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Institute of Applied Social Research





GBRMPA 338.3727 DRA THE ECONOMICS OF FISHING IN THE CAPRICORNIA SECTION OF THE GREAT BARRIER REEF: <u>PART B</u>. A METHODOLOGICAL STATEMENT OF FURTHER ECONOMIC INVESTIGATION.

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BY: A. K. DRAGUN, S.W. LACK AND S. M. DRIML.

I.A.S.R. RESEARCH REPORT, OCTOBER 1979.

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THE STUDY OF ECONOMIC ASPECTS OF FISHING ACTIVITIES IN THE CAPRICORNIA SECTION: DATA AND METHODOLOGY OF ANALYSIS.

## INTRODUCTION

The objective of this project is to study and analyse the economic structure of fishing and associated activities in the Capricornia Section of the Great Barrier Reef. While the first phase of this report has been directed to accumulating and co-ordinating the available information and statistics on fishing activities in the Section, this phase of the report drawing on the overwhelming results of the first phase, must develop methodologies for analysing the available data and where necessary, initiating procedures for obtaining additional data so that influence may be drawn on particular questions of economic structure in the involved fisheries.

The overwhelming conclusion of the first phase of this report is that the available information and statistics on various types of fishing in the Capricornia Section is both sketchy and unreliable. It has become increasingly obvious as this study has proceeded that basic knowledge of the respective recreational and commercial fishing activities is indeed primitive and certainly not conducive to economic or statistical analysis.

The alternatives open at this stage in the study are not particularly conducive to rapid and precise economic analysis — the possibilities are in general two-fold. Firstly, in theory the established information and data could be refined and manipulated so that satisfactory inference may be drawn on the respective activities. In practice, as has been established in the first phase of this report, this possibility appears relatively fruitless analytically save that observations in this context will and do provide a general frame of reference for further intensive study.

The second obvious possibility open to this study at this stage is to actually initiate field study to collect the necessary relevant data whereby the economic structure of both recreational and commercial fisheries may be analytically studied and subsequently inference drawn — and in the light of the existing secondary data, this is the possibility which will form the focus of this second report.

Given the need for a comprehensive and rigorous primary investigation of the economic structure of fishing in the Capricornia Section the theme of this phase of the report then turns to issues of survey design and econometric methodology. In such a context the questions to which the remainder of this report must be addressed include consideration of: the objecive criteria on which the study is motivated; the population to be studied; applicable survey design and practices; and finally, data manipulation procedures and statistical analytics. Of particular, import to the above considerations, given the current unrefined state of the art in the study region, will be the dimensions and characteristics of the relevant fishermen and infrastructure population and in another context, the usefulness of prior case studies in other regions for establishing what direction research design should take in the Capricornia Section. Both these considerations will underly the ongoing development and application of study analytics in this project.

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STUDY OBJECTIVES AND ISSUES IN THE ECONOMIC STRUCTURE AND MANAGEMENT OF FISHERIES.

The pervading theme of this project is to establish the productive and economic status-quo of fishing activity originating from the Capricornia Section of the Great Barrier Reef. In view of the management requirements for achieving an optimal social use within the setting of the marine mark, such base level data on productive and economic criteria will form the framework for the analysis of the respective fishing activities and the eventual comparison of such activities with other potential uses within the marine park. Eventually when broader management issues are considered, data and objective considerations beyond the base level need to be delineated and attenuated. While the brief of this project is directed at the base level data and objectives it is anticipated that useful socio-economic data could be obtained in the ongoing study that will be relevant to future considerations of management issues. Consequently, it is useful to distinguish between the data and objectives of the base level study and then the possible objectives and associated data relevant to the broader management context.

THE BASELINE STUDY.

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The essence of the baseline study in terms of economic structure is to establish the aggregate levels of benefits and costs to respective classes of fishing activity within the Capricornia Section. Subsequently, it will be possible to investigate considerations of actual and reported fish catch, reported fish sales and hence estimated returns, type and location of expenditure — and in addition investigate the associated infrastructure and finally, in conjuction, the socio-economic characteristics of particular social groups active in various phases of the fishing activities.

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As Saville observes, it is not possible to expect that one particular form of survey design is going to be successful in obtaining the full characteristics of any particular fishery (1977) — especially where the elements of economic, social and fish population structure are as diverse as they are in this project. Traditionally the first concern of many researchers interested in fishery activity is to establish the unique population dynamics of the particular fishery from which a basis is established to consider an array of fisheries management issues.<sup>1</sup> However, the surveying and data collection phases of this project can not be developed rigorously, in the population dynamics sense, due to time and financial constraints. In addition, in the final analysis it is expected that the fundamental economic structural issues to be explored in this project can be analysed with much less demanding requirements on the knowledge of the actual fisheries population.<sup>2</sup>

#### FISHERIES METHODOLOGY

As a precursor to the consideration of the economic survey design to be utilized in this project it is useful to outline and consider the methods of studying fish resources and the wide variety of data required for the management of a fishing industry.

Fisheries management depends primarily on biological information. Unless management schemes can be assessed on the biological consequences of alternative plans, rational decision can not be taken.

Saville (1977) suggests that a fishery resource appraisal survey should be designed to provide information on the following:

(i) What species of fish are available?

1. Schaefer (1954, 1957), Gulland (1974) and Anderson (1977) amongst others.

2. See Anderson, op. cit.

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- (ii) What is their distribution within the area and how does it vary seasonally?
- (iii) What catch rates (i.e. catch per boat per unit time period) can be achieved and how this varies seasonally and over the area?
- (iv) What is the size of the resource and the size of that part which is exploitable?
- (v) What fishing techniques are best suited to catching the resource; and
- (vi) What is the anticipated annual sustainable yield?

Rarely will it be possible to get useful information on all of these from the same survey. The survey methods procedures discussed by Saville include exploratory research vessel surveys, acoustic surveys, and indirect methods of forecasting potential yields from fisheries such as measures of basic productivity, egg and larval surveys, and analysis of the stomach contents of higher trophic animals.

Since man's influence on fish stocks is exerted almost entirely through his fishing activities, a method is needed to predict the various possible outcomes of levels of fishing effort. The biologist studying the population dynamics of fish stocks therefore aims to determine what level of mortality due to fishing will give the optimum yield in the long run and how the size of the fish stock is changing due to the current fishing regime.

To make these predictions the biologist must use some model of fish population. Such models provide a means of simplifying and describing the relationship between population size, yield and fishing effort.

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Gulland (1974) describes two types of model available in analysing the population dynamics of a fish stock and the effect of fishing on it. The first, the logistic model, treats the population as a single entity without reference to its structure (age composition etc.). The second type, or analytic model, considers the population as the sum of its individuals, and is concerned with the growth and mortality rates of the individuals. Both types of models are concerned with determining the productivity, or sustainable yield, obtainable from different conditions of the fish population and the pattern of fishing required to maintain the population in its optimum condition.

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## THE LOGISTIC MODEL

The logistic model has the advantage of being easily understood and requires the simplest types of data. Expressed in mathematical terms it takes the form:

 $\frac{dB}{dt} = f(B)$ 

where B = Biomass

The net rate of natural increase of a fish stock is determined completely and uniquely by the magnitude of the current stock. Such an assumption is not realistic since it does not allow for the addition of information on biological characteristics of fish populations and the environment in which the fish live.

#### ANALYTIC MODELS

These models are much more demanding on data requirements since they analyse the growth and death of individuals. In the simpler models assumptions are made that the rate of growth, the death rates from causes other than fishing, and the number of young fish recruited to the fishery each year are constant and independent of the abundance of the stock or the amount of fishing. The analysis is usually approached by considering the history of a cohort of fish from the time they reach a fishable size until they are all dead.

# THE SCHAEFER MODEL

An example of the use of the logistic growth equation is the production model developed by Schaefer (1957) which is depicted graphically below in Figure 1.

FIGURE 1.

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The model can be used to predict the yield which will be obtained at different levels of fishing effort. From the diagram it is obvious that there will be no yield at zero fishing effort and at a very high level of effort the yield will be low because the fish do not have time to grow or reproduce before they are caught. At some intermediate level of fishing effort there will be a maximum average yield known as the maximum sustainable yield. This is the greatest physical yield that the stock can produce year after year.

The Schaefer sustained yield curve can be expressed mathematically as:

..... (2)

 $y = cE - dE^2$  ..... (1)

or

 $\frac{y}{z} = c - dE$ 

where:

y = The average catch over a period of years. This is used as a surrogate to obtain the sustained yield curve.

E = The total effort over a period of years.

c = the regression constant

d = the regression coefficient

Therefore at this simple level the data requirement for such a model is:

- (i) A measure of catch in weight over time, i.e. the output.
- (ii) A measure of the level of effort over time, i.e. the input.
   (iii) A measure of performance, i.e. catch per effort. This is simply the output divided by the input. This data is used as an index of stock size or biomass.

The model is limited because it does not take the age structure of the fish population or environmental factors such as food supply into account and it also requires several years of catch and effort information. In particular, the model requires data from the start of the fishery when the fishing effort is low and stock size is high.

Schaefer expands the model to include the cost of the fishing effort and value from fish yields. He then addresses the question of efficiency in terms of economic rent. Maximum economic rent will be achieved where marginal cost is equated to marginal benefit. It is observed however that individual fishermen do not operate on marginal benefits but average benefits since the latter indicates where the greater total yield may be obtained. Subsequently, in the unrestricted common property situation of the fishery, effort increases to where average cost is equated to average benefit. At such a level of effort the rent of the fishery is observed to be zero.

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#### PRACTICAL APPLICATIONS

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Anderson (1977) recognizes that perfect information is not always available for fisheries management and discusses two approaches to practical applications while recognizing their limitations.

# (a) Revenue and Cost Models

Three pieces of information are needed for revenue and cost models:

- (i) an estimate of the sustainable yield curve (This can be obtained from the Schaefer model shown above);
- (ii) an estimate of the average cost of fishing effort, and
- (iii) an estimate of the price of output.

If these are known it is possible to obtain an estimate of total cost in terms of the opportunity cost of fishing effort. Since average cost is simply total cost divided by total yield an estimate of average cost and marginal cost can be obtained terms of total yield. Maximum economic yield for the fishery would occur at the intersection of the marginal cost curve and the demand curve for the fish product.

# General Bioeconomic Equilibrium Model

If it is possible to obtain an independent estimate of the size of the fish population at maximum sustained yield, instead of relying on past average catch rates, a general bioeconomic model can be developed from the basic Schaefer production model. The objectives are:

(i) To establish a population equilibrium curve (Fig. 2). This is based on a self sustaining fish population for combinations of total fish catch and the natural rate of population growth. FIGURE 2.

population population equilibrium curve Effort/Time

The population equilibrium curve is the collection of those combinations of effort and population where there is an equilibrium population size. At any point outside the curve catch is greater than growth and so population will fall. At any point inside the curve the opposite is true and population will increase.

> (ii) To obtain an economic equilibrium curve which comprises those combinations of inputs and outputs which produce an equilibrium level of effort (Fig. 3). In an openaccess fishery this will be reached when total revenue equals total cost.

Total revenue is expressed as a function of price and quantity for a given level of effort and population size. Total cost is represented by the opportunity cost of that fishing effort. Therefore an economic equilibrium curve for an open-access fishery can be expressed in terms of fishing effort and fish population.

FIGURE 3.	
population	economic equilibrium curve
	effort/time

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The economic equilibrium curve is the collection of combinations of effort and population where there is an equilibrium level of effort. At any point to the left of the curve revenue is greater than cost and so effort will increase. At any point to the right the opposite is true and effort will fall.

The advantage of this bioeconomic model is that by using an independent estimate of the fishing population at maximum sustained yield estimates can be obtained for populationgrowth parameters and a catchability coefficient which allows the construction of the population and economic equilibrium equations. Simultaneous solution of these equations gives predicted values for bioeconomic equilibrium population size and for the equilibrium amount of effort.

Such a model is beyond the scope of this project since no independent estimate of sustained yield can be obtained for the Capricornia fishing industry. In practice the biomass of fish able to be taken from a fishery on a long-term basis is determined by the absolute size of the fish resource and its turnover rate. The latter in turn is dependent on the life span of the individual fish and the rate at which those dying are replaced. Therefore, for practical purposes the estimation of the size of the standing stock is an intermediate step in estimating the annual sustainable yield. This can be calculated from exploratory fishing survey estimates of the virgin stock biomass before the fish population is commercially exploited.

# METHODOLOGIES USED IN ADOPTED FISHERY STUDIES

As a preliminary to the designing of an economic survey for this study a number of fishery studies were examined to study survey procedures, the type of data collected and the criteria used for economic analysis.

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#### STUDY NUMBER ONE

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FISHERIES DIVISION, DEPARTMENT OF PRIMARY INDUSTRY, "AN ECONOMIC INVESTIGATION OF THE NORTHERN PRAWN FISHERY: COSTS AND EARNINGS OF TRAWLERS" FISHERIES REPORT NO. 8, MARCH 1973.

The study was an analysis of thecosts and earnings of vessels fishing in the Northern Prawn Fishery. It includes an evaluation of the profitability of the various sizes of vessels. A break even analysis was carried out to assess the requirements of catch to trawlers to achieve a balance between income and expenses.

The profitability of vessels was examined in relation to the size of capital invested in the fishing operations. A comparison of the receipts, expenditure and returns between absentee and owner-operated vessels was made to assess the importance of direct supervision and the operations of a fishing enterprise. Also a statistical analysis of the inter-relationship between variables such as length of vessel, cash receipts, skipper's fishing experience, number of months fished and present value of vessel was carried out in an attempt to explain the variation between the performance of individual trawlers.

#### (1) SURVEY PROCEDURES

Generally only boats which fished for a period of greater than 5 months were included in the survey. From the 105 boats in the target population only 58 met the criteria for inclusion in the survey. The criteria necessary for selection was:

 (i) The ability of the survey field team to locate the vessel's owner and skipper, and; 0

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(ii) details of at least one full seasons operations being available, including both technical and financial data.

To increase the precision of the survey the trawlers were divided into a number of homogeneous strata on the basis of their length.

Data on boat activities was extracted from monthly returns submitted by processing companies to Fisheries division, Department of Primary Industry.

(2) DATA COLLECTED

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- (a) The average annual landings of prawns for the years 1968/69
   1969/70 and 1970/71 by vessel type (length) operating in the northern prawn fishery. This was measured in live weight.
- (b) An estimate of the average number of months fished by the vessels in the northern prawn fishery.
- (c) A comparison was made of the average monthly landings of vessels (by length) fishing 5 months or more in one year with the monthly landings of trawlers fishing less than 5 months.
- (d) Income, expenditure and returns.

Average cash receipts, expenses and returns were structured in the following manner for the years 1968/69 to 1970/71:

- Cash receipts to vessel
  - Total operating expenses
- Surplus after operating expenses
- Depreciation
- Return to labour and capital
- Payment to hired crew
- Skipper allowance

Net income

#### (i) Income

Income was defined as the gross returns derived from the sale of prawns, and other fish incidental to prawn fishing operations. This income, included bonuses and other deferred payments, was termed gross receipts. 0

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Cash receipts were determined as the sum of gross receipts and other vessel income after deductions of commissions, freight, etc.

#### (ii) Expenditure

Costs incurred in operating a prawn trawler were divided into 3 categories:

operating expenses

- depreciation
- crew and skipper payment

## (iii) Operating Expenses

Operating expenditure consisted of three separate expenses. These were:

— Trip expenses which included fuel and oil, food for the crew and general seagoing stores. These expenses vary with the extent and frequency of operation.

— Boat expenses incurred in operating the vessel, gear and equipment These are concentred with the maintenance of capital and repairs.

- Administrative expenses such as shore costs, insurance on boat and gear, labour charges, licence fees and accounting fees.

