

# **Development of the National Recreational and Indigenous Fishing Survey**

Survey Development Working Group



**FRDC Project No. 98/169**

July 2000

NSW Fisheries Report Series

No. 23 (Volume 1)

ISSN 1440-3544

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## NON-TECHNICAL SUMMARY

<b>98/169</b>	<b>Development of the National Recreational and Indigenous Fishing Survey</b>
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### Objectives:

- (1) To develop/refine the output specifications (as per the feasibility study), sampling design, questionnaires and other survey instruments for a national screening and diary survey of recreational fishers.
- (2) To develop/refine the output specifications (as per the feasibility study), sampling design and survey instruments for a survey of indigenous fishing communities.
- (3) To develop/refine the output specifications (as per the feasibility study), sampling design, questionnaires and other survey instruments for a survey of visiting international fishers.
- (4) To pilot test the questionnaires and diary instruments on a small sample in each State/Territory.
- (5) To train a key Survey Manager in each State/Territory in the conduct of the different survey components.
- (6) To develop database systems for data entry, editing and storage of survey information, and analytical tools for analysis and reporting.
- (7) To prepare final documentation for the implementation of a National Angling Survey by all States/Territories (including indigenous communities and international visitors where appropriate) and final costing.

### Summary:

The National Recreational and Indigenous Fishing Survey (National Survey) is a joint initiative of the Commonwealth and State/Territory Governments to obtain fisheries statistics to support the management of non-commercial fishing in Australia. The National Survey has been progressively developed by a Steering Committee for the past four years. A feasibility study was conducted in 1997-98 to select an appropriate survey method for Australian recreational fisheries. It recommended a national telephone screening/diary survey with on-site field surveys and separate components for visiting international fishers and certain indigenous fishing activities. Final development of the National Survey was undertaken during 1998-99 by a Working Group comprising specialist fisheries agency/consultant staff. Funding for the development phase was provided by the Fisheries Research and Development Corporation (FRDC), Natural Heritage Trust (NHT) (Fisheries Action Program) and State/Territory fisheries agencies.

The objective of the development phase was to advance the National Survey concept (as per the feasibility study), into working documents and sampling plans ready for implementation by the States/ Territories. This required finalisation/ refinement of the output specifications sampling design, questionnaires and other survey instruments for the three major components of the National

Survey: the Recreational Fishing Survey (including On-Site Surveys); the Indigenous Fishing Survey; and the Visiting International Fisher Survey. The survey instrument was to be pilot tested on a sample of the general community and the fishing population in each State/ Territory. Key National Survey staff in each State/ Territory were to be trained in the conduct of the various survey components and database management systems, final documentation and costing for the implementation of the National Survey prepared.

To undertake this work, the Working Group adopted a transparent and inclusive approach where inputs were sought from all fisheries agencies and key stakeholders (including peak recreational and commercial fishing bodies). The nature and progress of the project were also broadly publicised to these organisations and through the fishing media. Although six formal workshops/meetings were held throughout the project to discuss and endorse progress, much of the work was necessarily conducted out-of-session. A multi-tasked approach was employed where individual members and small teams were assigned specialist tasks/responsibilities, including for particular survey components (e.g. the Indigenous Fishing Survey) and areas of technical expertise (e.g. statistician). In such cases and throughout the project generally, extensive consultation occurred within the group and externally (expert colleagues/stakeholders).

Although a complex and challenging project in many respects, the National Survey development has been a highly successful undertaking by any measure. While some minor design refinements may be required in the lead-up to the commencement of the study, the stated objectives of the project (in all but one case), have been achieved and in many cases, exceeded. Comprehensive designs have been prepared for the three major National Survey components. These designs comprise detailed output specifications, sampling plans, questionnaires and other survey instruments. The statistical design and analysis, sample allocation, estimation procedures and data aggregation methods have been developed. The sample size for each State/ Territory has been finalised and modelled to provide error estimates for effort and harvest in major fishing regions. The geographical boundaries of the survey were defined, species lists and identification cards developed and a communication strategy composed. A data management model to provide a coherent strategy to manage the diversity of recreational fishing information for access, manipulation and storage was completed.

A training course for State Managers was conducted at the Fisheries Research Institute (NSW) to familiarise staff with the survey instrument. Following a debriefing, working group members began short and long-term pilot tests of the survey instrument in each Australian State/ Territory to assess problematic data elements, respondent burden and general applicability of the method. The short term pilot test has been completed to the satisfaction of the Working Group and the long term test has been in place for seven months without difficulties. The training course and pilot tests have provided State Managers with a level of proficiency to implement the survey and an understanding of the efficacy of the survey tools.

A comprehensive collection of documents has been prepared for the implementation of the National Survey. This documentation includes screening forms, questionnaires, workload control sheets, instruction guides, interview manuals and other survey material for each major component of the National Survey, where appropriate. The Working Group developed a detailed work plan for the survey and confirmed that the final project costing was within the proposed budget. The Working Group is confident that the development phase has confirmed the suitability of this survey instrument for gathering national recreational fishing data. It is confident that the National Recreational and Indigenous Fishing Survey will achieve its objectives and recommends that the project proceed to final implementation in the scheduled period, October 1999 - December 2001.

## 1. BACKGROUND

A National Policy for Recreational Fishing in Australia was developed by the National Recreational Fisheries Working Group consisting of senior officers in Commonwealth, State and Territory fisheries agencies and published in December 1994. The Policy endorsed the principle that “fisheries management decisions should be based on sound information including fish biology, fishing activity, catches and the economic and social values of recreational fishing”. The Policy also reaffirmed the “urgent need to obtain accurate national information on recreational fishing over a period of time” as “all levels of government have inadequate information for managing many fish stocks of most importance to recreational fishing”.

The Policy recommended that “a national survey of expenditure and participation rates of recreational fishing should be undertaken on a five yearly basis” and that a “national survey can obtain information on participation and expenditure by resident fishers and overseas tourists as well as demographic data and participation by fishery type”. In addition, the Policy suggested that “there was also a need to identify the attitudes of anglers toward their pastime and determine the reasons why people fish and the best means of incorporating these needs into management policies”. Standing Committee on Fisheries and Aquaculture (SCFA) and the Ministerial Council on Forestry, Fisheries and Aquaculture (MCFFA) adopted the National Policy and supported the development of a national recreational fishing survey.

The Commonwealth Fishcare Program (precursor of the Fisheries Action Program) was established in 1995. Fishcare held community workshops around Australia with key stakeholders of the aquatic environment. These workshops canvassed a range of natural resource and habitat issues of interest or concern to a broad cross-section of the community. A common issue was the lack of scientific information on the status of many fishery resources and the level of exploitation by commercial and recreational fishers. Community groups lamented the paucity of information on recreational fishing in view of the apparent growth in the number of participants in this sport. It was acknowledged that government fishery agencies had an obligation to understand the impact of recreational fishing and the sustainability of fish stocks. The workshops strongly agreed with the need for more comprehensive information on recreational fishing activity.

To address the needs of SCFA and stakeholder input from the community workshops, the Fishcare Program facilitated a National Recreational Fishing Survey Workshop in November 1995. Commonwealth, State and Territory representatives discussed the scope of a national recreational fishing survey, stakeholder data needs, and sampling and funding strategies. Considerable progress was made at this workshop and a National Recreational Fishing Survey Steering Committee (the Steering Committee) was established to determine the preferred methodology and the process to complete the development phase and planning for a national survey. The Steering Committee was required to oversee and coordinate the development of the Commonwealth, State and Territory Survey components and advise on the timing, cost and funding options of developing and implementing a national survey.

A feasibility study was prepared by Kewagama Research (West 1998), in consultation with the Steering Committee and Fishcare. The study consolidated the output specifications of each State and Territory, provided a literature review of potential survey methodologies (including international surveys), discussed survey methodologies in light of the output specifications and characteristics of Australian recreational fisheries and explored alternative implementation strategies. The feasibility study recommended a national screening and diary instrument as the most appropriate survey technique for gathering national recreational fishery statistics. The

feasibility study also provided an assessment of development and implementation costs of a national survey.

The Steering Committee met to discuss the report in October 1997 and provided responses both during the meeting and in subsequent weeks to assist Kewagama Research to prepare a final report. The completed report (National Recreational Fishing Survey: Feasibility Study) was presented in April 1998 and was adopted by the Steering Committee at a meeting in May. Consequently, SCFA approved the development of a national recreational fishing survey, along with additional components for indigenous fishing communities and international visitors. The Steering Committee initiated the development of the National Recreational and Indigenous Fishing Survey (National Survey) in July 1998. Funding for the present development project was provided by Fisheries Research and Development Corporation (FRDC), the Fisheries Action Program (FAP) of the Natural Heritage Trust (NHT) and the various State/Territory fisheries agencies. A diagrammatic depiction of the flow of these events is shown in Attachment 12.1.

## 2. NEED

Australian fishery resources support a range of commercial and recreational activities of varying economic and social value. These fishery resources are generally regarded as “common property assets” and are managed by government on behalf of the community. The role of government is to ensure long-term sustainable fisheries production for the prosperity and well being of the community. To achieve this goal, government fishery agencies conduct scientific research to understand fish populations and implement appropriate initiatives to control fishing activity. Scientific research may be directed toward acquiring a knowledge of the biology of fish, the dynamics of fish populations, harvesting techniques, indices of fishing success, environmental perturbations, the political and social alternatives for resource use and theories relating to economic choice.

Clearly, governments require an information base on all extractive and non-extractive users of the resource to effectively manage these fisheries. This has generally been well established for the Australian commercial fishing sector where legislated catch and effort returns have been in place for many decades. However, many Australian inshore fisheries incorporate a significant recreational sector where arrangements to collect fishery statistics are not standard practice. Recreational fishing research has generally been in response to critical management needs such as resource allocation disputes, rather than an orderly monitoring of the status of the sector and its target species. Most State/Territory fisheries agencies have recognised the need for recreational fishing catch statistics and have made progress towards routine data collection. However, few agencies have been able to acquire the resources necessary to conduct a comprehensive, all-encompassing survey of recreational fishing. This total fishery information is most important for resource allocation and stock assessment.

A number of countries have recognised the value of national recreational fishing statistics and implemented regular monitoring programs. The United States, Canada, South Africa and New Zealand conduct national recreational fishing surveys on a regular basis. Individual States within these countries also conduct on-going assessments of the recreational fishing sectors. In Australia, most agencies have conducted recreational fishing surveys on particular lakes, estuaries or coastal regions, but whole-of-State surveys of catch and effort have only recently been considered, despite management calls for this information for several decades. Although increased research effort has been allocated to recreational fishery data collection, an appropriate national assessment of the harvest of this sector has not been attempted. Australia-wide recreational fishing information was, however, collected by PA Management Consultants in 1983, but only in terms of demographic profiling and economic data. Their results drew widespread attention to the scale and economic impact of recreational fishing in Australia, but provided no information on the harvest of aquatic resources by the recreational sector.

An urgent need therefore exists to produce relevant and up-to-date national recreation fishery statistics on resource use and participation. The adoption of the National Policy by SCFA and MCFFA recognises this need and has provided the impetus for the work of the Steering Committee to date and for the research application to enable development of the National Survey to a stage ready for implementation. The primary focus of the survey is to collect nationally consistent and comparable fishery statistics (fishing effort, fish catch, catch rate, species composition and size), participation and demographic information for fishers (age, sex, labour force), economic and attitudinal data for the non-commercial component of Australian fisheries. In addition, and importantly in some fisheries, data is also to be collected from the indigenous and visiting international fishing sectors. These sectors have generally been ignored in other resource

allocation research activities but are considered to contribute significantly economically and/or biologically to some fisheries.

The feasibility study detailed the overall survey methodology which has since been adopted by the Steering Committee. The concept needed to be developed into working documents (e.g. interviewer manuals, questionnaires, workflow plans) and sampling plans ready for implementation by the States and Territories. Additionally, database and analytical tools were required for implementation, along with training of key personnel in each State and Territory. The expertise for preparation of this material is not universally available, although more generalised expertise in recreational fisheries does exist in each State and Territory. The preferred approach, therefore, was to establish a specialist development team with relevant expertise to prepare all material for implementation of the National Survey and to work closely with representatives from each State and Territory to ensure that the needs of all fishery agencies were met.



### 3. OBJECTIVES

- (1) To develop/refine the output specifications (as per the feasibility study), sampling design, questionnaires and other survey instruments for a national screening and diary survey of recreational fishers.
- (2) To develop/refine the output specifications (as per the feasibility study), sampling design and survey instruments for a survey of indigenous fishing communities.
- (3) To develop/refine the output specifications (as per the feasibility study), sampling design, questionnaires and other survey instruments for a survey of visiting international fishers.
- (4) To pilot test the questionnaires and diary instruments on a small sample in each State/Territory.
- (5) To train a key Survey Manager in each State/Territory in the conduct of the different survey components.
- (6) To develop database systems for data entry, editing and storage of survey information, and analytical tools for analysis and reporting.
- (7) To prepare final documentation for the implementation of a National Survey by all States and Territories (including indigenous communities and international visitors where appropriate) and final costing.

## 4. METHODS

The National Survey has been progressively developed over a number of years by a Steering Committee composed of representatives of Australian fishery agencies and peak recreational and commercial fishing groups. However, for the development work itself, a new entity was established, namely the Survey Development Working Group (SDWG or Working Group), but with a largely similar structure to the Steering Committee in terms of representation. Furthermore (and to streamline the process), a smaller sub-committee was established (the Facilitation Team) to develop more detailed aspects of the National Survey. Facilitation Team members were responsible for specific elements of the survey including project management and the Visiting International Fisher Survey development (David McGlennon), funding arrangements (Murray Johns/Stephen Kerr), survey design and training (Laurie West), data management (Dr Jeremy Lyle), the Indigenous Fishing Survey (Anne Coleman), maps and species identification (Gary Henry). Consultants in the fields of statistical analysis (Dennis Reid) and economic issues (David Campbell) were also commissioned to assist in development work. The composition of the Steering Committee, SDWG and Facilitation Team are shown in Section 11.

An inclusive, multi-tasked approach was employed, whereby each member took responsibility for the development of a component, but sought the assistance and advice of other members of the Working Group, where appropriate. The Facilitation Team held three meetings during the year, but conducted most of its business out-of-session. The Facilitation Team drafted the fundamental business of the survey which was then presented to the Working Group for approval. Three Working Group meetings/ workshops were held to endorse the overall direction of the development, confirm the survey output specifications/basic elements of the survey design and to ratify decisions made by the Facilitation Team and consultants. Minutes and progress reports of the workshops and meetings are included as Attachments 12.2 and 12.3.

Peer review and community consultation were achieved through a formal progress reporting schedule, specialist reviews of particular issues, presentations to peak fishing groups and media releases. Milestone reports were provided to the FRDC and the NHT through FAP as a contractual obligation to these funding agencies. Formal progress reports were submitted to the SCFA Research Sub-committee in recognition of their role in the scientific overview of the project. Peak angling advisory groups, angling associations and individual clubs were advised of the progress of the project. Also, a number of eminent scientists were asked to review particular aspects of the project including the survey design (Professor Ken Pollock, University of North Carolina), economic issues (Professor Tor Hundloe, University of Queensland) and data management (Ms. Kim Finney, CSIRO Marine Research Data Centre). These distinguished academics endorsed the goals and techniques employed by the Working Group to develop and implement the National Survey.

## **5. RESULTS**

### **5.1. Recreational Fishing Survey**

#### **5.1.1 *Output Specifications***

The scope of the survey includes Australian residents, five years of age and older, fishing in all waters (freshwater, estuarine, marine) within the Exclusive Economic Zone (EEZ). All recreational fishing techniques and harvesting activities will be included in the survey. All aquatic organisms (not plants) harvested by recreational fishers will be in scope. The survey will reflect the fishing activities of Australian recreational fishers over a 24 hour day for a period of one year. The scope of the national recreational fishing survey is defined in the output specifications (Attachment 12.4).

##### **5.1.1.1 *Screening Survey***

The national population screening will identify fishers and provide an estimate of the level of participation (% of the population) in recreational fishing. The population screening will obtain demographic information (age, sex, household size, labour force status, ethnicity/aboriginality) and boat ownership details (size, engine etc). Fishing related information (club membership and fishing licences) will also be obtained. Core data elements for this component are detailed in Attachment 12.4.

##### **5.1.1.2 *Diary Survey***

Detailed fishery statistics (fishing effort, catch, catch rate, species composition) will be obtained from the diary component of the survey. Fishing-related information (fishing region, target species, fishing method, platform) and expenditure by fishers will also be gathered from this component. Fishing diaries will provide the core fishery statistics and are, therefore, the fundamental basis of the national recreational fishing survey. Core data elements for this component are detailed in Attachment 12.4.

##### **5.1.1.3 *On-Site Surveys***

On-site (creel) surveys provide an effective verification of certain recreational fishing activities, since it is possible to directly observe catches and assess the species identification skills of recreational fishers. On-site surveys will be conducted throughout Australia during the enumeration phase of the National Survey. Information collected on telephone ownership of fishers will be used to assess coverage of the sample drawn for the national population screening. On-site surveys will be used to assess the ability of recreational fishers to identify fish and to determine the size distribution of common species (by design, the diary survey will collect catch/release data in terms of numbers by species - not size). On-site and diary data will be spatially and temporally standardised wherever possible. Details of output specifications for the on-site survey component are contained in Attachment 12.17 (survey questionnaire).

##### **5.1.1.4 *Economic Data***

The Recreational Fishing Survey will gather information on fishing-related expenditure by recreational fishers. Fishers will be asked to record their expenditure on fishing gear, bait,

magazines, boat fuel and other items associated with their fishing. These data will be collected for “home” and “away” fishing regions and used to estimate the regional economic importance of fishing. Other economic information will also be collected in the survey (e.g. investment in boats used for recreational fishing). A detailed description of the deliberations of the Working Group and the economic consultant, and the resolutions for the National Survey are provided in Attachment 12.5 (Economic Report) - and also in the Output Specifications document (Attachment 12.4).

During the development of the National Survey, a number of government and industry groups expressed a desire to collect data to estimate the value of recreational fishing to the national economy. The Working Group agreed to examine the potential of the survey method to collect information in this regard. Following several meetings and discussions with economists, it was agreed that an estimate of the value of recreational fishing was not possible with the proposed survey instrument. Professor Tor Hundloe supported this decision and advised that an appropriate technique for determining the economic value of recreational fisheries surveys had yet to be published. The Working Group was of the opinion that the quantity of data likely to be required to accurately value a fishery would substantially diminish the collection of data needed to achieve the core fisheries objectives. Nevertheless, it was agreed that the survey would provide a range of economic information and importantly, in terms of regional assessments of fishing-related economic activity (expenditure).

#### **5.1.1.5      *Attitudinal Data***

At the completion of the diary survey, an additional interview will be conducted with diarists aged 14 years or more, to gauge their attitude to a number of fishing-related issues. The objectives of the Attitudinal Survey include assessment of the knowledge/ awareness among fishers of fishing regulations, management issues, research and compliance programs and the general level of satisfaction with the administration of fisheries in each State/Territory. The survey may also seek information on the full range of perceptions/motivations which contribute to the whole recreational fishing experience.

By design, the Attitudinal Survey has been positioned after the Diary Survey to minimise any biasing impacts due to educative effects of the former e.g. increased knowledge of regulations. Equally, care is required to minimise/account for any obverse effects. The Attitudinal Survey will be tailored to suit the particular requirements of each fisheries agency. Although a number of potential question areas have been identified (and these are detailed in Attachment 12.4), the final design for each State/Territory has been scheduled for October/November 2000. This will maximise the timeliness and utility of the data collected, especially in relation to any legislative changes which might occur in the meantime.

#### **5.1.1.6      *Additional Calibration Surveys***

As an integral component to the design of the Recreational Fishing Survey, three additional surveys will be conducted in each State/ Territory to enable calibration and expansion of substantive survey data for the overall population concerned. The first of these surveys refers to assessment of non-response bias in terms of “non-contacts” in the Screening Survey, i.e. cases where no effective contact has been made with the household and no survey data have been obtained (e.g. participation). Although “non-contacts” will be minimised through extensive “call-backs” by interviewers over an enumeration period approaching 6 weeks (and a small percentage of selected households is expected here, around 5-7%, assessment of any behavioural differences from counterpart (responding) households is nevertheless important. Accordingly, a stratified random sample of 150 “non-contact” households will be followed up in each State/ Territory during April/ May 2000 to enable such assessments/ calibration.

The second calibration survey also refers to non-response assessment for the Screening Survey, but in terms of “refusals”, i.e. cases where no substantive survey data have been obtained due to the respondent declining to take part. Again, such cases are expected to emerge at very low levels (around 4%), but are more likely to occur among households with no previous/ expected fishing activity. Accordingly, a stratified random sample of 150 “refusals” will be followed up in each State/ Territory during April/ May 2000 to enable such assessments/ calibration. Australian Bureau of Statistics and consultant experience has shown that excellent response can be achieved in “refusals” follow-up surveys. The key factor being the use of skilled interviewers and careful explanation/ justification of the follow-up interview.

The third calibration survey will be conducted in each State/ Territory immediately after completion of the Diary Survey, among a sample of 500 households who (in the Screening) reported no expected fishing activity during the diary period. Brief recall questioning techniques will be employed to establish whether any “in-scope” fishing activity was undertaken during the period. This survey provides symmetry in the overall survey design in that, whereas a significant minority of respondents in the Diary Survey as “intending fishers” will actually do no fishing in the period, others reporting no such intention, will actually do some fishing in that time. Experience has shown that the incidence of the latter is quite rare and almost entirely confined to respondents who reported some fishing activity in the 12 months prior to the Screening Survey. Therefore, the sample for the survey will be stratified (and disproportionately sampled) on this basis.

### **5.1.2      *Sampling, Statistical Design and Analysis***

#### **5.1.2.1      *The Sampling Strategy***

The overall sampling strategy for the Recreational Fishing Survey (as proposed in the feasibility study) was endorsed by the Working Group, after some refinement during the development phase. A stratified sampling plan will be drawn from statistical divisions of the national population as published by the Australian Bureau of Statistics. An initial random sample of Australian households will be drawn from 'White Pages' telephone directories (electronic version) for enumeration in the Screening Survey. Those households identified as containing one or more 'intending fishers' will be invited to take part in the second phase Diary Survey (covering a 12 month sampling period) and later, in the Attitudinal Survey. The data collected from the Recreational Fishing Survey are based on a single wave of population sampling (see further discussion in 5.1.3).

For the On-site Surveys, the sampling plan will be determined by each State/Territory to maximise the coverage/utility of the data collected. Spatial and temporal stratification will be undertaken and the present work plan/ budget allows for 28 'sampling days' per State/Territory per month for the 12 months of the study (an increase from the originally-proposed 20 days per month). The remaining discussion in this section (5.1.2) refers to the telephone survey component of the Recreational Fishing Survey

#### **5.1.2.2      *Sample Design***

The design of the survey is based on single-stage cluster sampling (Thompson 1992), where the primary sampling unit is the household (chosen by random sampling), and the secondary unit is the fisher within a household. All eligible fishers within a selected household will be included in the diary phase of the survey, which will collect data on all fishing activities of each selected fisher, for each month over a 12 month period.

Cluster designs are recommended in cases where there is no frame listing of elements, or where a frame listing is prohibitively expensive to obtain (Schaeffer *et al*, 1996). A listing of all fishers in the population is not available, hence no list exists from which a simple random sample may be obtained. A frame listing of households exists in the form of telephone listings, thus a random sample of households can be chosen, and from each of these primary sampling units, the set of all eligible fishers is selected for the longitudinal phase of the survey.

The major advantages of the cluster sampling design in this situation are that it provides the correct weighting to both single and multiple-fisher households, and it provides multiple-fisher data through a single (initial survey) contact, thus substantially increasing the sample size for a given sample expenditure. The statistical efficiency of cluster sampling compared to simple random sampling depends on the correlation between fishers within households. The proposed sampling procedure for the National Survey will allow the estimation of dependence between fishers within households.

Estimates of variables of interest on a fisher basis (and estimates of variance) will be obtained by the formulae which apply to one-stage cluster sampling, *viz*:

The estimator of the population total for a variable of interest over a sample stratum is given by

$$\hat{t} = \frac{N}{n} \sum_{i=1}^n y_i = N \bar{y}$$

Where  $N$  is the number of primary units (households) in the stratum population,  $n$  is the number of households in the sample, and  $\bar{y} = \frac{1}{n} \sum_{i=1}^n y_i$  is the sample mean of household totals for the variable of interest.

The variance estimator of  $\hat{t}$  is given by

$$\hat{\text{var}}(\hat{t}) = N(N-n) \frac{s_u^2}{n}$$

Where  $s_u^2 = \frac{1}{n-1} \sum_{i=1}^n (y_i - \bar{y})^2$  is the sample variance for the primary unit totals.

### 5.1.2.3 Sample Allocation

The allocation of the total gross sample of households to the individual States/Territories is based on the general principle of obtaining estimates of harvest and effort at comparable levels of precision for the lowest level of geographical aggregation for each state. For current purposes (and initial sample selection), this level has been assumed as either the Statistical Division (ABS), or where population size is too small at this level, a combination of Statistical Divisions. However, in the ultimate dataset, several options will be available for regional analyses (e.g. defined fishing regions). The sample allocation depends on assumed values for participation rates, harvest rates and average effort, for which comprehensive data are not available. The sample allocation resulting from this procedure is generally quite similar to the allocation based on the square root of the population of a state divided by the sum of the square roots of each of the States/Territories. The latter procedure is used to allocate interviews between counties for the National Marine Fisheries Service surveys of recreational fishers in the marine waters of the United States. This

method of allocation ensures an adequate level of sampling for geographical areas with relatively small populations.

#### 5.1.2.4 Estimation Procedures

The estimates of harvest and fishing effort will be estimated for each state, home region (Statistical Division or combination of Statistical Divisions), fishing region, and fishing method. The estimate for a state total will be derived by summing the weighted stratum estimates. The usual stratified estimator for the population total and its variance will apply. These are given by

$$\hat{t}_{st} = \sum_{h=1}^L N_h \bar{y}_h$$

$$\hat{var}(\hat{t}_{st}) = \sum_{h=1}^L N_h (N_h - n_h) \frac{s_h^2}{n_h}$$

where  $N_h$  and  $n_h$  are the number of households in the population and sample respectively for stratum  $h$ ,  $\bar{y}_h$  is the sample mean for stratum  $h$ , and  $s_h^2 = \frac{1}{n_h - 1} \sum_{i=1}^{n_h} (y_{hi} - \bar{y}_h)^2$  is the sample variance for stratum  $h$  (Thompson 1992).

#### 5.1.2.5 Harvest Estimates

The total harvest by number of individuals of each species (or species group) is estimated for each fishing region by applying to the sample harvests, a matrix of expansion factors, which are based on the inverse of the sampling fraction for each sample stratum.

#### 5.1.2.6 Effort and HPUE Estimates

Fishing effort is measured by the number of hours spent fishing by all fishers aged five years or more, over the sampling period of 12 months. The total effort estimate for the sample period is obtained by scaling the total effort within each sample stratum by the appropriate expansion factor. For harvest per unit effort (HPUE) within a sample stratum the ratio of total harvest to total effort will be used. This estimator is recommended by Jones *et al.* (1995) for cases where the data are based on completed trips.

#### 5.1.2.7 Aggregation of Estimates

The estimates and variances of harvest and effort are additive across Statistical Divisions as they are estimated independently. Similarly, the national totals involve the direct summation of state estimates and variances.

### 5.1.3 Sample Size

The feasibility study envisaged a two wave screening and diary study, with diarists participating for six months. This was based on previous experience and with the intention of minimising respondent burden. The range of households to be screened was modelled at 60, 80 and 100,000, on the basis of half being screened each six months. Discussion at the workshops resolved to accept a sample size of 80,000 and the expected precision levels that it would achieve. Budgetary constraints resulted in a subsequent reduction of this sample size to 72,000 in the initial funding application for the implementation phase of the survey.

However, during the development phase, serious consideration was given to extending the diary phase to 12 months for each selected household, allowing just one screening survey. This variation to the original proposal gave rise to many potential benefits (cost savings, simpler implementation processes and analyses), but needed to be considered in light of the added burden to respondents. At the time of writing, a specific pilot testing to assess such factors/impacts is 8 months through a 12 month diary phase and is considered to have performed well (Section 5.5). Furthermore, specific procedures have been developed to enable effective calibration for any such (additional) non-response in the diary phase of the survey.

The sampling plan has, therefore, been revised to accommodate a 12 month diary and a single screening survey. As a result of the change from 6 month to 12 month diaries, the survey only requires about half of the (original) 80,000 households (or 72,000 per the funding application) to be screened to collect the same amount of fishing information. However, fine tuning of the sampling plan has suggested a sample size of 42,000 is optimal. The final version of this sampling plan is included as Attachment 12.6.

#### **5.1.4 Implementation Strategies**

After considering various options for 'out-sourcing' project functions, the Working Group has recommended a largely 'in-house' approach to the management, conduct and analysis/reporting components of the Recreational Fishing Survey. Whereas the Principal Investigator would have overall responsibility for the project, the National Project Manager (Gary Henry, NSW Fisheries) would manage and coordinate all day-to-day functions of the survey, including liaison with other survey management/consultant staff. Consultant staff inputs have been minimised and refer to five areas of expertise (survey design, interviewer training/management, statistics, economics, IT development). A State Manager (to be appointed/confirmed for each agency) would undertake responsibility for the survey in each of the seven States/ Territory involved (NSW would have responsibility for the ACT). State manager responsibilities would include recruitment, training and management of survey staff. Each State Manager would be assisted by an Office Manager (to be recruited/appointed) in terms of various administrative, clerical, data entry and editing functions for the survey. Additional support staff (varying by State) have also been identified for data entry functions at peak times.

Interviewers for the survey are to be recruited locally (to the agency concerned) and in accordance with specific criteria to be developed/agreed in the coming weeks. A total of 96 interviewer positions has been identified nationally. These staff (and Office Managers) will receive thorough formal and 'on-the-job' training in all facets of the survey work. Working from home-based offices, interviewers will conduct telephone phases of the survey, including the Screening, Diary and Attitudinal Surveys. Regular liaison/feedback/performance monitoring will be undertaken by survey management staff. The On-site Surveys will be enumerated by field staff recruited by each agency in the areas covered by the sampling plan. Whereas it is expected that most (if not all) telephone survey interviewers will be 'newly' recruited, a number of the On-site interviewer positions might be appropriately filled by existing/experienced staff known to the agencies concerned.

The Survey Offices in each State/Territory would be responsible for all data entry and initial editing/tabulation of survey data. Final editing, tabulation, expansion, analysis and reporting of the survey results would be the primary responsibility of an 'Analysis Team', comprising the National Project Manager, a State Manager with direct experience in such work (at this stage, Dr. Jeremy Lyle, Tasmania) and appropriate consultant staff. A detailed national survey report would be prepared in accordance with a structure (agreed by all agencies) to be finalised in an analysis workshop scheduled for late 2001. Relevant timing, resource inputs and budgetary issues for the implementation of the survey are discussed in Sections 5.7 and 5.8.



### **5.1.5 Survey Documentation**

A substantial set of data forms, questionnaires and training guides has been developed to facilitate and simplify the collection/recording of survey data. This material, known collectively as the survey documentation, is the result of an extensive design and testing program. All recreational fishing data will be recorded on pre-printed survey forms. Instructions and relevant 'prompting' appear on the forms immediately prior to the request for information. Survey documentation is essentially stand-alone material, but it should be used in conjunction with other components of the survey instrument (including specific training and instructions) to produce standardised data collection from a diverse team of interviewers. Transcription of the data from "form" to "digital data repository" would be most efficient if the digital data entry screens closely resembled the forms, and/ or logical sequences of analogue data recording. The survey documentation makes extensive use of codes and pre-defined lists to record information obtained from a respondent. While the vast majority of all survey documentation discussed below (and presented in the Attachments) has been finalised for the survey, some will require further refinement/modification in the lead-up to the commencement of the study (e.g. the Fishing Diary in Attachment 12.10 is the version used for pilot-testing and will be amended for different reference periods, calendar etc).

#### **5.1.5.1 Workload Control Sheet (Screening survey)**

Each interviewer will be provided with a sample of households to contact by way of a Workload Control Sheet (Attachment 12.7). This Sheet forms the basis of contact between the interviewer and the State Manager and is used to quantify the progress of the interviewer and response rates achieved.

#### **5.1.5.2 Screening Survey Questionnaire**

The Screening Survey (Attachment 12.8) is administered to all selected households in the sample (42,000 nationally). The survey asks a range of questions relating to previous or intending fishing activity, boat ownership and demographic profiles. Because a majority (up to 75%) of households contacted will report no previous/expected fishing activity, boat ownership etc., the questionnaire has been constructed in two parts. Part A (first page) allows for such households to be efficiently interviewed (Part A only and mean of less than two minutes) and at the same time, provides a sequencing function for further questioning of fishers, boat owners etc. in Part B (around 10 minutes interviewing time on average). Members of households reporting an intention to fish in the coming 12 months are asked to participate in the diary phase.

#### **5.1.5.3 Survey Kit**

Participating fishers will be issued with a survey kit containing a covering letter, fishing diary and a species identification booklet.

##### **5.1.5.3.1 Covering Letter**

A covering letter will be issued by the Director of Research of each State fishery agency to further explain the objectives of the survey and confirm the scientific credentials of the staff. The covering letter establishes a communication link with participating fishers between the telephone contact and the diary explanation interview. The letter acknowledges appreciation for participating in the survey, explains the contents of the kit and the next phase of the process. Fishers are reassured about the confidentiality of their information and provided with a Survey Office contact, if required (Attachment 12.9).

#### **5.1.5.3.2 Fishing Diary**

Respondents are issued with a personal diary to use as a “memory jogger” (Attachment 12.10) during the survey period. The diary is not returned to the Survey Offices and can be used by respondents as they see fit. The diary contains some examples of the sort of data required and is fully explained to the respondent before the survey starts. The aim of the diary is to minimise recall bias by respondents by providing an opportunity to record the details of their fishing/expenditure events. However, minimisation of respondent burden is also required and accordingly, respondents are asked to only record information in the diary “that they might be likely to forget” when the interviewer calls next (e.g. start/finish times of fishing).

#### **5.1.5.3.3 Species Identification Booklet**

Each fishing household also receives a booklet containing images of the 50 most commonly encountered fish in their State/Territory. The species included have been based on local experience and past surveys. The booklets have been customised for each State and the NSW version has been included in this report as an example (Attachment 12.11). A full master species list is currently being finalised and each species provided with a national code to facilitate consistent reporting. The species identification booklet will enable interviewers and respondents to minimise errors associated with the inaccurate reporting of catch data.

#### **5.1.5.4 Diary Explanation Interview**

Soon after the survey kit has been received by the household, a Diary Explanation Interview is conducted by the interviewer, with at least one intending fisher in each household. The explanation interview (Attachment 12.12) is conducted prior to commencement of the diary period and discusses the examples in the diary, further explains the survey and arranges for the first call to be made once the survey starts.

#### **5.1.5.5 Workload Control Sheet (Diary survey)**

As for the Screening Survey, the progress and performance of interviewers is monitored for the Diary Survey via a special Workload Control Sheet (Attachment 12.13), which is updated by interviewers and re-issued by the Survey Office on a monthly basis.

#### **5.1.5.6 Diary Survey Cover Sheet**

During the 12 month diary phase, respondents are regularly telephoned to collect their fishing and expenditure information. Respondents use their diaries to recall information and relay it to the interviewers. Interviewers use the Diary Survey Cover Sheet (Attachment 12.14) to store a variety of respondent information, contact details and appointments, and to assist with the collection of fishing related information (key definitions/questions and sequencing are detailed on Pages 2 and 3 of the cover sheet).

#### **5.1.5.7 Event Sheet**

The Event Sheet (Attachment 12.15 - NSW version) is the platform for recording respondents’ answers in the Diary Survey. It has been primarily designed on a fishing event basis, that is, each separate fishing activity (as defined) is recorded on a separate event sheet. As such, the Event Sheet is the site for the collection of core recreational fishing data. Fishery statistics (fishing effort, catch, catch rate, species composition), fishing location details (region, sub-region) and fishing

gear/platform (number and type, boat/shore) information are collected using the Event Sheet. Details of all fishing-related expenditure and related information are also collected on the form.

#### **5.1.5.8 Regional Maps**

Interviewers will be provided with maps for their State/Territory which delineate the regions into which fishing and economic activity will be coded. Regional maps will contain the information necessary to enable interviewers to locate the exact fishing position of respondents and to assign region codes accordingly. Regional maps will also contain cities and town, rivers and other distinct waters, and boundaries of defined Economic Regions (as distinct from Fishing Regions). These data may be placed directly on maps or attached as overlays to the maps. The NSW map is illustrated in Attachment 12.16. Each interviewer will be provided with the appropriate State map for their respondents as well as a full set of maps (Book of Maps) for all jurisdictions.

#### **5.1.5.9 On-Site Survey Questionnaire**

On-site "creel" surveys will be conducted throughout Australia to verify recreational fishing data collected by the diary component. Of particular interest will be the data collected on phone ownership, the ability of fishers to identify fish species and the size composition of the recreational catch. A standardised on-site questionnaire has been developed (Attachment 12.17).

#### **5.1.5.10 Attitudinal Survey Questionnaires**

The Attitudinal Surveys will be conducted as the final interview of the diary survey and will be customised for each State/Territory. In this way, questions will be tailored to meet individual needs and reflect topics which are of interest to fisheries agencies at the particular time. It is anticipated that a range of management, research and compliance issues will be examined by the attitudinal survey. As the Attitudinal Surveys will not be conducted until April/May 2001, the questionnaires are scheduled for final development in late 2000.

#### **5.1.5.11 Interviewer Manual**

The interviewer manual is a detailed instruction handbook and guide for interviewers. The manual provides information on all aspects of the process of collecting information from recreational fishers using the telephone/diary survey technique. The manual provides an overview of the research program, the design philosophy of the survey instrument, interviewing etiquette, general field procedures and reporting conventions. The manual is illustrated with a range of examples to assist the interviewer and also provides social comment and standards of behaviour for dealing with respondents. As a detailed definitive document, the manual also provides an important role for those involved in the analysis of the survey results. A copy of the interview manual is provided in Attachment 12.18.

### **5.2. Indigenous Fishing Survey**

The survey instrument described in 5.1 above, has been determined as the most cost-effective and appropriate technique for gathering national fisheries statistics on recreational fishing from the general population. However, this method is not appropriate for two relatively small, but important recreational fishing groups, namely the indigenous communities in northern Australia and visiting international fishers (see separate discussion in Section 5.3).

