		*								✓			
Months fishing (J,F,M,A etc)							*					✓	✓		
Year		*		*								✓	✓		
Season							*					✓	✓		
Day type	*					*						✓	✓		
Weekday	*				*							✓	✓		

Data Item	Agency								Module						
	NSW	QLD	VIC	TAS (marine)	TAS (Fresh)	SA	WA	NT	Meta data	Correspondence	Person	Activity modules	Survey	Tag	Licence
Weekend	*				*							✓	✓		
Public holiday	*											✓	✓		
School holidays							*					✓	✓		
Annual holidays							*					✓	✓		
Travelling time to spot		*										✓	✓		
Activity Code (e.g. E, O, OREC, EREC)	*											✓			
Days spent fishing				*	*							✓	✓		
Dive time			*									✓	✓		
Average dive time			*									✓	✓		
Total line hours								*				✓			
Total pot hours								*				✓			
Total hours fished							*	*				✓			
Survey shift (early/late)	*												✓		
Plane start time	*											✓			
Survey start time	*						*					✓			
Survey finish time	*						*					✓			
Hourly slot	*											✓			
Ramp arrive time						*	*					✓			



Data Item	Agency								Module						
	NSW	QLD	VIC	TAS (marine)	TAS (Fresh)	SA	WA	NT	Meta data	Correspondence	Person	Activity modules	Survey	Tag	Licence
Ramp depart time		*				*	*					✓			
Ramp launch time						*	*					✓			
Ramp return time	*					*	*					✓			
Port return time	*											✓			
Total annual fishing days		*			*							✓	✓		
Boat registration details	*	*		*			*					✓			
Boat name	*	*		*								✓			
Boat size (ft/m)		*					*					✓	✓		
Boat no.	*											✓			
Boat age		*										✓	✓		
Boat type (small, medium, large, power, yacht, cruiser, gamefish launch, charter, dive/spear, rec. fisher, comm. fisher, non fisher, house boat, trailable, other)	*						*					✓	✓		
Boat type codes	*											✓			
Distinguishing mark				*								✓			
No. of boats	*	*										✓	✓		

Data Item	Agency								Module						
	NSW	QLD	VIC	TAS (marine)	TAS (Fresh)	SA	WA	NT	Meta data	Correspondence	Person	Activity modules	Survey	Tag	Licence
Outgoing boats	*											✓			
Incoming boats	*											✓			
Total boats	*						*					✓			
Total trailers (on arrival/departure)						*	*					✓			
No. Of fishers in boat							*					✓	✓		
No. Of fishers contacted							*					✓	✓		
No of fisher females in boat							*					✓	✓		
Skipper name		*		*								✓			
CB operators name						*						✓			
Person No.							*	*				✓			
Species	*	*				*	*	*				✓	✓	✓	
Fish number						*						✓			
Length (total)		*					*					✓			
Length (fork)	*	*					*					✓			
Common name	*											✓		✓	
Scientific name												✓		✓	
Total no. of fish caught		*			*		*	*				✓			

Data Item	Agency								Module						
	NSW	QLD	VIC	TAS (marine)	TAS (Fresh)	SA	WA	NT	Meta data	Correspondence	Person	Activity modules	Survey	Tag	Licence
Total no. of marron							*					✓			
Total weight		*										✓			
Species targeted (cat, name)	*	*				*	*	*				✓	✓		
No. of fish counted	*	*										✓			
No. of fish measured	*	*										✓			
Proportion measured						*						✓			
Tag number							*							✓	
No. of lobster observed			*									✓			
No. of lobster caught			*									✓			
Depth of sightings			*									✓			
Sex of lobster			*									✓			
Size of lobster			*									✓			
No. of crabs caught/kept					*		*					✓			
Tag & release anything	*											✓		✓	
No. fish kept	*	*				*	*	*				✓			
No. Of fish tagged	*					*						✓		✓	
No. fish released	*	*					*	*				✓			

Data Item	Agency								Module						
	NSW	QLD	VIC	TAS (marine)	TAS (Fresh)	SA	WA	NT	Meta data	Correspondence	Person	Activity modules	Survey	Tag	Licence
Weight kept				*			*					✓			
Weight released				*								✓			
Weight of individual fish				*			*					✓			
Fishing type category (code for fish type)	*											✓		✓	
Species code	*	*										✓		✓	
Baitfish caught	*											✓			
Species of baitfish caught	*											✓			
Estimated no. baitfish caught	*											✓			
Any baitfish bought back	*											✓			
Estimated catch				*								✓			
Fish weighed whole/ gilled & gutted.						*						✓			
Weight recorded g/Kg/oz/Lb				*								✓			
Fishing platform (your boat, friends boat, hire boat, rocks, jetty, shore etc)	*	*					*	*				✓	✓		