#### (iv) Depreciation

Two problems were involved: first, to determine the market value of an individual vessel, and second, selecting the most appropriate rate of depreciation. It was decided to use the original cost of the vessel and equipment to determine both present value and annual depreciation of vessel and equipment. The chosen rates of depreciation were based on previous economic studies as well as from information obtained from fishermen on life expectancy of the various assets.

## (v) Payment of Hired Crew

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Irrespective of whether the crew shared in the proceeds of the catch, hired labour was costed at actual payments as shown in the financial accounts. Where crew were paid a percentage of catch, the stated percentage was used to verify the payments shown on the fishermen's profit and loss accounts.

#### (vi) Skipper Allowance

An appropriate allowance for the entrepeneur's remuneration was taken into account to compensate for the owner's/skipper's work in running and managing the vessel. This was necessary for the comparison of the labour cost of owner-operated vessels with those of enterprises employing hired skippers. An allowance of 20% of gross fish receipts was considered a reasonable percentage for employed skippers of vessels in the survey.

#### (vii) Monetany Return to Capital and Labour

This is the total cash receipts less operating expenditure and depreciation.

## (viii)Net Income

Net income was the residual after subtraction of operating expenses, depreciation, crew payments, and an allowance to the skipper. It is therefore the monetary surplus to the owners of the capital employed in the fishing enterprise.

(e) Measures of the economic performance of trawlers

(i) Monetary returns to vessles. This is simply the net income derived above.

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(ii) Rate of return on capital invested.

This measure is the net income expressed as a percentage of total capital invested in the enterprise.

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(iii) Break-even analysis.

This demonstrates the quantity of prawns that must be caught by a trawler to break even, or so that total revenue equals total expenditure. The break-even point is examined with a varying price per pound of whole prawns received by fishermen.

- (f) A comparison was made of the receipts, expenditures and returns to vessels using employed skippers with those that were owner operated.
- (g) Skipper details were collected on the experience in the various roles of trawler fishing - trawler fisherman, skipper, skipper of present vessel.

#### STUDY NUMBER TWO

FISHERIES DIVISION, DEPARTMENT OF PRIMARY INDUSTRY, "WESTERN AUSTRALIAN PRAWN FISHERIES: AN ECONOMIC SURVEY", FISHERIES REPORT NO. 13, MARCH, 1975.

The principle objective of the survey was the collection, analysis and reporting of economic data in a form that would assist the Western Australian Government in its determination of current and future management policies for the Shark Bay and Exmouth Gulf Prawn Fisheries.

## (1) Survey Procedures

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Sample selection procedures were not determined as being necessary since the Shark Bay and Exmouth Gulf Fisheries are relatively small and attempts were made to contact all the trawler owners and skippers in both fisheries.

No attempt was made to stratify the survey trawlers according to length both because of insufficient numbers and relative consistency of size among the fleets.

Most information used in the survey was obtained from field interviews. Accountants and processing companies were also contacted to obtain financial information.

## (2) Data Collected

- (a) Prawn catch from 1963 1974
- (b) Average landing of prawns for trawlers, by month -1971/72, 1972/73, 1973/74.
- (c) The effort expended in achieving the landings in terms of hours spent trawling for each month during 1971 to 1974.

(d) Prices for king prawns and tiger prawns for 1971, 1972, 1973, 1974. 0

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(e) Costs and earnings of trawlers.

Information on costs and earnings were derived from fishermen's accountants and catch/effort data collected by the Western Australian Department of Fisheries and Wildlife.

- (a) Cash Receipts were defined as the sum of fish sales and other vessel income (e.g. income from private hire, salvage, towage, etc) after deductions of commissions, freight and the like.
- (b) Expenditure was categorised as:
  - (i) Trip expenses which included all costs incurred in each trip were:
    - Skippers allowance
    - Crew payment
    - Fuel and oil
    - Food for crew
    - Packaging for fish products
  - (ii) Boat expenses included:
    - repairs and maintenance
    - general replacements
  - (iii) Other expenses and allowances:
    - insurance for vessel
    - depreciation allowance
    - license fees
    - accountancy fees
    - bank fees

## (3) Capital Investment

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The study distinguished between four methods of valuing a trawler:

- (i) current market value
- (ii) original (historical) cost
- (iii) replacement cost

## (4) Economic Performance

Three measures were considered:

- (i) Net income This was the dollar return to the owner of the funds employed in the fishing enterprise after the deduction of operating and overhead expenses.
- (ii) Percentage rate of return in capital This is the ratio of net income (cash receipts after the deduction of trip, boat and administrative expenses) to capital investment in the fishing vessel and associated equipment. The rates of return can be calculated using either the market valuation method or replacement cost.
- (iii) Break even requirements This was a procedure whereby an estimate was made of the revenue requirements to cover all expenses. It describes the catch that must be taken, at various stated prices, to cover expenses.

## STUDY NUMBER THREE

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FISHERIES AND WILDLIFE DIVISION, VICTORIA, "RECREATIONAL AND COMMERCIAL ESTUARINE FISHING IN VICTORIA: A PRELIMINARY STUDY" NO. 16, K.H.H. BEINSSEN

The study consisted of three sections:

- (i) To estimate by means of a public opinion poll the number of Victorians who engage in recreational fishing; the extent to which various fishing sites were visited; and the characteristics of the people who fished.
- (ii) To estimate by on-site interviews the angler's effort and catch in Port Phillip Bay, Western Port and Gippsland Lakes during a 4 month period.
- (iii) To describe from available fisheries statistics the commercial fisheries existing in each estuary.

## (1) Survey Procedures

- (i) The Roy Morgan Research Centre Pty. Ltd. was commissioned to ask two questions relating to fishing during its state-wide omnibus survey. In addition to standard questions required for classification of the interviewee the questions asked of individuals in each of 623 randomly selected households were:
  - (a) How many times have you been fishing in the last twelve months?

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- (b) Looking at the list supplied, at which place did you fish mostly in the last 12 months and also any other places in the last months?
- (ii) Aerial counts of fishermen were conducted during one-third of a full year.

Anglers were interviewed on the corresponding day one week after the aerial survey. Attempts were made to locate anglers in the same ratio of boat:shore:jetty as the aerial counts had shown. Anglers were asked to give details on their catch and hours fished as well as questions relevant to their fishing habits. Tests of statistical significance were either  $x^2$  or t-tests (for mean values).

(iii) Between 1911 and 1963 Victorian commerical fishermen reported only the weights of their catches. Since 1963 they have reported catch, fishing effort and locality of fishing operations.

#### GENERAL METHODOLOGY

It is apparent at this stage that the complex issues of fishery population dynamics is beyond the financial and time scope of this project and that subsequently a second best methodology must be constructed to obtain an approximation of the economic structure of fisheries in the Capricornia Section. It is apparent that a combination of direct and indirect surveying techniques will need to be developed to extract relevant information from various sectors of the respective fishing enterprises. Direct surveying with sampling implications will be possible to establish both recreational and commercial fishermen response to yield, cost and return considerations but for much of the data, particularly in the associated infrastructure context and maybe in some aspects of the commercial fishing activity, indirect surveying through case study and census will be applicable. The indirect surveying aspect of the study comes into significance when it is realized that the actual number of participants in certain phases of fishing activity is decidedly small as with infrastructure in particular, and where centralized data collection may be possible as for yield through the Q.F.B. for commercial fishermen and some aspects of recreational fishing through the fishing clubs within the region.

Before passing on to specific methodological questions involved in data collection it is useful to note that the consideration of benefits in the recreational context is dominated by intangible and subjective criteria, in contrast to the commercial fishing activity where reported yields and representative fish prices allow the estimation of financial value. Consequently where the value of recreational fishing is an issue indirect value methodology, such as bidding games and travel costs will need to be utilized to establish estimates of recreational fishing value.

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#### A METHODOLOGICAL FRAMEWORK

## Catch Statistics

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Statistics of the total weight and the total value of the catch from a fishery are fundamental to dynamic fishery studies. Information on the breakdown of the catch by species and area of catch is required for biological studies and may in some instances require breakdown by age.

Total catch in terms of quantity is often used to discover the size of the fishing industry as a whole. Annual series of total catch is often used as an index to show yield fluctuations within the fishing industry. However, this can be misleading since the size of annual total catch is often affected by increases or decreases in the catch of low price fish. For example, an increase of annual total catch due to a good harvest of low price fish does not necessarily mean a real growth of a fishing industry in money terms.

Data should therefore by expressed both in physical and value terms. Catch is usually valued by multiplying the quantity caught by the average weighted price for each species.

In practice, for this study, the statistics which are readily available are landed wieght of whole and filleted fish and their value as recorded by the Queensland Fish Board. This data is available for the commercial section only and does not allow for any breakdown to obtain fish catch in the Capricornia Section. Annual or monthly catch data is not available for the amateur and pro-am fishermen using the Capricornia Section. Since it is thought that this group of fishermen have a substantial impact on the Capricornia fishery some estimate of their catch rates will have to be obtained by survey interviews and directly from the fishing clubs.

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## Effort and Catch per unit of Effort:

Fishing effort can be interpreted in a number of ways:

- (i) In general terms fishing effort is the amount of time, money, labour, technology and skill applied to catching fish. This is of interest to economists since it is work done and involves the use of scarce resources. These inputs can translate into money terms, taking account of opportunity costs.
- (ii) Statistics of effort provide the biologist with a measure of the proportion of fish being caught, of their relative abundance and of the mortality due to fishing. One unit of fishing effort removes a constant proportion of the stock and is directly related to the fishing mortality by the catchability coefficient.

Fishing effort is much more difficult to define and to measure than catch, as it is not a simple physical unit. Fishing effort is the work done in catching fish, i.e. the input of labour, vessels, skill and technology.

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The use of fishing effort as a measure of fishing mortality or catch per effort as a measure of abundance is difficult for two reasons:

- (i) Since fish and fishing boats are not evenly or randomly distributed the catchability coefficient is not constant.
- (ii) A fishing effort index is not easy to define. Fishing effort can be regarded as the product of fishing time and fishing power (the gear type, horsepower and size of vessel etc). But the quantity of fish which a vessel catches per unit to time depends not only on its fishing power but also the age, storage capacity and method of construction of the vessel; the size and skill of the crew; the use of technological aids such as echosounders; and in many cases the particular species caught.

These factors provide a framework for dividing a fishing fleet into categories within which fishing power is less variable. For each effort category a measure of fishing time is needed, for example, number of times fished, number of hauls, number of days fished, number of days on ground, number of days absent from port, number of trips made. Since these measures are not mutually exclusive they can all be measured for each vessel if desired and the most appropriate selected.

Catch per effort is usually found by dividing the catch for a particular area/port/vessel category/time unit by the equivalent effort.

Statistics of fishing power and fishing time for commerical and recreational vessels in the Capricornia Section is limited and any catch/effort studies would have to be based on very broad estimates.

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#### Unreported Fish Catch

The existence of a substantial black market for fish products distorts the official fish landing records for the commercial fishery in the Capricornia Section.

An estimate of the black market trade would be obtained with the following data:

Catch in Capricornia Section	 Х
Total Catch from all areas	 у
Sales to fish board from	
all areas (official records)	 a
Black market	 bm

y = a + bm

$$\therefore bm = y - a$$

for the Capricornia Section

$$bm = x - a \left(\frac{x}{y}\right)$$

Such an analysis would require a catch assessment survey for commercial vessels.

## The Surveying Framework

A number of factors affect the use of the Capricornia fishery. They are:

- fish seasonality
- daily weather conditions
- the sugar cane season
- school holidays

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Due to the limited resources of this study, it is impossible to consider conducting a survey throughout the year. Sampling techniques must therefore take account of these fluctuations.

A survey carried out on a single occasion cannot give any reliable estimate of fish catch or the nature and frequency of visits unless reliable records are kept by skippers. This may be the case for commercial fishermen but not for amateurs. Of assistance in this area, in the context of recreational fishermen, will be the records of the fishing clubs in particular and marina and infrastructure operators in a secondary capacity. It is evident that the fishing clubs within the region do maintain excellent records of individuals fishing in the Capricornia Section, thus facilitating the establishment of the population frame, and also providing data on yields, time and conditions of catch. It is expected that marina and other infrastructure operators will also be able to provide general information on individuals that fish recreationally within the Capricornia Section, leading to the possibility that general primary surveying may be possible with informed knowledge of the actual participants of such recreational fishing rather than requiring an uninformed and time consuming boat ramp survey. An additional consideration relevant in the establishment of a population framework of recreational fishermen who fish the reefs in the Capricornia Section, is that a pretest survey of recreational fishermen using boat ramps in the Region clearly indicated that a very small percentage of such boat ramp users actually ventured to the reef areas. It would not be unreasonable to expect that a high proportion of those fishermen that do venture to the reef are well prepared and informed through the fishing clubs and associated infrastructure sources.

Finally, commercial fishermen with home ports outside the Capricornia Section and pro-am and amateur fishermen who do not live in the region often visit the Capricornia reefs. Fishermen mobility must therefore be taken into account in the ongoing study.

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#### Structural Statistics

A number of structural statistics need to be collected to provide the frame within which other data can be obtained. They are:

- (i) A description of the Capricornia Section of the Great Barrier Reef in terms of its boundary and the distribution of the fishing sites and types of fishing in them - pelagic fish, demersal fish, molluscs and crustaceans.
- (ii) A definition of the Wide Bay-Burnett and Fitzroy regions.
- (iii) The location and number of:
  - (a) Fishing ports
  - (b) Boat ramps, their size (number and frequency of landings which they handle) and facilities (ice, processing plants, repair facilities, transport).
- (iv) The number and characteristics of:
  - (a) Commercial fishing vessels at each port thatvisit the Capricornia Section
  - (b) Pro-am and amateur vessels in Rockhampton, 1770, Yeppoon, Gladstone, Turkey and Bundaberg that visit the Capricornia Section. This could be obtained from official boat registration statistics assuming that only boats greater than a certain length visit the Capricornia Section.

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- (v) The number and type of fishermen who visit the Capricornia Section. They can be classified as:
  - (a) Commercial,
     Charter Boat Owner,
     Charter Boat User,
     Amateur,
     Pro-am;

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- (b) Full Time (100% time fishing), Part Time ( 50% time fishing), Occassional (<30% time fishing);</pre>
- (c) Skipper, Mate,

Deck Hand;

(d) Owner, Owner/Skipper, Employee, Shareholder.

(vi) Fishing periods including:

(a) Fishing seasonality,
 Prawns: January to June,
 Scallops: Peak September-November,
 Mackeral: May-August,
 Reef Fish: All year, but easier to catch during
 spawning season (December - February);

(b) Sugar Cane Season - July to November;

(c) School Holidays - May, August, December/January.

(vii) General information on Processing and Marketing as follows:

- (a) Secondary phase
  - number of processings units,
  - processing capacity,
  - processed products;
- (b) Tertiary phase
  - quantity of fish transacted,
  - price of fish at wholesaler,
  - price of fish paid by consumer.

This frame can serve to:

- (a) establish any deficiencies in the available secondary data;
- (b) obtain any data not already available by the use of an economic survey and a catch assessment survey of fishing in the Capricornia Section.

## Sampling Issues

Information on a population may be collected in two ways:

- (i) Complete enumeration or census. In a census every unit in the population under study is enumerated.
- (ii) Sample survey. In a sample survey enumeration is limited to only a part or a sample selected from the population.

#### Advantages of Sample Methodology

- (i) A sample survey is less costly than a census.
- (ii) It takes less time to collect and process data from a sample survey than a census.

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(iii) The results of a well planned and well executed sample survey allows the use of statistical inference. The theoretical framework of estimating population values from samples is based on every unit in the population having an equal or known non-zero probability of being selected in the sample. This method of selection is called "probability sampling" or "random sampling". In simple random sampling the sample mean  $\bar{y}$  is an unbiased estimate of the population mean  $\bar{Y}$ .