The relatively low proportion of home phone ownership in indigenous communities necessarily translates to substantial under-representation of related fishing activity through a national telephone survey. For the coastal areas of northern Australia, the inclusion of such information in the study

was considered crucial to regional assessments of non-commercial fishing activity - due to the relatively large proportions of the total populations in these areas, that indigenous communities comprise. Indigenous communities in northern Australia have further characteristics relating to personal/household mobility, language barriers and sensitivities to data gathering by government agencies which may reduce the effectiveness of phone survey techniques.

Accordingly, a separate survey module has been developed for data collection in the selected indigenous communities in northern Australia. Whereas, the scope and data elements for this indigenous survey are fundamentally comparable to the Recreational Fishing Survey, the sampling strategy has been modified to reflect the different social, cultural and economic characteristics of remote communities. The proposed methodology was developed and refined following a substantial review of available literature, consultation with indigenous people and the results of the pilot study. However, pilot testing, discussions with indigenous groups and experience gained by the Australian Bureau of Statistics have suggested that conventional telephone survey definitions and methods are appropriate for aboriginal people living in urban areas (where comparatively high phone ownership rates are believed to exist). Therefore, Australia-wide, coverage of these people will be provided by the Recreational Fisher Survey.

A report on the development of the Indigenous Fishing Survey is contained in Attachment 12.19. The report discusses specific cultural aspects of remote indigenous communities, their understanding of aquatic resource ownership and use and the political sensitivities associated with contacting these people. It also provides a summary of the various survey methods used in other Australian and international surveys of indigenous groups and the value of data available from these studies. Particular sensitivities of north Australian indigenous groups and suggested techniques for overcoming these sensitivities are discussed before the proposed methodology for surveying these people is outlined. The report discusses the output specifications, sampling design and various instruments for a survey of recreational fishing by people living in remote indigenous communities. The remaining discussion in this section (5.2) therefore comprises a summary of key features and procedures for the proposed study.

### **5.2.1      *Output Specifications***

A separate Output Specifications document has been prepared and included in the report for this survey component (Attachment 12.19). The scope of the Indigenous Fishing Survey is fundamentally comparable to the Recreational Fishing Survey, with the exception of its geographic boundary. The indigenous survey will encompass northern Australia's coastal areas and catchments from the Kimberley region of Western Australia, throughout the Northern Territory and the west and east coasts of Queensland north of Tully (see map in Attachment 12.19). Persons in scope have been defined as indigenous residents of communities in the study area, aged 5 years or more, without a home telephone connection. All recreational (and traditional) fishing techniques and harvesting activities are included in scope. All aquatic organisms (not plants) harvested by indigenous communities will be in scope. The survey will cover fishing activities over a 24 hour day and for a 12 month period (in parallel to the Recreational Fishing Survey). The range of demographic and fishing-related data collected from indigenous groups will be similar to the Recreational Fishing Survey, but fishing effort will be based on 'days' rather than 'hours'. Conventional economic data cannot be collected, however, behavioural assessments such as the importance of fish in the diet of indigenous people are likely to be included. Attitudinal information will be gathered in a similar manner to the Recreational Fishing Survey.

The Indigenous Fishing Survey will gather information on the level of participation in recreational fishing and the demographic profile of aboriginal communities. Information on fishing region, fishing method, targeting and fishing platform will be recorded. Fisheries statistics (fishing effort, fish catch, species diversity) will be the most important data gathered. These fishery statistics will

allow the survey team to derive a catch rate and an estimated annual fish catch by species for northern Australian indigenous communities on a regional and whole survey area basis. Pilot testing has proven the capacity of the sampling strategy to gather these data. The documentation necessary to commence the indigenous fishing survey (community sample sheet, screening questionnaires, fishing event sheets) have been prepared (Attachment 12.20) and pilot tested during the development period.

### **5.2.2      *Sampling Strategy and Related Issues***

A multi-stage area sample is proposed for the study with a clear hierarchical structure and effective 'links' between ABS area definitions/secondary data and the survey-specific descriptors. A total of 7 'Publication Regions' have been determined for purposes of catch and effort data analysis (1 in WA, 3 in the NT and 3 in Qld). However, for sampling purposes, 42 'Sampling Regions' have been identified on the basis of fishing regions/river catchments, whereby each will be sampled (at some level) in the survey. Other features of the sampling hierarchy include:-

- the general principle that for Sampling Regions containing less than three communities, all communities would be sampled. Those with four or more communities would be stratified where appropriate and random selections made on a minimum 50% basis. Of the total 104 communities in the study area, a sample of 72 would be enumerated in the survey.
- the primary sampling unit is the 'dwelling'. Within each selected community, dwellings would be initially stratified (from community-sourced information) in terms of (i) known fishers (with boat), (ii) other fishers and (iii) non-fishers (see further discussion below).
- random selections would then be made from each stratum above - between 15 and 25 dwellings per community (depending mainly on travel time within). Appropriately disproportionate sampling of non-fisher vs fisher dwellings would be undertaken to ensure the strength of the fisher data. These selections would be made (and the sample 'fixed') during the 'set-up' phase of the study.
- for all survey components (including the catch and effort phase), data would be collected for all residents and visitors aged 5 years or more of selected dwellings on the basis of their presence (staying) at the dwelling at the time of interview. This approach enables the 'dynamics' of the populations to be accounted for and (although resulting in a somewhat complex set of inclusion/exclusion rules), is considered the most appropriate method of maximising both the 'symmetry' of personal selection/coverage criteria and the ability of the survey to collect data on a personal interview basis. Hence, the inclusion in the design strategy of a separate stratum of 'non-fisher dwellings' to enable coverage of fishers/etc. who might move around during the survey - either within or across communities.
- after the 'set-up' phase, each community would be enumerated on a bi-monthly basis throughout the year to collect catch and effort data (either May, July, Sep ... or Jun, Aug, Oct ...) and random/alternating allocations would be made in a 'serpentine' fashion across the study area.
- catch and effort data would be collected on a recall basis for each respondent within the selected dwelling/community for the previous seven days (to the day of visit/interview). The interview days for each community/month would be randomly allocated in advance for the study.

The above sampling strategy has been designed on the basis of a range of information, (including pilot-testing results, ABS data and recommendations) and provides a careful balance between ultimate data utility/coverage and resource usage (field costs). It also provides substantial spatial strength/coverage at the regional level, which has been necessary due to the absence of empirical data to allow for extensive (or further) stratification of communities on the basis of behavioural homogeneity. On the other hand, it is recognised that temporal coverage for individual respondents, dwellings or communities is less robust (one week per month, every second month of the year) - hence the conclusion that detailed substantive survey information (e.g. catch and effort data) will be analysed at the 'publication region' level.

In the Recreational Fishing Survey, where individual households are approached directly, overall response to the survey is very much a function of interviewer performance and respondent reaction on an individual basis. While the same is ultimately true for the Indigenous Fishing Survey, other 'layers' of approval/endorsement for the study are involved initially (Land Councils, Community Councils etc). Given that the above sampling plan requires enumeration of most communities in the study area, the liaison work involved in gaining and maintaining such approval is clearly vital. Extensive exploratory work has already been done in this regard. However, as the survey design has now been determined, a comprehensive liaison program can now be implemented with a view to securing full access/cooperation for all communities selected in the survey.

### 5.2.3 *Implementation Strategies*

As for the Recreational Fishing Survey, a largely 'in-house' approach to management, conduct and analysis/reporting is proposed for the Indigenous Fishing Survey. Although oversight and project management roles would be provided by the Principal Investigator and National Project Manager, primary responsibility for the conduct of the study would be undertaken by the NT State Manager for the Recreational Fishing Survey (Anne Coleman). As Indigenous Fishing Survey Manager, her responsibilities would include all recruitment, training and enumeration functions in the three jurisdictions concerned and general liaison with other State Managers (WA and Qld) and consultant staff. Consultant staff inputs have again been minimised and refer to five areas of expertise (survey design, interviewer training/management, statistics, economics, IT development). The Indigenous Fishing Survey Manager would be assisted by an experienced Field Supervisor (to be appointed/confirmed), the Aboriginal Liaison officer (NT DPI&F) and the Office Manager for the Recreational Fishing Survey (in terms of various administrative and clerical functions). Additional resources have also been identified for all data entry work (due to the demands placed on the Office Manager).

Regional interviewers for the survey will be recruited locally (to the communities concerned) and in accordance with specific criteria to be developed/agreed in the coming weeks. A total of 16 interviewer positions has been identified across the study area. These staff will receive thorough formal and 'on-the-job' training/guidance in all facets of the survey work. Each interviewer will have ongoing responsibility for up to 5 selected communities and will conduct all phases of the survey, on a face-to-face basis in each selected community. The survey comprises two essential phases (i) the Set-up Phase - involving up to four visits to the community (including for recruitment of the Community Interviewer, sample selection and screening survey purposes) and (ii) the Catch and Effort Survey - bi-monthly visits to selected communities to collect catch and effort information (previous 7 days) for selected dwellings. Regular liaison/feedback/ performance monitoring (including field supervision) will be undertaken by survey management staff.

To assist Regional Interviewers in their work, a local interviewer/guide will be identified/recruited within each selected community. Although relatively minor personal inputs are required here, these staff have been shown through pilot-testing to provide a vital role in terms of local knowledge and community cooperation. The NT Survey Office would be responsible for all data entry and

initial editing/tabulation of survey data. Final editing, tabulation, expansion, analysis and reporting of the survey results would be the combined responsibility of the 'Analysis Team' for the Recreational Fishing Survey and the Indigenous Fishing Survey Manager. Relevant timing, resource inputs and budgetary issues for the implementation of this survey are discussed in Sections 5.7 and 5.8.

### **5.3. Visiting International Fisher Survey**

Fishers visiting from overseas represent different methodological challenges, compared with resident recreational fishers or indigenous fishers. They are relatively few in number and (presumably) undertake their fishing activity over widespread areas throughout Australia. Direct access to these fishers through a national (telephone) population scan was therefore not considered possible. A separate sampling strategy for these visiting fishers was developed during 1999.

International airport terminals are the common gathering point for visiting fishers and the Working Group focused on these areas during its development of a sampling strategy. A method of routinely sampling visiting fishers as they leave Australia through international airport terminals was considered most likely to deliver appropriate recreational fishing information.

The Australian Bureau of Tourism Research (BTR) has commissioned AC Nielsen Research to conduct an ongoing quarterly International Visitor Survey (IVS) at Australian international airport terminals. Each year, approximately 20,000 short term visitors (duration of stay less than 12 months), aged 15 years or older, are interviewed at international airports (Sydney, Melbourne, Brisbane, Cairns, Perth, Adelaide, Darwin) as they depart from Australia. Interviews include a question on recreational activities (including fishing) that tourists have participated in during their stay, along with various tourism-related data (length of stay, States/Territories visited etc) and profiling information (country of origin, age, sex etc). Information from the 1997 IVS was examined to determine its value to the National Survey. It was apparent that visiting fishers had a different profile to the average visitor in relation to duration of stay. The vast majority of all visitors (nearly 80%) stay 3 weeks or less whereas over 30% of visitors reporting fishing as an activity, stay longer than 12 weeks. These data were considered to have a direct impact on the type of information which could reliably be collected from respondents in any 'piggy back' recall survey appended to the IVS.

Nevertheless, the IVS offered the most cost-effective approach to collect information on recreational fishing by visiting fishers and discussions have taken place with BTR regarding cooperative research. The BTR has developed a facility which enables users to add a small number of questions on specific topics to the IVS questionnaire. This commercial service allows users to explore particular issues relating to overseas visitors in more detail than is possible through their normal survey. A survey on fishing activity has been planned using this facility, by adding a supplementary question sequence to the IVS. A copy of the IVS questionnaire (Attachment 12.21) has been obtained to allow the facilitation team to frame questions which meet our output specifications and are complementary to the IVS. BTR have agreed in principle for inclusion of this questionnaire and negotiations are underway for a firm quote now that the instrument has been effectively finalised. Preliminary estimates of the cost have been used conservatively in preparation of the budget for this component.

#### **5.3.1 Output Specifications**

The Visiting International Fisher Survey will collect broad scoping data in a similar manner to other components of the National Survey. All short term (less than 12 months) overseas visitors to Australia, 15 years of age and older, will be included in the survey. All recreational fishing techniques and harvesting activities will be included in scope. All aquatic organisms (not plants)

will be included in scope, although limited information in terms of catch and effort by species can be obtained, due to recall bias and species identification problems. Although the IVS is conducted on a quarterly basis, the 12 month survey period will be set to best coincide with the enumeration of other components of the National Survey. While some broad economic data are collected through the standard IVS questionnaire, additional questioning (e.g. fishing-related expenditure) cannot be included, as this would suffer the same recall bias impacts as any detailed catch and effort assessment. However, limited attitudinal information will be gathered in a manner consistent with other survey components.

A separate output specifications document for this survey has not been prepared. However, complete details of the survey data elements discussed below are contained in the survey questionnaire (Attachment 12.22). In addition to routine profiling data from the IVS, the survey will gather information on the level of participation in recreational fishing by overseas visitors. Information on the States/Territories fished in, fishing methods, targeting and fishing platform will be collected. The use of fishing guides and charter services will also be assessed. A measure of fishing effort will be obtained (number of days fished by state by broad method/platform), but no estimate of the catch of fish (numbers by species) by visiting fishers is possible with the survey method. Rather, the survey will measure the incidence of 'any catch' for key target species nominated by respondents. Also, two main areas of attitudinal questioning have been included: assessment of the relative importance of recreational fishing in the decision to visit Australia; and an assessment of satisfaction in terms of the overall fishing experience in Australia (including main 'positive/negative' aspects).

The IVS survey method has been tested and proven by AC Nielsen over a number of years. The additional documentation necessary to commence the Visiting International Fisher Survey has been prepared (Attachment 12.22).

### **5.3.2      *Sampling and Implementation Strategies***

The sampling program for the Visiting International Fisher Survey would be conducted by AC Nielsen as part of the standard IVS program. An interview quota for each country of residence group has been devised by AC Nielsen and allocated by airport and month. The survey results will be weighted to Australian Bureau of Statistics figures of international visitor traffic. The IVS is conducted monthly but it has been recommended that our supplementary survey commence at the beginning of a quarter, as data expansion is conducted on that basis. It is intended, therefore, to commence the enumeration of the survey in early April 2000, with completion in late March 2001.

Over this period, it is expected that the IVS will be asked of approximately 20,000 visitors/respondents. A positive response to the "go fishing" prompt will act as a filter for the supplementary questions (Attachment 12.22). However, based on available information, it is expected that around 400-500 respondents will be eligible/interviewed for the fishing questionnaire. Depending on outcomes here, limited capability might therefore be achieved for detailed disaggregations beyond the State/Territory level.

The National Project Manager (with some assistance from consultant staff) will be responsible for all liaison with BTR/Nielsen staff, including during survey preparation, interviewer training, enumeration and analysis. The budget for the survey has also been framed to allow for BTR/Nielsen staff to prepare the relevant tabulated and expanded data at the conclusion of the survey. Interpretation and reporting will remain the responsibility of the Analysis Team for the Recreational Fishing Survey.



#### **5.4. State Manager Training Program**

The second Development Workshop was held at the Fisheries Research Institute (NSW) in November/December 1998. The Committee endorsed the National Survey output specifications and reviewed the draft questionnaires and other documentation that were developed to implement the survey. A significant component of the second workshop then became a training exercise for State Managers in the use of the questionnaires, prior to their involvement in pilot-testing. The training and pilot surveys had three significant objectives. These were: (i) to train key personnel in each State/Territory in general telephone interviewing techniques/conventions and specifically, in the application of the questionnaires themselves; (ii) to test the draft questionnaires for logic and sequence; and (iii) to test the responses of both random and purposively-selected respondents for their understanding and potential burden. After three days of training, each State Manager had a thorough grasp of the concepts involved in the survey instrument as a result of extensive 'class-room' practice/role playing work. Following the training, each State Manager successfully undertook a pilot survey in their home State/Territory. Subsequent involvement by State Managers in the refinement of the survey instruments and ongoing liaison regarding the survey development has led to an increasingly high degree of understanding on their parts. That understanding will be further enhanced in the lead-up to the study, commencing with a State Manager Training Workshop for the implementation phase, scheduled for October 1999.

#### **5.5. Pilot Testing of Survey Methodologies**

##### **5.5.1 *Recreational Fisher Survey***

###### **5.5.1.1 *Short-term (2 month) Pilot Test***

Following a training course at the Fisheries Research Institute (NSW), State Managers undertook a short pilot test of the screening and diary survey components in their regions. Each State Manager conducted around 30 Screening Survey interviews from randomly selected numbers from the White Pages telephone directories. Intending fishers from these households were invited to take part in a brief Diary Survey (2 months) and in some States, additional known avid fishers were included in the pilot survey to broaden the experience of the State Managers. The objectives of the trial were to familiarise the State Managers with the survey instruments and to increase their own understanding of the "typical" responses to be expected when contacting members of the community. State Managers were also able to comment on the efficacy of the survey tools through their direct involvement in the pilot survey.

An important consequence of the training and pilot survey components was that the State Managers are now in a greatly improved position to recruit, train and manage their interviewers. This direct experience has also provided an understanding of the characteristics of applicants who would succeed (or fail) in establishing rapport with respondents, maintain data integrity and manage the logistical difficulties of telephoning households at appropriate times of the day and week. Additionally, this experience will allow for more realistic contributions in interviewer training, from the viewpoint of a person new to the experience.

###### **5.5.1.2 *Long-term (12 month) Pilot Test***

In addition to the two month pilot survey, the concept of a routine 12 month diary period is being tested during the development phase. Commencing in February 1999, the testing is currently in its

8th month (of 12) and a detailed assessment will be undertaken on completion. In the meantime, the following progress summary is provided:-

- the primary objective of the testing is assessment of the impact on survey response rates of a 12 month diary period for selected households (compared with the initially-proposed 6 month period).
- although NSWFRF staff extended some of their (short-term) pilot-testing to 12 months, the testing is mainly confined to interviewers with direct experience in the diary survey method. Additional sampling (to the 2 month testing) was therefore conducted for the three jurisdictions involved (NSW, NT and Tasmania).
- a total of 164 fisher households was identified from the screening interview process as eligible for inclusion in the diary survey component (i.e. one or more intending fishers). Of these, 116 refer to random selections (White Pages directories). The remaining 48 refer to 'purposive' selections of respondents known to be avid fishers (through various networking sources etc.) to enable fuller assessment of the respondent burden issue. In all but a few cases, the precise objectives of the testing were not revealed to respondents. Rather, it was explained where necessary, as an "important preliminary survey".
- among those eligible for the diary survey component, 144 (88%) agreed to take part. Importantly, of those declining to take part in the survey, none directly relate to the duration of the diary survey and only one was incurred from the avid fisher/purposive group. However, a small number are related to respondent burden generally (e.g. a parent declining on behalf of a Year 12 student, on the basis of study distractions). By contrast, the majority who declined refer to cases where little or no fishing activity was expected in the period and in most such cases, interviewers indicated that they could have 'converted' them, if they had been more persistent.
- of the 144 fisher households included in the diary survey, 135 (94%) have continued reporting (at the time of writing). All 'drop-outs' to date have occurred well before the half-way mark of the diary period. Among these, most refer to re-locations (including marriage separations, inter-state moves etc.). While in the ultimate survey these cases would be routinely 'tracked', no such follow-up was planned in the pilot testing (especially where no counterpart interviewing resources were available in other states). Importantly, none of the 'drop-outs' has been directly attributed to the 12 month diary period, although three ongoing 'non-contact' cases might be attributed to general respondent fatigue. Further to this, only one 'drop-out' has come from the avid fisher/purposive group.
- recent discussions with pilot test interviewers have revealed that all remaining respondents are still highly cooperative - with none being identified as 'remotely' potential refusals/etc before the scheduled end of the testing.

Although the testing is yet to be completed, all indications are that extension of the routine diary period from 6 months to 12 months will have little or no impact on response rates. Furthermore, for 'avid' fishers (where the highest reporting burden does exist), it seems that this burden does not translate to respondent fatigue - and probably due to their 'interest' in the subject matter. Therefore, it is with some confidence that the Working Group has recommended adoption of a single 'wave' screening survey and 12 month diary period for the survey proper.

### **5.5.2 Other Survey Components**

Due to the innovative nature of the Indigenous Fishing Survey, substantial pilot-testing has been required (and is continuing) in the three jurisdictions concerned (WA, NT and Qld). All aspects of the survey instrument are being tested through face-to-face interviews in 6 discrete communities (of different types) across the study area. The results of this testing have already proven invaluable in the design process and will be used to further refine the study procedures. Further details of pilot-testing for this component are contained in Attachment 12.19.

For other components of the National Survey (On-site Survey and Visiting International Fisher Survey), no formal pilot-testing has been required due to the largely routine nature of the studies. Notwithstanding this, a final 'devil's advocacy' process will be undertaken by relevant expert staff before finalisation of the questionnaires (e.g. consultant staff and BTR/Nielsen staff for the visitor survey).

## **5.6. Data Management Strategy**

### **5.6.1 Background**

Population surveys characteristically generate an abundance and diversity of scientific information. The National Survey will be no exception and a variety of information will accrue to the research team from three separate, but linked, components of the survey. These components are the Recreational Fishing Survey, Indigenous Fishing Survey and Visiting International Fisher Survey. Fishery statistics from these components will be collected by different agencies for aggregation into national statistics. Substantial quantities of data will be gathered by phone, diary and face-to-face interviews, and transcribed onto forms, entered onto computer, updated, edited and queried, stored on local and national archives, before being reported. The Working Group recognised the importance of a coherent and workable strategy to manage these data in light of the broad scope of the National Survey and the ongoing need for data access, manipulation and storage.

The Working Group examined the available data management models within fisheries agencies and sought specialist advice on data management and information technology strategies. Dr Tony Rees (CSIRO Marine Research) delivered a presentation on behalf of Ms Kim Finney on the principles of a data management strategy as it might apply to the National Survey. CSIRO indicated that it could further assist the Working Group, either by commenting on a draft strategy or, subject to resources being made available, preparing an appropriate strategy on behalf of the group. The offer to develop a data management strategy for the project was accepted and Kim Finney was commissioned to complete the task. The primary objectives of the strategy were to develop a common data model so that data can be aggregated at the national level, address issues of data custodianship and archiving, and data security and dissemination policies.

Ms Finney, in conjunction with Dr Jeremy Lyle, has developed a data management strategy (Attachment 12.23) which outlines the major considerations that should be addressed in implementing the National Survey. The strategy provides a data model and recommendations for data entry, security, custodianship, accessibility, exchange and archiving. As data are being collected by seven different agencies, the key function of the data model is to provide an agreed set of conventions and standards, that if followed, will ultimately allow for simple integration of the disparately collected datasets. A hybrid data storage model was adopted, with States/Territories responsible for editing, data entry and preliminary error checking of data collected by their jurisdiction. On completion of the project, data will be up-loaded into a central repository (based at

the Bureau of Rural Sciences) for analysis at a national level and on-going maintenance. Each of the participating agencies have indicated their commitment and support for the strategy.

The data management strategy recommends that a relational database management system (RDBMS) application be developed for the National Survey and that, as a minimum, it meets the requirements outlined in the data management strategy in terms of the software/programming languages for information technology system development.

Initially, the Working Group identified the Standard Integrated Recreational Fisheries Information System (SIRFIS) as a potential application for data capture and storage for the National Survey. SIRFIS has been developed to provide a flexible data entry, storage and manipulation tool for information obtained from a range of recreational fishing data sources.

The SIRFIS development team (Queensland Fisheries Management Authority) met with the Working Group in October 1998 to discuss the status of the SIRFIS project and its potential application to the National Survey. The Working Group was advised that while SIRFIS contained modules that could be used to store diary and on-site survey data, specific and additional customisation of SIRFIS would be required to match questionnaire sequencing and introduce necessary range and logic checks for data entry. It was also established that the data query capability of SIRFIS was limited to complete or date-limited data dumps and to be useful to the survey a suite of reports would need to be developed. In addition and significantly, SIRFIS did not include a module designed to handle the screening survey.

A follow-up meeting (November 1998) was held between Dr Lyle, Stephen Kerr (AFFA), the SIRFIS development team and the SIRFIS programming contractors (Farview Technology) to discuss the feasibility of developing SIRFIS to meet the National Survey requirements. Subsequent to this meeting (February 1999), the draft Data Management Strategy (version 1.2) was circulated to Farview Technology as background against which the company was requested to quote on providing a feasibility and specifications report to develop SIRFIS to meet the National Survey requirements. Despite many attempts to seek a response from Farview regarding the survey, no satisfactory response was received.

Furthermore, the SIRFIS application was installed at NSW Fisheries Research Institute (NSWFRI) in November 1998 for testing and evaluation by that agency. Unfortunately, problems were encountered with installation and running of the application and, as a result, it could not be adequately demonstrated to the Working Group at its December 1998 meeting held at NSWFRI.

The Working Group is keenly aware of the expectations for the use of SIRFIS and of the financial cost of developing the application. However, the failure to successfully commission the application, the lack of a screening survey module, the limited ability to produce customised reports for analysis, lack of in-house expertise to develop/trouble-shoot SIRFIS and concerns about on-going maintenance (cost of up-grades, costs of maintenance) meant that the Working Group was obliged to examine other options for data capture.

The Working Group has now examined a range of options for the conduct of this work. The data model developed as part of the data management strategy will be used as a specification document for the development of software for the National Survey. The Working Group agreed that tenders should be let for the database development and that the application should be based on relatively well-established, familiar and proven software with good support from the manufacturer. Several Working Group members cited Microsoft ACCESS software as a possibility for the survey.

It is intended that the tender will be let in two parts. The first part would be to develop software to provide data entry, editing, simple query capability, data storage and data transfer functionality.

The second stage will involve development of statistical analysis and reporting routines. Funding for this work has been included in the survey implementation budget and a timetable has been outlined in the project work-plan. The scope of this work has been confined to the Recreational Fishing Survey and Indigenous Fishing Survey components. For the On-site Surveys, existing agency-based software systems are available in each case ('creel surveys') and for the Visiting International Fisher Survey, AC Nielsen have routine data processing/analysis systems.

### **5.6.2      *Recommendations and Outcomes***

The recommendations contained in the Data Management Strategy (Attachment 12.23), and the outcomes from those recommendations are now discussed in detail.

**Recommendation 1:      That a final data model and data dictionary be agreed upon by all participating State and Territory agencies at the conclusion of the pilot surveys and prior to implementation of the National Survey.**

The data model and data dictionary, as developed in the Data Management Strategy, have been agreed upon by the Working Group and adopted as the framework for developing the National Survey database.

**Recommendation 2:      That one agency be nominated as the data model and data dictionary custodian.**

The Marine and Freshwater Resources Institute (MAFRI) has assumed the role of data model and data dictionary custodian.

**Recommendation 3:      That the Working Group finalise all standard code lists and tables before commencing the National Survey.**

Standard code lists will be finalised as part of the development of the National Survey database application by MAFRI. Codes will be signed off by participating agencies prior to the commencement of the National Survey.

**Recommendation 4:      That a Relational Database Management System (RDBMS) based application be developed for the National Survey that, as a minimum, meets the requirements in Section 5 (Attachment 12.23) of the Data Management Strategy. In practice, a more detailed requirements analysis and specification should be developed prior to commissioning any development activity.**

A RDBMS based application is being developed by MAFRI using Microsoft Access and Visual Basic and will be designed to meet the requirements specified in Section 5. In support of that development, a detailed requirements analysis specification is being progressed by Dr Jeremy Lyle (TAFI) and consulting firm Taz-E, in conjunction with the MAFRI database developers. Funding for the requirements analysis has been held back from the Development Phase and the analysis report will be finalised and handed over to MAFRI by late-November 1999.

**Recommendation 5:** It is recommended that the Marine and Coastal Data Directory or “Blue Pages” metadata directory be used to register the National Survey metadata.

It has been agreed that the metadata will be registered on the Marine and Coastal Data Directory. Responsibility for this will rest with participating agencies (local datasets) and the national custodian (national dataset).

**Recommendation 6:** The Working Group approach an agency to assume the role of national custodian.

The Bureau of Rural Sciences (BRS) will assume the role of national custodian and the implementation budget provides for the costs of transfer of data to an Oracle environment and database maintenance for a period of five years.

**Recommendation 7:** That agencies agree that there are two levels of custodianship within the National Survey framework. Each participating agency should then agree to the responsibilities outlined for these levels of custodianship before commencing participation in the National Survey.

Participating agencies have agreed to the two levels of custodianship, local and national. State/Territory agencies will be responsible for managing local datasets and will determine how best to provide access to data in accordance with existing protocols and local data management guidelines.

**Recommendation 8:** The Working Group develop guidelines on data “exclusive use periods” to protect agency research publication interests.

The issue of exclusive use periods has not been considered in detail, however, participating agencies are committed to reporting on their particular data within twelve months of completion of data collection. Since each agency will be custodians of their own data, permission will be required for the release of data that could be used in subsequent publications. Further, an in principle agreement exists between participating agencies that approval will be sought to publish any data that relates to their jurisdiction, for example when publishing regional statistics which traverse State/Territory boundaries.

**Recommendation 9:** The Working Group develop specifications or guidelines for standard National Survey data products that will be made available to the national custodian.

Development of data products will be undertaken during the implementation phase and in conjunction with data analysis.

**Recommendation 10:** Each agency should submit a one-page outline, to the Working Group, prior to National Survey commencement, regarding the steps that it will take to ensure that its responsibilities can be met.

This recommendation was not addressed. Rather it was agreed that since participating agencies have a direct responsibility and interest in managing data collected for their jurisdiction, there is a strong sense of ownership of the survey and the data. For each jurisdiction, however, agency data management protocols will be applied.

**Recommendation 11: The Working Group develop guidelines regarding the release of data with respect to “confidentiality” issues.**

This has not been addressed directly, though policies relating to publishing aggregated data are common to all agencies. As a general rule, where fewer than five operators/fishers are involved, data can not be published. Conversely only aggregated data where at least five operators/fishers are involved can be reported. This principle will apply as a minimum in reporting survey data.

Participating agencies have agreed not to publish nor release data relating to individuals.

**Recommendation 12: The Working Group develop a specification file format for the exchange of data between local agencies and the national custodian.**

The specification file format will be developed as part of the implementation phase and will be done jointly by MARFI and BRS and will be signed off against by participating agencies.

**5.7. National Survey Work Plan**

The National Survey is a major undertaking with a relatively large number of staff and resources engaged in a complexity of tasks over varying time periods. A thorough work plan is required to ensure that participating staff have a clear idea of their responsibilities and the time to undertake their tasks. The work plan may also be used by funding bodies to assess the progress of the project against stated objectives. Work plans may be used to arrange the allocation of resources. Every component of the National Survey has been planned in detail and allocated a commencement and expected completion date. The full work plan (encompassing several pages) was summarised into the major tasks and components for this report (Attachment 12.24).

The major project tasks were considered to be the Recreational Fishing Survey, the On-site Surveys, the Visiting International Fisher Survey and the Indigenous Fishing Survey. Each of the surveys have been further divided into recruitment, training and enumeration components. The data processing, analysis and reporting phases for each of these surveys have been combined in the summary work plan. (Attachment 12.24). A realistic monthly timetable for these tasks and components has been prepared for distribution to State Managers. The project milestone reports have been framed around this schedule and the National Project Manager will strictly monitor and seek adherence to the workplan.

**5.8. National Survey Budget**

The Working Group had previously prepared a survey implementation budget for FAP to accompany FRDC and NHT research proposals. Total cost of the implementation phase of the survey was estimated to be about \$3.2 m. The funding was to be split among NHT (49%), FRDC (25%) and State agencies (26%). Individual state/territory agencies were able to use these preliminary budget estimates to anticipate resource requirements for future budget allocations.

A review of the budget has been undertaken for changes in the structure and work plan for the project, since the initial lodgment of the funding application for the implementation phase. However, despite some relatively significant internal amendments, the overall budget for the project has not changed. Equally, the components for each funding body have experienced very little change. The major changes within the budget are discussed below.

Amendment of the sampling strategy from two six monthly waves to a single 12 month wave has resulted in reductions in costs associated with the Screening Survey component. Essentially, such costs are halved by reducing the initial sample from 72,000 to 36,000. Yet, costs for the Diary

Survey component alter little in this respect (as the same number household/diary months occur in each case). However, the recommended sample size for the study has been increased to 42,000 households (aligning with the originally proposed 80,000 sample under a two wave system), resulting in additional outlays for the screening and diary survey components. Strengthening of the sampling in the On-site Surveys from 20 to 28 'sampling days' per month per State/Territory has also resulted in additional outlays. A further amendment to the budget is proposed for the Indigenous Fishing Survey which underestimated the number of communities to be sampled. It is proposed that 72 communities (rather than 60) will now be sampled. Budget amendments were also required due to the change in the National Project Manager position.

The Facilitation Team has examined the proposed budget in some detail to ensure that sufficient funds were available for the project. As with the work plan, the full budget covers several pages, but it has been summarised for this report. The proposed budget and attributions to NHT, FRDC and each State is outlined in Attachment 12.25. The Facilitation Team was confident that the final budget as presented in Attachment 12.25 was sufficient to achieve the goals of the implementation phase of the National Survey.

However, the Facilitation Team was aware of the proposed implementation of a Goods and Services Tax (GST) on 1 July 2000. It recognised that the GST had the potential to significantly alter the funding arrangements for the National Survey. However, without formal advice on the specific aspects of the National Survey that may attract the GST, the Facilitation Team was not in a position to predict the impact on future annual budgets. Further advice on the GST will be sought during the next year and the potential impact on the National Survey will be provided to the funding bodies during milestone reporting.

## **5.9. Communication Strategy**

Clearly, the National Survey will be a major event in recreational fisheries research and the findings will generate a considerable amount of interest among government and industry groups. The results are expected to provide a framework for the management of recreational fishing in Australia in the foreseeable future. Communicating the progress and findings of the National Survey to government, recreational and commercial fishers and the broader community will be an important role of the Working Group. A strategy is required to ensure the dissemination of information is consistent, accurate and reaches the broadest possible target audience. The strategy should address the source, type and recipients of the information.

The Working Group has an obligation to advise funding groups (NHT, FRDC, State agencies) of the intended release of information from the survey. The Fisheries Action Program is the project management arm of NHT and has accepted a coordination role for the National Survey funding arrangements. The Working Group will submit news items and research reports to FRDC and NHT through an officer at the FAP. SCFA Research Sub-Committee has requested that scientific advice from the survey be submitted to them prior to its release. This will be done through the Chairman (Dr Rick Fletcher). State fisheries agencies will be keen to promote the positive aspects of the program to their communities and it is likely that the CEO of each agency will have an interest in promoting the project. The National Project Manager will have access to the broadest range of information on the study and is likely to be in the best position to coordinate the dissemination of information from the project.

While information may be generated from any member agency of the Working Group, it seems appropriate that the National Project Manager should be aware of all information and its intended release. He will advise FRDC and NHT through the FAP of any news and submit scientific reports to the Chairman of SCFA Research Sub-Committee. News and general interest information may be developed during the project and provided to State Managers for release through their Minister



or CEO. The goal of this approach is to ensure the accuracy of scientific statements and to inform, and seek the approval of funding groups for the release of news.

Recreational fishers are a diverse community group with traditionally difficult lines of communication. But, it is in the interest of all fisheries agencies to develop a strategy to disseminate information to fishers on a regular basis. A newsletter or progress report will maintain interest in the project and a profile for interviewers. It is proposed that the Project Manager consider the development of a newsletter to provide general project news to angling groups several times a year for the duration of the project. The newsletter will be available to all State Managers for release through their own lines of communication. In NSW, this includes Ministerial and Directorial press releases to the electronic and print media, angling associations and clubs. State Managers are likely to have developed a recreational fishing network and a method of distribution that is appropriate to their State.

## **6. BENEFITS**

The development project has been designed and conducted to deliver tools and processes for the implementation of the National Recreational and Indigenous Fishing Survey. As such, the benefits will be more readily seen at the completion of that project. However, the development phase has greatly increased the understanding of fisheries agencies and stakeholders in terms of the complexities of the study ahead. The carefully planned sequence of development tasks has produced a team of highly competent State Managers and associated staff to implement the survey. Accordingly, the project has delivered a survey instrument for detailed examination of recreational fishing in Australia.

Fisheries management, commercial and recreational fishers and the general community will benefit from the development of a survey instrument that will permit the collection of nationally consistent and comparable fishery statistics for the recreational sector. The survey instrument may be implemented on regular occasions (every 5-10 years) to provide an assessment of the impact of recreational fishing on fish stocks, economic indicators related to recreational fishing and the “hard” data on which resource sharing and allocation issues can be resolved. Benefits will accrue through improved stock assessments which will, for the first time in many instances, take account of all harvesting sectors of Australian fisheries.

Attitudinal information collected by the national survey will provide fisheries management with feed-back on the level of awareness by recreational fishers of regulations, their perceptions regarding resource status and resource allocation issues and attitudes to changes in management. This information will also be used to help shape community attitudes towards responsible resource use. Future planning will be greatly enhanced by the comprehensive nature of the information obtained from all sectors of the fishing industry. The importance of individual fisheries can then be assessed (by whatever biological, economic, social or other criteria are deemed appropriate) in relation to the entire harvesting industry.

## **7. FURTHER DEVELOPMENT**

Due to the inherent complexity of the National Survey design, the terms of reference of the present project were necessarily confined to development of survey instruments for the study. As that process has now been completed (including thorough planning for the remainder of the project), the implementation and analysis of the study can now be undertaken. Although by no means a simple task, the study can now be conducted in a most orderly fashion, in the confidence that minimal technical and operational 'unknowns' will be encountered. Clearly, the future development of the project is the implementation of the National Recreational and Indigenous Fishing Survey.

## 8. CONCLUSION

The present development project has been a highly successful undertaking by any measure. Although some minor design refinements may be required in the lead-up to the commencement of the study, the stated objectives of the project (in all but one case), have been achieved and in many cases, exceeded. Comprehensive designs have been prepared for the Recreational Fishing Survey (including On-site Surveys), the Indigenous Fishing Survey and the Visiting International Fisher Survey. These designs comprise detailed output specifications, sampling plans, questionnaires and other survey instruments. Extensive pilot-testing of survey questionnaires has also been undertaken. Survey Managers in each State/Territory have received thorough training in the conduct of the different survey components. While ultimate database systems for the study are the subject of further development work, the Working Group has identified an effective and achievable strategy in this regard, including a detailed Data Management Strategy/Data Model. A range of documentation has been prepared for all survey components, including comprehensive work plans and budgets for the implementation phase of the project.

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## 10. INTELLECTUAL PROPERTY

The Nation Survey is a joint initiative of Commonwealth and State/ Territory Governments so the funding for each of the three major phases (feasibility, development, implementation) was/ will be provided by these organisations. Commonwealth funding was obtained from the Fisheries Research and Development Corporation and the Natural Heritage Trust. This Commonwealth funding will be administered by the Fisheries Action Program during the implementation phase. State/ Territory funding was obtained from the agency responsible for fisheries research/ management in each Australian State and Territory. As a consequence of the funding arrangements, the intellectual property generated from the project will also be vested jointly in the respective organisations. This intellectual property will be attributed to each organisation in proportion to their financial contribution. In this regard, the attribution of intellectual property from the development phase of the National Survey was 35.5% to the Natural Heritage Trust, 34.8% to the Fisheries Research and Development Corporation and 30% to the participating States/ Territories.