Data Item	Agency								Module						
	NSW	QLD	VIC	TAS (marine)	TAS (Fresh)	SA	WA	NT	Meta data	Correspondence	Person	Activity modules	Survey	Tag	Licence
Fishing type (surf, light surf, light gear, offshore, cruising, anchored, drifting, pots, diving, bait or lures, estuary, river, dam, reef, game, crabbing, trolling, casting gear type, other etc)		*					*	*				✓	✓		
Dive platform			*									✓	✓		
Environmental conditions							*					✓			
Wind (direction/strength/speed, gusts)		*					*					✓		✓	
Tide (high, high rise, high fall, low, low rise, low fall, run in, run out)		*					*					✓		✓	
Moon							*					✓		✓	
Water temp		*					*					✓			
Cloud cover		*				*	*					✓			
Depth		*										✓			
Current		*										✓			

Data Item	Agency								Module						
	NSW	QLD	VIC	TAS (marine)	TAS (Fresh)	SA	WA	NT	Meta data	Correspondence	Person	Activity modules	Survey	Tag	Licence
Sea conditions (calm, slight, slight moderate, moderate, moderate rough, rough)		*				*	*					✓		✓	
Diving conditions ( <i>wind</i> , calm, moderate, strong - restrictive, strong - restrictive, <i>seas</i> , 0 -0.5 m, 0.5 - 1 m, 1 - 1.5 m, . 1.5 m, <i>visibility</i> , excellent >.15m, good 9 - 15 m, fair 4 - 8m, poor 0 -3 m.			*									✓			
Rainfall (nil, light, med, heavy)							*					✓		✓	
Bar condition	*											✓			
Weather conditions (sunny, cloudy, showers, rain, heavy rain, hail, squalls)						*						✓			
Fisher type (comm or rec) ?							*					✓			
No. of fishers	*	*				*	*					✓	✓		
No. Of shore anglers (rod & reel, hand line, net)							*					✓			

Data Item	Agency								Module						
	NSW	QLD	VIC	TAS (marine)	TAS (Fresh)	SA	WA	NT	Meta data	Correspondence	Person	Activity modules	Survey	Tag	Licence
No. Of boat anglers (rod & reel, hand line, net)		1					*					✓			
No. of times fished (week, month, 3 month)		*										✓	✓		
Fisher name						*	*				✓	✓			
Fisher position				*							✓				
Fisher position on trip				*								✓			
Points				*								✓			
Number of fish caught				*								✓			
Fisher age group							*				✓		✓		
Fishing club				*			*				✓				
Sex/status of fisher	*	*					*				✓				
Fishing/dive club member ?	*		*									✓	✓		
No. in fishing party ?	*	*	*									✓	✓		
Person/fisher number							*					✓	✓		
Origin (state/country)								*			✓	✓			
Fishing skill (beginner, average, expert)								*				✓	✓		
Name								*			✓	✓	✓		

Data Item	Agency								Module						
	NSW	QLD	VIC	TAS (marine)	TAS (Fresh)	SA	WA	NT	Meta data	Correspondence	Person	Activity modules	Survey	Tag	Licence
Phone No.		*									✓	✓	✓		
No. of years diving			*	*								✓	✓		
No. of dives from shore/boat (private/charter)			*									✓			
Average dive time ?			*									✓	✓		
Years diving for abalone/lobster ?			*									✓	✓		
Total people fishing (male/female)	*	*										✓	✓		
Total people interviewed (male/female)	*											✓	✓		
Tournament today ?	*											✓			
Club members?	*						*				✓	✓			
Year formed				*									✓		
Club Affiliations				*									✓		
Club membership				*									✓		
No. Members in more than 2 or 3 events per year.				*									✓		
Comments/notes	*			*				*					✓		



Data Item	Agency								Module						
	NSW	QLD	VIC	TAS (marine)	TAS (Fresh)	SA	WA	NT	Meta data	Correspondence	Person	Activity modules	Survey	Tag	Licence
Log recorder number	*											✓			
Officer		*										✓			
Skipper		*										✓			
No. of males	*	*										✓			
No. of females	*	*										✓			
No. of children <10		*										✓			
No. of lines		*		*			*					✓			
No. of hooks		*					*					✓			
Hook size and style							*					✓			
Bait or lure used ?		*										✓			
Bait type		*					*					✓			
Bait caught/purchased ?		*										✓			
Quantity bait caught		*										✓			
Released fish codes (U,T,B,O)		*										✓			
Environment type		*										✓			
Caravan park name		*										✓			
Caravan park owner		*										✓			

Data Item	Agency								Module						
	NSW	QLD	VIC	TAS (marine)	TAS (Fresh)	SA	WA	NT	Meta data	Correspondence	Person	Activity modules	Survey	Tag	Licence
Caravan park contact no.		*										✓			
Caravans with Qld no. plates & boats		*										✓			
Caravans with Qld no. plates without boats.		*										✓			
Unknown origin with boats		*										✓			
Unknown origin without boats		*										✓			
Interstate caravans with boats		*										✓			
Interstate caravans without boats		*										✓			
Fishing conditions (better, worse, same)		*										✓			
Opinions/comments		*										✓	✓		
Dive purpose (passive, training, rock lobster, other species)			*										✓		
Experience of diver			*										✓		
% effort			*										✓		
Catch of each diver			*										✓		