Assuming that for each  $a_j$  in the population (N) is attached a variate value  $y_j$  for the characteristic (y), then the following magnitudes can be defined:

(i) Population total 
$$Y = \sum_{j=1}^{N} y_j = y_1 + y_2 + y_3 + \dots + y_N$$
  
(ii) Population mean 
$$\overline{Y} = \frac{Y}{N} = \frac{1}{N} (y_1 + y_2 + y_3 + \dots + y_N)$$
  
(iii) Sample total 
$$y = \sum_{j=1}^{N} y_j = (y_1 + y_2 + y_3 + \dots + y_N)$$
  
(iv) Sample mean 
$$\overline{y} = \frac{y}{n} = \frac{1}{n} (y_1 + y_2 \dots + y_N)$$

(v) Estimated population total  $\hat{Y} = N\bar{y}$ 

The variance of the sample mean is given by:

$$V(\bar{y}) = \left(\frac{N-n}{nN}\right) S_{y}^{2}$$

where  $S^2_y$  is the variance per unit in the population. Since in practice  $S^2_y$  is hardly known an unbiased estimate of  $S^2_y$  can be obtained using the data in the selected sample:

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$$\hat{S}_{y}^{2} = s_{y}^{2} = \frac{1}{n-1} \sum_{j=1}^{n} (y_{j} - \bar{y})^{2}$$

An unbiased estimate of the variance of the sample mean is given by:

 $v(\bar{y}) = (\frac{N-n}{nN}) s_y^2$ 

The standard error of  $\bar{y}$  equals the square root of the variance of  $\bar{y}$ .

$$s_{\bar{y}} = \sqrt{v(\bar{y})}$$
$$= s_{y}\sqrt{\frac{N-n}{nN}}$$

Statistical inference in sample surveys is based in standard errors. The standard error of  $\bar{y}$  shows the degree of concentration of the sampling distribution around the sample mean. If the value of  $s_{\bar{y}}$ is small it implies that the probability of a large deviation from the population mean is small.

For n > 30, the statistic  $\bar{y}$  follows the normal distribution N( $\bar{Y}$ ,S\_). In such a case there is a probability of 95 percent that the y sample mean falls within the interval:

 $\bar{y}$  - 1.96 s $\bar{y}$  <  $\bar{Y}$  <  $\bar{y}$  + 1.96 s $\bar{y}$ 

This is the estimated confidence interval of  $\overline{Y}$ .

The standard error of the sample mean can be expressed as a fraction of percentage of the population mean. This magnitude is called the coefficient of variation of the sample mean  $CV(\bar{y})$ . It expresses the relational precision of the statistic by:

$$CV(\bar{y}) = \frac{S_{-\overline{y}}}{\bar{y}}$$
$$= \frac{S_{y}}{\bar{y}} \sqrt{\frac{N-n}{nN}}$$
$$= CV(y) \sqrt{\frac{N-n}{nN}}$$

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where  $CV(y) = \frac{S_y}{\bar{Y}}$ . The coefficient variation in the population.

Again since Sy is hardly known an estimate of the coefficient of variation of  $\overline{y}$  is given by:

$$cv(y) = \frac{s\overline{y}}{\overline{y}}$$
$$= \frac{s\overline{y}}{\overline{y}} \sqrt{\frac{N-n}{nN}}$$
$$= cv(y) \sqrt{\frac{N-n}{nN}}$$

## SAMPLE SIZE

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An important problem arising in a sample survey is the determination of the size of the sample. The following criteria must be considered:

(i) What is expected to be achieved through the survey?

(ii) Provided that CV(y) is known (or can be estimated from a pre-test or other studies) the required sample size for a given precision of  $\overline{y}$  would be:

$$CV(\bar{y}) = CV(y) \sqrt{\frac{1}{n} - \frac{1}{N}}$$

$$\frac{CV(\bar{y})}{CV(y)} = \sqrt{\frac{1}{n} - \frac{1}{N}}$$

if  $g = \frac{CV(y)}{CV(\bar{y})}$ , then  $\frac{1}{g} = \sqrt{\frac{1}{n} - \frac{1}{N}}$  and  $n = \frac{N}{\frac{g}{N+g^2}}$ 

## Advantages of Complete Enumeration

- (i) Data for small units can be obtained.
- (ii) Public acceptance is easier to secure for complete data.
- (iii) Sampling statistics are not required.

## Stratified Sampling

A practical method of increasing the precision of a survey estimate is to divide the survey units into homogenous groups and estimate the mean and variance for each stratum separately before combining them into overall estimates for the population as a whole.

The sampling units are grouped into strata such that the  $h^{th}$  stratum contains  $N_h$  sampling units. Then a sample of  $n_h$  units is selected from the  $h^{th}$  stratum, perhaps in the manner of a simple random sample, and the process repeated for each stratum.

### Sampling in Space and Time

There are two main types of sampling survey:

- (i) Sample surveys carried out on a single occasion static sample surveys. The objective is to determine the characteristics of the surveyed population at or about a given point in time.
- (ii) Dynamic sample surveys. These surveys are mainly used when the population is subject to change and information should be collected on the nature or rate of such change.

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Generally the method used for dynamic sample surveys in catch assessments for fisheries statistics is that of sampling in space and time. A sample of fishing areas are selected on a random basis. The sample fishing area units are allocated to a number of time periods. Items of information are selected only from the selected area/time units.

#### Catch Assessment Survey

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Gathering fish catch statistics for the Capricornia Section involves a number of issues. Vessels are engaged in different fishing operations and use different gear and techniques and have varying fishing capacities. Also, the productivity of the Capricornia Section is subject to regional and seasonal variations. Finally, there is a good deal of mobility of craft in the Section.

Since the catch of a fishing vessel is a function of:

- (i) its fishing power;
- (ii) the time it spends fishing;
- (iii) the density of fish on the ground;
- (iv) fish season;

a number of factors must be taken into account when designing a catch assessment survey.

#### (i) Area Stratification.

To increase the precision of the survey, the Capricorn and Bunker reefs should be divided into strata of more uniform fish density, for example, this could be based on water depth and a division between the Capricorn and Bunker reefs.

(ii) Vessel Stratification.

Since vessels are fishing within the Capricornia Section with different gear and fishing capabilities, a number of strata will have to be selected which reflect fishing power.

(iii) All the data for catch assessment must allow for a breakdown to obtain fish catch for the Capricorn and Bunker Reefs.

(iv) Data necessary for catch assessment survey.

(1)	Identification	Commercial	Pro-am Amateur	
	(a) Name of skipper	х		
	(b) Name of boat owner	x		
	(c) Name of vessel	X	X	
	(d) Boat statistical no.	x	X	
(2)	Fishing Power			
	(a) Engine HP	Х	X	
	(b) Boat length	х	X	
(3)	Catch	Monthly/Annually	Trips in Survey Period	
	(a) Total quantity	x	x	
	(b) By species		X	
	(c) By area of capture	x	x	
(4)	Fishing Method	Monthly/Annually	Trips in Survey Period	
	(a) Hand landing	x	X	
	(b) Trolling	х	x	
	(c) Trawling	x		
	(d) Dredging	x		
Girsen Di	(e) Purseseining	х		

(5)	Time Spent Fishing	Monthly/Annually	Irips in Survey Period
	(a) Total man hours	x	Х
(6)	Season	Monthly	Trips in Survey Period
(7)	Daily Weather	1	Trips in Survey Period

## ECONOMIC SURVEY

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The main objectives of the economic survey are to obtain data on:

- (i) the use of inputs such as labour, capital and supplies;
- (ii) connections between the fishing industry and the rest of the economy;
- (iii) costs of the industry (the inputs) and revenues (the output);
- (iv) intangible costs and benefits derived from fishing.

## DATA NECESSARY FOR AN ECONOMIC SURVEY

Economic data will be delineated for the commercial, pro-am, amateur and charter boat operators and include the following criteria:

- (1) IDENTIFICATION
  - (a) Name of skipper
  - (b) Name of boat owner
  - (c) Name of vessel
  - (d) Name and address of accountant
  - (e) Boat statistical no.

# (2) BOAT DETAILS

- (a) Home port
- (b) How long in any other ports

- (c) License
- (d) Ownership of boat
- (e) Boat skippered by
- (f) Year boat built
- (g) Year boat purchased by present owner
- (h) Purchase price
- (i) Where purchased
- (j) Other gear
- (k) Where purchased
- (1) Replacement cost

(3)	)	VESSEL	CHARAC'	TERISTICS	
		manufacture and the second sec	Street, and the state of the state		

- (a) Overall length
- (b) Breadth
- (c) Maximum depth
- (d) Gross registered tonnage
- (e) Building material hull
- (f) Hull type
- (g) Main engine, cylinder no.
- (h) Main engine(s) HP
- (i) Fuel type
- (j) Fuel cost ¢/litre

## (4) INFORMATION ON SKIPPER

- (a) Present home
- (b) Age
- (c) Years as fisherman
- (e) Years as skipper
- (f) Years as skipper present boat
- (g) Full-time, part-time, occassional
- (h) Nationality at birth
- (i) Education level
- (j) Difficulty in recruiting crew

#### (5) CREW DETAILS

- (a) Number
- (b) Age
- (c) Relationship to skipper
- (d) Years as fishermen

- (e) Years on this boat
- (g) Work experience other than fishing
- (h) Education level
- (i) Nationality at birth

# (6) INDEBTEDNESS

- (a) Any outstanding loan
- (b) Purpose of loan
- (c) Source of loan
- (d) Repayments
- (7) INSURANCE
  - (a) Is boat insured?
  - (b) Insured value
  - (c) Annual premium
  - (d) Type of policy
- (8) INCOME FROM CAPRICORNIA
  - (a) Gross returns from sale of fish
  - (b) Other fishing income
  - (c) Charter fees
  - (d) Other employment
  - (e) Off season employment
  - (f) Gross income

## (9) EXPENDITURE IN CAPRICORNIA

- (a) Payment to skipper
- (b) Crew payment
- (c) Food for crew
- (d) Bait
- (e) Ice

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- (f) Fuel and oil
- (g) Repairs and maintenance
- (h) Gear replacement
- (i) Travel cost by car
- (j) Accommodation cost

## (10) ATTITUDE TO FISH RESOURCE

- (a) Main reason for fishing
- (c) How long have you fished in Capricornia Section?
- (d) How long have you fished?

## (ii) INTANGIBLE BENEFITS FROM FISHING

- (a) Willingness to pay to enter Marine Park
- (b) Willingness to travel extra distances for better fish catches

#### COLLECTING DATA FROM THE CAPRICORNIA SECTION

(1) The Commercial Fishery

Since there is little difficulty in identifying the number and type of vessels and the fact that they operate from relatively few ports it is possible to set up a port based sampling system. Because of the commercial nature of the operation it should be possible to obtain statistical records of catch weights, value, vessel characteristics and number of trips.

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Since boats are fishing different areas within the Capricornia Section with different gear, then a number of strata will have to be developed. The degree of sub-division of catch by area, vessel type, time period and species will depend on the use to which the data is to be put. Also, a balance must be struck between the degree of subdivision and the size of samples which it is possible to take and the cost of collecting and processing

For our purposes there will be no point in designing a sampling scheme with more than 2 or 3 strata, since our knowledge of the distribution of fish and fishing effort will be rather imprecise.

### (2) Recreational and Pro-am Fishery

The Great Barrier Reef Marine Park Authority in conjunction with the Institute of Applied Social Research recently conducted a survey of amateur fishing in the southern end of the Great Barrier Reef. The survey was chiefly aimed at determining whether catches and catch per unit effort from small boat fishing the reef are similar to the values for amateur fishermen using charter boats to fish the reef. The survey was also to provide information for a study of the economic importance of recreational fishing.

#### METHODOLOGY

- Boat ramps at Bundaberg, 1776, Gladstone, Rockhampton, Turkey and Yeppoon were surveyed several times during a 3 week period from July 24 to August 12.
- Only one boat ramp, usually the largest, was surveyed at each location.

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- Boat owners were interviewed between 6.00 am and 6.00 pm.
  An attempt was made to interview all the fishermen during this time.
- 4. Fishermen were given a brief explanatory talk on the aims of the survey when they arrived at the ramp. This prepared them for the interview when they returned from fishing.

#### RESULTS

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 13 recreational vessels visited the Capricorn Bunker reefs during the survey period. Approximately 400 boat owners were interviewed.

2. Fishing activity was heaviest on the weekends.

 Most boats which visited the Capricornia Section returned late in the day.

These results suggest that:

- Sampling periods should be designed to specifically include the period that vessels return from the Capricornia Section.
- 2. Fishing periods for any one week at a boat ramp should be stratified into:
  - (a) Weekdays (Monday-Friday)
  - (b) Saturdays and Sundays
  - (c) Public holidays

Any future survey should be carried out on a random weekday and Saturday and Sunday.

FISHING ACTIVITIES IN THE CAPRICORNIA SECTION - INPUT/OUTPUT PHASE:

In conjuction with the baseline phase of this project it is proposed to undertake some preliminary work on an input/output study of fishing activity relevant to the Region.

#### The Input/Output Analysis

The fishing industry may be divided into three phases:

- (i) Primary Phase catching and landing
- (ii) Secondary Phase processing
- (iii) Tertiary Phase marketing and distribution

Within each of these phases, it is possible to examine the structure of the sector e.g. the fishing fleet and processing plants, and the operation can be divided into inputs of fishing effort, labour, man hours, etc. and outputs of fresh and processed fish.

The inputs can be equated with the cost of the operation and the outputs with the revenues. If the place of expenditure is known this kind of analysis can be extended to looking at the connection of the fishing sector with other sectors in the regional economy.

The primary phase is often a high risk activity in terms of returns on investment. Inputs in the primary phase are:

- (i) capital investment in equipment;
- (ii) manpower utilized hours worked on vessel, repair and maintenance;

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(iii) supplies of fuel, ice, bait and lubricants.

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The output from the primary phase is fish products landed. Both inputs and outputs must be classified into the same groups, for example, vessel/gear type, port and time period, if measures of economic efficiency such as catch per investment and catch per registered tonnange are to be used.

The main objectives for study in the secondary phase is the collection of information on the volume and value of processed fishery products. Collection of data in the tertiary stage is to determine the quantity of fish transacted and the corresponding price of fish at the wholesale stage.

The Regional input-output analysis statistics in these three phases is aimed principally at establishing the value added at each stage, the place of expenditure and charting connections to other sections of industry in the Region.

#### MANAGEMENT ISSUES IN THE FISHERY

While the baseline study will provide useful information on the economic structure of various classes of fishing within the Capricornia Section, it is possible with very little additional methodological effort to obtain useful data that will be of relevance to broader marine park management considerations in conjunction with the base line study.

Since the broader management issues in the marine park context are of an economic distributional or political nature it follows that the delineation of objectives for such management will often be competative, complementary and supplementary. Consequently, a list of such objectives would include the following:

(i) the employment of the largest number of people;

- (ii) efficiency of labour utilization;
- (iii) maximization of physical yield;
- (iv) economic efficiency to prevent over investment in vessels and port facilities;
- (v) regional development;
- (vi) the improvement of the socio-economic conditions
  of the fishermen, and
- (vii) environmental protection.

Also since most fisheries are common property resources a distinction must be made between the objectives of managing the resource as a whole and the objectives necessary to account for individual fishermen.

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In order to generate trade-offs between these objectives, and to obtain the data needed in relation to them, it is useful to look at the nature of the fishery resource in Capricornia Section of the Great Barrier Reef and the structure and operation of the fishing activities in the area. Table 1 gives an indication of the range of possible objectives which exist on an individual enterprise level and in a regional level.

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# TABLE 1: A SCHEME OF OBJECTIVES AND POSSIBLE MANAGEMENT MEASURES IN THE FISHERY.