However, in terms of design copyright, certain specific and continuing rights of consultants, Kewagama Research, were recognised prior to the development phase of the project. This matter is detailed in correspondence to the Commonwealth (13 October, 1998) and refers to design-related issues only (as opposed to data) for specific survey methodologies and interviewing techniques (in particular, the 'memory jogger' diary system). The agreement entitles all client bodies to full usage of survey materials in conducting the National Survey (or future repeats), but restricts clients in terms of any "on-selling" or provision of the instrument to a third party, including any "unnecessary" publication of methodological details.

## 11. STAFF

The National Recreational and Indigenous Fishing Survey was developed by staff of the Australian fishery agencies, representatives of the peak recreational and commercial fishing groups and consultants in the fields of survey design, statistics, data management and economics. Members of these groups who have participated in the development of the National Survey include;

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## **12. ATTACHMENTS**

# **Development of the National Recreational and Indigenous Fishing Survey (Attachments)**

Survey Development Working Group



**FRDC Project No. 98/169**

July 2000

NSW Fisheries Report Series

No. 23 (Volume 2)

ISSN 1440-3544

## **ATTACHMENT 12.1**

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### ***DIAGRAMMATIC FLOW OF EVENTS FOR THE DEVELOPMENT AND IMPLEMENTATION OF THE NATIONAL SURVEY***



# National Recreation & Indigenous Fishing Survey

## — Progress —

**The National Recreational Fishing Policy (1994),**  
• that a national survey of recreational fishing should be undertaken on a five yearly basis  
• to obtain information on participation, catch rates and expenditure associated with recreational fishing

**December 1994**

The National Recreational Fishing Survey Steering Committee, comprising members from each state and territory and the Commonwealth, held its first meeting in Canberra

**November 1995**

The fishcare community consultation and stake-holder meetings identified a need for recreational catch, effort and attitudinal data, and called for a 5 yearly national recreational fishing survey

**September 1995**

The 2nd meeting of the NRFS Steering Committee called for tenders for a feasibility study to determine the most appropriate survey methodology

**March 1996**

SCFA and MCFFA members agree in principle to fund the NRFS

**July 1997**

3rd meeting of NRFS Steering Committee adopts the consultant's report, and set up the Survey Development Working Group to undertake the development phase

**May 1998**

Consultant's report recommends a variant of the Fishcount '95 methodology

**April 1998**

Obtain funding approval from NHT Board

**June 1998**

FRDC funding for the development phase

**July 1998**

### **Development Phase**

Develop data specs, design survey questions and output specs, pilot testing etc

**1998 / 1999**

FRDC application for implementation

**March 1999**

Confirm State / Territory funding commitments for implementation

**March 1999**

### **Implementation Phase**

Conduct the survey

**2000 / 2001**

Data analysis and reporting

**2000 / 2001**

PAST  
FUTURE

## **ATTACHMENT 12.2**

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### ***MINUTES OF THE SURVEY DEVELOPMENT WORKING GROUP MEETINGS***



# NATIONAL RECREATIONAL AND INDIGENOUS FISHING SURVEY

## WORKSHOP 1

### MINUTES

### BRISBANE

6-8/10/98

#### Members attending

David Campbell	DCAFE
Nick Caputi	WAMRL
Anne Coleman	NT DPIF
Malcolm Dunning	QDPI
Gary Henry	NSW FRI
Stephen Kerr	DPIE
Jeremy Lyle	TAFI
David McGlennon	SARDI
Murray MacDonald	NRE
Dennis Reid	NSW FRI
Phil Sahlqvist	BRS
Laurie West	Kewagama Research

#### Partial attendance

Cameron Baker	QFMA
Jim Higgs	QFMA
Murray Johns	DPIE
Todd Kelly	QFMA
Tony Rees	CSIRO
Lew Williams	QDPI

- In opening, Murray Johns set the Workshop in context of the overall development phase of the Survey. Murray also produced a Work Plan for this phase and requested feedback where appropriate.

**ACTION: State Managers (SM)**

- It is the responsibility of the State Managers to report to Directors / CEOs on project progress following each Workshop.

**ACTION: SM**

- A Workshop progress report will be drafted for use in this reporting.

**ACTION: DMcG / SKERR**

## Scope & data elements

### *General*

- Data elements spreadsheet to be revised & forwarded to L West by Fri Oct 16th.  
**ACTION: SM**
- Level of phone ownership to be established yet to be established  
**ACTION: LW**
- Interest was expressed in fishing activity of Australians travelling overseas. This is outside of the scope of the Survey but may be available from secondary datasets.  
**ACTION: AC**
- The need for, and level of data complexity for Australian External Territories needs to be established from AFMA and Environment Australia.  
**ACTION: PS**
- The wording of past “participation” questions to be forwarded to L West  
**ACTION: SM**
- The National Boating Industry to be contacted to make them aware of the Survey and enquire as to their interest in boat profiling data (& funding for obtaining it)  
**ACTION: DMcG**
- Information regarding details on types and numbers of State recreational licences to be forwarded to L West  
**ACTION: SM**

### *Scope*

- ❖ EEZ
- ❖ Private waters included (eg dams)
- ❖ All persons 5+ included in screening & diary survey
- ❖ All persons 14+ included in attitudinal survey
- ❖ All non-commercial activity but includes recreational activity by commercial fishers
- ❖ All living aquatic organisms (but therefore excludes dead shells, etc)

### *Data elements*

- ❖ labour force status, education, occupation to only be included if cost penalty is low - State's priority given was medium but some consideration needs to be given to National profiling
- ❖ participation - “ever fished” & passive fishing generally rejected
- ❖ levels of boat ownership & use for rec fishing on popn base agreed to but priority levels for boat profiling varied
  - additional categories of level of registration (to quantify numbers of boats in non-registerable categories) & ownership of GPS and echosounders
- ❖ little interest in data on vehicle ownership
- ❖ little interest in levels of ownership of fishing tackle

- ❖ club membership levels agreed to but further splits to types of clubs subject to cost & other funding source
  - ❖ general interest in level of recreational licence(s) ownership in previous 12 months
  - ❖ "Reason for release" to be pilot tested to test respondent burden & cost - could be State specific and limited to particular species and / or fisheries
  - ❖ category of caught and tagged to be considered
  - ❖ strikes / hookups rejected
  - ❖ waterbody types (sub-regions) to be standardised
  - ❖ platform to include "charter boats"
  - ❖ boats to be subdivided into charter, private and hire
  - ❖ fishing for bait to be collected as a fishing activity but recognition that this will need prompting via explanation interview **and** diary card
  - ❖ attitudinal
    - question relating to attitude to recreational licence fee may need to be State specific as some States already have them
    - where State Ministers object to such a question, Recfish and/or State rec fishing organisations will need to lobby them
    - motivation for fishing – SMs to take up with David Campbell
    - States to develop core questions for attitudinal survey but noted that extended timeframe exists for this component
    - general attitudinal questions relating to awareness and opinions should be directed to Laurie
    - those relating to social policy (eg motivation for fishing) should be discussed with David Campbell
- ACTION: SM**
- ❖ fish consumption
    - see discussion later

#### *Design elements*

- ❖ species identification to be pilot tested before ID cards are finalised
  - ❖ respondents fishing in interstate waters adjacent to their home State are to be managed by the home State interviewer; responsibility for respondents travelling further afield is yet to be determined
  - ❖ no urgency exists for finalisation of attitudinal questions as they will not be implemented until the end of the first wave ie at least March 2000
  - ❖ Feasibility Study costing has allowed for approximately 10 minutes attitudinal questioning – development of one series per State?
  - ❖ Stratification
    - develop 5 – 8 "publication" regions which form the basis for stratification
    - fishing regions are subsets of these regions
    - home region boundaries do not need to co-incide with fishing regions
- The expectations of FAP and FRDC need to be established in relation to economic outputs

**ACTION: DMcG / SKERR**

- States need to establish the policy issues & questions which the Survey is expected to address in relation to economic (in the broadest sense) data. David Campbell will email a reminder about this Mon 12th. SMs to use David's paper to guide expectations.

**ACTION: SM**

### **Fish consumption**

- FRDC has expressed interest in the Survey collecting information on the consumption of recreational caught fish in the household. Discussion centred around the potential effect on respondent burden if this data element were asked of each fish / species caught. The subsequent step of quantifying the proportion of the household diet which recreational fish constituted was seen as a significant step into non-core information and was not supported.
- It was generally agreed that the Survey provided a vehicle for some semi-qualitative information on household consumption subject to further clarification of the objectives and scope of the questions. This could be obtained from questions in the attitudinal component rather than during the diary phase. It was noted that secondary datasets were available including an FRDC funded seafood consumption study and that these should be investigated before consumption was incorporated into the study.
  - *Subsequent conversations with Alex Wells of FRDC indicated that the needs were for some general information such as "how many times per week / month were recreationally caught fish consumed within the household?"*

### **Data Management**

- Tony Rees (Data Management Unit, CSIRO) presented an overview of the elements necessary to consider when developing a data management strategy – ie effective data collection for subsequent storage, retrieval, analysis and re-use. Issues covered included data security, access and archiving, and the resourcing implications.
- Todd Kelly and Cameron Baker (QFMA) gave a presentation on the current status of the SIFIS project. The project is now completed and copies of the product have been installed in Qld and NSW. Negotiations are underway with FRDC for ongoing maintenance funding for the next 12 months. In essence, modules have been developed which would allow data entry and storage of the National Survey's diary and creel survey modules, but further development is needed to incorporate the screening survey module (and probably overseas and indigenous fisher modules).
- Jeremy Lyle is to further investigate the utility of SIFIS for the National Survey and request a scoping document on the cost, timeframe and funding options to complete further development to the standards needed for the National Survey. Additionally, Jeremy is to liaise with CSIRO about their further involvement: e.g. CSIRO could assist the SDWG either by commenting on any draft strategy it produces, or (subject to resources being made available by the SDWG) by preparing an appropriate strategy on the SDWG's behalf.

**ACTION: JL**

- Considerable discussion occurred about the appropriate repository of the "master dataset" after final analysis. The Group recognised that ongoing access to the Survey data would be required and that, as repeated Surveys are being promoted, ongoing data maintenance would

be required. Phil Sahlqvist suggested that BRS might be interested in fulfilling this function and he is to canvas this.

**ACTION: PS**

### **Implementation strategy**

- A general discussion was held about the implementation options available for each stage of the project, with a view to assessing their implications (if any) on data management. The only stage where different implementation strategies were being considered was the initial telephone screening survey – Queensland favoured outsourcing the component to a “market research” agency, other States preferred an “in-house” approach and some were undecided.
- Jim Higgs (QFMA) provided data on the sampling results of RFish using an external provider for comparison with the NT’s “in-house” strategy. No resolution was made on the preferred strategy, but it was considered that one strategy should be utilised by all agencies.
- Discussion was also held on the strategy for analysis of 1) the national results and 2) individual State results. It was agreed that data should be initially aggregated for preparation of national statistics by a group representing all States (initial data entry and storage issues will be addressed by the data management strategy). States would then take copies of the complete dataset relevant to their jurisdiction and analyse these data individually.
- It is suggested that a master dataset be stored separately in one location for continued access and maintenance for future surveys.
- Discussion was held on the timing of the Survey implementation, and its relationship to each State’s funding (budgetary) process. Queensland indicated that project budgets are not normally handed down until Sept / Oct and therefore commitment for implementation to start at that time (with prior funding for training, etc) would be difficult. Other issues relating to preparedness for implementation (time for recruitment and training, final development of the indigenous survey, etc) were also raised.
- There was general consensus that a later starting date for implementation could be considered. If this was so, the Survey would need to be delayed approximately six months (say March/April 2000) as a start date near Christmas would not be advisable. It was agreed that this potential change would be borne in mind as development proceeds and a decision reached prior to the final FRDC application.
- It was agreed, however, that the timeframe for the development phase would be maintained.

### **Indigenous fisher survey**

- Anne Coleman gave a status report on this module by presenting a breakdown of indigenous population by ABS Statistical Division for each State. Data are also now available for indigenous community populations. Anne will circulate these data to be plotted against SDs. This will allow an assessment of the relative level of indigenous communities in each State.

**ACTION: SM**

- States to consider output specifications for this module (should they wish to proceed)

**ACTION: SM**

### **Overseas fisher survey**

- Bureau of Tourism Research data was used to show the number and proportion of visitors tabulated against their length of stay and port of departure. It showed that fishers (ie those who had actively participated in fishing during their stay) tended to stay longer (30% > 12 weeks) than “all visitors”. This raised the question about the utility of recall questions during the BTR exit interviews.
- Data elements considered important were:
  - participation (available from standard BTR surveys)
  - gross effort (days)
  - fishing State and region
  - fishery (ie what were they fishing for)
- These data elements were considered “collectable” if the duration of fishing is relatively few days (on average)
- Because of the recall nature of the survey, detailed catch and expenditure were not considered “collectable”
- It was agreed that this Survey should collect broad scoping data and that individual fisheries highlighted in the results could then be studied more intensively later if necessary
- The next step is to design and cost a pilot study using BTR to collect some data on number of days fished to further assess the utility of recall interviews

**ACTION: DMcG**

### **Communications strategy**

- Gary Henry pointed out the desirability of a coherent publicity / communications strategy
- Two target groups were identified – client groups such as MACs, clubs, recreational fishing organisations, etc and the general fishing population
- It was agreed that Gary Henry and DMcG would draft a “fact sheet” for the former group and a press release for the latter (to be submitted to national fishing magazines)

**ACTION: GH / DMcG**

## Appendix 1

Meeting with FRDC 14/10/98

Attendance:

Peter Dundas-Smith  
Murray Johns  
Alex Wells  
Patrick Hone  
Steve Kerr

The meeting was called to clarify several issues on the NRFS project.

### 1. Confusion of FRABs about the stage 3 (Implementation) application.

There have been several notifications received by the State/Territory FRABs about the next stage of the NRFS. The FRABs may be under the impression that there are going to be several applications, one for each state, when it was always the intent of the NRFS design team to submit one central application, and the notifications to the State/Territory FRABs was to alert them to this.

**ACTION:** FRDC will e-mail the FRAB chairs (cc to Murray and Steve) and confirm that there will be one central application for the next stage of the NRFS.

### 2. There was confusion about the status that SIRQIS would assume in the data management strategy for the NRFS.

Jeremy Lyle is currently determining SIRQIS capabilities and role in NRFS data management, as part of the development phase..

**ACTION:** The application to FRDC must include the linkages and usage that SIRQIS will be put to for NRFS.

### 3. Timing of Implementation stage

It was agreed that the implementation stage follow a time-line of:

July 99 to March 00	Further development and design, training of interviewers etc.
March 00 to March 01	Conduct survey data collection
March 01 to December 01	Conduct Data analysis and data report preparation

**Action:** Steve to provide Dave McGlennon with revised FAP budget for implementation stage to include data analysis funds.

**4. Funding of future surveys**

FRDC supported and encouraged the concept of a fund being set up to receive contributions from the States/Territories for the conducting of future NRFS surveys and like collaborative ventures (NRFS to also be funded by Commonwealth contributions). FRDC also indicated that it would be unlikely to provide funding assistance for future NRFS implementations.

**Action:** Fund set-up options paper to be developed for SCFA/MCFFA by next SCFA meeting in April 99.

**5. Economic data needs**

Economic data needs from the fishing sector economic comparison study were discussed, and it was agreed that the output of the Tor Hundloe study be incorporated into the economic data collection requirements.

**Action:** Invite Tor Hundloe to next SDWG meeting (Cronulla) to obtain input for the economic data elements.



# National Recreational and Indigenous Fishing Survey

## Workshop 2

November 30 – December 4, 1998

### Members attending

Anne Coleman	NT DPIF
Simon Conron	MAFRI
Gary Henry	NSW FRI
Stephen Kerr	AFFA
Jeremy Lyle	TAFI
David McGlennon	SARDI
Jeff Murphy	NSW FRI
Dennis Reid	NSW FRI
Phil Sahlqvist	BRS
Neil Sumner	WAMRL
Laurie West	Kewagama Research

### Partial attendance

David Campbell	DCAFE
Kim Finney	CSIRO Marine Research
John Harrison	AFA(NT)
Murray MacDonald	NRE
Kirrily McInnes	QFMA
Todd Kelly	QFMA
David Taylor	Southern Cross University
Ray Walker	Recfish Australia

### 1) Minutes of last Workshop

- External Territories – AFMA had indicated that Territories are not a priority for this Survey from its point of view.
  - Environment Australia are investigating survey methodologies for Cocos and Christmas Islands. For those Islands, it was resolved to leave telephone numbers in the sampling frame but acknowledge that results would be limited and only reflect residents owning phones (which were considered to be a small part of the population).
  - Norfolk Island already has data collected from charter boat operators. It was resolved to include Norfolk and Lord Howe Islands in the sampling frame.
  - CSIRO already conduct surveys of Torres Strait Island indigenous communities. Resolved to discuss with them the need for further data collection.

**ACTION: Phil S & Anne C**

- Press releases – NSW and generic versions are available (for editing) for those wanting local publicity. It was resolved that a widely distributed release would occur when funding was finalised about April/May 1999.

- Census question – the potential for a question to be asked in the Census regarding phone ownership to be investigated

**ACTION: Steve K**

- Letter to Boating Industry Australia has not been sent pending outcome of output specifications regarding boats

## **2) Financial statement**

- Not currently available
- A progress report is due with FRDC by December 31<sup>st</sup> and a financial statement will be prepared for attachment, and circulated to all members

**ACTION: David McG & Steve K**

## **3) Output specifications**

A consolidated set of output specifications was presented and discussed. The following resolutions were made:

### **a) Scope**

- attitudinal questions to be asked of 14 year olds and older
- extended diary (18 months) rejected

### **b) Screening survey**

- “passive fishing” – non core element
- “ever fishing” – non core
- ethnicity and aboriginality questions to be separated
  - ethnicity to be asked on fisher base and follow conventional ABS question type
  - aboriginality on population base
- boat questions - mostly population base
  - vessel type and hull material non core
  - length and propulsion type core elements
  - trailer v moored fisher base (fisher base)
  - “significance to purchase” removed from screening survey with potential to pick it up in attitudinal / economic
- vehicle questions deleted from screening survey on proviso that investment data collected in economic questions
- fishing tackle ownership deleted
- club membership on population base
  - secondary question to ask which club & States then to utilise results as needed

### **c) Diary survey**

- reason for release to be collected during on-site surveys and not during diary
- “fishing tour operators” rejected and will be recognised through recording expenditure
- “tagging” data not to be collected
- units for shellfish catches need to be specified by individual States

**ACTION: All**

#### **d) Attitudinal surveys**

- no specific State needs identified for pilot test (with possible exception of NSW)
  - Recfish identified some areas of interest in which it would like data collection. Laurie will liaise with them on this issue, recognising that the pilot is primarily intended to provide practice and experience for State Managers
- income variables to be established using labour force and education questions as proxies (ie not to be asked directly)
- attitudinal questions for Survey to be developed later (recognising that this component would not occur until at least 6 months after first screening)
- the "consumption" item was not further discussed but was resolved (out of session) to be incorporated into the attitudinal survey

#### **e) Economic surveys**

- Valuation
  - David Campbell has received advice from Dr Russell Blamey (responsible for recreational fishery chapter of the FRDC Framework for valuing fisheries project) that no robust method exists which can appropriately be attached to the National Survey. Methods exist which can suitably be used in smaller fisheries on individual species but are too complex for use in this Survey. After considerable discussion, it was resolved not to undertake questions relating to "value".
  - This view was supported by Recfish and, later in the week, supported by Prof Tor Hundloe (Principal Investigator of the FRDC project)
- Alternate valuation
  - The alternate valuation method proposed ("social value") was recognised as needing face to face interviewing on a population base and therefore will not be undertaken within the National Survey
- Expenditure
  - Scope – household base of expenditure by **and** for diarists (ie intending fishers)
  - Place of expenditure (ie home region v away) considered a core item but method of collecting data not resolved. A method will be trialed during the extended pilot survey using experienced interviewers
  - Food and drink considered a large respondent burden. David Campbell to investigate secondary datasets to use instead.
  - Consideration is to be given to separate the biological and economic surveys. To resolve this, estimates of sample size are needed for the economic survey (which would still have simple biological data). The NT data are to provide the basis for simulations.

**ACTION: Anne C & Dennis R**

#### **4) FRDC application**

- A draft application had been circulated to all States / Territories prior to the meeting and comments incorporated. It was noted that the indigenous study was still in development and costs were therefore very preliminary. Several (relatively) small items were also noted as missing and were allowed for in the final version.
- It was noted that this version is being submitted to FRDC to include the project in the normal funding timeline. FRDC is aware that we are still developing the project and that final costings will not be available until the final version. This needs to be presented to FRDC before their April Board meetings. The details will be finalised before and at the next Workshop.

#### **5) Overseas fisher survey**

- There has been no further development of this component since the first Workshop. At this stage, it is believed the only logical survey methodology is the established Bureau of Tourism Research exit surveys. It is intended to pilot a few questions regarding number of days fishing and place of fishing to further investigate the respondents ability to recall fishing related activity.

**ACTION: DMcG**

## **6) Indigenous fisher survey**

Two major data sources have been identified from ABS: the Census data and NATSIS which included a question on fishing, hunting and gathering. Qualitative data has also been collected and other survey methodologies reviewed. ABS will be asked to run a query combining the Census and NATSIS data to provide a list of localities that can then be prioritised as potentially significant

- absolute numbers of Indigenous people – census data.
- proportion of Indigenous people in the area – census data.
- level of Indigenous fishing activity in proportion to total fishing activity – NATSIS data augmented by qualitative data from any source.
- Indigenous fishing activity occurring in an area significant for other reasons

At this stage the following are envisioned for the Indigenous component (as detailed in the status report)

- ◆ Geographic – The scope will be dependant on the requirements of the States/Territories.
- ◆ Persons – Indigenous phone owners will be covered in the recreational component and therefore excluded from the Indigenous component (although specific coverage rules will apply for phone owners living on communities etc). It is likely that non-phone owners in unclustered urban/rural areas will also be excluded due to inefficiency and cost of sampling. Persons in scope might therefore be Indigenous (non-phone owning) people living in discrete communities. The base of the sample is also likely to be ‘person’ rather than ‘household’.
- ◆ Activities – all non-commercial fishing
- ◆ Species – all species with maximum similarity to the recreational fishing component.
- ◆ Temporal – Very likely to be greater than 1 year due to seasonal effects and influence.
- ◆ Catch and Effort - similarity to the recreational fishing component will be maximised, but the effort base may be days instead of hours fished. Methods of recording catch will be assessed during pilot surveys (note: see issue re: numeracy).
- ◆ Economic – it is unlikely that ‘conventional’ economic information will be collected, however behavioural assessments such as importance of fish in the diet are likely to be included.
- ◆ Attitudinal – as required.
- ◆ Communities will be stratified eg by SD, fishing “publication” region and size.
- ◆ The maximum sample frequency will be once per month
- ◆ The frame should be set at least one month before and then redefine the person base sample at the beginning of each month. This allows a dynamic sample with the capability to capture visitors and exclude residents who are away.
- ◆ Catch/effort information to be recalled on the basis of one week maximum and collected through face to face interviews. Observation of fishing activity will also take place.
- ◆ Assuming a survey of 14 months duration and monthly sampling (which takes 2 days), it will take 28 person days to cover one community, on a basis of \$250 per day (including travel and accommodation) a community will cost \$7000 to survey. This does not include preparatory work needed to establish access and communication with each community.

## **7) Data management strategy**

- It was agreed that Kim Finney (CSIRO) be contracted to work with Jeremy Lyle to develop a data management strategy for the project. The content of such a strategy was outlined by Kim Finney and accepted by the group.
- It was agreed that a hybrid data storage model would be adopted, with States/Territories responsible for editing, data entry and preliminary error checking of data collected by their jurisdiction. On completion of the project data will be up-loaded into a central repository (possibly based at the Bureau of Rural Sciences) for analysis at a national level and on-going maintenance etc. The potential role of BRS as custodians of the master data set will be canvassed.

**ACTION: Phil S**

- It was agreed that Jeremy Lyle and Kim Finney would develop a data model for the recreational fishing component of the survey and contract Farview (consultant group on the SIRQIS project) to scope out and cost the development of an IT solution. It was agreed that any interface developed must have full functionality to account for questionnaire sequencing and on-line logic/range checks.

**ACTION: Jeremy L & Kim F**

- Several working group members expressed reservations about SIRQIS, citing other software, such as ACCESS as possibilities for the survey. Concerns about limitations in the ability to produce customised reports for analysis, lack of in-house expertise to develop/trouble shoot SIRQIS, concerns about on-going maintenance (cost of up-upgrades, costs of maintenance, etc) were expressed. Initially, however, SIRQIS will be evaluated and a decision will be made as to whether to pursue SIRQIS or other solutions.

**ACTION: Jeremy L**

## **8) Pilot test(s)**

- It was agreed that 2 separate pilot tests would take place
    - The first would be conducted by State Managers as both a training exercise and a test of the instruments.
      - The instruments will incorporate the core elements but not those subject to ongoing debate (e.g. home v away expenditure)
      - Screening will be conducted in the last 2 weeks of January with the diary to be conducted from February onwards for about 2 months
      - A random sample of about 30 in each State will be chosen from the White Pages for screening
      - At least 10 diarists should be established but these can include persons chosen for the exercise
      - State Managers are to liaise with Anne Coleman during the pilot test should they have operational difficulties. These will be recorded and collated for the debrief.
- Instruments for the pilot to be finalised and forwarded to (received by) all jurisdictions by January 8<sup>th</sup>
- Longitudinal cover sheet
  - Screening survey
  - Event sheet
  - Workload control sheet
  - Stationary check list
- Diaries to be printed and forwarded by Dec 18<sup>th</sup>
  - Letter of authority to be drafted and forwarded with diaries

**ACTION: Laurie W**

**ACTION: DMcG**

**ACTION: DMcG**

- The second pilot will be conducted by experienced interviewers and will test a) respondent burden over 12 months and b) some of the more contentious (operationally difficult) data elements
  - Testing will be conducted in NT, Tasmania and (probably) NSW
  - Sample sizes will be adequate to properly assess response rates

#### **9) Next Workshop**

- Final Workshop will be to de-brief from pilot test and to put together revised budget for final FRDC application
- Date to be 3<sup>rd</sup> or 4<sup>th</sup> week in March in time to complete FRDC application before FRDC meeting
- Location tentatively Canberra

# NATIONAL RECREATIONAL AND INDIGENOUS FISHING SURVEY

## WORKSHOP 3

### MINUTES

### CANBERRA

22 – 24/3/99

#### PARTICIPANTS

David Campbell  
Anne Coleman  
Malcolm Dunning  
Kim Finney  
Peter Gooday  
John Harrison  
Gary Henry  
Jim Higgs  
Murray Johns  
Stephen Kerr  
Jeremy Lyle  
David McGlennon  
Murray MacDonald  
Dennis Reid  
Phil Sahlqvist  
Alex Wells  
Laurie West

DCAFE  
NT DPIF  
QDPI  
CSIRO  
ABARE  
RecFish  
NSW FRI  
QFMA  
AFFA  
AFFA  
TAFI  
SARDI  
NRE VIC  
NSW FRI  
BRS  
FRDC  
Kewagama Research

#### Apology from AFMA

- The main objectives of this final Workshop of the development phase were to a) complete outstanding details of the survey design and b) complete the implementation plan (including timing, budget) so that the FRDC application can be completed and Directors / CEOs can sign off on the project.

#### FRDC representation

- The meeting was addressed by Mr Peter Dundas-Smith, Executive Officer, and Dr Patrick Hone, Programs Manager, concerning issues relating to the project. It was stressed that the FRDC Board would expect to see written commitment from all State and Territory agencies for the project itself and for use of the information produced.

#### **ACTION: State Managers (SM)**

- The relation of this project to other recreational fishery projects was discussed. It was stressed by the development group that this project should not be judged by the performance of others. The project is willing to commit to any reasonable management structure and reporting process that the Board may propose.
- Dr Hone noted the emergence of marine regional plans being promulgated by Environment Australia and others, and recommended the Survey outputs be aligned with the data needs of the regional plans. Phil Sahlqvist is to establish / maintain links with EA for this purpose.

### **Pilot survey de-brief**

- Pilot surveys (2 months) have been conducted by SMs in all States. A de-brief of these experiences was conducted and any problems associated with the survey instruments discussed. In general, people greatly increased their confidence in the interviewing process and the survey instruments by conducting the pilot. It gave those without previous interviewing experience the opportunity to better understand the difficulties associated with the task. In turn, this will enable SMs to better recruit, train and manage the contract interviewers.
- Suggestions for improvements to the survey instruments were noted by Laurie West.
- Tasmania, NSW and the NT were continuing with longer term (12 months) pilot surveys test the burden of anglers over this period. Little or no adverse reaction was noted with anglers recruiting to the diary for this longer period. The results will be assessed later this year and a decision made on the format of the diary phase.

### **Implementation**

- It was resolved that the start date of the diary survey would be May 1<sup>st</sup>, 2000. This would allow development to be properly completed, and recruitment and training to be timetabled to flow directly into the survey without being interrupted by Christmas holidays.
- For budgeting purposes, each State advised the staffing requirements for implementation
- The implications of a possible GST tax on the implementation budget and application were discussed. We were advised by Alex Wells that no consideration was necessary at this stage due to the uncertainty surrounding its introduction.
- It was noted that an additional computer would be needed for dedicated data entry. One additional computer for each State was added to the budget with the second being offered in-kind.
- The potential for a special deal with a phone company was discussed, given the volume of traffic to be generated by the Survey. This will be followed up.

**ACTION: DMcG**

- Market research companies abide by a set of industry standards and it was suggested that this Survey should be cognisant of them. A set will be supplied.

**ACTION: JH**

- The need for a national launch for the Survey results was discussed. In general, it was agreed that the results warranted a formal release. The budget does not accommodate such an event but discussions will be held with the funding agencies during the project.
- In addition to the formal release, it was agreed that a formal de-brief should be made to fisheries managers and relevant senior staff. A de-brief Workshop has been budgeted but in-State meetings will be funded internally.

### **Database Management Strategy**

- Tables are to be added for species average weight
- Creel survey and indigenous survey components waiting on resolution of data elements
- Assessment of SIRFIS has been concluded and that software is not considered suitable for use or further development
- BRS has indicated in-principle willingness to take responsibility for intra-survey archiving, migration and handling queries for information. PS to continue negotiation and quoting
- Issues relating to data "ownership" were discussed. Alex Wells, Steve Kerr and DMcG to draft a set of guidelines for discussion. The issues include:
  - Period for which exclusive use exists
  - Confidentiality issues
  - National release and, in general, guidelines for data release



- Access to data for the public and research agencies

### **Steering Committee**

The final session of the Workshop consisted of a meeting of the NRIFS Steering Committee. In addition to the Workshop participants, Bill Nagle of ASIC attended and a representative of ATSIC was invited but did not attend. The Steering Committee is responsible for approving progress of the development phase and recommending progress towards implementation.

The objectives of each component of the development phase were discussed and progress noted. It was resolved that the development phase had met its key objectives or was making satisfactory progress towards them (given the project had several months to run). It was therefore resolved to continue to implementation.

It was further resolved that the role of the Steering Committee was completed. Future oversight of the project would be under normal funding agency guidelines, with additional management and/or reporting arrangements as required.

## **ATTACHMENT 12.3**

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### ***MINUTES OF THE FACILITATION TEAM MEETINGS***

# NATIONAL NON-COMMERCIAL FISHING SURVEY

## FACILITATION GROUP PLANNING MEETING

NOOSA, QUEENSLAND

18 - 20/8/98

### DRAFT MINUTES

#### ATTENDANCE

Murray Johns	Commonwealth DPIE	Principal Investigator
David McGlennon	SARDI	Project Leader
Anne Coleman	NT DPIF	Development Specialist
Jeremy Lyle	Tas DPIF	Development Specialist
Laurie West	Kewagama Research	Survey Consultant

These minutes reflect action items and decisions taken during the meeting and are not intended to provide full details of discussions surrounding each item.

#### CURRENT PROJECT STATUS

- FRDC approval has been received in principle. Several relatively minor questions have been raised by Dr Hone and these have been / are being addressed by MJ and DMcG. The most significant of these relates to the method of calculation of daily rates paid to project staff ie whether these should be based on a 48 or 52 week year. The application budget was based on a 48 week year without adding in pro-rata holiday days.
- Standing Committee on Fisheries and Aquaculture (SCFA) outcomes – project received strong commitment again and discussions were initiated on the means of establishing the Survey as a 5 yearly event. The Qld representative supported the project and was to seek deferment of their regular survey (Rfish) in lieu of the National Study.
- A Ministerial Press Release was issued after SCFA but this included all SCFA outcomes. It was agreed that a Release on the National Survey was warranted and would be beneficial.

**ACTION: MJ**

#### ADMINISTRATION / FUNDING

- The complexity of information flow paths to all agencies was recognised. It was agreed that Progress Reports would be distributed to agency Directors while operational correspondence (including CDT minutes) would be directed to nominated State Managers.
- Financial responsibility (including reporting to funding agencies) for the current development project rests with DPIE.

**ACTION: MJ, DMcG**

- Rather than project staff invoicing DPIE for each expenditure, it was agreed that each agency would set up its own cost centres (one each for FRDC and FAP expenditure) and draw against those. This expenditure will then be consolidated by DPIE for financial reports.

**ACTION: DMcG, AC, JL**

- To establish these cost centres, DPIE is to write to project staff advising them of their involvement and approximate expected expenditure allocated to their role (extracted from the FRDC application). These data are attached in Appendix 1 but are subject to final FRDC approvals.

**ACTION: MJ**

- As the development project will continue through much of 1998/99, a further FRDC application for implementation funding cannot be completed by the standard deadline of December 1. However, it was agreed that it is important to submit an interim application by that time to ensure the FRDC Board can consider the potential funding consequences.
  - A single application for implementation (including an Appendix of preliminary individual State costs) will be drafted for the December 1 deadline. The draft will be circulated for comment by all agencies in a similar process to the development phase application (tentative deadline – end Oct).

**ACTION: DMcG**

- FRDC's requirements for final submission (including deadlines, FRAB consultations, etc) need to be established – relevant FRDC Board meetings for 1999 are planned for 1-3 March (Canberra), 19-20 April (Canberra), June (New Zealand) and 9-10 August (Pt Lincoln & Adelaide).

**ACTION: MJ**

- Travel re-imbursement for Workshops is only available for nominated State Managers - additional staff would be at agency expense.
- ACT require only to be kept informed of progress as opposed to taking part in planning and development – Gary Henry to be responsible for considering ACT's needs as part of NSW's role. Mark Linterman to be kept on mailing list for progress reports and minutes
- David Campbell (as economic consultant) and Dennis Reid (as statistical consultant) will require contracts of service with DPIE

**ACTION: MJ**

- Albert Caton (BRS) is to act as Commonwealth Manager and participate in all Workshops.
- With David Campbell's departure from ABARE, the role of that agency needs to be established. One suggestion was the role of peer review for proposals for economic data gathering.

**ACTION: MJ**

- Dr Nan Bray (CSIRO) raised the potential role of CSIRO in the Survey at the SCFA meeting. With the departure of Wade Whitelaw from CSIRO, their role (if any) needs to be established.

**ACTION: MJ**

- Administratively, the Steering Committee (Chair Murray Johns plus all relevant agency representatives) was established by the SCFA and therefore reports to it. It was agreed that Progress Reports generated from Workshops, and for FRDC, should therefore be forwarded to Murray for reporting to SCFA and that the CDT should also report formally to Murray when appropriate.

## PROJECT DEVELOPMENT

- The first action required is the development of a set of agreed output specifications based on the draft specifications in the Feasibility Study. State Managers are now required to consider their needs in detail before the first Workshop.

- A letter is to be sent to each Manager, with a template of output specifications and the relevant text of the Feasibility Study, initiating this action. The letter is also to include the revised project timetable and proposed Workshop dates.

**ACTION: DMcG**

- Laurie West is to follow up with Managers individually before the Workshop to discuss a) output specs and b) regional stratification.

**ACTION: LW**

- The IT requirements of the project are yet to be developed but a number of strategies are available. The first task is to establish the suitability (or otherwise) of SIRFIS (QDPI). Other potential strategies included a centralised database with online (remote) data entry capabilities, individual (but standard) State databases or individual different databases with compatible table structure. It was agreed that Jeremy would present a number of options at the first Workshop.

**ACTION: JL**

- The outputs and progress of the FRDC economic valuation study need to be established as the results will influence the direction the National Survey takes with these data. Further, Prof Tor Hundloe (as PI) needs to be made aware of our timetable to ensure compatibility if possible.

**ACTION: DMcG**

- Murray MacDonald has recommended some questions relating to social value. Development of this topic will be conducted during discussions with LW and during the Workshop.
- Development of the indigenous fisher survey has commenced with AC accessing secondary datasets on population distribution. It was agreed that AC and LW would work together directly on this component.

**ACTION: AC**

- Development of the overseas fisher survey requires access to existing data from the Bureau of Tourism Research. Initial analysis will include tabulation of a) length of stay, b) participation and c) language by port of entry. Current surveys are conducted by Roy Morgan Research and rights of separate access to airports needs to be established (if needed). Further development work would occur directly between DMcG and LW.

**ACTION: DMcG**

- Short-term unavailability during the project duration was noted for project staff.
- Milestone reporting is governed by the FRDC contract. Although this has not been concluded, Progress Reports will be required for milestones to Nov 30 & Feb 28, with the Final Report to follow project completion on May 31. All project staff will contribute to Progress and Final Reports, with responsibility for completion resting with DMcG. Reports to be signed off by MJ.
- Financial reports are determined by FRDC contract dates and are likely to be six monthly (ie Dec 31 and June 30). DPIE is responsible for these Reports but will require reporting from SARDI, NT DPIF and Tas DPIF for their expenditure.
- The proposed project timetable was revisited.

- Concern was expressed at the effect that the current completion date would have on expected commencement of diary sampling in November 1999 (given significant recruitment and training needs before sampling). It was agreed to compress the reporting cycle of the development project to attempt to meet the FRDC Board meeting in April 1999 (as opposed to June).

- The first Workshop was proposed for Sept 29 – Oct 1, 1998 and to be held at QDPI, Brisbane.

**ACTION: MJ (room booking)**

- The CDT will meet on Sept 28 in Brisbane to prepare for the Workshop.

- It was agreed that QFMA would also be invited to the Workshop

**ACTION: MJ**

with other Qld representatives left to the determination of QDPI.