LEVEL	OBJECTIVES	MANAGEMENT MEASURES
Regional Level	(a) Maintaining the yield from the fish resource in the Capricornia Section.	Gear regulations, fishing areas and seasons. Catch $\&$ fishing effort quotas. Leaseholds.
	(b) Development of an economic fishing industry and balanced growth in the Wide Bay-Burnett and Fitzroy Regions.	Planning and assistance with investment.
	(c) Maintaining environmental quality.	Zoning, seasonal harvesting, boat numbers and fishermen number limits. Public relations and education.
Individual Fishing Enterprises	(a) Maintaining employment and profitability.	Improving technical efficiency and marketing of products. Reducing restrictions on fishing activity.

#### MANAGEMENT DATA.

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The actual data required to facilitate such management possibilities as outlined above, will be collected in a similiar format and in conjunction with the baseline phase of this project. The crucial distinction between the two classes of data is that while the baseline data is collected to better appreciate the general economic structure within the Capricornia Section, the data for the management context is collected with specific resource objectives in mind. In a conceptual sense the distinction is between occupying data in a descriptive setting or utilizing it as a subjective tool.

The data to be collected for the management phase is outlined in the base level study schedule but the general categories of data can be observed in the following attenuated framework;

A. Productivity Indicators

Data Assessments and Forecasts Required

- (i) Total yields annually/monthly
- (ii) Catch/craft type
- (iii) Catch/investment
- (iv) Catch/effort
- (v) Employment/seasonal
- (vi) Energy use
- (vii) Seasonal variations in yield
- (viii) Short and long term predictions of catches and market trends;
- Socio-Economic Indicators (i)

  - (ii) Indebtedness
  - (iii) Full-time, part-time, occassional, pro-am, amateur fishermen

Boat ownership

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(iv)

C.	Environmental	Indicators

fishing (v) Mobility (vi) Employment (vii) Residence (viii) Flexibility of operation (ix)Family ties in fishing industry (x) Level of education (xi) Previous occupation of fishermen (i) Trends in fish landings over time (ii)Trends in the number of boats using the area (iii) Trends in catch/effort Trends in catch as a function (iv) of distance from shore (v) Fish species change (vi) Attitudes of fishermen to the resource

Other employment besides

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# CHARTER BOAT OWNER SURVEY

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PREPARED BY

# THE INSTITUTE OF APPLIED SOCIAL RESEARCH GRIFFITH UNIVERSITY

THIS SURVEY IS PART OF A CONTINUING STUDY TO EXAMINE ECONOMIC ASPECTS OF RECREATIONAL AND COMMERCIAL FISHING IN THE CAPRICORNIA SECTION OF THE GREAT BARRIER REEF. YOUR RESPONSES ALONG WITH THOSE OF OTHER PEOPLE WHO FISH IN THE CAPRICORN AND BUNKER GROUPS OF REEFS WILL BE IMPORTANT IN HELPING OUR STUDY. CATCH ASSESSMENT

QUESTION:	WHAT WAS	THE T	OTAL	QUANTITY	OF F	ISH YOU
	CAUGHT I	THE	CAPRI	CORNIA SI	ECTIO	N IN:
	(USE EIT	HER KG	OR	LB).		
1.	APRIL	1978	<u> </u>		k	g/1b
2.	MAY	1978			k	g/1b
3.	JUNE	1978			k	g/1b
4.	JULY	1978			k	g/1b
5.	AUGUST	1978			k	g/1b
6.	SEPTEMBER	1978			k	g/1b
7.	OCTOBER	1978			k	g/1b
8.	NOVEMBER	1978			k	g/1b
9.	DECEMBER	1978	•		k	g/1b
10.	JANUARY	1979			k	g/1b
11.	FEBRUARY	1979			k	g/1b
12.	MARCH	1979			k	g/1b
13.	APRIL	1979			k	g/1b
	ANNUA				k	g/1b

	QUESTION	WHAT WAS	YOUR	MAIN	FISHING	METHOD	IN	THE
		CAPRICOR	NIA SI	ECTIO	N IN	•		
	14.	APRIL	1978					
	15.	MAY	1978					
	16.	JUNE	1978					
	17.	JULY	1978					
	18.	AUGUST	1978					
No. of	19.	SEPTEMBER	1978					
	20.	OCTOBER	1978			·		
Control State	21.	NOVEMBER	1978					
	22.	DECEMBER	1978					
	23.	JANUARY	1979					
	24.	FEBRUARY	1979					
	25.	MARCH	1979					
	26.	APRIL	1979					

	CAPRIC	ORNIA							
27.	APRIL	1978							
28.	MAY	1978							
29.	JUNE	1978							
30.	JULY	1978							
31.	AUGUST	1978							
32.	SEPTEMBER	1978							
33.	OCTOBER	1978						,	
34.	NOVEMBER	1978							
35.	DECEMBER	1978							
36.	JANUARY	1979							•
37.	FEBRUARY	1979							
38.	MARCH	1979							
39. QUESTI	APRIL ON: WHAT W AND CLII IN:	1979 MAS THE ENTS WH	TOTAL NUMBER OF	CREW E CAPRICORNI	A SECTION				
39. QUESTI	APRIL ON: WHAT W AND CLII IN:	1979 IAS THE ENTS WH	TOTAL NUMBER OF	CREW E CAPRICORNI	A SECTION				
39. QUESTIO 40.	APRIL ON: WHAT W AND CLII IN: APRIL	1979 IAS THE ENTS WH 1978	TOTAL NUMBER OF	CREW E CAPRICORNI	A SECTION			-	
39. QUESTIO 40. 41.	APRIL ON: WHAT W AND CLII IN: APRIL MAY	1979 AS THE ENTS WE 1978 1978	TOTAL NUMBER OF	CREW E CAPRICORNI	A SECTION				
39. QUESTI( 40. 41. 42.	APRIL ON: WHAT W AND CLII IN: APRIL MAY JUNE	1979 IAS THE ENTS WH 1978 1978 1978	TOTAL NUMBER OF	CREW E CAPRICORNI	A SECTION				
39. QUESTIO 40. 41. 42. 43.	APRIL ON: WHAT W AND CLII IN: APRIL MAY JUNE JULY AUGUST	1979 AS THE ENTS WH 1978 1978 1978 1978	TOTAL NUMBER OF	CREW E CAPRICORNI	A SECTION				
39. QUESTIO 40. 41. 42. 43. 44.	APRIL ON: WHAT W AND CLII IN: APRIL MAY JUNE JULY AUGUST SEPTEMBER	1979 AS THE ENTS WH 1978 1978 1978 1978 1978 1978	TOTAL NUMBER OF	CREW E CAPRICORNI	A SECTION				
39. QUESTI 10. 11. 12. 13. 14. 15. 16.	APRIL ON: WHAT W AND CLII IN: APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER	1979 AS THE ENTS WF 1978 1978 1978 1978 1978 1978 1978	TOTAL NUMBER OF	CREW E CAPRICORNI	A SECTION				
39. QUESTIN 40. 41. 42. 43. 44. 45. 46.	APRIL ON: WHAT W AND CLII IN: APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER NOVEMBER	1979 IAS THE ENTS WF 1978 1978 1978 1978 1978 1978 1978 1978	TOTAL NUMBER OF	CREW E CAPRICORNI	A SECTION				
39. QUESTIO 40. 41. 42. 43. 44. 45. 46. 47. 48.	APRIL ON: WHAT W AND CLII IN: APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER NOVEMBER DECEMBER	1979 IAS THE ENTS WE 1978 1978 1978 1978 1978 1978 1978 1978	TOTAL NUMBER OF	CREW E CAPRICORNI.	A SECTION				
39. QUESTIO 40. 41. 42. 43. 44. 45. 46. 47. 48. 49.	APRIL ON: WHAT W AND CLII IN: APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER NOVEMBER DECEMBER JANUARY	1979 AS THE ENTS WE 1978 1978 1978 1978 1978 1978 1978 1978	TOTAL NUMBER OF	CREW E CAPRICORNI	A SECTION				
39. QUESTIO 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50.	APRIL ON: WHAT W AND CLII IN: APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER NOVEMBER DECEMBER JANUARY FEBRUARY	1979 AS THE ENTS WH 1978 1978 1978 1978 1978 1978 1978 1978	TOTAL NUMBER OF	CREW E CAPRICORNI	A SECTION				
39. QUESTIO 40. 41. 42. 43. 44. 45. 46. 45. 46. 47. 48. 49. 50. 51.	APRIL ON: WHAT W AND CLII IN: APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER NOVEMBER DECEMBER JANUARY FEBRUARY MARCH	1979 AS THE ENTS WF 1978 1978 1978 1978 1978 1978 1978 1978	TOTAL NUMBER OF	CREW E CAPRICORNI.	A SECTION				
39. QUESTIC 40. 41. 42. 43. 44. 45. 44. 45. 46. 47. 48. 49. 50. 51. 52.	APRIL ON: WHAT W AND CLII IN: APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER NOVEMBER DECEMBER JANUARY FEBRUARY MARCH APRIL	1979 AS THE ENTS WH 1978 1978 1978 1978 1978 1978 1978 1978	TOTAL NUMBER OF	CREW E CAPRICORNI	A SECTION				

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					COLU
			SURVEY NO.		1-2
			CARD NO.	0 1	3-4
			INTERVIEW NO.	ة <u>م</u> ــــــــــــــــــــــــــــــــــــ	5-8
-					1
53.	HOME PORT				<u>[7-1</u>
54.	BOAT STATISTICAL NO.			LLL	13-1
55.	COMMONWEALTH LICENSE				
	UNSPECIFIED	2		<b></b>	17
	YES	3			
	NO	4			
56.	OWNERSHIP OF BOAT				
	OTHER	1			18
	UNSPECIFIED	2			1
	SOLE OWNER	3			
	HUSBAND AND WIFE	4			
	OTHER FAMILY PARTNERSHIP	5			
	NON-FAMILY PARTNERSHIP	6			
	MIXED PARTNERSHIP	7			
	REGISTERED PRIVATE CO.	8			
	PUBLIC COMPANY	9			
57.	BOAT SKIPPERED BY	<b></b>			
	OTHER	1		·	19
	UNSPECIFIED	2			
	SOLE OWNER	3		1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -	
	PART OWNER	4			
	EMPLOYEE	5			
	LEASEE	6			
58.	OVERALL LENGTH	m OR	ft		20-
59.	веам	m OR	ft	<u> </u>	24-
50		m OP	<i>E</i> +		07
	MAXIMUM DRAUGHI	m UK	†t	L	21-

				100 C
	61.	GROSS TONNAGE	Tonnes	30-33
	62.	NUMBER OF CYLINDERS MAIN ENGINE	 	34-35
	63.	MAIN ENGINE B.H.P.	kw	36-39
「「「「「「「」」」	64.	FUEL TYPE	<u>г</u>	
		OTHER UNSPECIFIED		40
		DIESEL FUEL OIL DIESEL DISTILLATE	3	
		PETROL KEROSENE	5 6	
	65.	FUEL COST		
		¢/gal OR	¢/litre	41-43
	66.	HULL CONSTRUCTION OF		i.
		OTHER UNSPECIFIED		44
		PLANKED TIMBER STEEL	3	
		ALUMINIUM PLYWOOD	5 6	
		FIBREGLASS FERROCEMENT	7 8	
	67.	YEAR BOAT BUILT 19		45-46
		· · · · · · · · · · · · · · · · · · ·		
				Ser. 1
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		SURVEY NO. CARD NO. INTERVIEW NO.		1-2 3-4 5-8
8.	PRESENT HOME		L	9-1
9.	AGEyears		L1	13-
0.	SEX MALE 1 FEMALE 2		·	1
1.	YEARS AS SKIPPER		L	16-
2.	YEARS SKIPPER OF PRESENT BOAT		ttt	18-
	OTHER1UNSPECIFIED2STUDENT3UNSKILLED4SEMI-SKILLED5SKILLED TRADESMAN6WHITE COLLAR WORKERS7PROFESSIONAL8FARMER9ARMED SERVICES/MERCHANT MARINE10		<b>L</b>	20-2
4.	LEVEL OF EDUCATION    1      OTHER    1      UNSPECIFIED    2      NO FORMAL EDUCATION    3      PRIMARY ONLY    4      LOWER SECONDARY    5      JUNIOR PASS    6      SENIOR PASS    7      TERTIARY    8      TECHNICAL SCHOOLING    9			22

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NOT APPLICABLE		1			Section Sector	23
UNSPECIFIED	Sec.	2				
YES		3				
NO		4				
SEASONAL PROBLEM	1S	5				
CREW DETAILS						
76. TOTAL CREW NUMBER						24-2
					<b>L</b> and the second secon	<b>.</b>
77. NUMBER OF CREW RELATED	TO SKIPPER		<u></u>		L	26-2
INDEBTNESS						
8. SOUCE OF LOAN			79.PURPOSE OF LOAN			
OTHER		1	OTHE R ~	1		28-2
UNSPECIFIED		2	UNSPECIFIED	2	<b>6</b>	L
NOT APPLICABLE		3	NOT APPLICABLE	3		
TRADING BANK		4	NEW BOAT	4		30-33
SAVINGS BANK		5	USED BOAT	5	Contrast of Contrast of Contrast of Contrast	
FINANCE COMPANY		6	BOAT& GEAR	6		
INSURANCE COMPAN	lΥ	7	NEW ENGINE	7		
DEVELOPMENT BANK	(	8	USED ENGINE	8		
A.I.D.C.		9	FISHING GEAR	9		
OTHER GOVT. SOUR	RCES	10	BOAT REFIT	10		
FISH MARKETING A	UTHORITIES		ENGINE OVERHAUL	11		
AND CO-OPS.			OTHER EQUIPMENT	12		
OTHER FISH BUYER	CITOPC .		RUNNING COSTS	13		
ACCOUNTANTS/SULT	CITURS	13	TAXES	14		
	12	14				
revious owner		<sup>15</sup>				
NSURANCE		/ .				
80. IS BOAT INSURED?		• •				
UNSPECIFIED		2				.32
YES		3			<b></b> ,	
NO		4				

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81.	INSURED VALUE OF BOAT \$		<u>↓↓↓↓</u>	33-3
32.	ANNUAL PREMIUM \$			40-4
33.	TYPE OF POLICY			
	OTHER	1	· · · · · · · · · · · · · · · · · · ·	45
	UNSPECIFIED	2		
	NOT APPLICABLE	3		
	TOTAL LOSS ONLY	4		
	FULL COVER OR INSTITUTE			
	TIME, CLAUSES	5		
	FOR LESS THAN 3/4			
	INSURED VALUE	6		
34.	WHY NOT INSURED?			
	OTHER	1		46
	UNSPECIFIED	2		
	NOT APPLICABLE	3		
	PREMIUMS TOO HIGH	4		
	LACK OF FUNDS	5		
	NOT NECESSARY	6		
	BOAT NOT VALUED	7		
	COVER REFUSED BY COMPANY	8		
	EXCESS TOO HIGH	9		
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# CAPITAL ITEMS - ESTIMATE PURCHASE PRICE DATE AND PLACE OF EXPENDITURE FOR THE FOLLOWING:

				COLUMN
			SURVEY NO.	1-2
			CARD NO.	3-4
			INTERVIEW NO.	5-8
85.	BOAT	PRICE \$	<u> </u>	9-15
86.		DATE 19	<u> </u>	16-17
87.		PLACE	L- L- L- J	18-21
88.		REPLACEMENT COST \$ OF FULLY-EQUIPPED BOAT		22-28
89	HULL	PRICE \$		29-33
00	HOLL	DATE 19	<u>La la la</u>	34-35
01				36-30
51.				
92.	MAIN ENGINE	PRICE \$	Laure La	40-44
93.		DATE 19	<u> </u>	45-46
94.		PLACE	<u></u>	47-50
95.	AUXILLIARY ENGINE	PRICE \$		51-54
96.		DATE 19	L	55-56
97.		PLACE	<u> </u>	57-60
98.	ALTERNATOR	PRICE \$	<u>L</u>	61-64
99.		DATE 19		65-66
100.		PLACE		67-70
101.	COMPRESSOR	PRICE \$	······································	71-74
102.		DATE 19		75-76
103.		PLACE	<u> </u>	77-80