- The dates and locations of the later Workshops were tentatively set at Nov 30 – Dec 4 (Sydney) and Feb 1 – 5, 1999 (Canberra)
- It is proposed that the 3<sup>rd</sup> Workshop (pilot test debrief & implementation strategy planning) will be followed by a Steering Committee meeting (including FRDC).

- The employment status of interviewers (particularly in the indigenous survey development) requires clarification ie with which agency DPIF or DPIE, and contract v casual and the implications for workers comp

**ACTION: AC**

#### **MISCELLANEOUS**

- It was suggested that the national Survey warranted some exposure on the Internet. It was agreed that DPIE's Web site would be suitable and that other agencies could link references to the Survey to that site.

**APPENDIX 1. State attributions of expenditure during the development phase**

<b>FRDC Expenditure</b>	<b>TAS</b>	<b>NT</b>	<b>SA</b>
<b>Salary (inc on-costs)</b>	<b>25,400</b>	<b>31,337</b>	<b>47,954</b>
<b>Travel</b>			
CDT	3,240	3,240	3,240
Workshops	4,500	4,500	4,500
<b>Total travel</b>	<b>7,740</b>	<b>7,740</b>	<b>7,740</b>
<b>TOTAL FRDC</b>	<b>33,140</b>	<b>39,077</b>	<b>55,694</b>
<b>FAP Expenditure</b>			
<b>Travel</b>			
IF survey development		8,500	
OS F survey development			1,240
<b>Total travel</b>	<b>-</b>	<b>8,500</b>	<b>1,240</b>
<b>Operating</b>			
IT development	14,500		
Phone/fax	2,150	2,150	2,150
Secondary dataset purchases		1,000	1,000
Computer hire		2,400	
Vehicle hire		6,170	
<b>Total operating</b>	<b>16,650</b>	<b>11,720</b>	<b>3,150</b>
<b>TOTAL FAP</b>	<b>16,650</b>	<b>20,220</b>	<b>4,390</b>
<b>GRAND TOTAL</b>	<b>49,790</b>	<b>59,297</b>	<b>60,084</b>

## APPENDIX 2. Consolidated task list

Task	Person responsible	Completed by	Comments
1. Draft CDT meeting minutes	DMcG	24/8/98	
2. Generate Ministerial Press release	MJ	not designated	
3. Distribute progress reports to agency Directors	MJ	ongoing	
4. Formally advise project staff of their commitment and extent of State - based expenditure	MJ	28/8/98	
5. Establish local FRDC and FAP cost centres	DMcG, AC, JL		following advice in 5
6. Disaggregate State based expenditure	DMcG	24/8/98	
7. Draft FRDC application for implementation	DMcG	Oct 30	following discussions in Workshop 1
8. Establish FRDC timetable and requirements	MJ	Sept 28	prior to Workshop 1
9. Establish (need for ) contracts for Dennis Reid and David Campbell with DPIE	MJ	18/8/98	
10. Establish role of ABARE in project	MJ		
11. Establish role of CSIRO in project	MJ		
12. Draft letter to State Managers to initiate development of output specifications	DMcG, LW	28/8/98	
13. Investigate potential of SIRFIS for project IT needs	JL	Workshop 1	for presentation
14. Investigate alternate IT strategies	JL	Workshop 1	if needed
15. Establish contact with Tor Hundloe	DMcG	28/8/98	
16. Preliminary analysis of existing indigenous fisher (IF) data	AC	Workshop 1	for presentation
17. Prelim development of IF sampling strategies	AC, LW	Workshop 1	for presentation
18. Access and prelim analysis of existing data for overseas fishers	DMcG	Workshop 1	for presentation
19. Book QDPI meeting room for Workshop 1	MJ	asap	
20. Invite QFMA to Workshop 1	MJ	asap	
21. Establish availability of non-CDT State Managers for Workshop 1	DMcG	24/8/98	
22. Establish employment status for interviewers involved in IF	AC	Workshop 1	
23. Establish a presence for project on DPIE Web site	MJ	not designated	



## **FACILITATION TEAM MEETING**

### **ADELAIDE**

**22-24/2/99**

### **MINUTES**

#### **1) Pilot debrief**

- Full responses – NT 87%, Tas 80% but include some non-responses which would normally be further pursued
- Diary responses – NT 83%, 88% Tas households (78% individuals)
  - Tas recorded children refusing diary within accepting households
    - Their data can be collected by proxy or as shared effort
  - Diary responses lower than expected but felt would improve when interviewers know it is not a pilot
- Need to add question on avidity to calibrate refusals

**ACTION: LW**

- Need to incorporate followup sampling of:
  - non-respondents (by experienced interviewer); say sample of 100(?) per State
  - intending non-fishers
  - non-contacts

**ACTION: LW**

- fishing tour operators
  - personal fishing only, and only when not as part of paid charter
- interstate travellers/tourists
  - operational aspects yet to be determined
  - motivational questions (ie why travelling to region) yet to be determined
    - when to ask questions
    - what triggers?
- Add spare in kit diary for non-intending anglers/spare
  - Add comments to instructions re this
- Question on aboriginality may be excluded in States where indigenous surveys not to be conducted?

**ACTION: LW**

- Consideration of 50,000 wave for summer sample and 30,000 over winter
- Matrix of responses required during events to be drafted as tool for interviewers

**ACTION: JL**

- economic data
  - to be collected on a household basis to minimise burden
  - consideration to be given to a separate (or reverse side) event sheet
- discuss progress of "attribution" at Workshop after/during pilot
- Add SD name to LCS to assist interviewers recognise travel across boundaries
  - Map supplied to interviewers will need SDs overlaid

**ACTION: LW**

**ACTION: LW**

#### **2) Recruitment process**

- Regional spread of interviewers not necessary as cost implications are minimal
- Advantage in having interviewers near office for training and followup contacts
- Each State needs to establish recruitment process necessary for contract positions to ensure adequate lead time is allowed; initial steps should be implemented as soon as funding is finalised (April) if sampling is to commence in 1999

**ACTION: SMs**

- Advertisement
  - Widespread advertisement brings too many applicants and methods should be employed to limit the number e.g. local advertisement, short closing time
  - Attributes to be spelt out in advert and will include:
    - Geographical knowledge
    - Communication skills
    - Clerical skills
    - Ability to work from home in evenings, weekends, etc
    - Fishing and species knowledge not necessarily important
    - Average earnings and hours expected
    - Preparedness to undergo aptitude testing and security check
  - Respondents to advert will be supplied an application form (to be handwritten) and more detailed covering letter describing the project and work. They will asked to provide:
    - Previous relevant experience
    - Availability for training
    - Why they want the work
    - Etc
  - NT and Tas adverts are available and can be used as basis for a standardised version
- Aptitude testing
  - To test clerical and other skills
  - Written format to be undertaken under supervision in the workplace
  - NT and Tas versions available and need minimal editing
- Personal interviews
  - From shortlist
  - Drafts available
- Preparation of recruitment package will occur early in implementation but process needs to be costed for funding application

**ACTION: DMcG & LW**

### 3. Training programme

- To be split for screening and diary components
  - 2 ½ to 3 days training for screening survey, 1 day for diary (after screening survey well underway/completed)
- programme to be developed in initial phase of implementation but needs to be thought through and costed for funding application

**ACTION: LW, DMcG ++**

### 4. Miscellaneous

- Attitudinal
  - Draft questions to be resolved by Xmas if 6 monthly waves and start in 1999

- Need to resolve core questions (if they exist)
- establish design costs for funding application

**ACTION: LW & SMs**

- Diary
  - Indicative quote from Allen press (*\$6,800 for 35,000*)
  - Logos not to be used on diaries but included on cover sheet
  - Standard diary for all States
- Regional maps
  - Need level of detail of NT report
  - Recommend one A4 of whole State plus regional enlargements
  - Map supplied to interviewers will need SDs overlayed
  - States to bring progress maps to Workshop

**ACTION: SMs**

- Interviewer manual
  - To be completed by June 30 and based on NT and TAS versions, plus work to date on National Survey
    - Consider abridged version for use in training

**ACTION: DMcG +**

- Species list & showcard
  - Waiting on quote from CSIRO for images
  - Gary Henry's group to take over this task (species list and showcard); liaise with States before Workshop and finalise at Workshop

**ACTION: GH**

- Printing
  - Indicative price of all documents to be obtained

**ACTION: DMcG**

## 5. Indigenous survey

- Tas, Vic and NSW have not expressed interest, SA yet to decide
- Expectation is for total catch, not just catches from selected communities
- Sampling plan to be presented at Workshop
- Pilot test to be planned (& maybe implemented) by Workshop

**ACTION: AC & LW**

## 6. Overseas visitor survey

- BTR suggested that pilot testing was probably not necessary if questions were relatively straightforward, & given expertise in drafting these questions
- Will take 2-3 months to incorporate supplementary questions into training and documentary process
  - Neilsen will decide whether it is coded into their program or is collected as hard copy (prefer hard copy as potential then to obtain after)
- Survey conducted on a quarterly basis and therefore can start in either October 1999 or January 2000
- Need to negotiate with BTR the format of data returned to us
- We should attend sessions when BTR interviewers trained on our survey
- Draft questions discussed – to be fleshed prior to Workshop and decided on then

**ACTION: DMcG**

- BTR can then quote on work
- Leave \$50,000 in budget

7. Data management strategy

- Draft well advanced, final draft to be presented at Workshop
- Negotiations with Farview ongoing; preparing quote for scoping document
  - Need for this questioned given Strategy

8. Creel surveys

- Objectives are to collect length frequency data, validate species ID ability, collect data on phone ownership
  - Therefore surveys will target times of day, seasons and regions when fish are being landed
- Draft questionnaire to be prepared based on previous work

**ACTION: GH & AC**

- Sampling needs to be largely designed within States based on experience
  - needs to reflect seasonal and regional variation where it exists
- Summary of existing length weight relationships to be compiled & circulated for completion

**ACTION: GH**

9. Implementation timeframe

- Two alternatives discussed – diary to commence in Dec 1<sup>st</sup> 1999 or April 1<sup>st</sup> 2000
  - Timetable discussed for both of these
  - Availability of resources in each State to be established so that decision can be taken at Workshop

**ACTION: DMcG**

# **NATIONAL RECREATIONAL AND INDIGENOUS FISHING SURVEY**

## **FACILITATION TEAM MEETING**

**ADELAIDE, 4-6 AUGUST, 1999**

### **PRESENT**

Murray Johns	Commonwealth DAFF
David McGlennon	SARDI
Val Boxall	SARDI
David Campbell	David Campbell and Associates
Anne Coleman	NT DPIF
Gary Henry	NSW FRI
Jeremy Lyall	Tas DPIF
Laurie West	Kewagama Research

### **NATIONAL SURVEY IMPLEMENTATION BUDGET**

David McGlennon presented the draft budget papers for the implementation phase of the National Survey. Members discussed the principles of budget allocation and confirmed the understanding about items to be shared between States and the items to be allocated in proportion to the work required. Members reviewed the major items which required expenditure and confirmed the rates attributed to these items. The budgetary implications of a number of amendments to the work plan were discussed along with the potential impact of the Goods and Services Tax. It was agreed that the amendments to the work plan would be "cost neutral" and able to be achieved within the original budget submitted with the implementation phase research proposal.

Members discussed the allocation of expenditure to each State and the administration required to facilitate the allocation of funds. David McGlennon presented a detailed budgetary breakdown by funding agency (NHT, FRDC) and State. It was agreed that Fisheries Action Program should be the single conduit of funds from both NHT and FRDC and that the individual States and consultants enter into contract with FAP for the conduct of their work plans and budget allocations. The members recognised that the GST had the potential to significantly alter the funding arrangements for the National Survey. However, without formal advice on the specific aspects of the work plan or services contracted that may attract amended tax liabilities, the team was not in a position to predict the implication for the National Survey.

### **DEVELOPMENT PHASE REPORT**

Members discussed the progress of the National Survey development phase report. A draft timetable and table of contents was presented along a list of the major tasks. The chairman nominated particular members of the group to undertake these tasks to complete the report. The allocation of tasks generally reflected the responsibilities

already attributed to team members. In this way, the separate components of the report (Recreational Fishing, Indigenous Fishing, Overseas Fishing, Data Management, Statistical Analysis, Economic Issues, etc) would be drawn together into a cohesive statement about the success of the development phase.

## **COMMUNICATION STRATEGY**

Commonwealth and State/ Territory fisheries agencies are keen to promote the positive aspects of the National Survey to their clients and the community in general. Clearly, the National Survey is a major event in recreational fisheries research and the findings will generate considerable interest among government and industry groups. The results are expected to provide a framework for the management of recreational fishing in Australia for the foreseeable future. The communication of progress and findings of the National Survey to government, recreational and commercial fishers and the broader community is an important role of the Working Group. A strategy is required to ensure the dissemination of information is consistent, accurate and reaches the broadest possible target audience. The strategy should address the source, type and recipients of the information.

## **MANAGEMENT OF THE QUEENSLAND STATE SURVEY**

Members were aware of the review of the management of fisheries in Queensland and concerned for the impact of the review on planning and implementation of the National Survey. The potential for staff in Queensland to be lost to the project was discussed along with a contingency plan. Members agreed that a re-allocation of resources, jobs, functions and/or staff in Queensland would present difficulties for the rest of the survey team. An attempt would be made to determine the likely outcomes of the current review.

## **INDIGENOUS SURVEY**

The status of the indigenous fishing component of the National Survey was discussed along with any difficulties in progressing this work. Anne Coleman reviewed the activities-to-date and presented a draft indigenous report. Ms Coleman was very positive about the success of the project, but signaled that there were still a number of risks associated with this work. These risks were related to the sensitivities associated with face-to-face contact with indigenous groups and the extra difficulties gaining access to remote communities. Members agreed that the indigenous component had specific problems that were not apparent in the recreational and overseas components and that these risks would need careful monitoring. Anne undertook to immediately notify the facilitation team of any difficulties with the indigenous component.

## **OVERSEAS SURVEY**

David McGlennon outlined the progress with the overseas fisher survey and presented information on the survey design, budget and implementation plan. This component of the National Survey will be undertaken by Gary Henry following David's departure and members agreed to continue with the developed plan. The sampling program for the Visiting International Fisher Survey would be conducted by AC Nielsen as part of the standard IVS program. The survey results will be weighted to Australian Bureau

of Statistics figures of international visitor traffic. The IVS is conducted monthly but it has been recommended that our supplementary survey commence at the beginning of a quarter, as data expansion is conducted on that basis. It is intended, therefore, to commence the enumeration of the survey in early April 2000, with completion in late March 2001.

## **SPECIES LISTS**

Members reviewed progress with the development of the species master list and the individual State/ Territory event sheet and identification booklet. Draft documents were presented to the meeting for comment. The production (layout, design, collation) of the species identification booklets were agreed on, but the particular fish to be nominated for State/ Territory event sheets require further development. Some clarification of the philosophy behind the nomination of species was required along with a generate of a standard approach across all States. Members allocated tasks associated with the species lists and timetables for completion of this component.

## **REGIONAL MAPS**

The NSW example of the regional maps was presented to the meeting for comment. Regional maps are being developed by all States/ Territories for use by interviewers to attribute fishing statistics to specific parts of the country. Regional maps, statistical divisions, economic regions along with geographical characteristics of each State need to be presented on these maps. Members were aware of the need to ensure maximum consistency of approach to the development of fishing maps and the concept associated with the attribution of fishing activity. Further development of the regional maps is required and NSW undertook to coordinate this activity on behalf of all States/ territories.

## **IMPLEMENTATION PLANNING**

Members discussed the range of issues associated with the implementation of the National Survey. The work plan was used as a basis to plan the components of the implementation phase. The individual tasks include recruitment of staff (State Managers, Office Staff, Interviewers), training (Interviewers), printing of documents (questionnaires, species books, maps), data management and preparation of contracts. The Principal Investigator will have overall responsibility for the project, but the National Project Manager will manage and co-ordinate day-to-day functions of the survey. Consultant inputs will refer to five areas of expertise (survey design, interviewer training/management, statistics, economics, IT development). A State Manager will take responsibility for the recruitment, training and management of survey staff. Each State Manager would be assisted by an Office Manager in terms of various administrative, clerical, data entry and editing functions for the survey. A training workshop will be held in October to prepare each State for implementation activities.

## **OTHER BUSINESS**

Members discussed issues associated with the on-site surveys, data management and economic matters before closing the meeting.

## **ATTACHMENT 12.4**

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### ***OUTPUT SPECIFICATIONS FOR THE NATIONAL SURVEY***



NATIONAL RECREATIONAL FISHING SURVEY - SUMMARY OUTPUT SPECIFICATIONS - TELEPHONE SURVEY COMPONENT

[illegible]



Boat ownership/access	Household basis	Own vs. none (incl. partial/corporate/commercial)	Po'n base - questioning to ensure no double-counting - part-owned boats	H	M	H	H	H	H	H	H	H
Boats base	No. of	ditto	ditto	H	M	H	H	H	H	H	H	H
	Vessel type	open, cabin etc	NON-CORE	M	L	L	H	L	L	L	M	M
	Hull material	grp, alloy etc	NON-CORE	L	L	L	H	L	L	L	L	M
	Length	metres or feet	Pop'n base	M	L	L	H	L	L	H	L	M
	Propulsion	power-jet ski/power-other/sail/row	ditto	L	L	L	H	H	L	H	L	M
	Usage for rec. fishing	% in previous 12 mths	ditto	H	M	L	H	H	L	H	H	H
	Significance of rec fishing to purchase	very important, quite etc	NON-CORE	H	L	L	H	L	L	H	H	H
	Current market value	best estimate/nearest \$,000/'private sale' basis	Rec. fishing boats only - to estimate the 'value' of the fleet/investment levels etc	H	?	?	H	H	H	H	M	H
	Trailer vs. moored	plus car topper vs. shore-based	Rec. fishing boats only	L	M	L	H	M	L	H	L	H
	Echo sounder	y/n	Fishing boats only - new data element - see also under Economic data elements									
	GPS	y/n	Fishing boats only - new data element - see also under Economic data elements									
	Other (insert if req.)		NON-CORE	X		X						
Vehicle ownership	Household/personal base	y/n	Now included in Wash-up/Attitudinal Survey - fishers only	L	M	L	M	L	L	M	M	H
Vehicles base	Type of vehicle	2wd, 4wd, motor-bike etc	ditto	L	L	L	M	L	L	M	M	M

	Usage for rec. fishing	y/n	ditto	M	M	L	M	L	L	M	H	H
	Significance of rec. fishing to purchase	very important, quite etc	NON-CORE	M	L	L	M	L	L	M	H	H
	Other (insert if req.)		Now included in Wash-up/Attitudinal Survey - fishers only			X						
Fishing tackle/equip.	Ownership/ access	yes/no	NON-CORE	H/M	L	L	M	L	H	L	L	M
Membership of fishing/diving clubs	Current membership	y/n	Pop'n base	H	M/H	H	M	H	H	H	H	H
	If yes	Record names, locations of club/s for office coding	ditto									
	Other (insert if req.)		NON-CORE - potentially in Wash-up Attitudinal Survey			X						
Rec. fishing licences held (if any)	Type of licence by jurisdiction (NT and Qld have none)	y/n - asked in all states - period = 12 mths prior to interview	Pop'n base	H	H	H	H	L?	H	N/A	H	M

(C) DATA ELEMENTS - primarily from DIARY SURVEY (fishing event base - either personal or gear - by intending fishers AND IN SOME CASES, OTHER MEMBERS OF H'HOLDS)												
Fishing effort	Line fishing	fisher hours personally, but collected where approp. on a multiple basis	need to apportion share of effort/catch (multiples)	H	H	H	H	H	H	H	H	H
	Other active gear (e.g. drag net)	gear hours personally - but 'multiples' as above	ditto	H	H	H	H	H	H	H	H	H
		plus no. of shots for drag and seine nets	ditto	H	H	H	H	H	H	H	H	H
	Passive gear (e.g. pots)	gear hours personally - but 'multiples' as above (incl. no. of pots where approp.)	ditto	H	H	H	(H)	H	H	H	H	H
	Other (insert if req.)		NON-CORE				X					X
Catch data	numbers harvested (personally)	by species/group (incl. toads etc.) - varying by jurisdiction - allowing also for 'multiples' see effort	need to apportion share of effort/catch (multiples) - <u>Note:</u> On site survey/etc for weight coefficients	H	H	H	H	H	H	H	H	H
	numbers released (personally)	ditto	ditto plus - not applicable to certain active methods e.g. diving	H	H	H	H	H	H	H	H	H
	reason for release	e.g. under-size, over-quota, damaged/dead	NON CORE (necessary questioning too complex, time-consuming)	L/H	H	M	H	H	M	L	H	H
	catch	sum of harvest and release	derived data	H	H	H	H	H	(H)	(H)	H	H
	strikes/hookups	e.g. gamefishing	NON-CORE	L	L	L	M	L	L	L	M	M

Catch rate data	cpue, hpue etc.	derived data - various options/potential here		H	H	(H)	H	H	(H)	(H)	(H)	H
Fishing region		varying by jurisdiction - catchment basis	detailed maps/boundary definitions required	H	H	H	H	H	H	(H)	L*	H
Water body type	or 'sub-region' type	offshore (>5km), inshore (<5km), river - marine, river - fresh, etc		H	H	H	H	H	H	H	H	H
Targeting	Main/2nd target species/groups	individual species/group OR ... where no specific target - classify as surface/pelagic vs bottom/demersal vs. other		H	(H)	M	H	H	H	(H)	H	H
	Bait fishing		NON-CORE - although derivable from targets species/methods in many cases	M	(H)	H	H	H	L	H	H	H
Fishing method		varying by jurisdiction	exhaustive list	H	H	L/M	H	H	H	H	H	H
	Other (insert if req.)		NON-CORE			X					X	
Platform	Boat vs shore	boat, shore, both		H	(H)	H	H	H	H	H	H	H
	Boat type	private vs. charter vs. hire	provides dissag. capability e.g. for charter fishing	H	(H)	H	H	H	H	H	H	H
	Shore type	varying needs by jurisdiction - standard = ocean rocks vs ocean beach vs breakwall/dam wall vs public wharf/jetty vs other (incl. private jetty)	NEW data element - indiv. states q'aires to differ (as for species)									
	Other (insert if req.)		NON-CORE (FTO but charter incl.)			X						X

[illegible]

	PLUS - all catch and effort data - if any	ditto	as above - but for catch and effort data									
Other event-based data elements	Date	Day/mth/year	Important analysis tool	H	H	H	(H)	(H)	H	(H)	(H)	(H)
	Personal interview (as opposed to proxy)	y/n	NEW data element - an omission from earlier versions									
	Diarised data	yes/no	ditto	M	M	H	(H)	(H)	H	(H)	(H)	(H)



**(D) OTHER DATA ELEMENTS - primarily from the WASH-UP/ATTITUDINAL SURVEY (mostly an intending fisher base) NOTE: all data elements to be reviewed/refined before design of the survey, scheduled for late 2000)**

Economic 'valuation' of the recreational fishery	NON CORE - determined as inappropriate for this survey instrument - refer specific documentation on Economics			M	?	?	L	?	?	?	L	H
Social/community model (proposed by Vic)	NON CORE - determined as inappropriate for this survey instrument - due to face-to-face interview requirements and need to conduct on whole pop'n base			H	H	?	M	?	?	L	H	M
Wash-up Survey - expenditure items	Annual/major expenditure items	a checklist of 'odd' fishing related expenditure items 'recallable' at end of/not approp. for diary survey, including - major purchases boats, trailers (insurance, reg'n), even real estate purchases/repairs (fishing shacks)										
Wash-up Survey - motor vehicles	various - see earlier under Screening Survey	to be developed	fisher/household base									
	but including q'ns to establish the number, types and rec. fishing 'usage ratio's' for each h'hold vehicle during diary period - this will allow for a more precise mean \$ per km to be applied to KMs reported in the diary survey											
Wash-up Survey - intending non-fishers	Recall rec. fishing participation in diary period	comparable to data from separate follow-up survey of (whole) h'holds who reported no intention to fish in the Screening Survey AND LINKED to data from the Supplementary Diary Survey for these people										
(Suggested) Awareness assessment (to be developed)	awareness of state fisheries agency	y/n or more 'detailed	Intending fishers (aged 14 yrs or more)	H	?	?	H	H	M	H	?	M



ATTACHMENT 12.5

ECONOMIC REPORT

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## **ECONOMIC COMPONENT OF THE NATIONAL RECREATIONAL FISHING SURVEY**

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## ECONOMIC COMPONENT OF THE NATIONAL RECREATIONAL FISHING SURVEY

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### 1.0. Introduction

Most of the economic data will be collected in the screening, primary 12 month diary, and supplementary diary surveys. Additional income data from the Australian Bureau of Statistics will be integrated into the data set on the basis of survey socio-demographic data. While vehicle travel expenditure from the NRMA will be integrated into the data set on the basis survey data on distance travelled and the type of vehicle used. The sources for most of the economic data expected to be collected in the survey is presented in table 1.

The economic data is intended to meet the data needs for three broad areas identified in the output specifications, namely: *investment* data on boats, vehicles and fishing tackle; *expenditure* data on activities associated with or related to recreational fishing activities and economic data related to or indicative of the *value* of recreational fishing. No 'equivalent to commercial fish price' recreational fish data will be collected. However, complimentary data on that proportion of expenditure incurred that is attributed to fishing, will be collected. While this is discussed in more detail later in this attachment, this approach will provide a more reliable and robust data set, while providing data input for a number of important recreational fishing policy issues.

The economic data might be partitioned according to a number of variables, including respondent characteristics, home location of the respondent, expenditure location, and the proportion of expenditure attributed to recreational fishing. As a result, the data can be used to provide information for a number of recreational fishing economic issues at national, regional and local levels

Only that expenditure 'associated with' or 'linked to' recreational fishing is to be included in the expenditure data (figure 1). This means, for example, that expenditure on a trip involving recreational fishing outside the home location on an item, such as a new fan belt, will be included on those occasions when the fan belt was replaced outside the home region<sup>1</sup>.

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<sup>1</sup> The basis by-which home region and away from home region is to decided is under review.

Conversely, expenditure on a new car fan belt within the home region, or expenditure on a recreational trip outside the home region, that included, on items such as golf, is not included.

**Table 1: Source, Type and Policy Relevance of Economic Data <sup>a</sup>**

	Expenditure items	Economic characteristics	Attribution	Policy Question		
				Home expenditure	Away expenditure	Fishing gear
Screening survey	fishing gear owned	capital	1			X
	boats owned	capital	<1			X
Primary survey	rods	capital	1	X	X	X
	reels	capital	1	X	X	X
	other tackle	capital	1	X	X	X
	bait/burley	variable	1	X	X	X
	ice	variable	<1	X	X	
	publications	capital	1	X	X	X
	boat purch'd	capital	<1	X	X	
	boat maint'nance	annual	<1	X	X	
	boat insurance	annual	<1	X		
	boat mooring	annual	<1	X	X	
	boat fuel/oil	variable	<1	X	X	
	boat hire	variable	<1	X	X	
	boat charter	variable	<1	X	X	
	trailer	capital	<1	X	X	
	trailer maint'nance	annual	<1	X	X	
	trailer ins/reg	annual	<1	X		
	car hire/ch	variable	<1	X	X	
	car kms	variable	<1			
	other travel	?	<1	?	?	
	accommodation	variable	<1		X	
	fees-club	annual	<1	X		X
	fees-competition	marginal			X	
	fees-licence	annual	<1	X	X	X
	contributions	?	<1	X	X	X
	clothing	capital			X	X
	books/maps	capital	<1	X	X	
	other access	marginal	<1		X	
Supplementary survey	food	variable			X	
	drink	variable			X	
	fuel/oil	variable			X	
ABS	income	annual				
NRMA	car travel cost	variable	<1			

a. The actual economic data to be included in the data set and the source of data is still to be finalised.

While national recreational fishing surveys carried out elsewhere include the use of some form of contingency valuation to obtain a measure of the value of fish to recreational fishing, this approach will not be used in this survey. Instead, within the cost and operational constraints of the survey, attributable expenditure data (figure 1) is considered to be more robust, and applicable to a wide range of policy issues

**Figure1: Relative Relationship of Expenditure Between Linkage and Attribution**

Data not linked to fish	data linked to fishing	
Non-attributable	0 < attribution < 100%	100 per cent

## **2.0 Characteristics of economic data**

### **2.1 Level of regional detail**

The national recreational fishing survey will provide detailed expenditure data at a, to be defined, regional level that can be expanded to state-territory and national levels. In addition, for some trips it might be possible to associate variable expenditure data to a specific fishing location or region, or to the catch or fishing activity. Even when the trip involves two or more fishing sites, it might still be possible to link the expenditure data to activities at a finer level or to different level of regional detail. For example, fishing activities at several locations might be linked according to a primary variable. For instance, a fishing trip may involve lure fishing for trout from a boat on the Tantangara reservoir (northern Kosciusko National Park) and fly-fishing on the associated alpine streams. In this instance, expenditure might be linked according to trout fishing in the Tantangara catchment. However, possible concerns include such partitioning of data may be incomplete and care would be required when expanding the data.

That economic data can be examined, at least to a regional level, will allow the economic data to be used as input to policy decision-making issues at a number of jurisdictional levels.

### **2.2. Short-term variable expenditure versus long term fixed expenditure**

As described in the introduction, only data on expenditure linked to recreational fishing will be collected. Such data can be identified according to whether the items purchased are immediately consumable during a trip, or whether the items might be used more than once over a longer period of time. The amount of expenditure immediately consumable items is likely to vary according to the number of days involved in the fishing trip, the distance travelled or the amount of fishing effort. Such items, including food, drink, vehicle fuel, boat fuel, fishing bait, and ice, will be assumed to be completely consumed during the trip. Expenditure on such items is referred to as a short run or variable cost. Because such items

are assumed to be immediately consumable, they might be related to a particular fishing trip. However, such inputs to the recreational experience can also relate to benefits in addition to recreational fishing.

Expenditure on those items that are not directly consumable and are not consumed or decrease in quantity in direct proportion to the level of fishing activity<sup>2</sup> and can be used over a number of trips, are referred to as capital or 'fixed' cost items. Such items are likely to include fishing gear, boats, boat maintenance, motor vehicles, clothing, fishing books and journals and licence fees. Annual expenditure on items, such as for licence fees and mooring costs, are also included.

A difficulty in allocating expenditure incurred between trips and activities is that the rate or period of use may vary from several weeks, to a year, or for several years, and will involve a number of trips. During this time, the items may be used in a number of activities in addition to recreational fishing. That is, expenditure may be difficult to distribute over different time periods or between different possible activities (fishing and/or non fishing). Because these items have a number of different uses, such items are often referred to as 'joint' capital or joint use items and expenditure may referred to as 'joint' expenditure.

Expenditure on capital items during the twelve months of the survey can be assumed to represent annual expenditure on capital items. However, this cannot be used to indicate the actual fishing capital held by fishers; although resale value data is to be collected on boats owned.

Expenditure on capital items by recreational fishers can also be incurred as a marginal cost. While boats, motels, and fishing gear are capital items, fishers can lease or hire these items for the duration of a fishing trip. When this happens, fisher expenditure on these items occurs as a variable cost, with expenditure varying according to the number of trips taken, nights away from home or the distance travelled.

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<sup>2</sup> This use of these items, however, is likely to involve a 'use or user cost', when the duration or life of the item is decreased (and therefore a cost) as a result of the shortening of the life of the item due to wear-and-tear.



The differentiation of economic data according to capital or marginal cost is important as it affects the manipulation and use of economic data. However, it would be misleading in every instance to attribute all of the expenditure incurred to recreational fishing. That is, some items of expenditure attributable to fishing are jointly attributable to other recreational activities. Such joint expenditure can occur for capital items and for variable cost items.

### 2.3. Attribution

Recreational fishing is usually a form of tourism involving the active consumption of services by people who travel to destinations away from their normal place of accommodation or work in order to fulfil their need for recreation and holiday<sup>3</sup>. This need includes the desire to experience other places, other people and other experiences, including fishing. That is, fishing may be just a part of the experience enjoyed on a recreational trip. In addition, not all participants in the trip need be involved with or have the same level of involvement in recreational fishing.

While all the expenditure linked to recreational fishing will be collected, it would be misleading for all of this expenditure to be credited to recreational fishing in every instance. Indeed, the inclusion of all expenditure incurred on a trip involving recreational fishing can result in multiple accounting when all or part of the expenditure is also attributed to these other non-fishing activities. To overcome this, a qualifying coefficient or weighting to estimate that proportion of expenditure *attributable* to recreational fishing will be obtained for the expenditure incurred.

Percentage attribution will be used to link instances of fishing to the amount of expenditure incurred. Unlike that for all other variables in the economic data set, this data value is not derived on the basis of reported respondent behaviour. Instead, it is quantified on the basis of the respondent's subjective assessment of the importance of fishing as an activity relative to the other activities on the fishing trip. As such, there are a number of uncertainties involved in the use of this data.

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<sup>3</sup> See Corcoran, K. Allcock, A. Frost, T. and Johnston, L. 1999, *Valuing Tourism: Methods and Techniques*, Bureau of Tourism Research, Occasional Paper no. 28, Canberra.

A difficulty in the use of attribution is that respondents are likely to be more aware of recreational fishing as an activity than they will for other activities. As a result, they may give fishing a higher rate of attribution than they otherwise would. Such a response could be reinforced as a result of a 'feel good' factor with the interviewer. Problems of strategic behaviour by respondents with the objective of increasing government support for recreational fishing, might also occur. At the very least, the effect of such non-sampling errors on the data is unknown. For these and other reasons, care is taken in the training of interviewers and the wording of the question on 'attribution' to ensure respondents fully understand what is meant by the question and to minimise these sources of error.

Conversely, recreational fisher satisfaction can vary due to a number of factors in addition to catch per unit of effort, including ease of access to the fishing site, the aesthetics of the fishing location and social factors. Even when satisfaction is solely based on catch, satisfaction can also vary with the quality of catch, including differences in species of fish and the size of fish landed<sup>4</sup>. As a result it is difficult to know what proportion of the expenditure attributed to fishing relates to factors other than the rate of fish catch and how to take into account differences in the quality of catch.

Even when attributing expenditure to recreational fishing, the question to be answered is whether recreational fishing altered expenditure in any way to what it would have otherwise been, whether this change in expenditure behaviour is measurable and whether such data has fisheries policy relevance. For instance, while fishing might change the nature of food and drink, it is difficult to assess any change in the amount spent using the current survey instrument. However, expenditure on food and drink outside of the home statistical division indicates a change in the location of expenditure, aside from the type of food eaten. It can be measured using the current survey instrument and is important as an indicator of the amount of economic activity imported into a location as a result of recreational fishing.

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<sup>4</sup> Homans, Frances R. and Ruliffson, Jane A. 1999, 'The effect of minimum size limits on recreational fishing,' *Marine Resource Economics*, vol. 14, no. 1, pp. 1-14.

### 3.0. Exclusion of estimated price or fish value data

It would have been useful to obtain non-market estimates of the price recreational fishers might place on the fish caught. Such information could be used when considering the allocation of fish resources between recreational fishing and other uses, including commercial fishing. In broad terms, two valuation options were considered. One of these was the use of the different forms of contingent valuation (CV), or willingness to pay or accept compensation – which are based on responses to hypothetical models. The other method considered was the use of the different methods of hedonic travel cost – which, while more difficult to collect, is based on behaviour. A number of assumptions are required to be met in the collection of data necessary to achieve a reliable and robust contingent valuation estimate of value<sup>5</sup>. The demands in meeting these assumptions are such that *‘a reliable conservative CV study should be conducted with personal interviews of significant duration and will be relatively costly’*<sup>6</sup>. It was considered that these conditions could not be met.

The considerations in meeting the assumptions necessary to ensure a reasonably accurate estimate of value using any of the hedonic travel cost methods include the need to isolate catch rate by species from the other attributes enjoyed by a recreational fisher. As discussed, this need would remain, even with the use of the attribution weighting to isolate that expenditure that can be credited to recreational. Both the CV and hedonic travel cost methods would require substantial changes to and application of the survey instrument. Such changes would increase respondent burden and costs and might affect the quality and reliability of the biological and behavioural data.

In spite of the problems in isolating catch rate from the other factors affecting the quality of the fishing experience, the data collected in the survey might still be used in some form of hedonic travel cost analysis of fish price. Such analysis is likely to require substantive econometric input and is likely to involve a number of econometric difficulties.

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<sup>5</sup> See Cornes, Richard and Sandler, Todd 1996, *The Theory of Externalities, Public Goods and Club Good*, 2<sup>nd</sup> edition, Cambridge University press, ch. 18.

<sup>6</sup> See Arrow, K, Solow, R. Portney, P. Learner, E. Radner, R. and Schuman, H. 1993, ‘Report of the NOAA panel on contingent valuation’, *Federal Register*, vol. 58, p. 4607.

Questions might be raised over the use of expenditure attribution when CV estimates are not used as neither is a direct measure of behaviour, with both requiring a subjective evaluation. However, while CV data is collected solely on the basis of a hypothetical circumstance, attribution expenditure data is provided by respondents on the basis of their own behaviour and the observed behaviour of those others in the recreational activity. As a result, and following discussion with the States, Territories, Commonwealth and recreational fisher representatives, it was decided that robust and reasonably accurate attributable fishing expenditure could be collected in the National Recreational Fishing Survey and that this data would provide useful policy information.

#### **4.0. Use of non-economic data as economic indicators**

The large amount of non-economic data to be collected in the survey can provide useful economic indicators of the relative importance and relative value of fishing sites, species, preferred fishing conditions and fishing regions. It can also be used to provide an indication of the demand for different types of equipment, services and facilities and the time of year in which access to fishing is required. The data also provides information on the nature of the recreational fishing services people consume, how they use these services and the complimentary inputs used in the enjoyment of recreational fishing. Such information is useful to the providers of support services including the States, Territories and local governments, and the allocation of private investment in facilities such as accommodation and food and the production and distribution of fishing gear.

In addition, the data might be used to examine the distribution of recreational fishing benefits according to socio-demographic characteristics.

#### **5.0. Policy issues to which the data set might be applied**

The final data set obtained through the national recreational fishing survey may be used as input to a large range of government and non-government policy issues. For instance the data set will provide data in relation to:

- How much is spent on fishing items. This provides an indication of the size of the industry involved in the manufacture and supply of those items that are directly used

in recreational fishing; thus providing an indication of the size of the fishing equipment industry.

- Expenditure by local residents attributed to fishing. The data can be used to provide an indication of one level of economic activity due to fishing activities, aside from food and drink, within the home location.
- Expenditure by non-resident recreational fishers attributed to recreational fishing. This data can be used to provide an indication of the level of all the economic activity attracted into an area as a result of recreational fishing. Care is required in the use and interpretation of this data as any change in recreational fishing need not result in an equivalent change in expenditure.