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	TTERS		· · · · ·		
					COLUM
			SURVEY NO.	<b></b>	1-2
			CARD NO.	.0.4.	3-4
			INTERVIEW NO.	<b>bt</b> ttt	5-8
104.	REFRIGERATION	PRICE \$			9-12
105.		DATE 19			13-14
106.		PLACE			15-18
107.	ECHO SOUNDER	PRICE \$			19-22
108.		DATE 19		<u> <u>kan lan</u> <u>k</u>an </u>	23-24
109.		PLACE		L	25-28
110.	SONAR	PRICE \$			29-32
111.		DATE 19			33-34
112.		PLACE		<u> </u>	35-38
113.	R.D.F.	PRICE \$			39-42
114.		DATE 19			43-44
115.		PLACE			45-48
116.	RADIO TRANSCEIVER	PRICE \$			49-52
117.		DATE 19		Same and the	53-54
118.		PLACE		<u>نے ایک ایک ایک ایک ایک ایک ایک ایک ایک ایک</u>	55-58
119.	RADIO RECEIVER	PRICE \$			59-62
120.		DATE 19		blll	63-64
121.		PLACE		k	65-68
122.	AUTOMATIC PILOT	PRICE \$			69-72
123.		DATE 19		been to be a second second	73-74
124		PLACE		Land Land	75-78

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CAPITAL	ITEMS					
						COLUMN
				SURVEY NO.		1-2
				CARD NO.	0,5	3-4
				INTERVIEW NO.	·	5-8
125.	TRAWL WINCH	PRICE \$			L	9-12
126.		DATE 19			L	13-14
127.		PLACE			·	15-18
100						19-22
128.	ANCHUR WINCH				<b>bb</b>	23-24
129.			1.4.4		<b></b>	25-28
130.		PLACE			L	
131	HYDRAULIC STEERING	PRICE \$				29-32
132.		DATE 19			1	. 33-34
133.		PLACE			La	35-38
1001						
134.	AUXILLIARY BOAT	PRICE \$			ft	39-42
135.		DATE 19			L	43-44
136.		PLACE			h	45-48
137.	OUTBOARD MOTOR	PRICE \$			hannel and have been de	49-52
138.		DATE 19	/		L4	53-54
139.		PLACE			LL	55-58
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			COLUMN
		SURVEY NO.	1-2
		CARD NO.	0,6, 3-4
		INTERVIEW NO.	5-8
ALUE O	F FISH SOLD		
140.	TOTAL		9-15
141.	FOR CAPRICORNIA SECTION		16-22
CHARTER	FEES		
142.	TOTAL		23-28
143.	FOR CAPRICORNIA SECTION		29-34
OTHER F	ISHING INCOME		
144.	TOTAL		35-40
145.	FOR CAPRICORNIA SECTION	<u> </u>	41-46
	INCOME FROM SOURCES OTHER THAN		
146.	FISHING	<u> </u>	47-52
GROSS I	NCOME		
147.	TOTAL		53-59
148.	FOR CAPRICORNIA SECTION		60-66

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			COLUM
		SURVEY NO.	1-2
		CARD NO. , 0 . 7 .	3-4
		INTERVIEW NO.	5-8
F ALL	THE FISHING YOU DID IN THE 1978/79 FINANCIAL YEAR, W	WHAT PROPORTION	
IAS UNE	DERTAKEN IN:		
	1		·
49.	CAPRICORNIA SECTION	_%	9-1
50.	ELSEWHERE	_%	11-1
	1	<u>20</u> %	
F 1	DAVMENT OT SVIDDED ¢		<b></b>
52.	PAYMENT OF SKIPPER \$	<u> </u>	13-
52.		<u> </u>	
53.	CREW PAYMENT \$		25-
54.			31-
	FOOD FOR CREW		
55.	AND CLIENTS \$		37-
56.	PLACE		43-
		<u> </u>	47 -
57. FQ		<u> </u>	53-
		<u> </u>	62-
		4	
59.	BAIT \$	· <b>bb</b>	67-
60.	PLACE	L	71-
		↓ <u> </u>	75-
			COL
------	----------------------------	---	-----
		SURVEY NO.	1
		CARD NO. 0,8	3
		INTERVIEW NO.	5
161.	ICE \$	<u> </u>	9
162.	PLACE		13
		L	17
163.	REPAIRS AND MAINTENANCE \$		21
164.	PLACE		27
165.	GEAR REPLACEMENT \$	<u></u>	37
166.	PLACE	<u></u>	42
		LL	40
167.	BOAT INSURANCE \$	<u> </u>	5:
		<u>1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 </u>	50
1.00			6
169	TOTAL EAFENDITONE		68
105.			
			•

#### NON CODED INFORMATION

WHAT TYPE OF PEOPLE DO YOU GENERALLY TAKE ON FISHING TRIPS?

FOR EXAMPLE: SOCIO-ECONOMIC STATUS BUSINESS MEN FROM CITIES

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TOURISTS REGULARS

OTHERS (SPECIFY)

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HOW FAR DO THE MAJORITY OF YOUR CLIENTS TRAVEL TO BE ABLE TO GO FISHING WITH YOU?

WHERE IN THE CAPRICORNIA SECTION DO THE MAJORITY OF YOUR CLIENTS LIKE TO FISH?

HOW MANY TRIPS DID YOU MAKE LAST YEAR?

WHAT WAS YOUR AVERAGE NUMBER OF CLIENTS PER TRIP?

GENERALLY, HOW WOULD YOU RANK THE TYPE OF ACTIVITIES OF YOUR CLIENTS FOR TIME SPENT?

FISHING		
DIVING		
CAMPING		
SNORKELING		
REEF WALKING		
SHELL COLLECTING	1. 198	1.50
AQUARIUM COLLETING		
SUNBAKING		

(FOR E.G. PLACE FIGURE "1" IN THE BOX FOR THE MOST COMMON ACTIVITY, FIGURE "2" FOR THE NEXT MOST COMMON AND SO ON).

## COMMERCIAL FISHING SURVEY

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### PREPARED BY

# THE INSTITUTE OF APPLIED SOCIAL RESEARCH GRIFFITH UNIVERSITY

THIS SURVEY IS PART OF A CONTINUING STUDY TO EXAMINE ECONOMIC ASPECTS OF RECREATIONAL AND COMMERCIAL FISHING IN THE CAPRICORNIA SECTION OF THE GREAT BARRIER REEF. YOUR RESPONSES ALONG WITH THOSE OF OTHER PEOPLE WHO FISH IN THE CAPRICORN AND BUNKER GROUPS OF REEFS WILL BE IMPORTANT IN HELPING OUR STUDY.

### CATCH ASSESSMENT

QUESTION:	WHAT	WAS	THE	TOTAL	QUANTI	TY OF	F FIS	H YO
	CAUG	IT II	N THE	CAPR	ICORNIA	SECT	FION	IN:

1.	APRIL .	19/8		kg/1b
2.	MAY	1978		kg/1b
3.	JUNE	1978		kg/1b
4.	JULY	1978		kg/1b
5.	AUGUST	1978		kg/1b
6.	SEPTEMBER	1978		kg/1b
7.	OCTOBER	1978	·····	kg/1b
8.	NOVEMBER	1978		kg/1b
9.	DECEMBER	1978		kg/1b
10.	JANUARY	1979		kg/lb
11.	FEBRUARY	1979		kg/1b
12.	MARCH	1979	Analy information of the state	kg/1b
13.	APRIL	1979		kg/1b
	ANNUA	_		kg/1b

QUESTION	WHAT I	NAS	YOUR	MAIN	FISHING	METHOD	IN	TH
	CAPRI	CORM	IIA SE	ECTION	N IN			
14.	APRI	L ]	978					
15.	MA	Y J	978					
16.	JUN	E 1	978					
17.	JUL	Y 1	978			1000 average 5 a casa		
18.	AUGUS"	T J	1978	<del></del>				
19.	SEPTEMBE	R 1	1978					
20.	OCTOBE	R 1	1978					
21.	NOVEMBE	R 1	L978					
22.	DECEMBE	R 1	978					
23.	JANUAR	Y J	979	L				
24.	FEBRUAR	Y 1	1979	-				
25.	MARC	H 1	979					`
26.	APRI	L 1	1979			1		'

	OAT AT	JUKNIA					
27.	APRIL	1978					
28.	MAY	1978		_			
29.	JUNE	1978					
30.	JULY	1978		_			
31.	AUGUST	1978		-			
32.	SEPTEMBER	1978		-			
33.	OCTOBER	1978					
34.	NOVEMBER	1978					
35.	DECEMBER	1978					
36.	JANUARY	1979					
37.	FEBRUARY	1979		-			
38.	MARCH	1979		-			
39.	APRIL	1979	•				
QUESTI	ION: WHAT W YOURSE IN:	IAS THE	TOTAL NUMBER OF EN FISHING IN TH	- CREW (INCLUD HE CAPRICORNIA	ING SECTION		
QUESTI	ION: WHAT W YOURSE IN:	NAS THE	TOTAL NUMBER OF EN FISHING IN TH	CREW (INCLUD	ING SECTION		
QUESTI 10.	ION: WHAT W YOURSE IN: APRIL MAY	NAS THE LF) WH 1978	TOTAL NUMBER OF EN FISHING IN TH	CREW (INCLUD HE CAPRICORNIA	ING SECTION		
UESTI 0. 1.	ION: WHAT W YOURSE IN: APRIL MAY JUNE	MAS THE LF) WH 1978 1978 1978	TOTAL NUMBER OF EN FISHING IN TH	CREW (INCLUD HE CAPRICORNIA	ING SECTION		
O. 1. 2.	ION: WHAT W YOURSE IN: APRIL MAY JUNE JUNE	AS THE LF) WH 1978 1978 1978 1978	TOTAL NUMBER OF EN FISHING IN TH	CREW (INCLUD E CAPRICORNIA	ING SECTION		
UESTI 0. 1. 2. 3. 4.	ION: WHAT W YOURSE IN: APRIL MAY JUNE JULY AUGUST	AS THE LF) WH 1978 1978 1978 1978 1978 1978	TOTAL NUMBER OF EN FISHING IN TH	CREW (INCLUD E CAPRICORNIA	ING SECTION		
UESTI 0. 1. 2. 3. 4. 5.	ION: WHAT W YOURSE IN: APRIL MAY JUNE JULY AUGUST SEPTEMBER	AS THE LF) WH 1978 1978 1978 1978 1978 1978	TOTAL NUMBER OF EN FISHING IN TH	CREW (INCLUD HE CAPRICORNIA - - - -	ING SECTION		
UESTI 0. 1. 2. 3. 4. 5. 6.	ION: WHAT W YOURSE IN: APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER	AS THE LF) WH 1978 1978 1978 1978 1978 1978 1978	TOTAL NUMBER OF EN FISHING IN TH	CREW (INCLUD E CAPRICORNIA	ING SECTION		
UEST1 0. 1. 2. 3. 4. 5. 6. 7.	ION: WHAT W YOURSE IN: APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER NOVEMBER	AS THE LF) WH 1978 1978 1978 1978 1978 1978 1978 1978	TOTAL NUMBER OF EN FISHING IN TH	CREW (INCLUD E CAPRICORNIA - - - -	ING SECTION		
UESTI 0. 1. 2. 3. 4. 5. 6. 7. 8.	ION: WHAT W YOURSE IN: APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER NOVEMBER DECEMBER	AS THE LF) WH 1978 1978 1978 1978 1978 1978 1978 1978	TOTAL NUMBER OF EN FISHING IN TH	CREW (INCLUD E CAPRICORNIA	ING SECTION		
UESTI 0. 1. 2. 3. 4. 5. 6. 7. 8. 9.	ION: WHAT W YOURSE IN: APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER NOVEMBER DECEMBER JANUARY	AS THE LF) WH 1978 1978 1978 1978 1978 1978 1978 1978	TOTAL NUMBER OF EN FISHING IN TH	CREW (INCLUD E CAPRICORNIA - - - - - -	ING SECTION		
UEST1 0. 1. 2. 3. 4. 5. 6. 7. 8. 9. 0.	ION: WHAT W YOURSE IN: APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER NOVEMBER DECEMBER JANUARY FEBRUARY	AS THE LF) WH 1978 1978 1978 1978 1978 1978 1978 1978	TOTAL NUMBER OF EN FISHING IN TH	CREW (INCLUD E CAPRICORNIA - - - - - - -	ING SECTION		ť
UESTI 0. 1. 2. 3. 4. 5. 6. 7. 8. 9. 0. 1.	ION: WHAT W YOURSE IN: APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER NOVEMBER DECEMBER JANUARY FEBRUARY MARCH	AS THE LF) WH 1978 1978 1978 1978 1978 1978 1978 1978	TOTAL NUMBER OF EN FISHING IN TH	CREW (INCLUD E CAPRICORNIA	ING SECTION		ť
UESTI 0. 1. 2. 3. 4. 5. 6. 7. 8. 9. 0. 1. 2.	ION: WHAT W YOURSE IN: APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER NOVEMBER DECEMBER JANUARY FEBRUARY MARCH APRIL	AS THE LF) WH 1978 1978 1978 1978 1978 1978 1978 1978	TOTAL NUMBER OF EN FISHING IN TH	CREW (INCLUD E CAPRICORNIA	ING SECTION		4

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									1
					SURVEY NO.			<b>b</b>	1-2
					CARD NO.			0, 1	3-4
					INTERVIEW NO.		LI		5-8
3.	HOME PORT					L		<u> </u>	7-12
4.	BOAT STATISTICAL NO.					. L	1_1_	<b>_</b>	13-16
5.	COMMONWEALTH LICENSE								
	UNSPECIFIED		2					·	17
	YES		3						
	NO	Ļ	4				. 4		
6.	OWNERSHIP OF BOAT								
	OTHER		71					LL	18
	UNSPECIFIED		2						
	SOLE OWNER		3						
	HUSBAND AND WIFE		4						
	OTHER FAMILY PARTNERSHIP		5						
	NON-FAMILY PARTNERSHIP		6						
	MIXED PARTNERSHIP		7						
	REGISTERED PRIVATE CO.		-18						
	PUBLIC CUMPANY	۱	<b>1</b> 9						
7.	BOAT SKIPPERED BY								
	OTHER	Γ	1						19
	UNSPECIFIED	3	2					Contraction and a	
	SOLE OWNER		3						
	PART OWNER	_	4				æ		
	EMPLOYEE		5						
	LEASEE	L	6						
8.	OVERALL LENGTH	m OR			ft	L		<u>-</u> <u>-</u> <u>-</u> <u>-</u> <u>-</u> <u>-</u> <u>-</u> <u>-</u>	20-
9.	BEAM	m OR		 	ft				24-3
0.	MAXIMUM DRAUGHT	m OR			ft				27-2
				 			L		

61.	GROSS TONNAGE	Tonnes			·	30-33
62.	NUMBER OF CYLINDERS MAIN ENGINE				<b></b>	34-35
63.	MAIN ENGINE B.H.P.	kw		L	<u>.                                    </u>	36-39
64.	FUEL TYPE					
	OTHER	<u> </u>				1
	UNSPECIFIED				L1	40
	DIESEL FUEL OIL	3				
	DIESEL DISTILLATE	4				
	PETROL	5				
	KEROSENE	6				
65.	FUEL COST					
	¢/gal	OR	¢/litre	L	<u> </u>	41-43
66.	HULL CONSTRUCTION OF					
	OTHER	1				44
	UNSPECIFIED	2			4	
	PLANKED TIMBER	3				
	STEEL	4				
	ALUMINIUM	5				
	PLYWOOD	6				
	FIBREGLASS	7				
	FERROCEMENT	8				
67.	YEAR BOAT BUILT 19				<b></b> 61	45-46
				a.		