### **5.1. Fishing gear related expenditure**

These items are those that are directly used in the fishing activity and will include items such as fishing rods, reels, nets, bait catching gear, clothing, rod holders, boats and boat trailers. Most of these items are capital items that are 100 per cent attributable to fishing, although more expensive capital items, such as boats, are likely to have joint uses such as boating and water skiing. All marginal cost items on 'fishing 'gear' inputs, including bait and burley, are likely to be 100 per cent attributable to fishing.

National survey data can be used to show how large the fishing gear industry is, who uses the gear and what sort of fishing activities particular gear users participate in. It can also provide useful information were government, on the basis of United States experience, to apply levies on fishing gear as a means of funding the recreational fishing sector.

### **5.2. Expenditure by local residents**

Non-economic data can provide information on fishing activities and the benefits local residents obtain from their rate payments. On average, expenditure on major capital items is likely to be more important in the home statistical division than it will be away. What is important at a policy level is the proportion of fishers versus non-fishers resident within the home region. A relatively high level of participation might imply that, along with other possible attributes, people moved to that area to participate in recreational fishing, or, that

people have remained because of recreational fishing opportunities, and that fishing is a better option to what ever else is available.

Expenditure on food and drink is not included in expenditure in the home region. The reason for this is that it is difficult to see whether or by how much fishing will alter the amount spent in either one way or the other, although such changes as do occur are likely to result in a change of food providers within the region.

### **5.3. Visitor expenditure**

The data on visitor expenditure attributed to recreational fishing can be used to provide input to a range of fishery policy issues at national, state/territory and local levels. Such data is particularly relevant if there is a relationship between expenditure and fishing activities and which implies services provided to fishers can have an affect on expenditure in the region. That is, the provision of better access sites, such as through the public provision of boat ramps; or the provision of more or improved accommodation, such as caravan and camping sites, will lead to an increase in fisher expenditure in the area<sup>7</sup>. Socio-demographic, income, type of fishing participated in, fishing site, home location and the rate of attribution data, can provide information on the sort of services required or the targeting of advertising. Such information along with biological data, such as species caught and catch rate, will assist decision makers to match the tourists they are attracting with their fish resource base. Most imported expenditure is likely to be on variable cost items such as food, drink, fuel, accommodation, bait, equipment and the hiring or leasing of capital items.

Survey data can also provide information on issues across jurisdictional boundaries, such as the provision of roads and public transport, which can be important at local, regional and state-territory levels.

### **5.4. Summary**

As this is the first systematic national survey providing data on biological, economic and fishing and fisher behaviour, to a regional level, it provides a benchmark for future national

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<sup>7</sup> It is important to ensure expenditure in attracting and servicing recreational fishers will result in a net benefit to the body carrying out the expenditure. That is, it is important to ensure the benefits derived (including benefits for local inhabitants) from any expenditure incurred exceed the cost or the alternative benefits foregone.

and regional recreational fishery surveys. The survey results will provide a benchmark to measure change due to variation in natural conditions, human behaviour and values, and due to policy measures.

Aside from this, data from the study will provide input to a range of secondary data uses including multiplier analysis and hedonic travel cost analysis.

## **6.0. Economic components of other national studies**

### **6.1. Australia**

#### *Bureau of Tourism Research*

The Bureau of Tourism Research, through its national visitor survey (NVS), collects expenditure data for a range of recreational activities including fishing. This data is collected on the basis of expenditure at home and expenditure away from home according to whether they were day trips or overnight trips. The expenditure data is all expenditure by respondent. Including travel, food, drink, entertainment, and souvenirs. While complete data on expenditure at home and on expenditure away, is collected, there is no explicit information on where away expenditure occurs, although final destination information is collected. Because the purpose of the NVS is to obtain overall recreational data, the sample size is too small to obtain reasonably robust fishing economic data at a regional level. An ongoing series, the first report of the NVS is due for publication in the final quarter of 1999.

#### *Australian Bureau of Statistics*

The study on *Participation in Sport and Physical Activities* is for the year 1997-98. While there is no direct economic data, data on different participation rates according to different demographic characteristics are collected<sup>8</sup>.

### **6.2. New Zealand**

#### *S.A. Centre for Economic Studies*

A sample of about 4000 person to person interviews carried out in at the boat ramp for a limited range of New Zealand fish species: snapper, kingfish, kahawai blue cod and rock

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<sup>8</sup> See: ABS report no. 4177.0.

lobster. Questions include one on what was spent 'today' (excluding items of equipment such as rods and reels that could be usable on another occasion), plus, following this, a question on, if the above had been greater by a specified amount, would they have still gone fishing on that day. Other questions on fish kept or returned, reason for fishing and the importance of recreational fishing to the respondent, were included in the survey. The purpose is to obtain a measure of the national value of the listed species. The report is due to be presented to the New Zealand government in late 1999.

### **6.3. Canada<sup>9</sup>**

Extensive national surveys were carried out for 1990 and for 1995. Expenditure data were collected according to demographic characteristics and residence, including whether they were fishing locally or were visitors from Canada or from outside of Canada. Non-economic data was collected on catch, location of catch and fishing effort.

The expenditure data linked to the recreational fishing including expenditure on consumable items and investments related in whole or in part on to the respondents angling activities. Recreational fishers were also asked by how much their daily incremental costs would need to go up for them to not fish

### **6.4. United States of America<sup>10</sup>**

Data on a systematic basis has been collected in the United States since 1979 using complimentary telephone and intercept surveys. Data collected includes catch (species, numbers, weight and length), effort (number of trips, mode of fishing) participation, fishing region, and location of fisher residence.

Economic data is collected as part of the telephone interview as a follow-up to the intercept survey. The telephone interview is initiated with questions on the fishing activity, effect of regulations on fishing behaviour, possible affect of changes in catch rates on fishing targeting of fish and days fished, and the respondents thoughts regarding possible management changes.

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<sup>9</sup> See: [www.dfo-mpo.gc.ca/communjc/statistics/recfish95/recfish95.htm](http://www.dfo-mpo.gc.ca/communjc/statistics/recfish95/recfish95.htm)

<sup>10</sup> See: [www.psmfc.org/recfin/mrfssov.htm#estimation](http://www.psmfc.org/recfin/mrfssov.htm#estimation)



These introductory questions prepare the respondent for a series of willingness to pay questions. The construction of the series is important, as, for a particular species, respondents are asked how much they would pay to continue to catch the original daily bag limit, if the bag limit for the species were, for instance, to be reduced from five to four fish. Respondent are then asked how much they would be willing to pay to catch the original bag limit if the daily bag limit were reduced to three fish. The series continues in this manner such that the respondent is finally asked how much they would be willing to pay to take the original bag limit if the fishery were defined as a catch and release fishery with a zero bag limit.

Additional economic questions concerning the payment of boat charter fees, employment and income are asked. Those questions on income include whether any income was foregone as a result of participation in recreational fishing and how much this would be.

## **ATTACHMENT 12.6**

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### ***SAMPLE SIZE FOR THE NATIONAL SURVEY***

# RSE for Key Survey Estimates - Gross Sample 42K h'holds -even split rev 29/7/99.

STATE		State/Region	Total Resident Pop'n	Rec. Fishing Partic. Rate	Mean Effort - days/ angler/ yr (all ages)	Mean Effort - hrs/ angler/d ay	Mean CPUE - fish kept/ angler/ hr	Est. Tot. Harvest - Anglers 5+	Initial Gross Sample (H'holds)	Sample Take - End Diary (Anglers 5+ both waves)	RSE Part. Rate	RSE Total Hrs Fished	RSE HPUE (Fish Kept)	RSE Total Harvest	RSE 10% Harvest	RSE 5% Harvest	RSE 1% Harvest
NSW/ ACT	Capital	SYDNEY	3879370	23%	7	4	0.5	11625665	2100	647	6.6%	3.9%	7.9%	11.0%	26.0%	36.0%	79.0%
	Elsewhere	ACT SD's (x2)	308025	38%	7	4	0.5	1520717	800	388	5.9%	5.1%	10.2%	12.8%	33.0%	46.1%	101.8%
		CENTRAL WEST/northern	351072	38%	7	4	0.5	1726670	750	362	6.1%	5.3%	10.5%	13.2%	34.2%	47.7%	105.4%
		FAR WEST/northwest	142616	38%	7	4	0.5	694723	700	341	6.3%	5.4%	10.8%	13.7%	35.3%	49.2%	108.7%
		HUNTER	555503	38%	7	4	0.5	2745753	900	437	5.6%	4.8%	9.6%	12.1%	31.1%	43.4%	95.9%
		ILLAWARRA	372973	38%	7	4	0.5	1839268	750	363	6.1%	5.3%	10.5%	13.2%	34.1%	47.6%	105.2%
		MID-NORTH COAST	262602	38%	7	4	0.5	1299963	750	365	6.1%	5.2%	10.5%	13.2%	34.1%	47.5%	105.0%
		MURRAY/murrumb	260093	38%	7	4	0.5	1274230	750	362	6.1%	5.3%	10.5%	13.3%	34.2%	47.7%	105.4%
		RICHMOND-TWEED	200663	38%	7	4	0.5	994824	750	365	6.1%	5.2%	10.5%	13.2%	34.0%	47.5%	104.9%
		SOUTH EASTERN	179002	38%	7	4	0.5	882577	750	363	6.1%	5.3%	10.5%	13.2%	34.1%	47.6%	105.2%
		Elsewhere NSW/ACT	2632549	38%	7	4	0.5	12978725	6900	3347	2.0%	1.7%	3.5%	4.4%	11.2%	15.7%	34.7%
		Total	6511919	31%	7	4	0.5	24604390	9000	3994	3.1%	1.6%	3.2%	4.7%	10.6%	14.6%	31.8%
VIC	Capital	MELBOURNE	3283014	22%	6	4	0.7	11312536	2026	592	7.1%	4.1%	6.9%	10.7%	23.4%	32.1%	70.0%
	Elsewhere	BARWON	239722	28%	6	4	0.7	1049938	962	347	7.9%	5.4%	9.1%	13.2%	30.3%	41.7%	91.3%
		CENTRAL HIGHLANDS	134767	28%	6	4	0.7	587341	912	327	8.1%	5.5%	9.4%	13.6%	31.2%	43.0%	94.0%
		EAST GIPPSLAND / gipps	234187	28%	6	4	0.7	1019907	810	291	8.6%	5.9%	9.9%	14.4%	33.0%	45.5%	99.7%
		GOULBURN / OVENS-M	271955	28%	6	4	0.7	1182567	912	326	8.1%	5.5%	9.4%	13.6%	31.2%	43.0%	94.2%
		LODDON-CAMPASPE	157472	28%	6	4	0.7	686539	912	327	8.1%	5.5%	9.4%	13.6%	31.2%	43.0%	94.0%
		MALLEE/WIMMERA	139472	28%	6	4	0.7	606891	810	289	8.6%	5.9%	9.9%	14.4%	33.1%	45.6%	99.9%
		WESTERN DISTRICT	100228	28%	6	4	0.7	436390	810	290	8.6%	5.9%	9.9%	14.4%	33.1%	45.6%	99.8%
		Elsewhere Victoria	1277803	28%	6	4	0.7	5569574	3647	2196	3.1%	2.1%	3.6%	5.2%	12.0%	16.6%	36.3%
		Total	4560817	24%	6	4	0.7	16882109	8155	2788	4.8%	1.9%	3.2%	6.1%	11.4%	15.2%	32.4%
QLD	Capital	BRISBANE	1520596	25%	8	4	0.5	5653224	1621	532	6.8%	4.3%	8.7%	11.9%	28.6%	39.6%	87.1%
	Elsewhere	CENTRAL WEST/southwe	74956	27%	8	4	0.5	293911	608	208	10.4%	6.9%	13.9%	18.7%	45.6%	63.2%	139.2%
		DARLING DOWNS	199912	21%	8	4	0.5	621025	810	218	12.0%	6.8%	13.5%	19.3%	45.0%	62.1%	136.1%
		FAR NORTH	210695	33%	8	4	0.5	1020756	810	340	7.0%	5.4%	10.8%	14.0%	35.4%	49.3%	108.8%
		FITZROY	178046	29%	8	4	0.5	758167	810	299	8.3%	5.8%	11.6%	15.3%	37.9%	52.7%	116.1%
		MACKAY	120262	35%	8	4	0.5	618862	810	361	6.5%	5.3%	10.5%	13.5%	34.3%	47.8%	105.5%
		MORETON	618060	28%	8	4	0.5	2586300	1064	386	7.4%	5.1%	10.2%	13.6%	33.4%	46.4%	102.2%
		NORTHERN	192373	32%	8	4	0.5	907622	810	331	7.3%	5.5%	11.0%	14.3%	35.9%	50.0%	110.3%
		WIDE BAY-BURNETT	224209	30%	8	4	0.5	997176	810	312	7.9%	5.7%	11.3%	14.9%	37.1%	51.5%	113.6%
		Elsewhere Queensland	1818513	27%	8	4	0.5	7803819	6535	2456	3.0%	2.0%	4.0%	5.4%	13.3%	18.4%	40.5%
		Total	3339109	25%	8	4	0.5	13457043	8155	2989	3.6%	1.8%	3.7%	5.4%	12.3%	16.9%	36.8%

RSE for Key Survey Estimates - Gross Sample 42K h'holds -even split rev 29/7/99.

STATE	State/Region	Total Resident Pop'n	Rec. Fishing Partic. Rate	Mean Effort - days/angler/yr (all ages)	Mean Effort - hrs/angler/day	Mean CPUE - fish kept/angler/hr	Est. Tot. Harvest - Anglers 5+	Initial Gross Sample (H'holds)	Sample Take - End Diary (Anglers 5+ both waves)	RSE Part. Rate	RSE Total Hrs Fished	RSE HPUE (Fish Kept)	RSE Total Harvest	RSE 10% Harvest	RSE 5% Harvest	RSE 1% Harvest
WA	Capital	PERTH	1295132	24%	7	4	1.4	11362775	1636	504	7.2%	4.5%	5.3%	10.0%	18.9%	53.9%
	Elsewhere	CENTRAL	59030	36%	7	4	1.4	763163	491	232	8.0%	6.6%	7.8%	13.0%	26.9%	79.1%
		KIMBERLEY	25674	36%	7	4	1.4	326086	491	228	8.1%	6.6%	7.9%	13.1%	27.1%	79.8%
		UPPER/LOWER GREAT	70008	36%	7	4	1.4	912059	491	234	7.9%	6.5%	7.8%	12.9%	26.7%	78.7%
		MIDLANDS	51484	36%	7	4	1.4	666256	600	284	7.2%	5.9%	7.1%	11.7%	24.3%	71.5%
		PILBARA	40509	36%	7	4	1.4	513225	491	228	8.1%	6.6%	7.9%	13.1%	27.1%	79.9%
		SOUTH EASTERN	56449	36%	7	4	1.4	721420	545	255	7.6%	6.3%	7.5%	12.4%	25.6%	75.5%
		SOUTH WEST	167452	36%	7	4	1.4	2183437	655	312	6.9%	5.7%	6.8%	11.2%	23.2%	68.2%
		Elsewhere WA	470606	36%	7	4	1.4	6085645	3764	1774	2.9%	2.4%	2.8%	4.7%	9.7%	28.6%
	Total		1765738	27%	7	4	1.4	17448420	5400	2278	4.8%	2.1%	2.5%	5.8%	9.5%	25.6%
SA	Capital	ADELAIDE	1079184	28%	8	4	1.4	12678120	1493	511	6.5%	4.4%	5.3%	9.5%	18.5%	53.4%
	Elsewhere	EYRE	33028	32%	8	4	1.4	436933	498	198	9.5%	7.1%	8.5%	14.6%	29.3%	85.7%
		MURRAY LANDS	67477	32%	8	4	1.4	895728	664	265	8.2%	6.2%	7.3%	12.6%	25.4%	74.1%
		NORTHERN	83505	32%	8	4	1.4	1099528	664	263	8.2%	6.2%	7.4%	12.6%	25.5%	74.4%
		OUTER ADELAIDE	104406	28%	8	4	1.4	1219465	664	233	9.6%	6.6%	7.8%	14.0%	27.3%	79.1%
		SOUTH EAST	62718	32%	8	4	1.4	830585	553	221	9.0%	6.7%	8.0%	13.8%	27.8%	81.3%
		YORKE/LOWER NORTH	44071	32%	8	4	1.4	590170	553	223	8.9%	6.7%	8.0%	13.7%	27.7%	80.8%
		Elsewhere SA	395205	32%	8	4	1.4	5072408	3595	1404	3.5%	2.7%	3.2%	5.5%	11.0%	32.2%
	Total		1474389	29%	8	4	1.4	17750529	5089	1915	4.7%	2.3%	2.7%	5.9%	10.1%	27.8%
TAS	Capital	HOBART	195795	23%	7	3	1.5	1322002	1479	422	8.1%	4.9%	5.6%	11.0%	20.1%	57.0%
	Elsewhere	MERSEY-LYELL	110234	25%	7	3	1.5	801840	887	277	9.5%	6.0%	6.9%	13.2%	24.6%	70.2%
		NORTHERN	134097	25%	7	3	1.5	977949	887	278	9.5%	6.0%	6.9%	13.2%	24.6%	70.1%
		SOUTHERN	34466	25%	7	3	1.5	250622	769	240	10.2%	6.5%	7.4%	14.2%	26.5%	75.5%
		Elsewhere Tasmania	278797	25%	7	3	1.5	2030411	2544	796	5.6%	3.5%	4.1%	7.8%	14.5%	41.5%
	Total		474592	24%	7	3	1.5	3352414	4022	1218	4.7%	2.9%	3.3%	6.4%	11.8%	33.5%
NT	Capital	DARWIN	82408	40%	7	5	0.5	556178	889	472	5.1%	4.6%	9.2%	11.5%	29.9%	92.3%
	Elsewhere	COAST	99515	52%	9	5	0.5	1045301	622	532	3.8%	4.3%	8.7%	10.4%	28.0%	86.9%
		HINTERLAND		7%	7	5	0.5		667	77	38.1%	11.5%	22.8%	45.9%	82.4%	109.6%
	Total		181923	41%	8	5	0.5	1601479	2178	1081	3.1%	3.0%	6.1%	7.5%	19.7%	61.0%
AUSTRALIA								0								
							TOTAL:	42000								

## **ATTACHMENT 12.7**

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### ***WORKLOAD CONTROL SHEET (SCREENING SURVEY)***



**IN CONFIDENCE**

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## **ATTACHMENT 12.8**

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### ***SCREENING SURVEY QUESTIONNAIRE (PARTS A & B)***



# SURVEY OF RECREATIONAL FISHING IN AUSTRALIA, 2000/01 - SCREENING SURVEY® (NSW)

**A: Administrative Section, Introduction and Initial Screening**

**IN CONFIDENCE**

Call Details:

Day/Mth	Time	Result (C/NC/NA)	Day/Mth	Time	Result (C/NC/NA)	Appointments/other
...../.....	.....	.....	...../.....	.....	.....	.....
...../.....	.....	.....	...../.....	.....	.....	.....
...../.....	.....	.....	...../.....	.....	.....	.....
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...../.....	.....	.....	...../.....	.....	.....	.....
...../.....	.....	.....	...../.....	.....	.....	.....

I/viewer Initials:

Response Report

Fully responding	1
Full refusal	2
Part refusal	3
Full non-contact	4
Part non-contact	5
Number disconnected	6
Business number	7
Other (specify)	8

**Q1. INTRODUCTION: Good morning/etc. .... from NSW Fisheries .... (important) survey about recreational fishing and boating .... (I/VIEWER: IDENTIFY 'ARA'; FURTHER INFO. AS NEEDED - 'NSW FISHERIES RESEARCH INSTITUTE'; RANDOM SELECTION FROM TELEPHONE LISTINGS; CONFIDENTIAL SURVEY; FOR MOST PEOPLE ABOUT 2 MINS; SURVEY ABOUT HOW MANY PEOPLE GO FISHING, OWN BOATS, "THAT KIND OF THING")**

**Q2(a) (Firstly), thinking back over the last 12 months .... has any member of your household done any recreational fishing in Australia ... whether they caught anything or not?**

Yes (go to Sect B)	1
No	2

**(b) (And during this time, has any household member done/... or) any other kind of recreational fishing like crabbing, prawning, spearfishing ... or even collecting oysters or aquarium fish?**

Yes (go to Sect B)	1
No	2

**(c) (And) in the last 12 months, did any household member hold a recreational fishing licence of any kind ... in any state of Australia?**

Yes (go to Sect B)	1
No	2

**Q3. (And) is anyone in your household a (current) member of a recreational fishing or diving club ... or association?**

Yes (go to Sect B)	1
No	2

**Q4. (And) thinking about the coming 12 months, how likely is it that a member of your household will do any kind of recreational fishing, crabbing, etc? Would you say ...**  
 (READ OUT UNTIL TERMINATED; \*'UNSURE' NOT VALID AS 'INITIAL' PROXY RESPONSE IN Q'S 2-5, ARRANGE PERSONAL INTERVIEW/CALL-BACK ETC)

Very likely? (go to Sect B)	1
Quite likely? (go to Sect B)	2
Not very likely?	3
Not at all likely?	4
UNSURE*	5

**Q5. (And) does anyone in your household own a boat of any kind ... including canoes, jet skis ... or commercially-used boats? (INCL. PARTIAL/CORP. OWNERSHIP; 'GUNWALE' RULE)**

Yes (go Q1b, Sect D)	1
No	2

**Q6(a) (INTERVIEWER: 'THAT'S IT'; ENSURE GOOD/REPRESENTATIVE SAMPLE ETC) (And) could you tell me how many people live in your household? (ALL AGES/USUAL RESIDENTS; HOW MANY PEOPLE ... THESE ANSWERS APPLY TO)**

Total UR's / 'in' visitors

**(b) (And, of these, how many are male/s)? (OBSERVATION, IF ONE PERSON)**

Males  Females

**(c) (And) could you tell me (i) the age/s of the male/s ... and the female/s? (OR, IF ALL ONE GENDER) (ii) their ages? (OR, IF ONE ONLY) (iii) your age last birthday? (IF NEEDED, PROBE FOR MID-POINT OF '0-4' ETC AGE GROUP)**

Males: ...../...../...../...../.....  
 Females: ...../...../...../...../.....

**Q7. (And are any of these people staying away at present?) (\*IF YES, PROBE WHETHER RETURNING BY END SCREENING - IF YES INCLUDE; OTHERWISE EXCLUDE/AMEND)**

Yes (probe*)	1
No	2

**Q8. (And) is anyone else staying with your household (at present)? (\*IF YES, PROBE WHETHER RETURNING TO USUAL RESIDENCE BY END SCREENING - IF YES, EXCLUDE; OTHERWISE, INCLUDE [UNLESS 'UR' OF 'NPD' OR O'SEAS] AND RE-ASK/AMEND Q'S 2-6)**

Yes (probe*)	1
No	2

**Q9. (And) are you/any of these people of aboriginal or Torres Strait Islander origin? (\*IF YES, PROBE FOR DETAILS - IF ALL, THANK/TERMINATE - IF SOME, IDENTIFY AND CIRCLE AGE FOR EACH IN Q6[c]) AND THANK/TERMINATE**

Yes - all*	1
Yes - some*	2
No (thank/terminate)	3

COMMENTS: .....



## B: Household Structure

SAMPLE NO:

N					
---	--	--	--	--	--

Q1. INTRO/'LINK' (COMPONENTS: 'OKAY'; FEW DETAILS ABOUT H'HOLD NOW; THEN ASK ABOUT EACH PERSON'S FISHING/ETC; SO) ... **could you tell me all the people who usually live there, starting with the head of the household (or the oldest person)?** (INTERVIEWER: PROBE AS INSTRUCTED AND RECORD BELOW; NAMES NOT NEEDED, BUT HELPFUL; ENSURE ALL CHILDREN/INFANTS RECORDED)

PERSON NO:	1	2	3	4	5	6	7	8	9
(a) NAME/IDENTIFIER (not punched)									
(b) What was ... age last birthday?	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
(c) SEX									
Male	1	1	1	1	1	1	1	1	1
(observation) Female	2	2	2	2	2	2	2	2	2

Q2. (And are any of these people staying away at present?) (\*IF YES, PROBE WHETHER RETURNING BEFORE END SCREENING – IF YES, INCLUDE; OTHERWISE EXCLUDE THROUGH Q4 BELOW ('OUT' OF SURVEY))

Yes (probe*)	1
No	2

Q3. (And) is anyone else staying with your household (at present)? (\*IF YES, PROBE WHETHER RETURNING TO USUAL RESIDENCE BEFORE END SCREENING – IF YES, EXCLUDE; OTHERWISE, INCLUDE [UNLESS 'UR' OF 'NPD' OR O'SEAS] AND AMEND Q1(a)-(c) ABOVE)

Yes (probe*)	1
No	2

Q4. IN SURVEY?

(Age 5 or more	Yes	1	1	1	1	1	1	1	1
& per Q2 and 3)	No	2	2	2	2	2	2	2	2

- SG5. • FOR EACH RESPONDENT 'IN SURVEY' (CODE 1 IN Q4), GO TO SECTION C  
• FOR ALL OTHER RESPONDENTS, NO MORE QUESTIONS

## C: Past And Future Fishing (respondents 'in survey' only)

PERSON NUMBER: (TRANSCRIBE FROM SECTION B)		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Q1. BRIEFLY EXPLAIN SURVEY TO ANY 'NEW' RESPONDENTS; RECORD PERSONAL/PROXY INTERVIEW; IF ANY Q'NS 1-9 ALREADY KNOWN PER SECTION A, QUICKLY CONFIRM/RECORD	Personal	1	1	1	1	1	1
	Proxy	2	2	2	2	2	2
Q2. Thinking back over the last 12 months ... have you done any recreational fishing at all in NSW (or the ACT) ... whether you caught anything or not?	Yes	1	1	1	1	1	1
	No	2	2	2	2	2	2
Q3. (And during this time, have you done/ ... or) any other kind of recreational fishing in NSW (or the ACT) like crabbing, prawning, spearfishing ... or even collecting oysters or aquarium fish?	Yes	1	1	1	1	1	1
	No	2	2	2	2	2	2
Q4. (And during the last 12 months) ... have you done any kind of recreational fishing in another state or territory ... or crabbing, prawning, etc (again, whether you caught anything or not)?	Yes	1	1	1	1	1	1
	No	2	2	2	2	2	2

*Section C ... continued*

PERSON NUMBER:

--	--	--	--	--	--

- SG5. • IF FISHED/ETC. IN PREVIOUS 12 MONTHS (CODE 1 IN Q'S 2, 3 OR 4), GO TO Q6  
 • OTHERWISE, GO TO Q7

**Q6. (And) during the last 12 months, on how many separate days did you do any kind of recreational fishing, (crabbing, etc. in Australia)? Would you say ... (READ OUT UNTIL TERMINATED)**

Less than 5 days?	1	1	1	1	1	1
5 to 9 (days)?	2	2	2	2	2	2
10 to 14 (days)?	3	3	3	3	3	3
15 to 19 (days)?	4	4	4	4	4	4
20 or more (days)?	5	5	5	5	5	5

**Q7(a) (And) during the last 12 months, did you hold a recreational fishing licence of any kind ... in any state of Australia?**

Yes	1	1	1	1	1	1
No (go to Q8)	2	2	2	2	2	2

**(b) (And) did you hold more than one type of (recreational fishing) licence (in the last 12 months)?**

Yes	1	1	1	1	1	1
No	2	2	2	2	2	2

**(c) INTERVIEWER: PROBE FOR EACH STATE AND LICENCE TYPE/S HELD**

NSW	Inland	1	1	1	1	1	1
VIC	General RFL	1	1	1	1	1	1
	Inland Netting	1	1	1	1	1	1
WA	Abalone	1	1	1	1	1	1
	Rock Lobster	1	1	1	1	1	1
	Net	1	1	1	1	1	1
	Marron	1	1	1	1	1	1
	SW Freshwater	1	1	1	1	1	1
SA	Rock Lobster	1	1	1	1	1	1
	Net	1	1	1	1	1	1
TAS	Inland	1	1	1	1	1	1
	Sea Fishing	1	1	1	1	1	1

Other (specify): .....

**Q8(a) (And) are you a (current) member of a recreational fishing or diving club ... or association?**

Yes	1	1	1	1	1	1
No (go to Q9)	2	2	2	2	2	2

**(b) (And) are you a member of more than one club (or association)?**

Yes	1	1	1	1	1	1
No	2	2	2	2	2	2

**(c) INTERVIEWER: PROBE FOR FULL NAME AND LOCATION OF EACH CLUB/ASSOCIATION**

.....		.....		.....		.....		.....		.....	

**Q9. (And) thinking about the coming 12 months, how likely is it that you will do any kind of recreational fishing, crabbing, etc? Would you say ... (READ OUT UNTIL TERMINATED; \*UNSURE' NOT VALID AS PROXY RESPONSE, ARRANGE PERSONAL INTERVIEW/ CALL-BACK ETC)**

Very likely?	1	1	1	1	1	1
Quite likely?	2	2	2	2	2	2
Not very likely?	3	3	3	3	3	3
Not at all likely?	4	4	4	4	4	4
UNSURE*	5	5	5	5	5	5

- SG10. • IF FIRST RESPONDENT FOR H'HOLD, COMPLETE SECTION C FOR OTHER HOUSEHOLD MEMBERS BY PROXY, WHERE APPROPRIATE, THEN GO TO Q1, SECTION D  
 • OTHERWISE, GO TO SG9, SECTION D

## D: Boats (household basis)

Q1(a) (And) do you/does anyone in your household own a boat of any kind ... including canoes, jet skis ... or commercially-used boats? (INCL. PARTIAL/CORPORATE OWNERSHIP, IF ASKED; ALERT 'GUNWALE' RULE/EXCLUDE PADDLE SKIS, WINDSURFERS ETC)

Yes	1
No (go to SG9)	2

(b) (And) do you/does your household own more than one boat?  
(INCLUDE PARTIAL OR CORPORATE OWNERSHIP IF ASKED)

Yes	1
No	2

Q2. INTERVIEWER: PROBE TO IDENTIFY NUMBER AND TYPE/S OF BOATS OWNED WHOLLY OR PARTLY BY HOUSEHOLD MEMBERS OR ANY IN-SCOPE VISITOR

BOAT NUMBER	1	2	3	4
BOAT/IDENTIFIER (not punched)	.....			

Q3. (And) is this .... owned mainly by (a) member/s of this household ... or (mainly) by someone else? (IF QUERIED, EXPLAIN 'DOUBLE-COUNTING' PROBLEM; IF EQUAL SHARE, APPLY 'ALPHA' RULE; BANKS, FINANCE COYS ETC. NOT VALID FOR 'OTHER')

Wholly/mainly owned by h'hold	1	1	1	1
Other (go to next boat/SG9)	2	2	2	2

Q4. (And) how long is the .... in metres or feet?  
(‘OVERALL’ LENGTH, EXCLUDING BOWSPRIT ETC;  
NOT WATERLINE; ROUNDED WHOLE METRES/FEET)

<div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> <div style="border-right: 1px solid black; width: 15px;"></div> <div style="width: 15px;"></div> </div>	m	<div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> <div style="border-right: 1px solid black; width: 15px;"></div> <div style="width: 15px;"></div> </div>	m	<div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> <div style="border-right: 1px solid black; width: 15px;"></div> <div style="width: 15px;"></div> </div>	m	<div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> <div style="border-right: 1px solid black; width: 15px;"></div> <div style="width: 15px;"></div> </div>	m
f		f		f		f	

Q5. (And) is the .... mainly propelled by a motor (of any kind), sail, or ... is it a row boat or canoe? (IF NEEDED, PROBE TO IDENTIFY/CODE JET SKIS [PWC'S])

Power - jet ski	1	1	1	1
Power - all other	2	2	2	2
Sail	3	3	3	3
Row/paddle	4	4	4	4

Q6(a) (And) has the .... been used at all for recreational fishing/crabbing etc during the last 12 months?

Yes	1	1	1	1
No (go to next boat/SG9)	2	2	2	2

(b) (And) in the past 12 months has the ... been used for any other purpose, like water skiing or picnicking? (IF NO, INSERT 100%; IF YES, ASK ...) So, thinking of all the times that the boat was used in the last 12 months ... what proportion (of these times) would have been for recreational fishing, crabbing etc? (PROBE FOR %, FRACTION, 'N' OUT OF 10 DAYS AS APPROPRIATE)

.....%	.....%	.....%	.....%
--------	--------	--------	--------

(c) (And) what is the approximate current market value of the ... including any motor, trailer, etc? ... What do you think you would get for it, if you sold it now ... as a private sale through the newspapers/etc.? (NOT 'RETAIL' PRICE/REPLACEMENT COST; BEST ESTIMATE/NEAREST \$'000)

\$ .....	\$ .....	\$ .....	\$ .....
----------	----------	----------	----------

Q7. (And) in the last 12 months, was the ... mainly kept on (READ OUT UNTIL TERMINATED) a trailer?... a mooring or marina? ... or was it used as a car topper? ... or (directly) from the shore?

Trailer	1	1	1	1
Mooring/marina	2	2	2	2
Car topper	3	3	3	3
Shore-based	4	4	4	4

Q8(a) (And) does the ... have an echo sounder? ('FISH FINDER' OR 'SONAR')

Yes	1	1	1	1
No	2	2	2	2

(b) or a GPS? (GLOBAL POSITIONING SYSTEM)

Yes	1	1	1	1
No	2	2	2	2

- SG9. • IF NO HOUSEHOLD FISHING ACTIVITY, I.E. THOSE SEQUENCED DIRECTLY TO SECTION D FROM SECTION A, GO BACK TO Q6(a), SECTION A
- IF ANY INTENDING FISHER (CODE 1 OR 2 IN Q9, SECTION C), GO TO SECTION E
- OTHERWISE, GO TO SECTION F

### E: Diary Survey Invitation (all intending fishers)

**Q1(a) EXPLAIN TO MAIN/EACH FISHER AS APPROPRIATE: As you can see, the survey (we've just done) will provide valuable information about the number of people who fish, own boats etc ... but to get a more complete picture on recreational fishing, we'd like your help with the second stage of our survey ... in which we're asking people about their fishing (crabbing etc) over the next 12 months. (Don't worry) it's not hard and it doesn't take much time to do. What happens is ... we send you out a survey kit ... and I'll call you every now and then to get information about any fishing (crabbing etc) that you might do.**

**(b) Would you be willing to take part in the survey?** (STRONGLY ENCOURAGE; AT LEAST LOOK OVER THE SURVEY KIT BEFORE DECLINING; VERY EASY/INTERESTING; IMPORTANT INFO. FOR SCIENTISTS - WHETHER YOU FISH A LOT OR A LITTLE; COMPLETELY CONFIDENTIAL SURVEY)

PERSON NUMBER OF INTENDING FISHER:

--	--	--	--	--	--

Yes

1

No (Go to Section F)

2

UNSURE (BUT KIT  
TO BE SENT)

3

Q2. INTERVIEWER: PROBE FOR NAMES. MAIL DETAILS FOR KIT DESPATCH AS INSTRUCTED & RECORD BELOW

(a) NAMES FOR DIARIES (IF NOT IN SECTION B) .....

(b) MAIL DETAILS (CIRCLE TITLE; INSERT 'UPDATES' ONLY (E.G. FIRST NAME): IF ALL OTHER DETAILS AS PER SECTION A, INSERT 'SAME')

Name: Mr/Ms/Mrs/Miss .....  
(Initials/First Name) ..... (Surname/Family Name) .....

Address: .....

Suburb/Town: ..... State: ..... Postcode: .....

**Q3. THEN EXPLAIN: you should receive your survey kit by ..... soon after that I'll call you to quickly run through it all with you. Are we likely to catch you then/that week/etc .... (PROBE: BEST TIME TO CALL/AWAY INFORMATION; THEN CONFIRM ARRANGEMENT - AVOID FIRM APPOINTMENTS)**

BTC/AWAY INFO: .....

INTERVIEWER NOTES: .....

.....

.....\*

.....

---

## F: Socio-demographics (respondents 'in survey' only)

- SG1. • IF AGED 15 YEARS OR MORE, GO TO Q2  
• OTHERWISE, GO TO Q4

PERSON NUMBER

--	--	--	--	--	--

Q2(a) INTRO: A FEW FINAL Q'NS TO ENSURE GOOD/ REPRESENTATIVE SAMPLE (And) which of the following categories best describes what you currently do? (READ OUT UNTIL TERMINATED & PROBE AS INSTRUCTED)

Full-time work in a job or business?  
Part-time or casual work (in a job or business)?  
Full-time student?  
Looking for work?  
Retired or age pensioner? (go to Q3)  
Other pensioner?  
HOME DUTIES  
OTHER (SPECIFY)

1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8

(b) (And) what kind of work do you do? (MAIN JOB, IF MORE THAN ONE; PROBE/ CLASSIFY AS INSTRUCTED)

Managers  
Professionals  
Technicians and associate professionals  
Tradespersons  
Production, plant and transport operators  
Clerical, sales and service - advanced /intermediate  
- elementary  
Labourers, process workers, cleaners etc.  
Other (specify)

1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9

Q3. (And) what is the highest level of education that you have reached so far? (PROBE/ CLASSIFY AS INSTRUCTED)

<Junior High (or <15 yrs)  
Gained Junior (or >14 yrs)  
Gained HSC/matriculation  
Trade/etc qualification  
Degree/diploma

1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5

Q4. (And) do you/any of these people speak a language other than English at home? (IF YES, PROBE FOR LANGUAGE - MAIN, IF MORE THAN ONE 'LOTE')

No (go to Q5)  
Italian  
Greek  
Cantonese  
Mandarin  
Vietnamese  
Arabic  
Other (specify)

1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8

--	--	--	--	--	--

Q5. (And) are you/any of these people of aboriginal or Torres Strait Islander origin?

Yes  
No

1	1	1	1	1	1
2	2	2	2	2	2

Q6. THANK AND TERMINATE: FOR DIARY SURVEY PARTICIPANTS ... CLOSE WITH BRIEF REMINDER RE NEXT CALL; IMPORTANT: THEN STAPLE THIS Q'AIRES TO SECTION A, COMPLETE RESPONSE REPORT ETC; AND TRANSCRIBE ALL HEADER INFO. TO DIARY SURVEY COVER SHEET - INCL. NAMES, BTC/AWAY INFO ETC.

**ATTACHMENT 12.9**

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***COVERING LETTER***





## SURVEY OF RECREATIONAL FISHING IN AUSTRALIA – 2000/01

Dear Sir/Madam,

As part of the Government's ongoing commitment to research and management of fisheries resources, the Fisheries Research Institute is conducting a major survey of recreational fishing during 2000/01. The survey is an Australia-wide project, involving all Commonwealth, State and Territory fisheries agencies. A range of important scientific information will be collected, including:

- the number of people who go fishing,
- how often they go fishing and in what regions,
- catch levels and success rates, and
- the economic importance of recreational fishing

Your participation in this survey is very much appreciated. A survey kit for your household is enclosed and a member of my research staff will contact you soon to fully explain the survey process. Our research team is very much aware of the burden that these kinds of surveys can place on people and consequently, the survey has been designed to make participation as easy as possible.

Also, please be assured that all information obtained through the survey will be treated in the strictest confidence. The answers you give will simply be added to the many thousands of others who have been randomly selected in the survey. At the conclusion of the survey, the results will be compiled on a regional, state and national basis - then all questionnaires will be destroyed.

If you have any questions about the survey, please discuss them with your interviewer. Alternatively, you may contact the State Manager, Gary Henry on 9527 8477. Again, thank you for your co-operation with this most important survey.

Yours sincerely,

**DR RICK FLETCHER**  
Director of Research

**NSW FISHERIES RESEARCH INSTITUTE**

202 Nicholson Parade — PO Box 21 Cronulla NSW Australia 2230  
Telephone: (02) 9527 8411 • Facsimile: (02) 9527 8576

## ATTACHMENT 12.10

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### *FISHING DIARY*



# SURVEY OF RECREATIONAL FISHING IN AUSTRALIA<sup>©</sup> – 2000/01

IN CONFIDENCE

Diary  
card  
for



- Please record brief details for **each time** you do any kind of recreational fishing ... whether you **catch anything or not**
- Include any crabbing, prawning, spearfishing, diving for other species or even collecting bait, shellfish, yabbies or aquarium fish.
- Please also record details of each time you buy anything to do with fishing ... like bait, tackle, fishing magazines, boat equipment/servicing, accommodation etc.
- Your survey period is from 1<sup>st</sup> May 2000 to 30<sup>th</sup> April 2001
- Any questions or problems? Please ask your interviewer next time he/she calls.

## 2000/01

### May

S	M	T	W	T	F	S
1	2	3	4	5	6	
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

### June

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

### July

S	M	T	W	T	F	S
30	31					1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

### August

S	M	T	W	T	F	S
1	2	3	4	5		
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

### September

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

### October

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

### November

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

### December

S	M	T	W	T	F	S
31						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

### January

S	M	T	W	T	F	S
1	2	3	4	5	6	
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

### February

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28			

### March

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

### April

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

WHEN & WHERE? • Date • Fishing location	TYPES OF FISHING? • Types/Methods used	TIMES? • Actual start and finish times • Any breaks?	CATCH ANYTHING?		COSTS? • \$ you spent- bait, tackle, maps, boat fuel, etc • for your car, kms travelled	
			Species (see booklet)	Number you caught and Kept Re-leased		
EXAMPLE 1  9 Jan Stuart River	Handline from jetty	Start    Finish    Breaks? 6.20   7.50    –	None	–	–	Bait \$3 12km in car
EXAMPLE 2  11 Jan Tackle Shop	Purchase only	Start    Finish    Breaks?				Lure \$8 Fishing mag \$4.50
EXAMPLE 3  7 Feb Wilson Harbour	Fishing for bait  Boat fishing	Start    Finish    Breaks? 5.45   6.10    – 6.30   8.20   30min	Mullet  Flathead Eel	8  1 –	–  2 1	Mate's boat & car used – I paid him \$20
START HERE		Start    Finish    Breaks?				
		Start    Finish    Breaks?				
		Start    Finish    Breaks?				
		Start    Finish    Breaks?				
		Start    Finish    Breaks?				

[illegible]

**WHEN & WHERE?**

- Date
- Fishing location

**TYPES OF FISHING?**

- Types/Methods used

**TIMES?**

- Actual start and finish times  
Any breaks?

**CATCH ANYTHING?**Species  
(see booklet)Number you caught and  
Kept Re-  
leased**COSTS?**

- \$ you spent - bait, tackle, maps, boat fuel, etc
- for your car, kms travelled

Start Finish Breaks?

Start Finish Breaks?

Start Finish Breaks?

Start Finish Breaks?

Start Finish Breaks?

Start Finish Breaks?

Start Finish Breaks?

Start Finish Breaks?

[illegible]

[illegible]

[illegible]

[illegible]



## **ATTACHMENT 12.11**

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### ***SPECIES IDENTIFICATION BOOKLET***

# The Survey of Recreational Fishing in Australia — 2000/01

## Fish Identification Guide



New South Wales

The majority of the marine fish images used in this guide are reproduced from either '**Sea Fishes of Southern Australia**' by Barry Hutchins and Roger Swainston or '**The Marine Fishes of North-Western Australia**' by Gerald R Allen and Roger Swainston

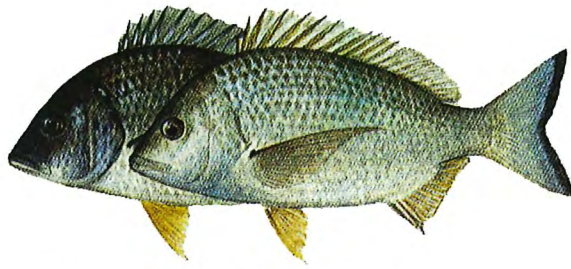


*Welcome to our Fish Identification Guide for the survey.*

*This guide will help you to identify the more common species that may be encountered during the survey. The marine fishes are shown first, followed by the freshwater species.*

*If you encounter a species which is not in the guide, or are unsure about a particular species, please discuss it with your interviewer.*

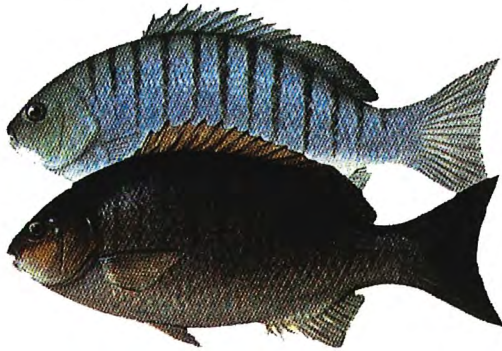
*The value of the survey will be enhanced by consistent and accurate species identification.*



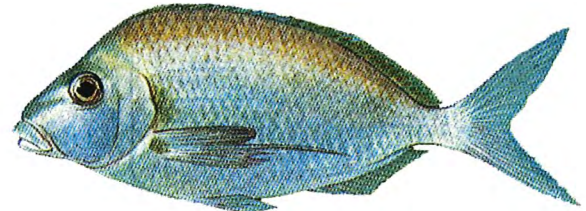
Bream / Yellowfin Bream



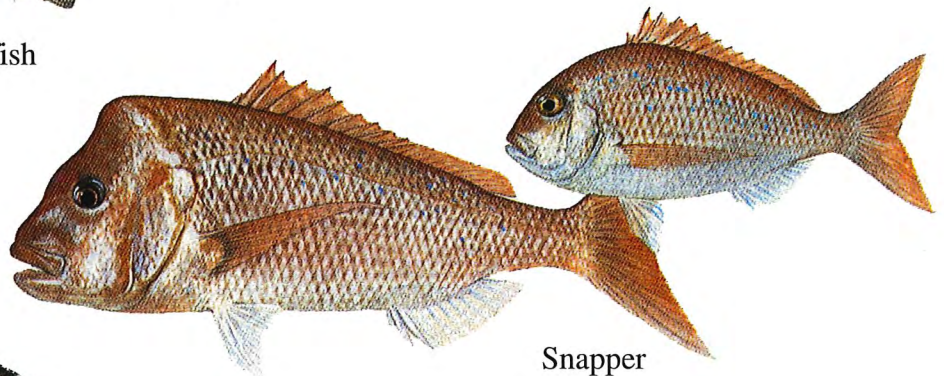
Tarwhine



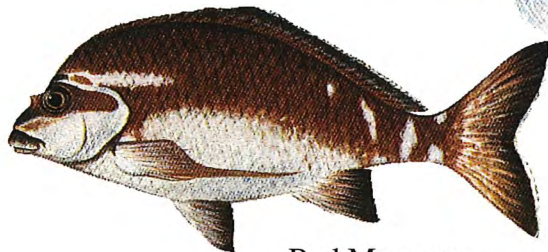
Luderick / Blackfish



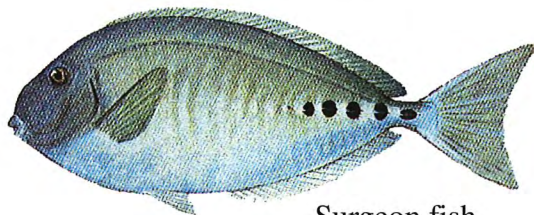
Blue Morwong



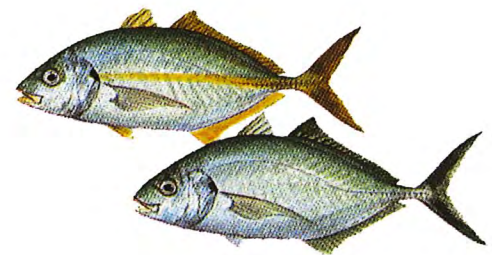
Snapper



Red Morwong



Surgeon fish



Silver Trevally

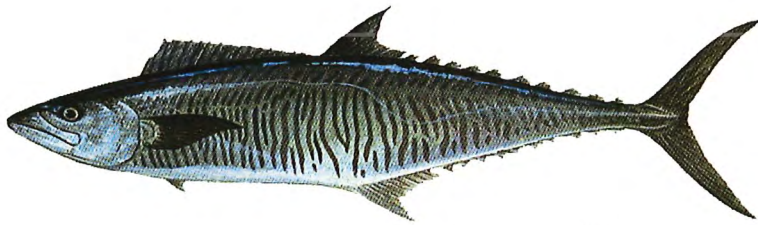


Sweep

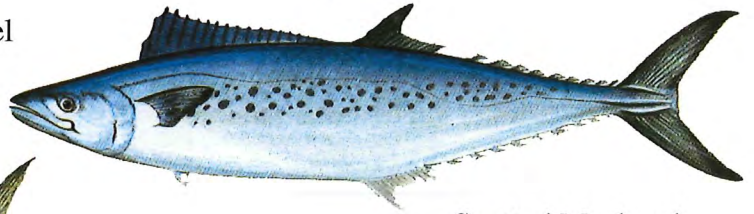


Silver Biddy

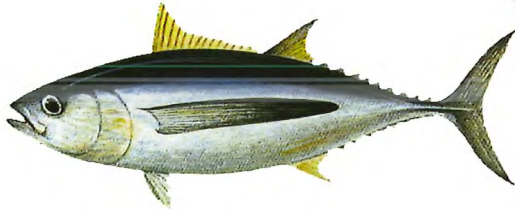




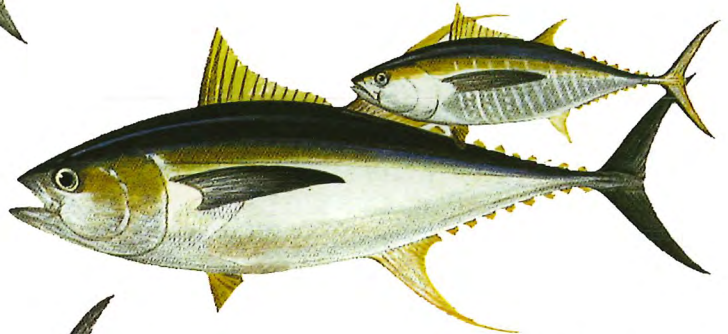
Narrow barred/Spanish Mackerel



Spotted Mackerel



Albacore Tuna



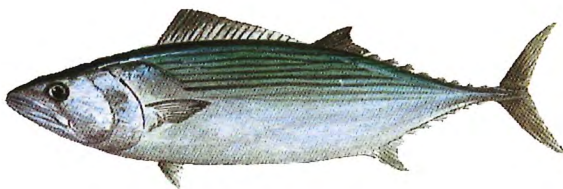
Yellowfin Tuna



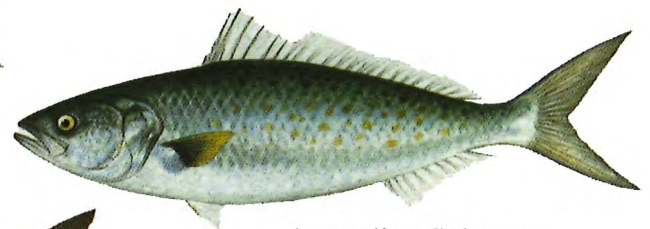
Mackerel Tuna



Striped Tuna / Skipjack



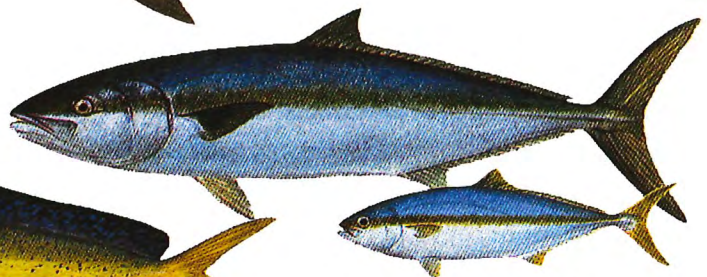
Bonito



Australian Salmon



Tailor

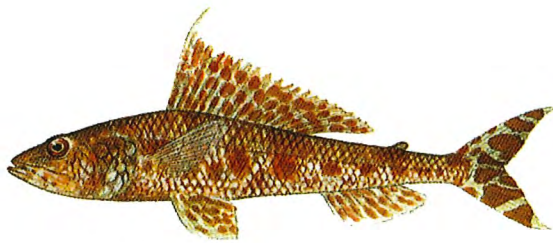


Kingfish



Dolphin fish / Mahi Mahi

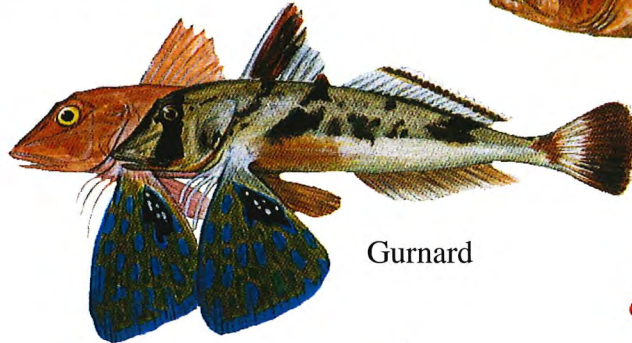




Sergeant baker



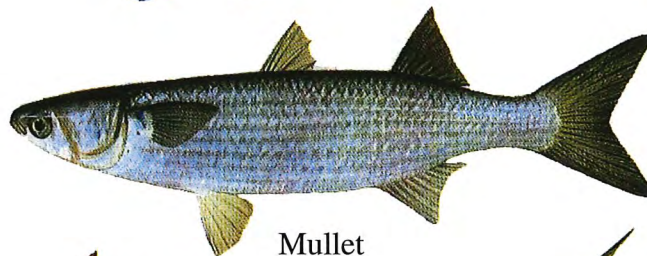
Red rock cod



Gurnard



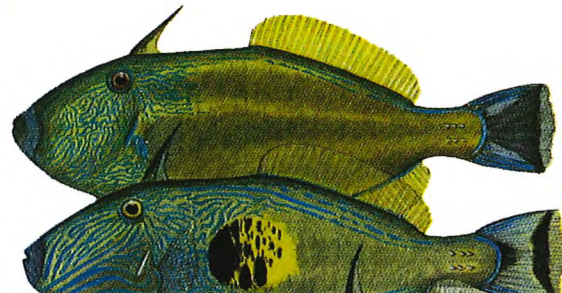
Nannygai / Redfish



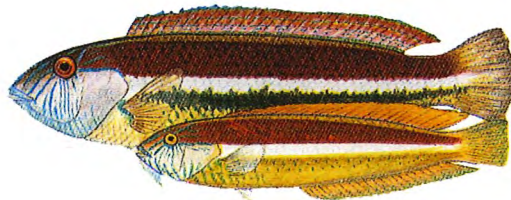
Mullet



Whiting



Leatherjacket



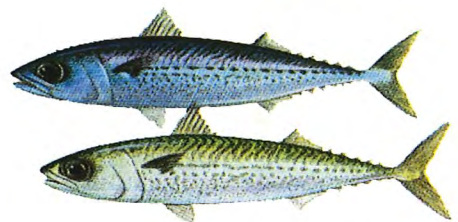
Wrasse



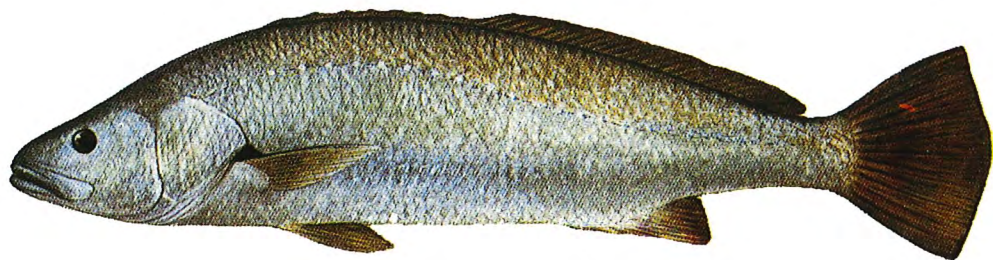
Slimy Mackerel



Yellowtail / Yakka



Mulloway / Jewfish



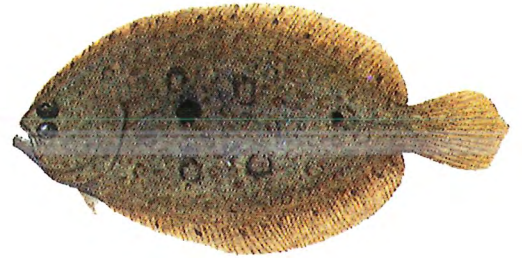




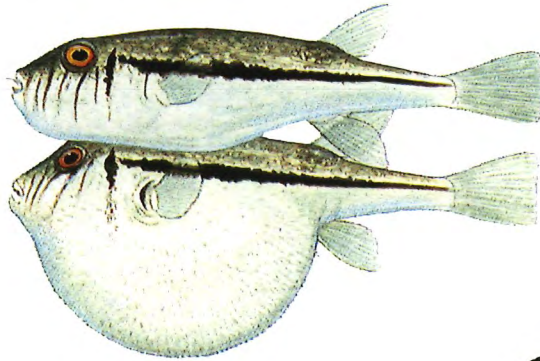
Dusky Flathead



Garfish



Flounder



Toad / Pufferfish



Australian Bass



Carp



Murray Cod



Golden Perch / Yellow bellie



Brown Trout



Rainbow Trout

## Image Credits

The majority of the marine species were taken from **‘Sea Fishes of Southern Australia’** by Barry Hutchins and Roger Swainston, and **‘The Marine Fishes of North-Western Australia’** by Gerald R Allen and Roger Swainston.

Other graphics were kindly supplied by Ken Graham, Jack Hannan, John Harris, John Matthews and Anne Coleman

Cover photo (fang tooth) by Ken Graham



**ATTACHMENT 12.12**

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***DIARY SURVEY EXPLANATION INTERVIEW***

BEFORE DIARY PERIOD STARTS, EXPLAIN TO MAIN/EACH FISHER AS APPROP. (ALERT\* SUB-SAMPLE #1)

**Q1. Good morning/etc ... from NSW Fisheries (ID INTENDING FISHERS) ... Did you receive the survey kit? Have you had a look through it? ... Have you got it there now? (THEN, AS APPROP...) All we want you to do is record brief details in your diary each time you do any kind of recreational fishing/crabbing etc during the next 12 months. It's quite simple and it only takes a minute, but please be sure to jot down every time you go fishing/crabbing etc ... whether you catch anything or not ... and any time you buy anything to do with fishing. I'll call you every now and then to get the information from you (over the phone).**

**Q2. The examples on the diary card show the information we need - but you don't have to write down every little thing you do, just the things you might not remember when I call. (E.G. IF FISHES IN SAME RIVER ALL THE TIME, NO NEED TO RECORD; WORK THROUGH EG'S AS APPROP.)**

**Example 1 - SHORE-BASED FISHING - RIVER**

- FISHED CONTINUOUSLY FROM 6.20 TO 7.50 ... ACTUAL START AND FINISH TIMES (LINES IN/OUT OF THE WATER, NOT TRAVEL TIME); WE NEED ACCURATE TIMES, BUT NOT TO THE MINUTE; NO NEED FOR AM/PM (UNLESS YOU CAN'T RECALL LATER)
- NOTHING CAUGHT/RELEASED - EXPLAIN: FAIRLY COMMON AND IMPORTANT TO MEASURE THIS
- SPENT \$3 ON BAIT AND TRAVELLED 12 KMS IN CAR (ROUND TRIP) ... EXPLAIN: PERSONALLY SPENT ON ANYTHING TO DO WITH FISHING/ETC ... INCLUDING FISHING TACKLE, ALL BOAT EXPENSES, ACCOMMODATION ON A TRIP, BUT NOT FOOD OR DRINK\*. FOR YOUR CAR ... WE JUST NEED THE KILOMETRES TRAVELLED\*

**Example 2 - PURCHASE ONLY**

- BOUGHT A LURE AND A FISHING MAGAZINE FROM A TACKLE SHOP

**Example 3 - TWO TYPES OF BOAT FISHING ON THE ONE DAY**

- FIRST FISHED FOR BAIT (5.45 TO 6.10) AND GOT 8 MULLET - EXPLAIN: PERSONALLY CAUGHT; MAIN SPECIES ARE IN THE GUIDE - AND FOR SOME, WE'RE ONLY AFTER SPECIES GROUPS (GIVE E.G. FOR YOUR STATE)
- THEN FISHED FROM 6.30 TO 8.20, BUT HAD 30 MINS (IN TOTAL) OF BREAKS FROM FISHING ... PERHAPS MOVED TO DIFFERENT SPOTS - WE JUST WANT TOTAL BREAKS HERE. NOT SMALL BREAKS (5 MINS)
- CAUGHT AND KEPT 1 FLATHEAD, RELEASED 2 OTHERS AND AN EEL. (AGAIN, PERSONALLY)
- COSTS - BECAUSE MATE'S CAR AND BOAT USED, WE ONLY NEED AMOUNT PAID TO HIM

THEN EXPLAIN: The diary is to help you remember and we don't see it or get it back from you. Also, you may prefer to use your own codes and abbreviations ... really it's whatever works best for you. But please ensure that you record times and daily catch details for each different type of fishing that you do ... including crabbing, prawning, spearfishing ... or even collecting oysters or aquarium fish.

**Q3. The survey starts on the first of May ... do you have any fishing trips planned for next month? (MAKE APPOINTMENT FOR ASAP AFTER TRIP [ALERT\* SUB-SAMPLE #1]; OTHERWISE '2-3 WEEK RULE' INITIALLY; MONTHLY CALLS LATER IF APPROP). By the way, the aim of the survey is to measure what people normally do ... so, we don't want you to go fishing any more or any less often than you normally would have done during this time.**

**Q4. (CLOSE INTERVIEW NOW - OR IF APPROPRIATE, ASK:) (And) if I couldn't contact you on this number, is there another number I could get you on? (RECORD ON FRONT PAGE, WORK PHONE NOT USED UNLESS REQUESTED). And if for some reason, I couldn't contact you (on either of these numbers), could you give me the name and phone number of someone who would know how to contact you? (RECORD ON FRONT PAGE; EXPLAIN AS APPROP. - DOESN'T HAPPEN OFTEN, BUT IN SURVEYS COVERING A PERIOD OF TIME, SOMETIMES PEOPLE MOVE UNEXPECTEDLY)**

**NOTE\*: IF SUB-SAMPLE #1, MODIFY ABOVE AS APPROP: FOR MAY AND JUNE ONLY - ALSO NEED ANY FISHING ACTIVITY/EXPENDITURE BY 'OTHERS' IN HOUSEHOLD, PLUS FOR ALL, ANY EXPENDITURE ON FOOD/DRINK AND VEHICLE FUEL/REPAIRS ETC. (>40KMS FROM HOME AND FISHING-RELATED TRIP)**

## **ATTACHMENT 12.13**

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### ***WORKLOAD CONTROL SHEET (DIARY SURVEY)***

## SURVEY OF RECREATIONAL FISHING IN AUSTRALIA - 2000/01

IN CONFIDENCE

**DIARY SURVEY WORKLOAD CONTROL SHEET<sup>®</sup>**

Interviewer: Name

Page; 1 of 1

[illegible]

**Monthly Status Codes:** Y - at least one fishing/\$ event; NA - No activity (fishing/\$); NP - No fishing plans; NC - Non-contact; AW - Away; S - Sick

## ATTACHMENT 12.14

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### *DIARY SURVEY COVER SHEET*





## B: Diary Interviews

**N.B. PROXY INTERVIEWS TO BE CONFINED TO CHILDREN OR DEFINITE CASES OF NIL/JOINT ACTIVITY**

### 1. IDENTIFICATION OF DAYS/DATES

- YOUR SURVEY PERIOD STARTED/LAST TIME WE SPOKE WAS ... (**ALERT:** 'CURRENT' SUB-SAMPLE NO. – ANY FISHING/EXPENDITURE BY 'OTHERS' IN HOUSEHOLD; ALSO ALERT 'OPEN' EVENTS FROM PREVIOUS CONTACT)
- Since then, have you done any kind of recreational fishing/crabbing etc ... including any days when you didn't catch anything? (PROBE/STORE NO. OF SEPARATE DAYS)
- (And, apart from this/these) have there been any other days when you bought something to do with fishing ... even a fishing magazine? (PROBE/STORE DAYS)
- IF ONE FISHING DAY ONLY, GO TO PART 2 BELOW
- (IF MORE THAN ONE FISHING DAY) ... So where did you go fishing/etc on these days? Did you fish/etc anywhere else during this time? (PROBE/STORE REGION INFO/SPLITS ETC). (And) did you fill out your diary card for each of these days? Have you got it there? (NOW GO TO PART 2 BELOW)
- IF NO EVENT, GO TO PART 3

### 2. FOR EACH DATE/EVENT (CHRONOLOGICAL ORDER USUALLY; KEY PROBE: What did you do first/next?)

*Q'n No:*

- 2 So (that/the first/the next) day was ... ? (RECORD START DATE OF EACH EVENT; IF END DATE DIFFERENT, INSERT NUMBER OF ADDITIONAL DAYS [PASSIVE GEAR USUALLY] - LEAVE BLANK IF SAME; **SPLIT EVENT** FOR EACH SEPARATE DAY UNLESS PASSIVE GEAR OR OTHER CONTINUOUS FISHING THROUGH MIDNIGHT)
- 4 (And did you fill out your diary card for this day? Have you got it there?) (**NO SPLIT EVENT**)
- 5,6 What did you do that day? (\$ ONLY EVENTS. GO TO Q13; IF FISHING EVENT, ASK:) (Where did you go fishing/etc that day? Did you fish/etc anywhere else that day?) (PROBE/CLASSIFY REGION NO. FROM MAP; NEAREST 'LANDMARK' FOR OBSCURE LOCALITIES; **SPLIT EVENT** IF DIFFERENT REGIONS)
- 7 (IF SUB-REGION NOT EVIDENT) So where in ... (REGION) were you fishing? (PROBE AND APPLY ...)  
- CODE 1 VS 2: OCEAN WATERS > OR < 5KM SEAWARD (RESPONDENT PERCEPTION) FROM THE MAINLAND OR ISLAND (IF SEPARATE REGION)  
- CODE 2 VS 3: REFER 'AREA' INSTRUCTIONS FOR SPECIAL CASES - ESTUARY BOUNDARIES  
- CODE 3 VS 4: MAJOR COASTAL RIVERS - REFER 'AREA' INSTRUCTIONS FOR MARINE/FRESH BOUNDARIES ... Were you fishing/etc between (SPECIFIC LANDMARK) and the mouth?; MINOR COASTAL RIVERS ASK: Were you fishing/etc in saltwater or fresh? (RESPONDENT PERCEPTION) THEN ASK: Did you fish anywhere else that day in ... (REGION)? (**SPLIT EVENT** IF DIFFERENT SUB-REGIONS; 'MAINLY' RULE FOR TRUE BORDERLINE CASES, WHERE SEPARATE CATCH AND EFFORT DATA IMPRACTICAL)
- 8,9a (And) what kind of fishing/etc did you do that day? Any others? (INITIAL PROBE FOR TARGET/METHOD SPLITS, THEN AS APPROP ASK:) Were you fishing for anything in particular or not? Anything else? (PROBE FOR AND RECORD MAIN/2ND MAIN TARGET AS APPROP; CODES 'W' AND 'X' FOR MARINE [MAINLY SUB-REGION CODES 1 AND 2]; **SPLIT EVENT** IF INITIAL TARGETING CODE/S CHANGE)
- 9a (And) did you use lures, bait ... (or both)? (PROBE ALL OTHER METHODS AS REQUIRED; **SPLIT EVENT** IF MORE THAN ONE CODE, BUT NOT IF JUST CODES 1 AND 2 [USE 3] OR 13 AND 14 [USE 15])
- 9b (IF POTS OR NETS [CODES 5,6,9 OR 10 IN Q9A], ASK:) (And) how many pots/etc did you use (that day)? (**SPLIT EVENT** IF NUMBER OF POTS OR NETS CHANGED)
- 9c (IF DRAG/SEINE NET [CODE 8 IN Q9A], ASK:) (And) how many times did you haul the net?

## B: Diary Interviews ( .... continued)

### Q'n No:

- 9d (IF EFFORT SHARING POSSIBLE PER Q9A/B/C, ASK:) (And) how many people were actually fishing/etc with you? (PROBE AND RECORD NUMBER ACTUALLY 'INVOLVED' [INCL. ANY NON-DIARISTS]; AMEND Q'S 1 AND 9B AS APPROP; AND ALERT Q12 FOR SHARED CATCH)
- 10a (And) did you fish from a boat or the shore (... or both)? (NO SPLIT EVENT)
- 10b (IF BOAT PER Q10A, ASK:) (And) whose boat was it? (PROBE FURTHER AS APPROP: CHARTER = SKIPPED, HIRE = NOT; SPLIT EVENT IF BOAT TYPE DIFFERENT)
- 10c (IF SHORE PER Q10A, AND (i) OCEAN WATERS [SUB-REGION = CODE 1 OR 2], ASK:) (And) did you mainly fish from a beach, rock platform or some kind of man-made structure (e.g. breakwall)? (OR (ii) SUB-REGION > CODE 2, ASK:) Did you mainly fish from a man-made structure of some kind (e.g. a wharf or breakwall) or from the natural shore (e.g. a beach or river bank)? (NO SPLIT EVENT)
- 11 (And) when did you actually start fishing/etc .... (that day/for/etc)? (LINES/ETC IN THE WATER) (And) when did you finish? (LINES/ETC OUT OR LAST CHECK, IF CONTINUOUS PASSIVE GEAR USED; [IF LAST EVENT FOR THIS CONTACT INCOMPLETE, FLAG 'OPEN EVENT' IN COMMENTS) (And) during this time, did you have any breaks from fishing/etc? (RESPONDENT OR GEAR; PROBE/ADD/RECORD)
- 12 (And) did you (yourself) catch anything (that day) ...? (PROBE NUMBER CAUGHT AND KEPT BY SPECIES; CARE WITH SHARED CATCHES/JOINT EFFORT). Are you certain that's what it was/they were? (THEN ASK:) Did you (personally) catch anything else (that day) that you released? (PROBE NUMBER CAUGHT AND RELEASED BY SPECIES; IF ASKED, INCLUDE DEAD/DAMAGED RETURNS)
- 13 (IF FISHING EVENT [CODE 2 IN Q5] ASK:) (And) did you buy anything to do with fishing (that day)? (F) (Anything else?) ... (ACTUAL 'PERSONAL' EXPENDITURE, INCLUDING ON BEHALF OF OTHERS, THEN PROBE AS APPROP FOR 'OBVIOUS' ITEMS PERHAPS NOT INCLUDED ...) (Did you use your car?/ How did you get there?) (KMS TRAVELLED – ROUND TRIP) ... (AND OWN BOAT USAGE/FUEL PURCHASE; ACCOM. FOR AWAY TRIPS) (ALERT: IF 'CURRENT' SUB-SAMPLE NO., ASK AS APPROP) And did you travel more than 40 kilometres away from your home (on this trip)? (IF YES, PROBE ASK:) Did you buy any food or drink ... or any fuel, oil or other expenses for your car/etc (more than 40 kms etc)?
- 13 (IF \$ ONLY EVENT [CODE 1 IN Q5] ASK:) What did you buy? Did you buy anything else to do with (\$) fishing that day? (Anything else?) ... (ALERT AS ABOVE, PLUS SPECIAL TRIPS/COSTS FOR PURCHASE)
- 13 (%) AFTER ALL EXPENDITURE RECORDED FOR THAT DAY/CONTACT, PROBE FOR PROPORTION OF EACH ITEM ( > CODE 4 ) ATTRIB. TO REC. FISHING: So, of the ('N' \$ FOR .../KMS/ETC), what proportion would you say was attributable to fishing ... (as opposed to any other things that you, or someone with you, did that day/etc?) (IF QUERIED, PROMPT WITH ... ) For example, you might have gone water skiing or bushwalking ... or someone went with you that day, but didn't go fishing. (PROVIDE EARLY BRIEFING TO EACH FISHER AND REMIND DURING SURVEY, AS APPROP)
- 14 AFTER ALL EXPENDITURE RECORDED FOR THAT DAY/CONTACT, PROBE LOCATION (AS APPROP) Where did you buy ...? (OR) Was any of this expenditure made outside of ... (HOME/FISHING 'EZONE')? IF ALL IN 'HOME EZONE', CODE 1; IF ALL IN ANOTHER 'EZONE', CODE 2 AND RECORD ZONE IN 1<sup>ST</sup> BOX; OTHERWISE, RECORD RELEVANT ITEM CODES FROM Q13 (AS APPROP) TO - HOME, 1<sup>ST</sup> AND 2<sup>ND</sup> OTHER EZONE – (SPLIT EVENT IF MORE THAN TWO 'AWAY' ZONES)

### 3. AFTER LAST EVENT RECORDED

- (And) do you have any fishing trips planned for the next two-three weeks? (MAKE APPOINTMENT AS APPROP; IF NO PLANS, 'TWO-THREE WEEK' RULE INITIALLY, BUT MONTHLY [OR MORE] IF REQUIRED LATER IN DIARY PERIOD; ALERT 'OPEN EVENTS' FOR NEXT CONTACT)
- ALERT: IF LAST CONTACT BEFORE SUPPLEM. SURVEY STARTS, EXPLAIN AS APPROP – FOR NEXT 2 MONTHS (NAME THEM), SOME EXTRA INFO. NEEDED: (i) ANY FISHING ACTIVITY/EXPENDITURE BY 'OTHERS' IN H'HOLD (NAME THEM), PLUS FOR ALL ... ANY EXPENDITURE ON FOOD/DRINK AND VEHICLE FUEL/REPAIRS ETC (>40KMS FROM HOME AND FISHING-RELATED TRIP)



### C: Additional Calls/Appointments/Interviewer Notes

[illegible]

**ATTACHMENT 12.15**

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***EVENT SHEET***

## SURVEY OF RECREATIONAL FISHING IN AUSTRALIA - 2000/01

IN CONFIDENCE

EVENT SHEET® (NSW)

Sample No:

N					
---	--	--	--	--	--

Event Number:

## 1. Person Numbers:

--	--	--	--	--

## 2. Start date

(Day/Mth)

 / 

End (if diff, plus ...)

## 3. Personal/proxy

Personal (all) 1  
Proxy (incl. partial) 2

## 4. Diarised data

Yes (all) 1  
No (incl. partial) 2

## 5. Event Type (split)

\$ only (go to Q13) 1  
Fishing 2

## 6. Fishing Region (split)

## 7. Sub-region (split)

Offshore (>5km) 1  
Inshore (<5km) 2  
River/estuary (marine) 3  
River/stream (fresh) 4  
Lake/dam (fresh) 5  
- public 5  
- private 6  
Other (specify) 7

## 8(a/b) Targeting (split)

Species/group Main 2nd

--	--

No specific target

- surface/pelagic w w  
- bottom/demers. x x  
- all other y y

No 2nd target z

## 9(a) Method (split/\*go Q10)

Lines - bait\* 1  
Lines - lure/jig/fly\* 2  
Lines - both\* 3  
Lines - set (passive)\* 4  
Pot/trap - pass. (go b,d) 5  
Pot/trap - act. (go b,d) 6  
Net - cast\* 7

Net - drag/seine (go c,d) 8  
Net - gill/set (go b,d) 9  
Net - scoop/push (go b,d) 10  
Spearfishing - diving\* 11  
Other spearing - surface\* 12  
Other diving  
- scuba/surf. air\* 13  
- snorkel\* 14  
- both\* 15  
Hook/pump/rake/spade\* 16  
Other hand collecting\* 17  
Other (specify)\* 18

## (b) No. of Pots/Nets

## (c) No. of Hauls/etc

(d) No. of persons  
(shared effort only)

## 10(a) Platform

Boat 1  
Shore (go to c) 2  
Both 3

## (b) Boat type (split)

Private (if Q10a = 1, 1  
Hire go to Q11) 2  
Charter 3

## (c) Shore type (main)

Ocean beach (Q7 < 3) 1  
Ocean rocks (Q7 < 3) 2  
Man-made structure 3  
Other shore (Q7 > 2) 4

## 11. Times

Start (24 hr. clock) :  
Finish (24 hr. clock) :  
Breaks (hrs & mins) :

## 12. Catch

SPECIES No. caught & Kept/released  
Bream-all 14 ...../.....  
Cod-red rock 30 ...../.....  
Dolphin fish 37 ...../.....  
Flathead-all 60 ...../.....  
Flounder/sole-all 61 ...../.....  
Garfish-all 65 ...../.....  
Gurnard-all 73 ...../.....  
Kingfish-y'tail 84 ...../.....  
Leatherjacket-all 87 ...../.....  
Luderick/blackfish 91 ...../.....  
Mackerel-slimy 92 ...../.....