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		SURVEY NO. CARD NO. INTERVIEW NO.	6 2 6 2 6	1-2 3-4 5-8
8.	PRESENT HOME		L <u></u>	9-
9.	AGE years		<u> </u>	13
р.	SEX			
	MALE 1 FEMALE 2			
1.	YEARS AS SKIPPER			16
2.	YEARS SKIPPER OF PRESENT BOAT			18
3.	WORK EXPERIENCE OTHER THAN FISHING			
	OTHER 1			20-
	UNSPECIFIED 2		Lonnand, margined	
	STUDENT 3			
	UNSKILLED 4			
	SEMI-SKILLED 5			
	SKILLED TRADESMAN6			
	WHITE COLLAR WORKERS 7			
	PROFESSIONAL 8			
	FARMER 9			
	ARMED SERVICES/MERCHANT MARINE 10			
1.	LEVEL OF EDUCATION			
	OTHER 1			22
	UNSPECIFIED 2			
	NO FORMAL EDUCATION			
	PRIMARY ONLY4			
	LOWER SECONDARY 5			
	JUNIOR PASS6			
	SENIOR PASS 7			
	TERTIARY 8			
	TECHNICAL SCHOOLING 9			

	NOT APPLICABLE	1				23
	UNSPECIFIED	2			<b>h</b>	Concernant of the second
	YES	3				
	NO	4				
	SEASONAL PROBLEMS	5				
CREW DET	AILS					
76. TC	TAL CREW NUMBER				łłł	24-2
77. NU	MBER OF CREW RELATED TO SKIPPER _				L}	26-2
INDEBTNE	<u>22</u>					
'8. SO	UCE OF LOAN		79. PURPOSE OF LOAN			
	OTHER	1	OTHER	1		28-2
	UNSPECIFIED	2	UNSPECIFIED	2	kanamar marakataran manaka	
	NOT APPLICABLE	3	NOT APPLICABLE	3		P
	TRADING BANK	4	NEW BOAT	4	<u> </u>	30-3
	SAVINGS BANK	5	USED BOAT	5		
	FINANCE COMPANY	6	BOAT& GEAR	6		
	INSURANCE COMPANY	7	NEW ENGINE	7		
	DEVELOPMENT BANK	8	USED ENGINE	8		
	A.I.D.C.	9	FISHING GEAR	9		
	OTHER GOVT. SOURCES	10	BOAT REFIT	10		
	FISH MARKETING AUTHORITIES	11	ENGINE OVERHAUL	11		
	AND CO-OPS.		OTHER EQUIPMENT	12		
	ACCOUNTANTS (SOL LETTODS	12	RUNNING COSTS	13		
	DELATIONS (EDIENDS	13	TAXES	14		
	DEVIOUS OFMED	14				
	r revious owner					
NSURANC	E					
0. IS	BOAT INSURED?					
	UNSPECIFIED	2			L1	32
	YES	3				
	NO	4				

-

31. INSURED VALUE OF BOAT \$		 	<u></u>	<u> </u>	33-
32. ANNUAL PREMIUM \$		L	· · · ·		40-
33. TYPE OF POLICY					
OTHER	1				4
UNSPECIFIED	2			a manual	
NOT APPLICABLE	3				
TOTAL LOSS ONLY	4				
FULL COVER OR INSTITUTE					
TIME- CLAUSES	5				
FOR LESS THAN 3/4 INSURED VALUE	6				
A WHY NOT INSURFO?	to an and				
	<b></b> ,				4
					L
	2				
	3				
NOT NECESSADY	5				
	7				
COVER REFLISED BY COMPANY	· · · · · · · · · · · · · · · · · · ·				
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	komonad 2				

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CAPITAL ITEMS - ESTIMATE PURCHASE PRICE DATE AND PLACE OF EXPENDITURE FOR THE FOLLOWING:

				COLUMN
			SURVEY NO.	1-2
			CARD NO. 0 3	3-4
			INTERVIEW NO.	5-8
85.	BOAT	PRICE \$	<u> </u>	9-15
86.		DATE 19		16-17
87.		PLACE		18-21
88.		REPLACEMENT COST \$		22-28
		BOAT		
89.	HULL	PRICE \$	<u> </u>	29-33
90.		DATE 19	<b></b> k	34-35
91.		PLACE	<u>L</u>	36-39
92.	MAIN ENGINE	PRICE \$	ttttttt	40-44
93.		DATE 19	<u> </u>	45-46
94.		PLACE	<u>1</u>	47-50
95.	AUXILLIARY ENGINE	PRICE \$	<u> </u>	51-54
96.		DATE 19	<u></u>	55-56
97.		PLACE		57-60
98.	ALTERNATOR	PRICE \$	L LL L LL L_L L	61-64
99.		DATE 19		65-66
100.		PLACE		67-70
101.	COMPRESSOR	PRICE \$		71-74
102.		DATE 19		75-76
103.		PLACE		77-80
				-

					COL
			SURVEY NO.		1-2
			CARD NO.		3-4
			INTERVIEW NO.	hansen han and	5-8
104.	REFRIGERATION	PRICE \$			9-1
105.		DATE 19		harmon lawaran	13-1
106.		PLACE		<u> </u>	15-1
107.	ECHO SOUNDER	PRICE \$		k	19-2
108.		DATE 19		L	23-2
109.		PLACE		L	25-2
110.	SONAR	PRICE \$		<u>L</u>	29-3
111.		DATE 19		LL	.33-3
112.		PLACE		L <u></u>	35-3
113.	R.D.F.	PRICE \$		L	39-4
114.		DATE 19		Lannah	43-4
115.		PLACE		<u> </u>	45-4
116.	RADIO TRANSCEIVER	PRICE \$		<u></u>	49-5
117.		DATE 19		1	53-5
118.		PLACE		karran harranda and har	55-5
119.	RADIO RECEIVER	PRICE \$		Lanna da anti anti anti anti anti anti anti ant	59-6
120.		DATE 19		Annan Annan Anna Anna Anna Anna Anna An	63-6
121.		PLACE		L	65-6
122.	AUTOMATIC PILOT	PRICE \$			69-7
123.		DATE 19		Lannandrowend	73-7
124.	•	PLACE		<u> </u>	75-7

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			SURVEY NO. CARD NO. INTERVIEW NO.		<u>1-2</u> <u>3-4</u> <u>5-8</u>
25.	TRAWL WINCH	PRICE \$		L	9-1
26.		DATE 19		<b>kk</b>	13-1
27.		PLACE			15-1
28.	ANCHOR WINCH	PRICE \$			19-2
29.		DATE 19		6	23-2
30.		PLACE		<u></u>	25-2
31.	HYDRAULIC STEERING	PRICE \$		 I <u>marina da marina da marina da marina da</u>	29-3
32.		DATE 19		<b>L</b>	. 33-3
33.		PLACE		<u> </u>	35-3
34.	AUXILLIARY BOAT	PRICE \$		6	39-4
35.		DATE 19		1	43-4
.36.		PLACE		<u> </u>	45-4
.37.	OUTBOARD MOTOR	PRICE \$			49-5
.38.		DATE 19		Lb	53-5
.39.		PLACE		LLt	55-5

INCOME	1978/79 FINANCIAL YEAR				
					COLUMN
			SURVEY NO.		1-2
			CARD NO.	0,6	3-4
			INTERVIEW NO.		5-8
VALUE OF	FISH SOLD				
140.	TOTAL		· · · · · · · · · · · ·		9-15
141.	FOR CAPRICORNIA SECTION				16-22
CHARTER	FEES				
140	TOTAL				
142.			<u>L</u>		23-28
143.	FOR CAPRICORNIA SECTION _		<u>L1</u>	<u></u>	29-34
OTHER ET	SHING INCOME				
OTHER TY					
144.	TOTAL				35-40
145.	FOR CAPRICORNIA SECTION				41-46
			Contemporte and a second		
	INCOME FROM SOURCES OTHER	THAN			
146.	FISHING				47-52

GROSS INCOME

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147.	TOTAL	53-59
148.	FOR CAPRICORNIA SECTION	60-66

EXPENDI	TURE 1978/79 FINANCIAL YEAR		
			COLUMN
		SURVEY NO.	1-2
		CARD NO.	3-4
		INTERVIEW NO.	5-8
		хх	
OF ALL 1	THE FISHING YOU DID IN THE 1978/79 FINANCIAL YEAR, WHAT	PROPORTION	
WAS UNDE	RTAKEN IN:		
149.	CAPRICORNIA SECTION		
150.	ELSEWHERE	<u> </u>	
	100%		
151.	PAYMENT OT SKIPPER \$	<u> </u>	13-18
152.		<u> </u>	19-24
150			
153.	CREW PAYMENI \$	<u></u>	25-30
154.		<u> </u>	
155.	FOOD FOR CREW \$		37,42
156.	PLACE	<u> </u>	43-46
		L	47-52
		kynnelsen kannelsen hannelsen	
157.	FUEL AND OIL \$		53-57
158.	PLACE		58-61
			62-66
159.	BAIT \$	hand and a second se	67-70
160.	PLACE		71-74
			75-78

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1978/79 FINANCIAL YEAR

			COLUMN
		SURVEY NO.	1-2
		CARD NO. 0.8	3-4
		INTERVIEW NO.	5-8
		the second secon	-
1.61	TCF \$		9-12
101.		han har	13-16
162.		<u>+</u>	17 20
		L	17-20
			01.00
163.	REPAIRS AND MAINTENANCE \$	<u> </u>	21-20
164.	PLACE	<u></u>	27-30
		1f	51-50
165.	GEAR REPLACEMENT \$	<u> </u>	3/-41
166.	PLACE	<u></u>	42-45
		<u>L</u>	46-50
167.	BOAT INSURANCE \$	L	51-55
		<u>+</u>	56-60
168			61-67
169			68-74

170.	ON YOUR LAST TRIP, HOW MANY KG OR LB OF FISH DID YOU CATCH?	KG OR	LB
171.	INFORMATION COLLECTED FROM FISHERMEN SUGGESTS THAT THEY ARE TRAVELLING FURTHER OUT IN THEIR BOATS TO CATCH MORE AND BIGGER FISH. HOW MANY KM OR MILES WOULD YOU BE PREPARED TO TRAVEL IN YOUR BOAT TO CATCH:		
	AN EXTRA 200 LB HOW LONG WOULD IT TAKE YOU TO TRAVEL THIS FAR?		
	AN EXTRA 400 LB HOW LONG WOULD IT TAKE YOU TO TRAVEL THIS FAR?	,	
	AN EXTRA 800 LB HOW LONG WOULD IT TAKE YOU TO TRAVEL THIS FAR?		
	AN EXTRA 1600LB HOW LONG WOULD IT TAKE YOU TO TRAVEL THIS FAR?		
172.	FUEL COSTS HAVE BEEN RISING LATELY AND WILL PROBABLY CONTINUE TO RISE: WITH INCREASING FUEL COSTS WILL YOU:		
	REDUCE THE NUMBER OF FISHING TRIPS		
	REDUCE THE NUMBER OF TRIPS BUT STAY OUT LONGER 2		
	SAME NUMBER OF TRIPS BUT STAY OUT LONGER 3		
	OTHER (SPECIFY) 4		
173.	HOW MUCH LONGER WOULD YOU STAY OUT FISHING IF FUEL PRICES ROSE?		
	25%		
	50%		
	100%		
	200%		
174.	WHY DID YOU DECIDE TO TAKE UP FISHING AS AN OCCUPATION?		
	INCOME 1		
	INDEPENDENCE 2		
	SOCIAL FACTORS 3		
	SECURITY 4		
	ABLE TO USE SKILLS 5		
	FAMILY BACKGROUND IN FISHING		
	OTHER (SPECIFY) 7		

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AMATEUR FISHING BOAT RAMP SURVEY

PREPARED BY

THE INSTITUTE OF APPLIED SOCIAL RESEARCH

## GRIFFITH UNIVERSITY

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THIS SURVEY IS PART OF A CONTINUING STUDY TO EXAMINE ECONOMIC ASPECTS OF RECREATIONAL AND COMMERCIAL FISHING IN THE CAPRICORNIA SECTION OF THE GREAT BARRIER REEF. YOUR RESPONSES ALONG WITH THOSE OF OTHER PEOPLE WHO FISH IN THE CAPRICORN AND BUNKER GROUPS OF REEFS WILL BE IMPORTANT IN HELPING OUR STUDY.

## ON SITE INFORMATION TO BE COMPLETED BY INTERVIEWER JUST PRIOR TO INTERVIEW.

				COLUMN
		SURVEY NO.	s	1-2
		CARD NO.	0,1	3-4
		INTERVIEW NO.	<u> </u>	5-8
1.	BOAT RAMP NAME		L	9-10
2.	YEAR OF INTERVIEW 19		ii	11-12
3.	MONTH OF INTERVIEW			
	JANUARY 01			12-1
	FEBRUARY 02		LJ	15-1
	MARCH 03			
	SEPTEMBER 09			
. 1	OCTOBER 10			
	NOVEMBER 11			
	DECEMBER 12			
1.	WEEKEND OR WEEKDAY			
	SATURDAY 1			15
	SUNDAY 2		£}	
	PUBLIC			
	HOLIDAY 3			1.
	WEEKDAY 4			
5.	DATE OF INTERVIEW			-
	e.g. 01, 02, 30, 31		ki	16-17
5.	TIME OF INTERVIEW AM/PM	L	·	18-21
	WEATHER IN AREA FISHED			
	BLUE SKY			22
	LESS THAN 50% OVERCAST		<b></b>	L
	GREATER THAN 50% OVERCAST			
	DRIZZLE 4			



8.

9.