Mackerel-spanish 94 ...../.....  
Mackerel-spotted 96 ...../.....  
Mackerel-unsp 100 ...../.....  
Morwong-blue 108 ...../.....  
Morwong-red 111 ...../.....  
Mullet-all 117 ...../.....  
Mulloway/jewfish 118 ...../.....  
Rays/skates-unsp 131 ...../.....  
Redfish/nannygai 132 ...../.....  
Salmon-aust. 136 ...../.....  
Sergeant baker 143 ...../.....  
Shark-unsp 158 ...../.....  
Silverbiddy 159 ...../.....  
Snapper/squire 162 ...../.....  
Surgeon fish-all 172 ...../.....  
Sweep-all 175 ...../.....  
Tailor 177 ...../.....  
Tarwhine 178 ...../.....  
Toad/pufferfish 180 ...../.....  
Trevally-all 187 ...../.....  
Tuna-albacore 196 ...../.....  
Tuna-bonito 197 ...../.....  
Tuna-mackerel 198 ...../.....  
Tuna-skipjack 199 ...../.....  
Tuna-yellowfin 202 ...../.....  
Tuna-unsp 204 ...../.....  
Whiting-all 216 ...../.....  
Wrasse-all 221 ...../.....  
Yellowtail-scad 222 ...../.....  
Bass-aust. 224 ...../.....  
Carp 226 ...../.....  
Cod-murray 228 ...../.....  
Perch-gold/y'belly 231 ...../.....  
Trout-brown 242 ...../.....  
Trout-rainbow 243 ...../.....  
Trout-unsp 244 ...../.....  
Crab-blue/sand 249 ...../.....  
Crab-mud 250 ...../.....  
Crab-unsp 253 ...../.....  
Lobster-all 259 ...../.....  
Prawns-all 260 ...../.....  
Yabbies-fresh 263 ...../.....  
Yabbies/nippers 266 ...../.....  
Squid-all 285 ...../.....  
Small baitfish 299 ...../.....

NIL CATCH/RELEASE x

## 13. Expenditure

ITEM	Cost \$	Prop. %
Tackle - capital 1	...../.....	...../.....
Tackle - maint. 2	...../.....	...../.....
Tackle - term. 3	...../.....	...../.....
Bait/berley 4	...../.....	...../.....
Ice 5	...../.....	...../.....
Books/maps 6	...../.....	...../.....
Boat - capital 7	...../.....	...../.....
Boat - maint. 8	...../.....	...../.....
Boat - moor 9	...../.....	...../.....
Boat - ramp \$ 10	...../.....	...../.....
Boat - fuel/oil 11	...../.....	...../.....
Boat - hire 12	...../.....	...../.....
Boat - charter 13	...../.....	...../.....
Trlr - capital 14	...../.....	...../.....
Trlr - maint. 15	...../.....	...../.....
Car - KMS 16	...../.....	...../.....
Car - 'capital' 17	...../.....	...../.....
Car - maint. 18	...../.....	...../.....
Car - fuel/oil 19	...../.....	...../.....
Car - hire/ch. 20	...../.....	...../.....
Airfares 21	...../.....	...../.....
Oth. PT/travel 22	...../.....	...../.....
Food/drink 23	...../.....	...../.....
Accom. (fees) 24	...../.....	...../.....
Camp - capital 25	...../.....	...../.....
Fees - club 26	...../.....	...../.....
Fees - comp. 27	...../.....	...../.....
Fees - licence 28	...../.....	...../.....
Oth. access \$ 29	...../.....	...../.....
Contributions 30	...../.....	...../.....

.....( )...../.....  
.....( )...../.....  
.....( )...../.....

NIL EXPENDITURE x

## 14(a/b) Economic Zone/s

All items 'home' 1  
All 'away' (spec. zone) 2  
Other (spec. items/zones) 3

Home: ...../...../...../...../.....

 ...../...../...../...../.....

 ...../...../...../...../.....

## 15. Comments

(overleaf) x



# SURVEY OF RECREATIONAL FISHING IN AUSTRALIA - 2000/01

IN CONFIDENCE

EVENT SHEET<sup>®</sup> (VIC)

Sample No:

--	--	--	--	--	--	--

Event Number:

## 1. Person Numbers:

--	--	--	--	--

## 2. Start date

(Day/Mth)

End (if diff, plus ...)

## 3. Personal/proxy

Personal (all) 1  
Proxy (incl. partial) 2

## 4. Diarised data

Yes (all) 1  
No (incl. partial) 2

## 5. Event Type (split)

\$ only (go to Q13) 1  
Fishing 2

## 6. Fishing Region (split)

## 7. Sub-region (split)

Offshore (>5km) 1  
Inshore (<5km) 2  
River/estuary (marine) 3  
River/stream (fresh) 4  
Lake/dam (fresh)  
- public 5  
- private 6  
Other (specify) 7

## 8(a/b) Targeting (split)

Species/group Main 2nd

No specific target

- surface/pelagic w w  
- bottom/demers. x x  
- all other y y  
No 2nd target z

## 9(a) Method (split \*go Q10)

Lines - bait\* 1  
Lines - lure/jig/fly\* 2  
Lines - both\* 3  
Lines - set (passive)\* 4  
Pot/trap - pass. (go b,d) 5  
Pot/trap - act. (go b,d) 6  
Net - cast\* 7

Net - drag/seine (go c,d) 8  
Net - gill/set (go b,d) 9  
Net - scoop/push (go b,d) 10  
Spearfishing - diving\* 11  
Other spearing - surface\* 12  
Other diving  
- scuba/surf. air\* 13  
- snorkel\* 14  
- both\* 15  
Hook/pump/rake/spade\* 16  
Other hand collecting\* 17  
Other (specify)\* 18

(b) No. of Pots/Nets

(c) No. of Hauls/etc

(d) No. of persons  
(shared effort only)

## 10(a) Platform

Boat 1  
Shore (go to c) 2  
Both 3

## (b) Boat type (split)

Private (if Q10a = 1, 1  
Hire go to Q11) 2  
Charter 3

## (c) Shore type (main)

Beach/rocks (natural) 5  
Jetty or wharf 6  
Other 7

## 11. Times

Start (24 hr. clock) :  
Finish (24 hr. clock) :  
Breaks (hrs & mins) :

## 12. Catch

No. caught &  
SPECIES Kept/released  
Barracouta/snoek 3  
Bream-black/sthn. 7  
Elephant fish 44  
Flathead-all 60  
Flounder/sole-all 61  
Garfish-all 65  
Leatherjacket-all 87  
Luderick/blackfish 91  
Mackerel-slimy 92  
Mullet-red/goatfish 114  
Mullet-unsp 117

Mulloway/jewfish 118  
Rays/skates-all 131  
Salmon-aust. 136  
Shark-gummy 147  
Shark-mako 149  
Shark-school 152  
Shark-whaler 155  
Shark-unsp 158  
Snapper/pinkies 162  
Sweep-all 175  
Tailor 177  
Trevally-silver 185  
Warehou-blue 205  
Whiting-king geor. 210  
Whiting-grass 211  
Yellowtail/scad 222  
Bass-aust. 224  
Blackfish-river 225  
Carp 226  
Cod-murray 228  
Perch-estuary 230  
Perch-gold/y' belly 231  
Perch-macquarie 232  
Perch-silver 233  
Perch-redfin 235  
Salmon-chinook 238  
Tench 241  
Trout-brown 242  
Trout-rainbow 243  
Trout-unsp 244  
Worms-sand 248  
Crab-unsp 253  
Lobster-sth. rock 255  
Prawns-all 260  
Yabbies-fresh 263  
Yabbies/nippers 266  
Abalone-blacklip 267  
Abalone-greenlip 269  
Abalone-unsp 271  
Mussel-blue 274  
Squid-all 285  
Calamari-southern 286  
Octopus 287  
Small baitfish 299  
( )  
( )  
( )  
NIL CATCH/RELEASE x

## 13. Expenditure

ITEM	Cost	Prop.	\$	√/%
Tackle - capital 1				
Tackle - maint. 2				
Tackle - term. 3				
Bait/berley 4				
Ice 5				
Books/maps 6				
Boat - capital 7				
Boat - maint. 8				
Boat - moor 9				
Boat - ramp \$ 10				
Boat - fuel/oil 11				
Boat - hire 12				
Boat - charter 13				
Trlr - capital 14				
Trlr - maint. 15				
Car - KMS 16				
Car - 'capital' 17				
Car - maint. 18				
Car - fuel/oil 19				
Car - hire/ch. 20				
Airfares 21				
Oth. PT/travel 22				
Food/drink 23				
Accom. (fees) 24				
Camp - capital 25				
Fees - club 26				
Fees - comp. 27				
Fees - licence 28				
Oth. access \$ 29				
Contributions 30				
( )				
( )				
( )				

NIL EXPENDITURE x

## 14(a/b) Economic Zone/s

All items 'home' 1  
All 'away' (spec. zone) 2  
Other (spec. items/zones) 3

Home: / / / / /  
 / / / / /  
 / / / / /

## 15. Comments

(overleaf) x

## ATTACHMENT 12.16

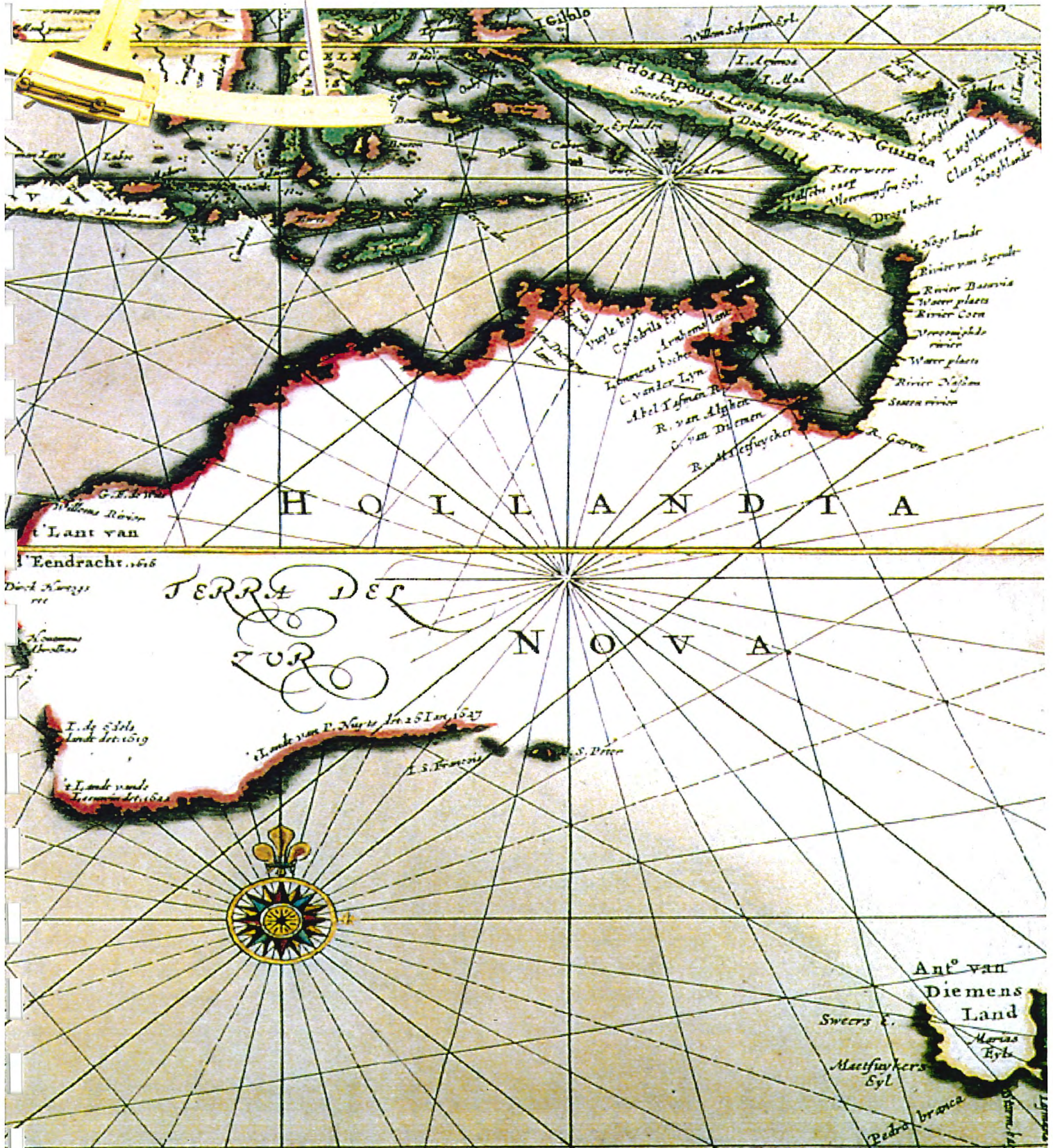
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### *REGIONAL MAPS*

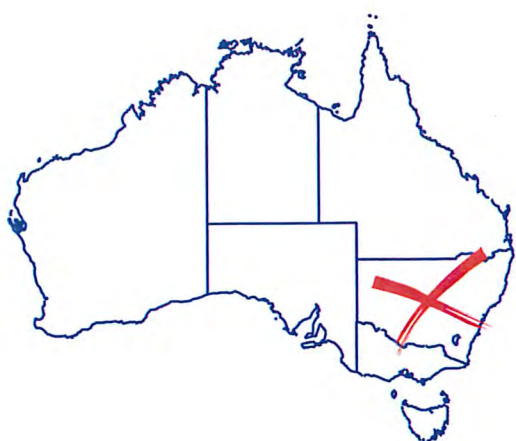


Survey of Recreational Fishing  
in Australia 2000/01

# Book of Maps







# New South Wales Map Sheets

There are three maps of New South Wales contained in this book

A general map of the state showing fishing regions

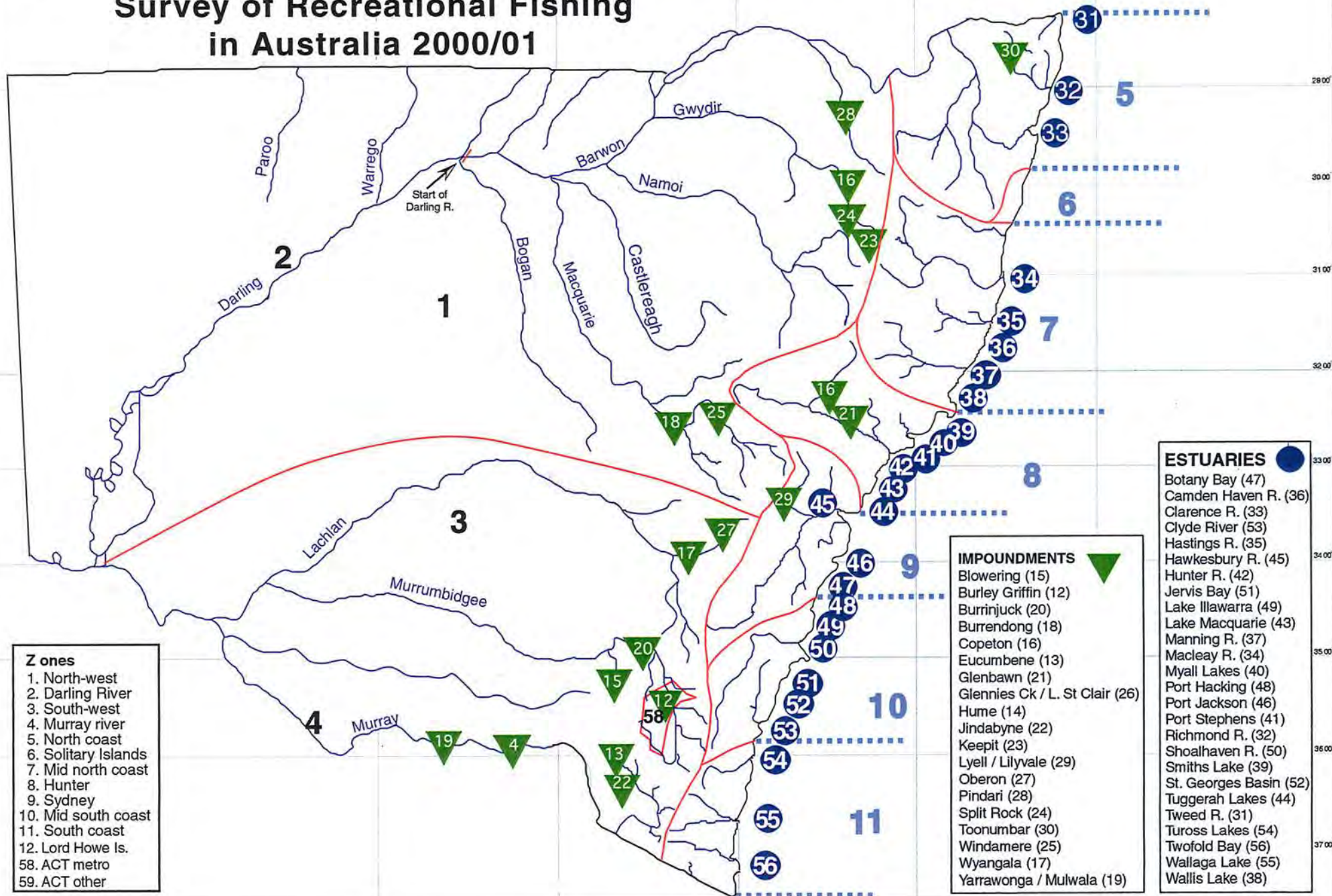
An enlarged map of the eastern section showing fishing regions

A map showing economic zones

## Map Legend

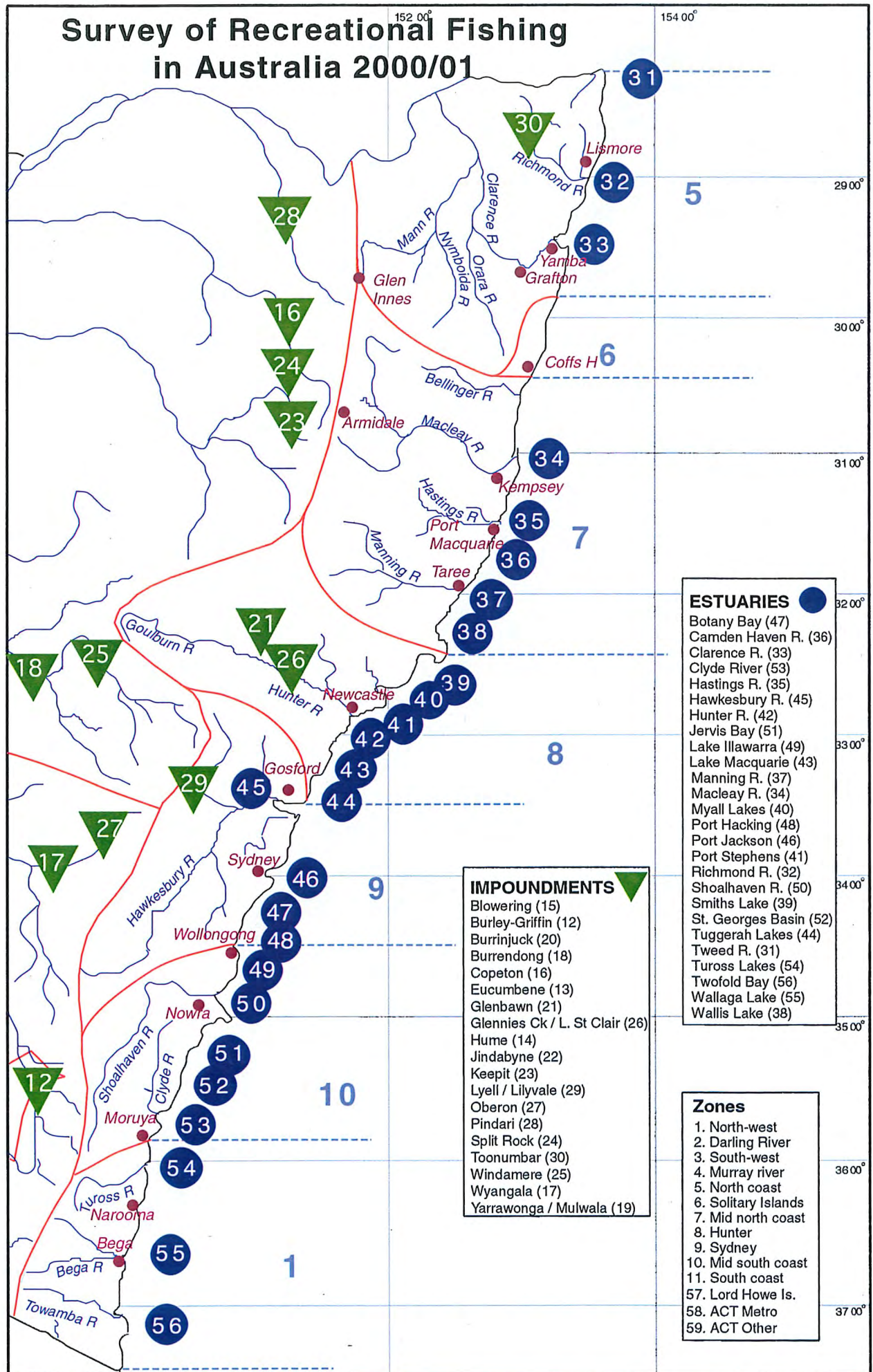
<b>39</b>	Fishing zone border (land)
<b>56</b>	Fishing zone border (ocean)
<i>Taree</i>	Town
<i>Thud Point</i>	Localities
	Roads
<i>Richmond R</i>	Rivers
<b>3</b>	Estuaries
<b>5</b>	Submarine object
<b>42</b>	Economic border and Number (Economic zone maps only)
<b>3</b>	Impoundments (dams and weirs)
	Wrecks / artificial reefs

# Survey of Recreational Fishing in Australia 2000/01



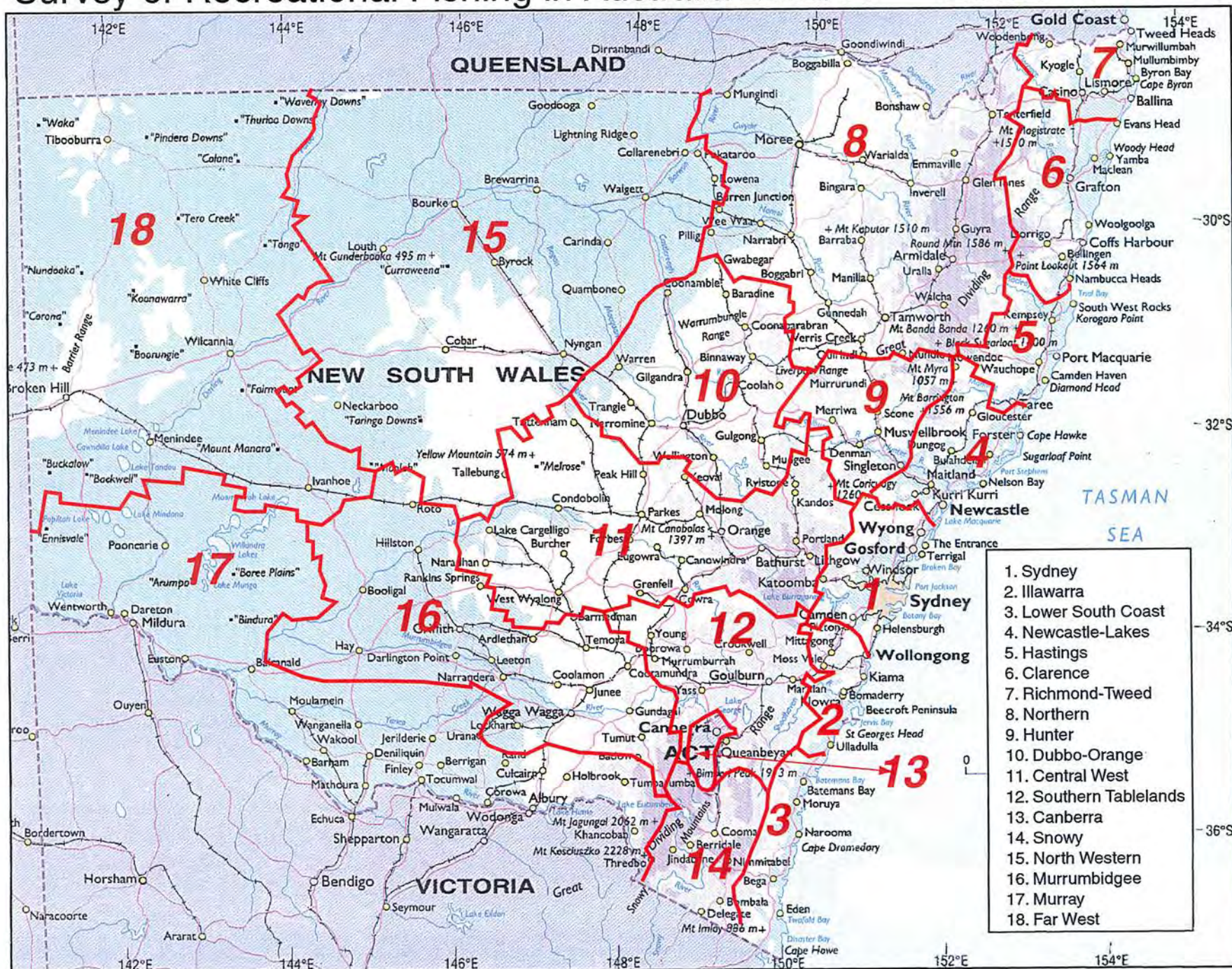


# Survey of Recreational Fishing in Australia 2000/01





## Economic Zones







# Victoria Map Sheets

There are two maps of Victoria in this book

A map showing the fishing regions

A map showing the economic zones

## Map Legend

<b>39</b>	Fishing zone border (land)		
<b>56</b>	Fishing zone border (ocean)		
<i>Taree</i>	Town	<i>Thud Point</i>	Localities
	Roads	<b>5</b>	Submarine object
<i>Richmond R</i>	Rivers	<b>42</b>	Economic border and Number (Economic zone maps only)
<b>3</b>	Estuaries		
<b>3</b>	Impoundments (dams and weirs)		
	Wrecks / artificial reefs		

# Survey of Recreational Fishing in Australia 2000/01

## Rivers

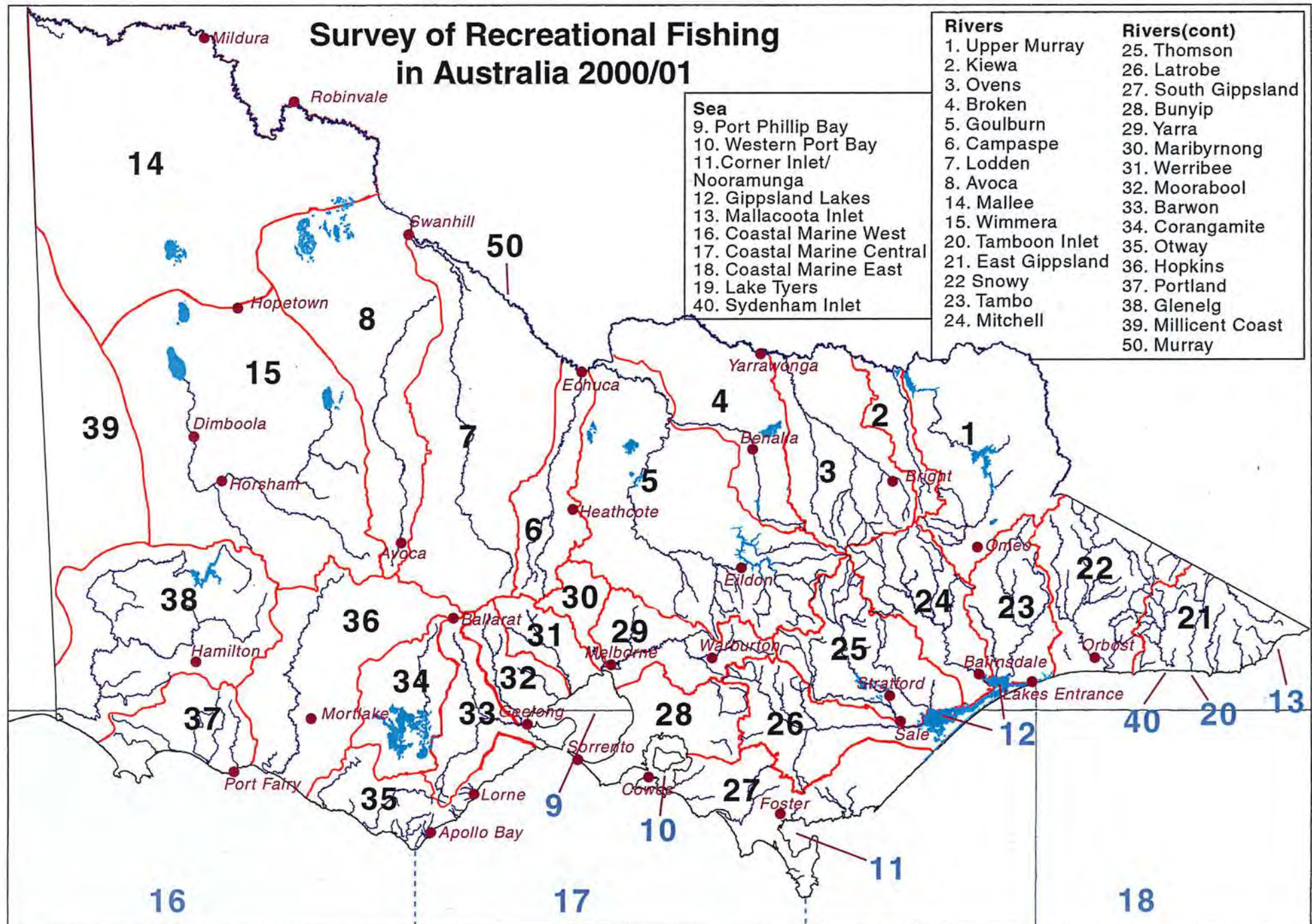
1. Upper Murray
2. Kiewa
3. Ovens
4. Broken
5. Goulburn
6. Campaspe
7. Lodden
8. Avoca
14. Mallee
20. Tamboon Inlet
21. East Gippsland
22. Snowy
23. Tambo
24. Mitchell

## Rivers(cont)

25. Thomson
26. Latrobe
27. South Gippsland
28. Bunyip
29. Yarra
30. Maribyrnong
31. Werribee
32. Moorabool
33. Barwon
34. Corangamite
35. Otway
36. Hopkins
37. Portland
38. Glenelg
39. Millicent Coast
50. Murray

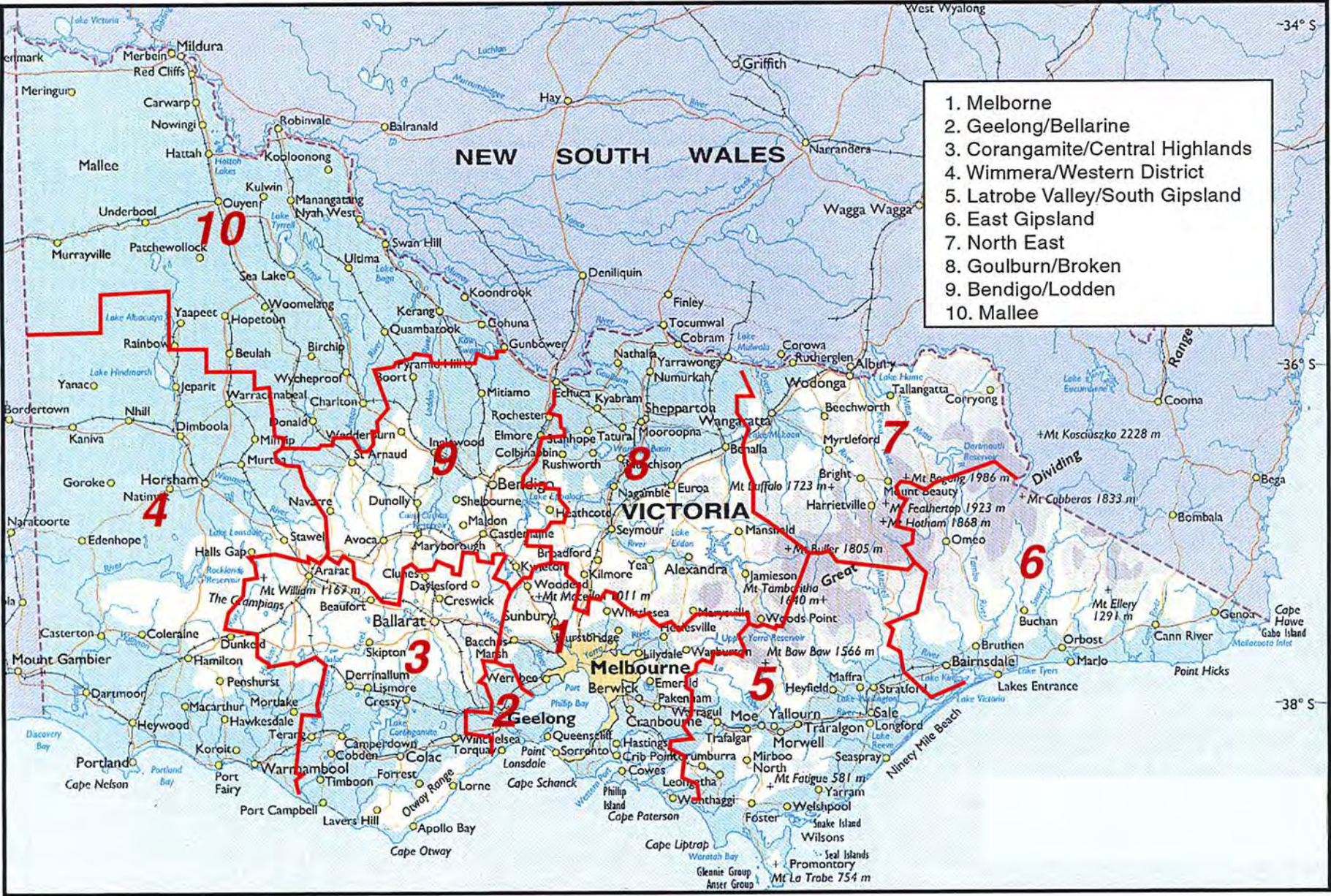
## Sea

9. Port Phillip Bay
10. Western Port Bay
11. Corner Inlet/Nooramunga
12. Gippsland Lakes
13. Mallacoota Inlet
16. Coastal Marine West
17. Coastal Marine Central
18. Coastal Marine East
19. Lake Tyers
40. Sydenham Inlet





# Survey of Recreational Fishing in Australia 2000/01 Economic Zones





**ATTACHMENT 12.17**

---

***ON-SITE SURVEY QUESTIONNAIRE***

# **SURVEY OF RECREATIONAL FISHING IN AUSTRALIA, 2000/01 - ON-SITE SURVEY<sup>®</sup> (NSW - Marine)**

**IN CONFIDENCE**

**Site No:**

**Date:**  /

**I/viewer Initials:**

**Event Number:**

**1. Number of Fishers**

**2. Start date**  
(Day/Mth)  /

End (if diff, plus ...)

**3. Sub-region (split)**  
Offshore (>5km) 1  
Inshore (<5km) 2  
River/estuary (marine) 3  
River/stream (fresh) 4  
Lake/dam (fresh)  
- public 5  
- private 6  
Other (specify) ..... 7

**4(a/b) Targeting (split)**  
Species/group Main 2nd  
.....    
No specific target  
- surface/pelagic w w  
- bottom/demers. x x  
- all other y y  
No 2nd target z

**5(a) Method (split/\*go Q6)**  
Lines - bait\* 1  
Lines - lure/jig/fly\* 2  
Lines - both\* 3  
Lines - set (passive)\* 4  
Pot/trap - pass. (go b) 5  
Pot/trap - act. (go b) 6  
Net - cast\* 7  
Net - drag/seine (go c) 8  
Net - gill/set (go b) 9  
Net - scoop/push (go b) 10  
Spearfishing - diving\* 11  
Other spear - surface\* 12  
Other diving  
- scuba/surf. air\* 13  
- snorkel\* 14  
- both\* 15  
Hook/pump/rake/spade\* 16

Other hand collecting\* 17  
Other (specify)\*

..... 18

**(b) No. of Pots/Nets**

**(c) No. of Hauls/etc**

**6(a) Platform**  
Boat 1  
Shore (go to Q7) 2  
Both 3

**(b) Boat type (split)**  
Private 1  
Hire 2  
Charter 3

**7. Times**  
Start (24 hr. clock)  :   
End (24 hr. clock)  :   
Breaks (hrs/mins)  :

(go to Q 8 [Catch], Q's 9-10  
at end of interview)

**9. Home Postcode**  
.....

**10(a) Home Phone**  
Yes 1  
No (go to Q11) 2

**(b) White Pages Listed**  
Yes 1  
No 2

**11. Comments**  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....

8. Catch SPECIES	No. caught & Kept/released	ID Correct? Unaid	Aid	No	Length-Freq. (√)
Bream-all	7	...../.....	1	2	3
Cobia/black king	13	...../.....	1	2	3
Cod-red rock	14	...../.....	1	2	3
Dolphin fish	22	...../.....	1	2	3
Flathead - all	37	...../.....	1	2	3
Flounder/sole	38	...../.....	1	2	3
Garfish-all	42	...../.....	1	2	3
Kingfish - y'tail	54	...../.....	1	2	3
L'jacket - all	57	...../.....	1	2	3
Luderick	60	...../.....	1	2	3
Mackerel-slimy	62	...../.....	1	2	3
Morwong-blue	74	...../.....	1	2	3
Morwong-red	77	...../.....	1	2	3
Mullet-all	82	...../.....	1	2	3
Mulloway/jew	83	...../.....	1	2	3
Redfish/nannygai	97	...../.....	1	2	3
Salmon-Aust.	99	...../.....	1	2	3
Seargent baker	104	...../.....	1	2	3
Shark-mako	106	...../.....	1	2	3
Shark-whaler	111	...../.....	1	2	3
Snapper/squire	119	...../.....	1	2	3
Surgeon fish	129	...../.....	1	2	3
Sweep	130	...../.....	1	2	3
Tailor/chopper	131	...../.....	1	2	3
Tuna-yellowfin	145	...../.....	1	2	3
Tuna-skipjack	146	...../.....	1	2	3
Tuna-albacore	148	...../.....	1	2	3
Whiting-all	162	...../.....	1	2	3
Yellowtail-scad	167	...../.....	1	2	3
Crab-mud	192	...../.....	1	2	3
Crab-blue/sand	193	...../.....	1	2	3
Lobster-all	202	...../.....	1	2	3
Prawns-all	203	...../.....	1	2	3
Yabbies	207	...../.....	1	2	3
Abalone-all	214	...../.....	1	2	3
Cuttlefish	226	...../.....	1	2	3
Squid-all	228	...../.....	1	2	3
..... ( )	...../.....	1	2	3	.....
..... ( )	...../.....	1	2	3	.....
..... ( )	...../.....	1	2	3	.....
..... ( )	...../.....	1	2	3	.....
..... ( )	...../.....	1	2	3	.....

NIL CATCH/RELEASE x

## ATTACHMENT 12.18

---

### *INTERVIEWER MANUAL*



# **Survey of Recreational Fishing in Australia - 2000/01**

## **Interviewer Manual® - New South Wales**

### **Part 1: Screening Survey**

**March 2000**

**Fisheries Action Program (Natural Heritage Trust)  
Fisheries Research and Development Corporation  
and NSW Fisheries  
Project 1999/158**

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## **1 BACKGROUND**

---

The National Recreational Fishing Survey (NRFS) was initiated in response to community demands for better information on the catch, effort and economic activity of the recreational fishing sector. The concept of a National Survey was also proposed in the National Policy for Recreational Fishing in Australia published in 1994. The NRFS is the product of nearly four years of consultation and negotiations between States, Territories, key stakeholders and funding bodies. During this time, substantial survey development work (including pilot-testing) was also undertaken by a team of specialist staff from the various agencies involved.