FISHIN	G FFFORT THIS TRIP			
				COLUMN
		SURVEY NO.	Among and A	1-2
		CARD NO.	0,2	3-4
		INTERVIEW NO.		5-8
10.	SHOW BOAT OWNER THE MAP. IN WHAT SECTION DID YOU			
. 103	SPEND THE MOST TIME FISHING THIS TRIP?		Ltt	9-11
				a i) and
11.	HOW MUCH TIME DID YOU SPEND ON YOUR BOAT			
	THIS TRIP?	DAYSHRS		12-15
12.	HOW MUCH TIME DID YOU SPEND WITH YOUR			
	LINE(S) IN THE WATER I.E. WHAT WAS THE			·
	ACTUAL FISHING TIME?	HRS	L	16-18
13.	TOTAL NUMBER OF PEOPLE ON THE BOAT			T
	THIS TRIP?		<u> </u>	19-20
14.	NUMBER OF PEOPLE WHO ACTUALLY FISHED?		L8	21-22
15				
15.	NUMBER OF ADULT MALES		k	23-24
10				05
10.		1	LL	C2
17	NUMBED OF DEODIE LESS TUAN 15 YEADS OLD			26
17.	NUMBER OF FEUFLE LESS THAN IS TEARS ULD		L6	20

1	FISH CATC	H THIS TRIP			1	and the second		
1								COLUMN
						SURVEY NO.		1-2
						CARD NO.	0 3	3-4
								5-8
X						INTERVIEW NU.	<u>Landard</u>	
	18.	TOTAL NUMBER OF FISH CAUGHT						9-11
	19.	TOTAL WEIGHT OF FISH CATCH		KG C	DR _	LB		12-14
	20.	WEIGHT OF BIGGEST FISH CAUGHT		KG C	DR _	LB		15-16
	21.	SPECIES OF BIGGEST FISH CAUGHT					L	17-18
	22.	NUMBER OF FISH RETURNED					1	19-21
								1
	23.	NUMBER OF EACH SPECIES CAUGHT:						
								22.24
	24.	CORAL TROUT					tt	25-27
	25.						<b>6</b>	28-30
	26.	SPANGLED EMPERUR	•				<b>h</b> fd	31-33
	21.						L	34-36
	20.							37-39
	30	PARROT FISH						40-42
	31.	WHITING					· · · ·	43-45
	32.	BREAM						46-48
	33.	FLATHEAD						49-51
	34.	OTHER (SPECIFY		)				52-54
	35.	MOST FISH CAUGHT WHEN TIDE WAS:						
		NO EFFECT						55
		RISING	2					
		HIGH	3					-
		FALLING	4					
•		LOW	. 5					
	36.	MOST FISH CAUGHT AT TIME:						
		NO EFFECT	1				<b></b>	56
		PRE-DAWN	2					
		DAWN	3				5	
		MORNING	4					
		MIDDAY	5					
		AFTERNOON	6					C
		DUSK	7					
		EVENING	8					

•

POAT RETAILS         SURVEY NO.         0.4         1.7           SURVEY NO.         0.4         1.7         2.4           SE         BOAT STATISTICAL MARGER         9-20           37.         PRO-AM LICENSE         9-20           WHEPELITED         2         1.21           NO         4         2.3           38.         COMERSULP OF BOAT         1.22           OTHER         1.2         2.22           NO         4         2.2           SEE GARR         3.4         2.2           MAREDITED         2.3         2.2           SEE GARR         3.4         2.2           MAREDITED         2.3         2.2           MAREDITED         2.3         2.2           SEE GARR         3.4         2.2           MAREDITED         2.3         3.4           MAREDITED         2.3         2.2           MAREDITED         3.3         2.2           MAREDITER         1.2         2.2           MAREDITER         1.2         2.2           MAREDITER         1.2         2.2           MAREDITER         1.2         2.2           MAREDITER         1.						
SURVEY NO.         COLUMN           34.         BAT STATISTICAL MAREER         9-70           37.         RAD-MI LICENSE         9-70           37.         RAD-MI LICENSE         9-70           38.         CMERESILP OF BOAT         21           01000         1         2           1         1         22           1         01000         2           1         22         21           1         22         22           1         22         22           1         22         22           1         22         22           1         22         22           1         22         22           1         2         22           1         22         22           1         22         22           1         22         22           1         22         22           1         22         22           1         22         22           1         1         22           1         1         22           1         1         22           1	BOAT DI	ETAILS				
SURVEY NO.         0         4         3-4           S6.         BONT STATISTICAL NUMBER         9-20           37.         PRO-AM LICINSE         9-20           37.         PRO-AM LICINSE         9-20           38.         CMALERNIP OF DOAT         2           0         4         2           38.         CMALERNIP OF DOAT         2           0 THER MILL         1         2           0 SEC COMER         3         3           10.         OTHER FAMILY         4           0 THER FAMILY         5         6           NON-FAMILY PARTHERSHIP         7         7           39.         OVERALL LENSTHE         1           11.         TOTAL HORSEPOREN ALL ENSITIES         10           12.         THIA CONTRADE         2           33.         11.         TOTAL HORSEPOREN ALL ENSITES         10           12.         THER CONTRADE         1         2           13.         THIA CONTRADE         3         3           41.         TOTAL HORSEPOREN ALL ENSITES         10         2           0 THER         1         2         3         31           0 THER LOUTENAD         3 <th></th> <th></th> <th></th> <th>•</th> <th></th> <th>COLUMN</th>				•		COLUMN
OKED NO.         D         4         3-4           36.         BOAT STATISTICAL NUMBER				SURVEY NO.		1-2
36.     BOAT STATISTICAL NUMBER     5-8       37.     PRO-MA LICENSE     9-20       37.     PRO-MA LICENSE     2       UNSPECIFIED     2     3       NO     4       38.     GMARESHIP OF BOAT       OTHER     1       UNSPECIFIED     2       SOLE OWERSHIP OF BOAT     2       OTHER     1       UNSPECIFIED     2       SOLE OWERSHIP     4       OBMER FAMILY     5       MUSPOND AND MUTE     4       OBMER FAMILY PARTHERSHIP     7       39.     OVENALL LENGTH     5       MIXED PARTHERSHIP     7       39.     OVENALL LENGTH     6       MUSPOND     1     2       1     27       39.     OVENALL ENGTH     6       MIXED PARTHERSHIP     7       39.     OVENAL LENGTH     1       1     27       31.     27       41.     TOTAL HORSTFOOR ALL ENGTHS     mp       42.     FUEL TYPE     1       OTHER     1     2       OTHER     1     2       12.     1     31       01551 DISTILIATE     4       5     6       43.				CARD NO.	0 4	3-4
36.       BOAT STATISTICAL NUMBER       9-20         37.       PRO-AM LICENSE       9         UNSPECIFIED       2       3         ND       4         38.       GOMERSHIP OF BOAT         OTHER       1       2         SUS CONDUCTION       3         HUSSECIFIED       2         SUS CONTR       3         HUSSECIFIED       5         NUS CONTR       3         HUSSECIFIED       5         NUS CONTR       6         NUS CONTR       7         SUS CONTR       7         SUS CONTR       7         SUS CONTRALL CONTR       7         SUS CONTRALL CONTR       7         SUS CONTRALL CONTR       7         SUS CONTRALL CONTRAL CONTRAL       7         SUS CONTRAL CONTRAL CONTRAL       7         SUS CONTRAL CONT				INTERVIEW NO.	L	5-8
36.     BOAT STATISTICAL NUMBER     9-20       37.     PRO-AM LICENSE     9-20       37.     PRO-AM LICENSE     1       UNSPECIFIED     2     3       30.     GWHERSHIP OF BOAT     1       OTHER     1     2       UNSPECIFIED     2       SOLE OWER     3       HUSSAND AND WEFE     4       OTHER     3       HUSSAND AND WEFE     4       OTHER HARLY PARTNERSHIP     5       NON-FARILY PARTNERSHIP     7       39.     OVERALL LENGTH     7       40.     ENGINE TYPE     1       INBOARD     3     2       STAGLE QUIBOARD     3     2       41.     TOTAL HORSEPOWER ALL ENGINES     hp       42.     FUEL TYPE     1     3       OTHER     1     2     3       42.     FUEL TYPE     1     3       OTHER     1     2     3       43.     FUEL COST     6/Ga1 DR     6/Litre						
37.       PRO-AN LICENSE         UKSPECIFIED       2         ND       4         38.       OMRESSIFP OF BOAT         OTHER       1         UKSPECIFIED       2         SOL OWRE       3         HUSAND AND MIFE       4         OTHER FAMILY       5         NON-FAMILY PAINERSHIP       5         NON-FAMILY PAINERSHIP       7         39.       OVERAUL LENGTH       6         NUXED PARTNERSHIP       7         39.       OVERAUL LENGTH       6         NUXED PARTNERSHIP       7         39.       OVERAUL LENGTH       1         STRGLE OUTBOARD       2       2         TUNN OUTBOARD       3       3         41.       TOTAL HORSEFOARE ALL ENGINES       hp         42.       FUEL TYPE       1         OTHER       1       3         UINSHEGTIED       2       3         DIESEL FUEL OIL       3       3         43.       FUEL COST            43.       FUEL COST	36.	BOAT STATISTICAL NUMBER		<u> </u>		9-20
37.       PROMINENTS       2       2         VES       3       3         30.       OWNERSHIP OF BOAT       4         31.       OWNERSHIP OF BOAT       1         OTHER       1       2         SOLE OWNER       3         HUSBARD NOD NIFE       3         OTHER NUSHARD NOD NIFE       3         OTHER FAMILY       5         NON-FARILY PARTHERSHIP       5         NON-FARILY PARTHERSHIP       7         39.       OVERALL LENGTH       6         NUSARD       12       23-26         40.       ENGINE TYPE       1         INDARD       3       7         39.       OVERALL LENGTH       6         STINGLE GUTBORD       2       2         TWIN OUTBOARD       3       3         41.       TOTAL HORSEPONER ALL ENSINES       hp         42.       FUEL TYPE       1         OTHER       1       2         JIESEL INSTILLATE       4         PETROL       6         43.       FUEL COST       6/Gal 07	77					
UKSPECIFIED     2	37.	PRO-AM LI CENSE	1			
YES       3         NO       4         38.       OWERSHIP OF BOAT         OTHER       1         UNSPECIFIED       2         SOLE OWNER       3         HUSAND AND WIFE       4         OTHER FAMILY       5         NON-FAMILY PARTNERSHIP       5         NON-FAMILY PARTNERSHIP       7         39.       OVERALL LENGTH       5         NUSKDE GUTBOARD       1       23-26         40.       EINSINE TYPE       6         INBOARD       1       27         SINGLE GUTBOARD       2       2         THIN OUTBOARD       3       3         41.       TOTAL HORSEPONER ALL ENGINES       hp         JIESEL DISTILLATE       hp       31         UNSPECIFIED       3       31         DIESEL DISTILLATE       4       4         PETNOL       6       6         43.       FUEL COST       4/6a1 08       4/15tre       31-33		UNSPECIFIED	2		<b>—</b>	21
NO       14         38.       OWNERSHIP OF BOAT         OTHER       1         UNSPECIFIED       2         SOLE GUNER       3         HUSMAD AND MIFE       4         OTHER FAMILY       5         NON - FAMILY PARTNERSHIP       7         39.       OVERALL LENGTH       m OR         MIXED PARTNERSHIP       7         39.       OVERALL LENGTH       m OR         SINGLE OUTBOARD       1       23-26         40.       ENGINE TYPE       1       27         SINGLE OUTBOARD       3       3       21.         TOTAL HORSEFOWER ALL ENGINES       hp       28-30         42.       FUEL TYPE       1       2         OTHER       1       2       31         UNSPECIFIED       3       3       31         DIESEL FUEL OIL       3       4       5         DIESEL DISTILLATE       4       5       4         VEROAL       6       6       31-33		YES	3			
38.       OWNERSHIP OF BOAT         OTHER       1         UNSPECIFIED       2         SOLE GONER       3         HUSBAND AND WIFE       4         OTHER FAMILY       5         OWNERSHIP       5         NON-FAMILY PARTNERSHIP       5         NON-FAMILY PARTNERSHIP       7         39.       OVERALL LENGTH       m OR         MIXED PARTNERSHIP       7         39.       OVERALL LENGTH       m OR         STROLE OUTBOARD       1       23-26         40.       ENGINE TYPE       1         INBOARD       1       27         STROLE OUTBOARD       3       3         41.       TOTAL HORSEFOWER ALL ENGINES       hp         VERPTOFIED       1       28-30         42.       FUEL TYPE       1         OTHER       1       2         DIESEL FUEL OIL       3       3         DIESEL DISTILLATE       4         PETROL       6         43.       FUEL COST       4/Ga1 OR       4/Litre       31-33		NO	14			
OTHER       1       22         SOLE OWNER       3         HUSDAND AND WIFE       4         OTHER FAMILY       4         PARIMERSHIP       5         NON-FAMILY PARTNERSHIP       5         NON-FAMILY PARTNERSHIP       7         39.       OVERALL LENGTH       6         MIXED PARTNERSHIP       7         39.       OVERALL LENGTH       6         MIXED PARTNERSHIP       7         39.       OVERALL LENGTH       7         39.       OVERALL LENGTH       7         10.       ENGINE TYPE       23-26         11.       TOTAL HORSEPOMER ALL ENGINES       hp         12.       TOTAL HORSEPOMER ALL ENGINES       hp         41.       TOTAL HORSEPOMER ALL ENGINES       hp         42.       FUEL TYPE       1         OTHER       1       2         OTHER       1       3         JIESEL DISTILATE       4         PETROL       5         6       6         43.       FUEL COST       4/6a1 OR       4/Litre       31-33	38.	OWNERSHIP OF BOAT				
UNSPECTFIED       2         SOLE OWNER       4         HUSBAND AND WIFE       4         OTHER FAMILY       5         PARTNERSHIP       5         NON-FAMILY PARTNERSHIP       6         MIXED PARTNERSHIP       7         39.       OVERALL LENGTH       m         NON-FAMILY PARTNERSHIP       7         39.       OVERALL LENGTH       m         INBOARD       1       2         INBOARD       3       27         SINGLE OUTBOARD       3       2         VIN OUTBOARD       3       3         41.       TOTAL HORSEPOWER ALL ENGINES       hp         VINSPECIFIED       3       3         VINSPECIFIED       3       3         VINSPECIFIED       3       3         OTESEL FUEL OIL       3       3         43.       FUEL COST $e/Ga1$ OR $e/Litre$ 31-33		OTHER	1			22
SOLE OWNER       3         HUSBAND AND WIFE       4         OTHER FAMILY       5         OTHER FAMILY       5         NON-FAMILY PARTNERSHIP       5         NON-FAMILY PARTNERSHIP       6         MIXED PARTNERSHIP       7         39.       OVERALL LENGTH       m OR         THIN DUTBOARD       1       23-26         40.       ENGINE TYPE       1         INBOARD       2       23-26         40.       ENGINE TYPE       23-26         10.       ENGINE TYPE       23-26         41.       TOTAL HORSEPOWER ALL ENGINES       hp         24.       FUEL TYPE       1         OTHER       1       2         OTHER       1       2         OTHER       1       2         OTHER       1       3         42.       FUEL TYPE       1       3         OTHER       1       2       31         DIESEL DISTILLATE       4       5         6       6       6       43.		UNSPECIFIED	2		Lamont.	
HUSBAND AND WIFE       4         OTHER FAMILY       5         NON-FAMILY PARTNERSHIP       5         NON-FAMILY PARTNERSHIP       6         MIXED PARTNERSHIP       7         39.       OVERALL LENGTH		SOLE OWNER	3			
OTHER FAMILY   PARTNERSHIP   NON-FAMILY PARTNERSHIP   39.   OVERALL LENGTH	400	HUSBAND AND WIFE	4			
NON-FAMILY PARTNERSHIP       6         39.       OVERALL LENGTH       m         39.       OVERALL LENGTH       m         0.       ENGINE TYPE         INBOARD       1         21       27         33.       OUTBOARD         34.       TOTAL HORSEPOWER ALL ENGINES       hp         41.       TOTAL HORSEPOWER ALL ENGINES       hp         42.       FUEL TYPE       31         01ESEL FUEL OIL       3       31         DIESEL FUEL OIL       3       31         DIESEL FUEL OIL       6       31         43.       FUEL COST       ¢/Gal OR       ¢/Litre       31-33		OTHER FAMILY PARTNERSHIP	5			
MIXED PARTNERSHIP       7         39.       OVERALL LENGTH m OR ft       23-26         40.       ENGINE TYPE         INBOARD       1       27         SINGLE OUTBOARD       2       3         41.       TOTAL HORSEPOWER ALL ENGINES hp       28-30         42.       FUEL TYPE		NON-FAMILY PARTNERSHIP	6			
39.       OVERALL LENGTH m OR ft       23-26         40.       ENGINE TYPE       INBOARD       1       27         SINGLE OUTBOARD       1       2       27         TWIN OUTBOARD       3       3       28-30         41.       TOTAL HORSEPOWER ALL ENGINES hp		MIXED PARTNERSHIP	7			
40.       ENGINE TYPE         INBOARD       1         SINGLE OUTBOARD       2         TWIN OUTBOARD       3         41.       TOTAL HORSEPOWER ALL ENGINES       hp         42.       FUEL TYPE         OTHER       1         UNSPECIFIED       3         DIESEL FUEL OIL       3         DIESEL DISTILLATE       4         PETROL       5         KEROSENE       6	39.	OVERALL LENGTH m OR	ft		<u> </u>	23-26
INBOARD 1   SINGLE OUTBOARD 2   TWIN OUTBOARD 3   41. TOTAL HORSEPOWER ALL ENGINES hp 42. FUEL TYPE OTHER1 OTHER1 0THER1 1 28-30 42. FUEL TYPE OTHER1 31 31 43. FUEL COST ¢/Ga1 OR¢/Litre31-33	40.	ENGINE TYPE				
SINGLE OUTBOARD   TWIN OUTBOARD   41.   TOTAL HORSEPOWER ALL ENGINES   42.   FUEL TYPE   OTHER   UNSPECIFIED   DIESEL FUEL OIL   DIESEL DISTILLATE   PETROL   KEROSENE   43. FUEL COST		INBOARD	11			27
TWIN OUTBOARD 3   41. TOTAL HORSEPOWER ALL ENGINES hp   42. FUEL TYPE   OTHER 1   UNSPECIFIED 2   DIESEL FUEL OIL 3   DIESEL FUEL OIL 3   DIESEL DISTILLATE 4   PETROL 6		SINGLE OUTBOARD	2		<b></b>	L
41. TOTAL HORSEPOWER ALL ENGINEShp   42. FUEL TYPE   OTHER 1   UNSPECIFIED 2   DIESEL FUEL OIL 3   DIESEL DISTILLATE 4   PETROL 5   KEROSENE 6		TWIN OUTBOARD	3			
42.       FUEL TYPE         OTHER       1         UNSPECIFIED       2         DIESEL FUEL OIL       3         DIESEL DISTILLATE       4         PETROL       5         KEROSENE       6         43.       FUEL COST       ¢/Ga1 OR       ¢/Litre         31-33	41.	TOTAL HORSEPOWER ALL ENGINES	hp		<u> </u>	28-30
OTHER 1   UNSPECIFIED 2   DIESEL FUEL OIL 3   DIESEL DISTILLATE 4   PETROL 5   KEROSENE 6	42	FIIFI TYDF			J	
UNSPECIFIED   UNSPECIFIED   DIESEL FUEL OIL   DIESEL DISTILLATE   PETROL   KEROSENE   4 4 5 6 4 4 5 6 4 4 5 6 4 5 6 4 5 6 4 5 6 4 5 6 4 5 6 4 5 6 4 5 6 4 5 6 4 5 6 4 5 6 5 6	121		1.			1 21
districtive   distribution   distr					<u> </u>	
DIESEL DISTILLATE   DIESEL DISTILLATE   PETROL   KEROSENE      43. FUEL COST			3			
PETROL     5       KEROSENE     6       43.     FUEL COST     ¢/Ga1 OR     ¢/Litre			4			
KEROSENE     6       43.     FUEL COST     ¢/Gal OR     ¢/Litre		PETROI	5			
43. FUEL COST¢/Gal OR¢/Litre 31-33		KEROSENF	6			
43. FUEL COST ¢/Gal OR¢/Litre 31-33						
	43	FUEL COST #/G	al OR	¢/Litre		31-33
	101				to an alternative state of the second state of	

		SURVEY NO.	hl	1-2
		CARD NO.	0,5,	3-4
		INTERVIEW NO.	K	5-8
14.	PRESENT HOME		<u> </u>	9-1
15.	AGE Years		Lt	13-1
46.	RESPONDENT'S SEX			
	MALE 1 FEMALE 2		· · · · · · · · · · · · · · · · · · ·	15
47.	NUMBER OF YEARS AS A BOAT OWNER Years		LA	16-1
48.	MAJORITY OF CREW GENERALLY			
	RELATIVES 1 FRIENDS 2		<b></b> ı	18
19.	LEVEL OF EDUCATION			
	OTHER 1	4.		19
	UNSPECIFIED 2		<b>L</b>	L
	NO FORMAL EDUCATION 3			
	PRIMARY ONLY4			
	LOWER SECONDARY 5			
	JUNIOR PASS 6			
	SENIOR PASS 7			
	TERTIARY 8			
	TECHNICAL SCHOOLING 9			
50.	OCCUPATION		<u> </u>	20-2
51.	GROSS INCOME 1978/79 FINANCIAL YEAR			
	LESS THAN \$8,000 - 1		<b>L</b>	22
	\$8,000 - \$10,000 2			
	\$10,000 - \$14,000 3			
	\$14,000 - \$25,000			
	GREATER THAN \$25,000 5			
				1

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<b>-</b> .	INDEBTNESS		
	DO YOU HAVE ANY OUTSTANDING LOA	AN FOR ANY OF THE	
	FOLLOWING?		
	OTHER	1	23
	UNSPECIFIED	2	
	NOT APPLICABLE	3	
	NEW BOAT	4	
	SECOND HAND BOAT	5	
	NEW ENGINE	6	
	SECOND HAND ENGINE	7	
3.	SOURCE OF LOAN		
	OTHER		24
	UNSPECIFIED		
	NOT APPLICABLE	3	
	TRADING BANK	4	
	SAVINGS BANK	5	
	FINANCE COMPANIES	6	
	INSURANCE COMPANIES	7	
4.	INSURANCE		
	IS BOAT INSURED?		
	UNSPECIFIED	2	25
	YES	3	
	NO	4	
5.	INSURED VALUE OF BOAT \$	[	26-3(
6.	TYPE OF POLICY		
	OTHER	1	31
	UNSPECIFIED	2	
	NOT APPLICABLE	3	
	TOTAL LOSS ONLY	4	
	FULL COVER OR INSTITUTE TIME CLAUSES	5	
	PARTIAL COVER (INSURED		
	FOR LESS THAN 3/4 OF CURRENT VALUE).	6	

57.

WHY NOT INSURED?

OTHER
UNSPECIFIED
NOT APPLICABLE
PREMIUM TOO HIGH
NOT NECESSARY
BOAT NOT VALUED
COVER REFUSED BY COMPANY
EXCESS TOO HIGH
LACK OF FUNDS

1	-
	1
	2
	3
	4
	5
	6
	7
	8
	9

CAPITAL ITEMS

					COLUMN
			SURVEY NO.		1-2
			CARD NO.	0,6	3-4
			INTERVIEW NO.	. <u>K</u>	5-8
			· ·		
58.	BOAT AND MOTOR(S) AND TRAILER	PRICE \$	b	-tl	9-13
59.		DATE 19		L	14-15
60.		PLACE	L	· · · · · · · · · · · · · · · · · · ·	16-19
The second					
	IF PURCHASED SEPARATELY:				
61.	BOAT AND TRAILER	PRICE \$	L		20-24
62.		DATE 19		L	25-26
63.		PLACE		- <u>+</u> ,	27-30
64.	MOTOR(S)	PRICE \$	·	· · · · · · · · · · · · · · · · · · ·	31-34
65.		DATE 19		<u> </u>	35-36
66.		PLACE	L	<u> </u>	37-40
	The second second			t	
67.	ECHO SOUNDER	PRICE \$		<u> </u>	.41-43
68.		DATE 19		<u>}1</u>	44-45
69.		PLACE		<u> </u>	46-49
70				-	
70.	RADIO	PRICE \$		······································	50-52
/1.		DATE 19			53-54
12.		PLACE			55-58
72	DEEDICEDATION			· · · · ·	
73.	(e.g. DODTABLE EDEEZEDS)		l		59-60
75	(e.g. FORTABLE FREEZERS)			<b></b>	61-62
/ 51			L		63-66
76.	FISHING GEAR	VALUE \$		F	67.70
	(RODS, REELS, TACKLE ETC.)	VALUL 9	· .		6/-/0
	(,,				
77.	CAPITAL ITEMS TOTAL			Г	71, 75
			<u> </u>	<u></u>	/1-/5
					· · · · ·

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ANNUAL EXPENDITURE - DURING THE PAST 12 MONTHS, HOW MUCH DID YOU SPEND ON

THE FOLLOWING ITEMS?

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C

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0

		in the second			COLUMN
			SURVEY NO.	( ) ]	1-2
			CARD NO.	0 7	3-4
			INTERVIEW NO.		5-8
78.	BOAT, MOTOR, TRAILER, MAINTENANCE	EXPENDITURE \$	<b>(</b>	- t- t- t-	9-12
79.		PLACE	L	<u></u>	13-16
80.	GEAR REPLACEMENT	EXPENDITURE \$		<u> </u>	17-19
81.	EG. TACKLE, BOAT EQUIPMENT	PLACE	L		20-23
					2
82.	BOAT INSURANCE	PREMIUM \$			24-26
				<u>L</u>	1
83.	MOTOR INSURANCE	PREMIUM \$			27-29
				<u>kananan kananan kananan k</u>	
84.	TRAILER REGISTRATION	EXPENDITURE \$			30-31
				2 martine and a second s	
85.	FISHING CLUB MEMBERSHIP FEES	EXPENDITURE \$			32-33
	OVER THE PAST 12 MONTHS, ON FISHING	TRIPS TO THE			
	CAPRICORNIA SECTION, HOW MANY DAYS W	VERE SPENT AT:		*	
0.5					
80.				L	34-35
87.				<u> </u>	36-37
88.				<b>L</b>	38-39
89.	HUIEL			<u> </u>	40-41
90.				L	42-43
91.	CAKAVAN			A	44-45
92.				tt	46-4/
93.	UIHER (SPECIFY	)		- 6	48-49
0.4					50.50
94.	HOW MUCH DID THIS COST YOU? \$		L		50-53
95.	HOW MANY PEOPLE SHARED THIS ACCOMMOD	DATION?		Ł	54-55

	PLACE OF EXPEN	DITURE FOR THIS TRIP.			-
					COLUM
			SURVEY NO.	<u> </u>	1-2
			CARD NO.	0,8,	3-4
			INTERVIEW NO.	( I I I	5-8
16.	BOAT FUEL	\$		L	9-1
97.		PLACE		<u> </u>	12-1
98.	BOAT HIRE	\$			16-1
9.		PLACE		<u>السمام الم</u>	19-2
00	FOULDMENT HIDE	¢			23-2
.01.	Equinient nine	• PLACE			26-2
					20.2
02.	BAIT	\$ PLACE		<u> </u>	30-3
05.	HOW MUCH WILL THIS ROA PETROL EXPENSES?	D TRAVEL COST IN		L1	40-4
.06.	NUMBER OF CYLINERS IN	VEHICLE		<b></b> 4	42
107.	VEHICLE TYPE				
	CONVENTIONAL 4WD	1 2		•(	43

					COLUMN
			SURVEY NO		1-2
			CARD NO.	0.9	3-4
			INTERVIEW NO.	<u> </u>	5-8
			``` <b>`</b> ``		
108.	IS YOUR FISHING TRIP TODAY PART OF:				
	EXTENDED VACATION	1		<b></b> }	9
	WEEKEND OFF WORK	2			
	SINGLE WEEK DAY OFF WORK	3			
· 499	YOUR RETIREMENT	4			
	UNEMPLOYED	5			
	OTHER	6			
109.	DURING THE PAST 12 MONTHS, HOW OFTEN	I DID YOU GO FIS	HING?		
	ALMOST EVERY DAY	1			10
	SEVERAL TIMES A WEEK	2		<b></b>	
	ABOUT ONCE A WEEK	3			
	ABOUT ONCE EVERY SECOND WEEK	4			
	ABOUT ONCE A MONTH	5			
	LESS THAN ONCE A MONTH	6			
	OF ALL THE FISHING YOU HAVE DONE IN	THE LAST 12 MONT	THS, THINK ABOUT		
	THE AMOUNT OF TIME YOU SPENT FISHING	IN THE CAPRICON	RNIA SECTION AND		
	ELSEWHERE (OUTSIDE STUDY AREA) SHOW	MAP.			
	WHAT PROPORTION WAS UNDERTAKEN IN TH	IE:			
110.	CAPRICORNIA SECTION	%			11-12
111.	ELSEWHERE	%			13-14
· - · ·		100%			
112.	HOW LONG HAVE YOU BEEN FISHING THE (	APRICORNIA SECT	ION?Years	L	15-16
113.	(TO BE ASKED IF FISHING CAPRICORNIA	SECTION FOR GREA	ATER		
	THAN FIVE (5) YEARS). SINCE 1970 H	IAS THE NUMBER OF	F		
	FISHING TRIPS YOU MAKE TO THE CAPRIC	ORNIA SECTION:			
	INCREASED	1		L	17
	DECREASED	2			
	REMAINED THE SAME	3			
	FISHING CAPRICORNIA FOR				
	LESS THAN 5 YEARS	4			

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SHOW CALENDAR.

HOW MANY FHISHING TRIPS DID YOU MAKE TO THE

CAPRICORNIA SECTION IN:

	The second s			
	114.	JANUARY	1978	× <u> </u>
	115.	FEBRUARY	1978	
	116.	MARCH	1978	
Contraction of the second seco	117.	APRIL	1978	
	118.	. MAY	1978	
	119.	JUNE	1978	-
	120.	JULY	1978	1.1
	121.	AUGUST	1978	
	122.	SEPTEMBER	1978	
	123.	OCTOBER	1978	
	124.	NOVEMBER	1978	
	125.	DECEMBER	1978	

126. REASONS FOR FISHING

0

0

0

0

OTHER	
TO PROVIDE FOOD	
TO ENJOY THE SEA .	
TO GET AWAY FROM PRESSURES OF WORK	
TO GET AWAY FROM POLLUTION OF CITY	
FOR THE CHALLENGE OF THE CATCH	

1

2 3

4

5

6

127. DO YOU HAVE ANY OTHER RECREATIONAL INTERESTS/ACTIVITIES?

OTHER (SPECIFY	1
CAMPING	2
BUSHWALKING	3
SPORTS	4
SHOOTING	5

128.

DO YOU THINK THAT SOME SECTIONS OF THE BARRIER REEF SHOULD EXCLUDE FISHING AND OTHER EXPLOITIVE ACTIVITIES WHILE OTHER SECTIONS ALLOW FOR FISHING?

OTHER (SPECIFY	_ 1
UNSPECIFIED	2
YES	3
NO	4

18-19 1 1 20-21 1 1 22-23 24-25 \_\_\_\_\_ 26-27 28-29 30-31 \_\_\_\_\_ 32-33 \_\_\_\_\_ 34-35 1\_\_\_\_\_ 36-37 \_\_\_\_\_ 38-39 \_\_\_\_\_ 40-41

42

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43

	NON CODED INFORMATION
129.	HOW MANY KG OR LB OF FISH DID YOU CATCH TODAY? KG OR LB
130.	INFORMATION COLLECTED FROM FISHERMEN SUGGESTS THAT THEY ARE TRAVELLING FURTHER OUT IN THEIR BOATS TO CATCH MORE AND BIGGER FISH. HOW MANY KM OR MILES WOULD YOU BE PREPARED TO TRAVEL IN YOUR BOAT TO CATCH:
	AN EXTRA 50 LB       HOW LONG WOULD IT TAKE TO TRAVEL THIS FAR?         AN EXTRA 100 LB       HOW LONG WOULD IT TAKE TO TRAVEL THIS FAR?         AN EXTRA 200 LB       HOW LONG WOULD IT TAKE TO TRAVEL THIS FAR?         AN EXTRA 400 LB       HOW LONG WOULD IT TAKE TO TRAVEL THIS FAR?
131.	FUEL COSTS HAVE BEEN RISING LATELY AND WILL PROBABLY CONTINUE TO RISE: WITH INCREASING         FUEL COSTS WILL YOU:         REDUCE THE NUMBER OF FISHING TRIPS         REDUCE THE NUMBER OF TRIPS BUT STAY OUT LONGER         SAME NUMBER OF TRIPS BUT STAY OUT LONGER         OTHER (SPECIFY
132.	HOW MUCH LONGER WOULD YOU STAY OUT FISHING IF FUEL PRICES ROSE?         25%         50%         100%         200%

C