The NRFS is to be coordinated at a national level by the Sustainable Fisheries Division of the Commonwealth Department of Agriculture, Forestry and Fisheries. The survey will be conducted at State and Territory level by the local fisheries agencies, using a standardised survey methodology. This strategy uses the substantial local knowledge and expertise which exists in fisheries agencies, but ensures that the Survey results will be comparable throughout Australia.

The NRFS is jointly funded by the Fisheries Action Program (Natural Heritage Trust), the Fisheries Research and Development Corporation (FRDC) and State and Territory fisheries agencies.

### **1.1 The Role of NSW Fisheries**

NSW Fisheries is the State's principal aquatic resource conservation and management agency. In accordance with Government priorities, the Department delivers fisheries management, research, compliance, conservation and education services.

The various roles and functions of the Department are the responsibility of four key branches/areas: Fisheries Management; Operations; Office of Conservation; and the NSW Fisheries Research Institute (NSWFRI). The Institute is responsible for all aspects of the conduct of the national survey in New South Wales.

### **1.2 The Need to Assess the Recreational Fishery**

Australian fishery resources support a range of commercial and recreational activities of varying economic and social value. These resources are generally regarded as 'common property assets' and are managed by government on behalf of the community. However, effective fisheries management relies on a range of up-to-date and reliable information about the fisheries involved - including participation levels, the amount of fishing effort, harvest levels for each species and so on. While extensive information is routinely collected for the commercial fisheries sector (a relatively small target audience), comparatively little is known about the recreational sector - especially in terms of harvest levels. For certain species, large proportions of the total catch are believed to be attributable to the recreational fishing sector.

The present national survey represents a unique opportunity in Australia to collect detailed information about the recreational fishing sector and therefore will, for the first time, allow management initiatives to be developed and assessed on the basis of 'total fishery' data.

### 1.3 The Recreational Fishery in NSW

Recreational fishing is a major outdoor activity of considerable economic, social and nutritional benefit to the NSW community. Limited available data indicate that around 30% of the NSW population (2 million people) go fishing at least once a year and spend approximately \$600 million annually in the pursuit of their sport.

A broad range of angling (line fishing) and other harvesting methods (e.g. crab pots, prawn nets, dive harvesting) are known to be employed - covering the range of freshwater and marine species available.

Over the years, NSW Fisheries has introduced a number of management initiatives relating to recreational fishing - including: bag and size limits for various species; gear restrictions in certain areas (no nets/traps); closed areas (sanctuary zones) and protected species (zero bag limits). These regulations aim to reduce the impacts of recreational fishing in certain necessary cases and to enhance the sustainability of the fish stocks concerned.

In recent years, NSW Fisheries has also implemented a range of initiatives to directly assist the recreational fishing sector - including fish stocking programs, fishing clinics and improved fishing opportunities. In 1998, an inland/freshwater recreational fishing licence was introduced (the only such licence in NSW).

### 1.4 The National Survey - Four Separate Surveys

The overall project comprises four discrete survey components, conducted (largely) in parallel over a 12 month period:-

- 1) ***The National Telephone Survey*** - comprising three main survey phases: the Screening Survey; Diary Survey; and Attitudinal Survey. The survey will collect a range of information about recreational fishing (incl. participation, catch and effort, expenditure) from a representative sample of Australian residents (see further details in Section 2)
- 2) ***On-site Survey*** - conducted at fishing sites, boat ramps etc. throughout Australia by trained field staff of each state fisheries agency to provide important additional information to the Telephone Survey - including fish sizes and assessment of the species identification skills of fishers
- 3) ***Visiting International Fisher Survey*** - conducted as a 'follow-on' survey of respondents interviewed in an ongoing survey of international visitors on departure from Australia (major airports). A special questionnaire will apply to those identified in the 'standard' survey as having fished in Australia during their stay. Data collected will focus on estimates of fishing effort by state/type of fishing, with limited catch data being obtained. The survey will be conducted by AC Nielsen on behalf of the Bureau of Tourism Research (BTR)
- 4) ***Indigenous Fishing Survey*** - conducted at a sample of aboriginal communities in coastal regions of northern Australia (from the Kimberley in WA, across the NT, down the Queensland coast to Cairns). This survey area has been identified as having

relatively large indigenous populations (proportions of total), with telephone ownership (and therefore coverage by the normal survey) being limited. Face-to-face interviews will be employed by trained field staff, recruited from the local areas concerned. The survey will provide similar data to the National Telephone Survey.

## **1.5 The Interviewer Manual**

The information contained in this manual (Part 1) refers to the Screening Survey component (only) of the National Telephone Survey for your state/territory. A separate manual (Part 2) will be provided for the remainder of the survey (Diary Survey etc). Although a standardised national survey, some minor state/territory differences do exist - e.g. different fish species and fishing methods have resulted in different questionnaire 'wording' in some cases. Your interviewer manual is not only an important reference document during training, but also throughout the survey period generally. Additional definitions (or your own notes) can be added (see Section 6) during this time.

Importantly, the manual also provides an important procedural/definitive role for those involved in the initial and ongoing analysis of the survey results.

## 2 THE NATIONAL TELEPHONE SURVEY

---

### 2.1 Survey Objectives

In broad summary, the objectives of the National Telephone Survey are to quantify (for the resident population):-

- 1) participation in recreational fishing (including line fishing and other methods), and socio-demographic profiles of the populations involved (e.g. age, sex and household size)
- 2) boat ownership, vessel profiles (e.g. length, power vs. sail) and usage/investment levels in terms of recreational fishing
- 3) recreational fishing effort (hours and days fished) and catch levels (numbers by species, both harvested and released) for a full 12 month period
- 4) for the same period, expenditure on recreational fishing-related items (incl. tackle, bait, travel, accommodation etc) and the proportion of that expenditure, which is attributable to recreational fishing (as opposed to other activities)
- 5) the opinions of fishers in terms of various fisheries-related issues and levels of awareness regarding key fisheries regulations

All the above are to be analysed at national, state/territory and defined regional levels.

Note: Objectives 1 and 2 (above) will be achieved through the Screening Survey; Objectives 3 and 4 through the Diary Survey; and Objective 5 through the Attitudinal Survey

### 2.2 Survey Duration

The Screening Survey will be conducted during March and April 2000. The Diary Survey will monitor the fishing activity of selected fishers 1 May, 2000 to 30 April, 2001. The Attitudinal Survey will be conducted during April and May 2001.

### 2.3 Survey Area

For population sampling purposes, the survey area has been defined as the main eight states and territories of Australia (Australian Bureau of Statistics [ABS] Census definition) – i.e. NSW, VIC, QLD, SA, WA, TAS, NT and ACT. 'Other' and 'External' Australian Territories (as defined by ABS) are excluded (namely, Christmas, Cocos/Keeling and Norfolk Islands and the Jervis Bay Territory (south coastal NSW). However, Lord Howe Island is included in the sampling scope (by ABS definition, a part of NSW - Mid-North Coast SD, Hastings SSD)

However, for purposes of recreational fishing activity, a wider geographic boundary has been defined – namely, the Exclusive Economic Zone (EEZ - up to 350 nautical miles seaward in



some cases) - and therefore, the waters (fresh and marine) of all states and territories within - including private land (dams etc).

## 2.4 Who is Included in the Survey?

N.B. all scope definitions hereunder are applicable at the time of the first substantive contact in the Screening Survey

For general survey purposes, scope has been defined here as - all 'Australian Residents' (legal definition) of private dwellings, with a 'white pages' telephone listing. Residents of non-private dwellings (hotels, gaols, nursing homes) are to be excluded. While aboriginal and Torres Strait Islander residents are included in the scope of the survey, residents (with no 'white pages' phone listing) of communities in the scope of the separate Indigenous Fishing Survey are excluded. Overseas visitors (i.e. not Australian residents) are excluded - even if staying for extended periods (all are included in the scope of the Visiting International Fisher Survey).

For defined fishing activity, a minimum age criterion of 5 years or more applies (the minimum age for effective independent fishing activity). For certain other data collection purposes, a higher age criterion of 15 years has been applied (e.g. attitudinal questioning)

## 2.5 What Fishing Activities are Covered?

The scope of the survey is confined to non-commercial fishing activities - covering the range of recreational fishing methods including: line fishing, pots/traps, diving and other gathering methods (see Q9, Event Sheet, in the Part 2 Manual). By definition, 'catch and release' fishing practices are included - as is bait collecting. Important: recreational fishing activities by commercial fishers are included - on the basis that any catch is not to be sold. The method here is effectively irrelevant e.g. handlining is a valid commercial fishing method.

## 2.6 What Species are Covered?

All aquatic organisms (but not plants) in both marine and freshwater - i.e. fish, sharks, eels, crabs, shellfish, worms etc (see Part 2 Manual)

## 2.7 Survey Design Philosophy and Overview

The survey design involves a four-stage process for selected households:-

- 1) **Screening Survey** (Appendices B and C) - to collect a range of information including previous fishing activity, fishing club membership, boat ownership etc. Those 'in-scope' household members reporting an intention to fish in the ensuing 12 months are invited to participate in the diary survey
- 2) **(a) Diary Explanation Interview** - those willing to take part in the Diary Survey are sent a Survey Kit (Covering Letter, Diary and Species Showcard – see Part 2

Manual), after receipt of which, the interviewer provides an explanation of the Diary Survey, in accordance with a standardised procedure (see Part 2 Manual)

(b) *Diary Survey* (Part 2 manual) - during the 12 month period May 00 - April 01, recreational fishing activity and related expenditure are monitored, using a combination of a fishing diary and frequent telephone contact. The diary system is designed to minimise respondent burden and, therefore, maximise response and data quality. This is achieved (inter alia) by encouraging anglers to "only record things that they might forget". Survey data are collected by a brief telephone interview whereby the interviewer contacts the respondent as soon as possible after each fishing trip.

- 3) *Attitudinal Survey* - conducted at the end of the Diary Survey (with diarists age 15 years or more) to collect a range of awareness/attitudinal information e.g. knowledge of bag/size limits and opinions about various fishing-related issues matters. Note: to maximise the relevance of this survey, the questionnaires will be designed closer to the time of the study (namely to allow for any legislative changes or topical issues to be included)

## 2.8 Overview of Sampling Framework

The sampling framework for the survey has been based on latest available national telephone listings (electronic 'white pages'). The initial sampling unit is the telephone number and mobile phones and (obvious) business numbers have been excluded.

A total of 42,400 random selections have been made across all urban/rural areas of Australia (for the Screening Survey), dissected by state as follows: NSW/ACT - 9400; Vic - 8155; Qld - 8155; WA - 5400; SA - 5090; Tas - 4022; NT - 2178. High response rates are expected and over 16,000 fishing diarists (in over 8,000 fishing households) are expected to complete the study.

Important: by design, no substitution of selected phone numbers/households will occur during the study. This approach, in combination with very high response rates will ensure that the sample provides maximum representation of the population.

### 3 GENERAL INTERVIEWING PROCEDURES

---

This section discusses general procedures and guidelines for interviewing work. Specific information and definitions for individual questionnaires are contained in Section 5 (and the Part 2 Manual).

#### 3.1 Before Interviewing

A very important part of your work is your preparation. Before you attempt to carry out any interviews, ensure that you plan your work and familiarise yourself with any information that you have available about respondents. Also, before commencing any new interviewing assignment, you should reconcile all documentation provided as appropriate e.g. the actual survey questionnaires against information contained on your Workload Control Sheet (see Appendix A)

#### 3.2 Making Your Calls

##### 3.2.1 Organising Calls

Effective organisation of your calls is a vital component to workload completion - especially at the busier times. Your expansion file provides a reliable diary/scheduling system (on a rotating monthly basis) and when used effectively, a given day's work/appointments can be quickly accessed. Routine completion of (and reference to) call/appointment details, (see 3.2.6 below), together with efficient use of your 'prime interviewing' times (e.g. Mondays, late afternoons and evenings) will also maximise your efficiency. Just as we seek to minimise respondent burden in terms of 'remembering' (in the Diary Survey), interviewers should also minimise their levels of 'unaided remembering'.

##### 3.2.2 Unsuitable Times to Call

As a general rule, every effort should be made to avoid calling before 9 am or later than 8 p.m. - especially when making first contact with a household. Do not call before 8.45 am or after 8.30 p.m. except at the specific request of the respondent. In terms of elusive respondents, the following 'priority calling' system should be applied for first contact calls:

- first call(s) in weekday business hours;
- then weekday early evenings;
- then Saturday (incl. early evening);
- then Sunday (incl. early evening);

After this, later evening and earlier morning calls (than the general rule) can be applied to both weekdays and weekend days, until contact is made. Importantly, in the rare cases where any such action results in a respondent becoming upset by the 'uncivilised' time of such a call, routine completion of the calls section of the questionnaire will enable you to quickly explain that you called at a range of different times and days without success. On the other

hand, an apparently 'civilised' time of call can result in annoyance sometimes (e.g. shiftworkers sleeping during the day). In such cases, you should (sincerely) apologise and arrange to call back at another time.

### **3.2.3 Calls at Inconvenient Times**

Unless you genuinely perceive that it is an inconvenient time to call (or the respondent actually tells you so), always proceed with the interview in a positive manner. While seemingly more polite, any routine enquiry by the interviewer (e.g. "is it convenient now ...?") as part of the introductory statement, often results in endless procrastination by some respondents (... and it never becomes 'convenient'). Conversely though, some respondents may simply be too polite/etc. to actually say anything - so careful perception by interviewers is important, with a common signal here being background noise or obvious distraction on the part of the respondent.

### **3.2.4 Best Time to Call**

Best time to call information (BTC) is sought from respondents and is recorded on the front page of the Diary Survey Cover Sheet (Part 2 Manual). Effective BTC's are an extremely valuable tool to the interviewer and the following guidelines will assist in maximising your interviewing contact level:-

- "any time" is invariably an invalid BTC - the vast majority of people have some kind of routine, whereby they are not at home at some stage during the week;
- an often better approach is to obtain a 'worst' time to call in such cases (e.g. not Wed am);
- minimise unnecessarily restrictive BTC's (e.g. Mon 9 am) and especially if they occur in 'prime' interviewing time;
- brief 'combination' BTC's (using your own abbreviations) are particularly useful e.g. > 4.30 M/F not W, am Sa, not Su (translated = after 4.30 pm on weekdays, but not Wednesday, Saturday morning OK, but not Sundays)
- with ongoing contact in the diary period, BTC's should be regularly monitored and updated - situations do change!

### **3.2.5 Making Appointments**

Apply BTC information as appropriate, when making appointments, but be prepared to be flexible. Also, wherever possible, avoid unnecessarily restrictive appointments (preferably e.g. "around 4.30 pm" or "between 4 and 5") - this allows for maximum consideration of both respondent/interviewer schedules. Most importantly, whenever you make an appointment, you should of course keep it! ... and this is where the expansion file is invaluable.

In terms of appointment-making for the Diary Survey, the following procedures should be applied:-

- the general rule that appointments should be made for as soon as possible after any planned (or possible) fishing trip to maximise reporting precision (e.g. Mondays are ideal to capture weekend fishing information);
- in cases where no fishing activity is planned/expected for some time, the 2-3 week rule applies - enabling any respondent who unexpectedly undertakes some fishing activity in that time, to readily recall such details (even where the diary has not been completed);
- the 2-3 week rule should be routinely applied in the first month or so of the respondent's diary period (unless extraordinary or difficult circumstances exist) - until such time as the respondent has become familiar with diary/interviewing requirements ('trained'). After this, (calendar) monthly contacts should be applied for those with no expected activity. Note: although comparatively rare, the difficulties involved in 'patching up' fishing event data for extensive and unexpected fishing activity (some weeks afterwards and with an 'un-trained' respondent) more than justify the various 'costs' of frequent, but brief, 'nil activity' calls. In such cases, it is usually a simple matter to explain to respondents ... "if you haven't been fishing, it takes less than a minute";
- however, as mentioned in interviewer training, care and discretion are required in certain other cases to provide an appropriate balance between 'rule adherence' and annoyance of respondents. Clearly, there are cases where the 2-3 week rule is inappropriate, even in the early stages of the diary survey - e.g. (i) where the respondent is adamant that he/she will not be going fishing for some considerable time [e.g. not until after winter]; or (ii) is physically unable to fish for an extended period (broken leg etc.). In the latter case, an appointment should be made for around the time the respondent is first likely to be able to go fishing again. In the former (and similar cases), the general rule can be extended as appropriate (ideally) to one month intervals - but if necessary, to two months (or longer, in extreme cases). However, in both these cases, the respondent might make some fishing-related purchases (care/probing required here e.g. "even a fishing magazine"). Importantly, our primary objective here is never to incur a refusal for this reason - and the interviewer's perception/communication skills can make a real difference here.

### **3.2.6 Completion of Call Details/Appointment Sections**

Both the Screening Survey - Section A (Appendix B) and Diary Survey Cover Sheet (Part 2 Manual) have provision for call details and appointments to be recorded.

As a strict rule, all telephone calls (whether successful or otherwise) should be recorded in the appropriate Call Details Section - especially given their importance in terms of reimbursement of your telephone costs. The date and time of each attempted call should be recorded, together with an appropriate 'Result' code:-

C = Contact made with selected respondent

NC = contact made with a household member, but not selected respondent

NA = no answer

EN = engaged

AM = answering machine

FX = fax machine

Note: by definition, all the above the codes (except for NA and EN) involve a 'connection' (including NC) and therefore a phone charge.

When recording appointment details (date and time), always ensure that any additional information of assistance/relevance to your next call is recorded in the 'Other' Section (e.g (i) "per wife", if appointment was made on behalf of the respondent by his wife; or (ii) "fishing 2 May" for a planned fishing trip, where details are to be obtained at (say) a 3 May appointment. Other information such as an 'open event' (e.g. continuous net setting - see Part 2 Manual), details of holidays or other time away, shiftwork etc. should also be recorded, as appropriate.

### 3.3 Interviewing Techniques

#### 3.3.1 *Introducing Yourself and the Survey*

Before any questions are asked or any information is sought in an interview, you must introduce yourself and explain why you are calling. It is vital in any interview that you establish and maintain co-operation, as this ensures maximum response. High response levels are required to maintain the sampling plan and the quality of the survey data.

The following notes demonstrate how to obtain and maintain the cooperation of respondents and ensure that accurate information is obtained in the interview. Your opening statement is particularly important in gaining cooperation, and should include the following points:-

- Give your name
- Explain you are from NSW Fisheries
- Explain briefly the purpose of your call.

The survey questionnaires include guideline introductory statements, from which you 'tailor-make' your own version in each case (as discussed in training). In most cases, a brief, appropriately informative and confident introduction will satisfy the respondent, who will simply wait for you to continue. In such cases, you should proceed to the first substantive survey question.

#### 3.3.2 *Queries by Respondents*

While most respondents will readily cooperate, some may wish to ask a few questions first. A few examples of the most common questions for the Screening Survey are set out below, together with suggested answers. (Note: a fairly colloquial/conversational style has been employed in these examples - as mentioned in training, other situations may require the interviewer to be more formal):-

(i) *Respondent:* "What's it all about?"

*Interviewer:* "Well the survey is being conducted throughout Australia to measure the number of people who go fishing ... where they go, how often .. that kind of thing."

(and if necessary ...) and the information will be used to better manage our fisheries resources” (Note: see also Section 3.4 re questions concerning fisheries research or management issues)

- (ii) *Respondent*: “How did you pick me?”  
*Interviewer*: “Well, you personally weren’t selected, but your telephone number was randomly chosen by computer”
- (iii) *Respondent*: “How long will it take?”  
*Interviewer*: (As most people who ask this question will be non-fishers/boat-owners) ... “About two minutes for most people” (or if you happen to be aware that it’s a fishing household) ... “about 8-10 minutes”. Note: please avoid any answer which amounts to “8-10 minutes if you fish, 2 minutes if you don’t” – as this could cause response bias (refer discussion in training). Also be alert here for ‘inconvenient call’ situations
- (iv) *Respondent*: “We don’t fish ... I’m no use to you”  
*Interviewer*: “That’s OK ... the survey actually measures the number of people who do and don’t go fishing ... this’ll take less than two minutes”
- (v) *Respondent*: “I don’t go fishing much these days ... I’m no use to you”  
*Interviewer*: “That’s OK ... in fact, it’s just as important that we get information from people who don’t fish much, as well as those that fish a lot.”
- (vi) *Respondent*: “Do I have to do it?”  
*Interviewer*: “Of course not, but it’s a very important (or ... official government) survey and we’d really appreciate your help” (if necessary, further explain the importance of full response/representative sampling/can’t substitute respondents etc) N.B. occasionally, this question can also be ambiguous, whereby the respondent actually means (although not said) ... “Do I have to do it now?” (perception/inconvenient call rule)
- (vii) *Respondent*: “What’s in it for me?” (Why should I do this? etc)  
*Interviewer*: “Right now, probably nothing. But for the future, it could mean a lot ... and especially for future generations (‘grandchildren can catch a fish’ concept) effective research and management of our fisheries can maintain and improve our fish stocks”.
- (viii) *Respondent*: “This is an invasion of my privacy”.  
*Interviewer*: “Yes, to a degree it is, but ....” (strictly, any survey is an invasion of privacy – but you need to explain as appropriate: no personal information used; statistical purposes only ... “your answers will be added to those of many hundreds of other people in the survey”, very important survey/etc. ... i.e. you need to justify the invasion of privacy to the respondent)



- (ix) *Respondent*: “Will this be used against me? (fishers)”.  
*Interviewer*: (see above plus ...) “The information you give will never be used for or against you personally.” (Explain also all questionnaires, personal details destroyed after survey processing – see also under [vii] earlier)

Note: refer instructions in training for more difficult cases (potential refusals)

### 3.3.3 *Presenting a Professional Image*

As you are possibly the only representative of your state fisheries agency that the respondent is likely to come into contact with, the image you present is of utmost importance. The following points should be remembered:

- the respondent is more likely to believe your answers and be persuaded to cooperate if he/she feels you are competent and know what you are talking about. You should also maintain a friendly, but business-like manner in your interviewing work and as a general rule, you should avoid any kind of personal distraction/discussion/involvement.
- be polite and be patient with respondents at all times. It isn't always clear why we are asking a particular question, and it is the job of the interviewer to provide explanations where necessary.
- when a respondent is obviously in the company of other persons, you perhaps should suggest that the interview be conducted in private or offer to call back at a more convenient time. If the respondent is willing to be interviewed in front of other persons, you may proceed with the interview.

### 3.3.4 *Interviewer/Respondent Interaction*

The points discussed so far in gaining and maintaining cooperation of respondents have covered two essential aspects:

- your survey knowledge and ability to answer respondents questions
- adopting a professional attitude in the way you approach/interact with respondents.

The attitude and reaction of the respondent is also important to the overall interaction which occurs. It is important that you understand the kinds of interaction that can occur between a respondent and an interviewer, as you will then be able to learn from your experience and develop your skills as an interviewer. In any interview (or conversation), the persons taking part must have some motivation for doing so - otherwise they would simply stop talking and go and do something else. Of all the factors that motivate respondents, the main one is attentive listening. People love to be listened to! There aren't many occasions when people really feel they are being listened to, or that their experiences and opinions really are important to the listener. The interview provides such an occasion. Attentive listening is the one factor that the interviewer is most able to control and use to his/her advantage in gaining the information required. An interviewer needs to demonstrate that he/she is an attentive

listener and taking everything in; that he/she is interested in what the respondent has to say - and that what the respondent has to say is important. However, an important distinction exists here between 'interest' in the subject matter of the survey and any 'curiosity' or 'invasiveness' on the part of the interviewer for other (more personal) matters.

There are two very simple, yet effective, techniques for indicating that you are an attentive listener:-

- The 'uhuh' technique: as the respondent goes on giving information, the interviewer indicates that he/she is listening and taking it all in by uttering periodic noises (e.g. 'uhuh', 'um-hm', 'I see', 'I got that').
- 'Waiting in silence': the interviewer acknowledges what the respondent has just said with an 'uhuh' - and then waits in silence for up to (say) 4 seconds indicating that he/she still expects the respondent to say something more. You need to allow respondents time to think about their answers, to rummage around in their thoughts and put things into perspective. In many cases, the respondent might answer in a quick straight-forward manner, whereas another respondent might not have had to consider this question before and simply needs a few seconds to work out his/her answer. This is one of the most effective interviewing techniques, and is very easy to use if you don't rush questions, but talk in a well-paced, audible and neutral voice.

While the techniques above can be used to increase the motivation of the respondent they must be applied without introducing any bias by the interviewer. There should be no suggestion to the respondent that one view or another is more acceptable to the interviewer, that one answer is 'right' or another 'wrong', or that any relevant information need be withheld. For this reason, the word "right" should never be used to acknowledge a respondent's answer. (See further discussion of interviewer bias in 'probing' and 'prompting' - Section 4.5)

### **3.3.5 Personal vs. Proxy Interviews**

No respondent should be asked to answer substantive survey questions for another, unless the precision of each answer is beyond question and no sensitivity is remotely attached to the question. Hence, a general rule applies for personal (as opposed to proxy) interviewing in this survey. Exceptions to this rule do apply however, in terms of children (see below) and where for practical/common sense purposes, it is permissible to employ proxy techniques e.g. (i) where the person answering for the respondent was present during the fishing activity or is certain that no fishing activity took place, or (ii) where the selected respondent speaks insufficient English to be interviewed and another household member assists by acting as a 'joint-respondent'. The foregoing apply to questions of a factual nature, but for attitudinal questions (where knowledge or opinions are sought), no proxy response can obviously be permitted under any circumstances.

### 3.3.6 *Interviewing Children (Under 16 Rule)*

Whereas children aged 5 years or more are in the scope of the survey, responses for many younger children will often be validly provided on a 'proxy' basis by a parent - both in the Screening and Diary Survey phases. However, for some older children, it may be appropriate/preferable to conduct personal interviews and the following general procedures should be applied:-

- the Screening Survey should (at least initially) be conducted with a responsible adult member of the household
- always firstly obtain parental permission before conducting an interview with any respondent under 16 years of age (this includes permission to conduct ongoing diary interviews with a child e.g. where he/she is the only fisher in the household)
- further to this, be prepared for some parents to quite naturally want to 'approve' an interview for substantially older children (sometimes even into their 20's)
- wherever possible/appropriate, survey information should be collected from the respondent him/herself - and especially where a parent was not present/involved in any fishing activity
- children are excellent respondents (even quite young) and enjoy the 'independence' of being involved in a survey such as this. As a general rule, children as young as 12 can be expected to provide reliable survey data (literacy, numeracy skills etc.) and this is around the minimum age for truly independent fishing activity by children (i.e. without constant parental supervision);

### 3.3.7 *Closing the Interview*

As the survey involves ongoing contact with selected respondents, care should be taken to ensure that at the end of each contact, the respondent is not left feeling uncertain or uncomfortable about any aspect of the study. In particular, after the final contact for the Diary Survey, you should quickly check if the respondent has any further questions about the survey and sincerely thank them for their co-operation/etc. Similarly, you may sense some 'uneasiness' with some respondents at the end of the Screening Survey (e.g. older females who live alone and don't fish), where every effort should be made to re-assure them (as discussed in training).

### 3.3.8 *Other Factors Associated with Interviewing*

From time to time, you may encounter other problems in dealing with respondents where tact and discretion on your part are needed. For example:

- if you encounter a respondent whose command of English is limited or non-existent, you should try to find out (if possible) when a responsible member of the household who can

speak English will be home and call back then. If necessary, proxy or translation interviews can be conducted under such circumstances

- the above principle also applies to respondents with other communication difficulties (e.g. speech, hearing etc.)
- also, when interviewing some elderly people or certain people with disabilities - a sensitive, tailor-made approach may be required

### 3.3.9 Answering Machines

As a general rule, do not leave messages on answering machines - especially before establishing contact/rapport with the respondent. In later stages of a respondent's participation in the survey, there are times when this becomes necessary/appropriate, but usually as a 'last resort' - an often better approach is simply to keep calling (without leaving a message) at different times/days etc.

### 3.4 Questions regarding Management or Research Issues

As a strict rule, interviewers should not provide any advice/answers on fisheries research or management issues beyond those directly concerning the study itself (and broadly in terms of study objectives/outcomes). Where a respondent requires more detailed/specific information, they should be referred to your survey manager. If you have any doubts in this regard, obtain brief details of the particular issue, explain to the respondent that you or someone else will get back to him/her and refer the matter to your manager.

### 3.5 Confidentiality

As an essential component of this study, all survey information will be treated in the strictest confidence. Although by necessity, the sampling system contains various personal details respondents (name, address etc.), in terms of the use of any survey data, respondents should be fully assured (wherever necessary) that the information they provide will never be used/published etc. in any personal way.

Aggregated statistics are the output of the survey and in fact, once the data from the survey have been fully computer-processed, the questionnaires themselves will be 'destroyed under supervision', along with erasure of all personal details from original sampling files.

Obviously, it is vital that respondents feel confident in terms of this issue, and hence the 'golden rule' that ..... ***confidentiality must not only be done, but must also appear to be done.*** To this end, interviewers (and other survey staff) should never divulge any information from the survey (whether anonymously, anecdotally or otherwise) to any person outside of the survey team. This includes to any family members and also by 'innocently' leaving questionnaires in unsecure places where they can be seen by others (even e.g. on the dashboard of a locked car).

Further to this, it may occur during the survey, that you become aware of certain illegal fishing activity (at varying levels, but usually due to simple ignorance of the law on the part of the respondent). As you will recall from training, under no circumstances should you mention/discuss this with the respondent. You can of course, discuss such matters with relevant survey staff if necessary (e.g. Survey Manager), but be assured that the matter would not go beyond that level. In other cases, a respondent may ask a 'legal type' question of you (bag limits etc.) and although it might seem impolite/inefficient (if you know the answer), you should always refer the respondent to the appropriate source and maintain your role as 'just an interviewer' (again, refer discussions in training).

### **3.6 Administration and Other Aspects of Workload Completion**

#### **3.6.1 Clerical Editing**

As instructed during training, clerical editing of completed questionnaires should be conducted on a regular basis (ideally daily) to ensure their completeness and accuracy. Your 'throughput' pay rates for interviews include a significant component for this (and other non-interview) time. Note: if done regularly, any inconsistencies or omissions detected can then be readily corrected - and in the worst case, this might involve a quick return call to the respondent ("I'm sorry but I forgot to ask you ...."). Your completed questionnaires will be further checked by office staff/computer editing and where necessary, detected errors 'fedback' as part of an ongoing remedial/learning process.

#### **3.6.2 Workload Control and Return**

During the period of the Screening Survey, weekly despatches of completed interviews (and copy of updated Workload Control Sheet) are required to the survey office (as detailed in training).

For the Explanation Interview phase, only your completed Workload Control Sheet (Diary Survey) is required.

During the Diary Survey, completed Event Sheets for each month (stapled for each respondent) and an updated Workload Control Sheet, showing the status of each household should returned to the survey office, by the end of the second week in the following month:

Mr. Gary Henry  
National Survey Manager  
NSW Fisheries Research Institute  
202 Nicholson Parade  
CRONULLA NSW 2230

## 4 INTERVIEWING CONVENTIONS

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The following 'conventions' have been used in designing the survey questionnaires and these will assist you (and the staff who process the completed questionnaires) to work efficiently.

### 4.1 Survey Questions - What Parts To Read Out

#### 4.1.1 *Bold Face/Lower Case Type*

Only those parts of the questions printed in bold and in lower case are to be read out. Any printing in UPPER CASE (instructions to the interviewer) or answer categories (in lower case) should not be read out - unless you are instructed to do so.

**Q2(a) (Firstly), thinking back over the last 12 months .... has any member of your household done any recreational fishing in Australia ... whether they caught anything or not?**

Yes ( <i>go to Sect B</i> )	1
No	2

In this case the interviewer should read out the question (bold & lower case) but not the answer categories - the interviewer's job here is to code the respondent's answer into one of the two categories. N.B. It is vital that any 'structured' questioning (i.e. lower case text) be read exactly as it is worded - this will ensure consistent application of the survey instrument by all interviewers.

In the following example, the answer categories should be read out in addition to the question - as indicated by the bold face, lower case text of the answer categories. However, the upper case interviewer instructions and the answer category 'UNSURE' should not be read out.

**Q4. (And) thinking about the coming 12 months, how likely is it that a member of your household will do any kind of recreational fishing, crabbing, prawning, spearfishing etc.? Would you say ... (READ OUT UNTIL TERMINATED; \*'UNSURE' NOT VALID AS 'INITIAL' PROXY RESPONSE IN Q'S 2-5, ARRANGE PERSONAL INTERVIEW/ CALL-BACK ETC)**

<b>Very likely?</b> ( <i>go to Sect B</i> )	1
<b>Quite likely?</b> ( <i>go to Sect B</i> )	2
<b>Not very likely?</b>	3
<b>Not at all likely?</b>	4
<b>UNSURE*</b>	5

#### 4.1.2 *Brackets*

Parts of some questions are contained in brackets - the words within the brackets are only read out if applicable to the particular case. Often, this depends on answers to earlier questions and in some cases, an entire question may be bracketed - invariably because other 'sequencing' systems cannot cover the range of possibilities. In other cases, words in brackets such as "**(And)**" are to be treated as optional at the discretion of the interviewer - i.e. you can choose whether to say them or not.

**Q6. (And) during the last 12 months, on how many separate days did you do any kind of recreational fishing, (crabbing, etc. in Australia)? Would you say ... (READ OUT UNTIL TERMINATED)**

<b>Less than 5 days?</b>	<b>1</b>
<b>5 to 9 (days)?</b>	<b>2</b>
<b>10 to 14 (days)?</b>	<b>3</b>
<b>15 to 19 (days)?</b>	<b>4</b>
<b>20 or more (days)?</b>	<b>5</b>

In the above example from Sect. C of the Screening Survey, the bracketed words "crabbing, etc. in Australia" are only to be included in the question for respondents who have answered 'Yes' to earlier questions (Q3: for other types of recreational fishing and Q4: recreational fishing in another state or territory).

#### **4.1.3 Obliques**

Wherever an oblique is used, this denotes that either the words to the left of the oblique, or those to the right, are to be read out (as appropriate). Note: in some cases, obliques may be used in combination with bracketed text.

**Q9. (And) are you/any of these people of aboriginal or Torres Strait Islander origin?**  
(\*IF YES, PROBE FOR DETAILS - IF ALL, THANK/TERMINATE - IF SOME, IDENTIFY AND CIRCLE AGE FOR EACH IN Q6[c]) AND THANK/TERMINATE

<b>Yes - all*</b>	<b>1</b>
<b>Yes - some*</b>	<b>2</b>
<b>No (thank/terminate)</b>	<b>3</b>

In the above example, either the words "are you" are to be read out (single person household) or "are any of these people" (2 or more in household)

#### **4.1.4 Gaps in Questions**

These are used where the interviewer is to insert the appropriate and obvious word into the question, or, where a pause in the question is appropriate.

**Q1. INTRODUCTION: Good morning/etc. .... from NSW Fisheries**

The interviewer is required to insert the appropriate words e.g. "it's Mary Smith". Note: in other cases where the text to be inserted is not perfectly obvious, a bracketed upper case instruction may be used instead.



## 4.2 Sequence Guides

### 4.2.1 *Sequence Guides within Questions*

These are designed to "sequence" an interview so that only appropriate/necessary questions are asked for each respondent. Note: all forms of sequence guides are shown in 'italics' to distinguish them from other instructions.

**Q2(a) (Firstly), thinking back over the last 12 months .... has any member of your household done any recreational fishing in Australia ... whether they caught anything or not?**

Yes ( <i>go to Sect B</i> )	1
No	2

If the answer to this question was 'Yes', then by following the sequence guide (Go to Sect. B) the interviewer is correctly sequenced through the questionnaire. If the answer was 'No' then the interviewer should ask the next question (Q2[b] in this case) - a standard convention whereby, if the very next question is to be asked (the majority of cases), no written instruction is given to do so.

### 4.2.2 *Separate Sequence Guides*

In other cases, sequence guides may be included as separate entities and have their own 'question' number (i.e. *SG* number).

*SG5. • IF FISHED/ETC. IN PREVIOUS 12 MONTHS (CODE 1 IN Q'S 2, 3 OR 4), GO TO Q6*  
*• OTHERWISE, GO TO Q7*

## 4.3 Recording Answers

There are several standardised ways of recording answers on survey questionnaires - in all cases please use BLUE BIRO. (Note: red biro is used by office editing staff and green by supervisors). Black ink is never to be used as it creates difficulties for data entry staff.

### 4.3.1 *Circling Code Numbers*

Most of the questions are structured so that interviewers can simply circle the appropriate code number to record an answer. Circles should be reasonably neat and should clearly define the answer chosen. Where you have circled a code in error, use the following procedure to make a correction:

- cross out the incorrect circle
- circle the correct code
- place a tick to the right of the correct code ... (as per the following example)

Q2(a) (Firstly), thinking back over the last 12 months .... has any member of your household done any recreational fishing in Australia ... whether they caught anything or not?

Yes (go to Sect B)

① ✓

No

② ✗

Under no circumstances should correction fluid be used - regardless of the apparent 'untidiness' of the questionnaire. This system enables editing staff to see the whole 'story' of an interview and the changes/corrections that might have been made. For similar reasons, re-writing of questionnaires should be avoided - unless it is absolutely necessary.

#### 4.3.2 Single vs. Multiple Answers

Most questions in the survey require just one of the available answer codes to be circled (e.g. yes/no). The use of different answer code numbers is the key here (Yes = 1, No = 2). However, in some cases, multiple answers are required to a question. These are in fact 'multiple' questions and typically, employ the same answer code throughout, for example (from Sect. C, Q7[b]):-

(c) INTERVIEWER: PROBE FOR EACH STATE AND LICENCE TYPE/S HELD	NSW	Inland	1
	VIC	General RFL	1
		Inland Netting	1
	WA	Abalone	1
		Rock Lobster	1
		Net	1
		Marron	1
		SW Freshwater	1
	SA	Rock Lobster	1
		Net	1
	TAS	Inland	1
		Sea Fishing	1
	Other (specify): .....		

In the above example, one or more of the licences can be recorded by simply circling the appropriate code/s. Unlike normal questions, a 'blank' code here implies 'No' (as opposed to 'question not asked/applicable' – see further discussion in 4.3.3)

#### 4.3.3 Recording Numbers

Always record numbers clearly and wholly within the appropriate space/boxes.

##### (i) Numeric Code Boxes

In most cases here, 'structured' code boxes are employed. Simply record the number wholly within the code box concerned. Note: there is no need to use 'leading zeros' e.g. age 6 years, would simply be recorded as a "6" in right hand of 2 code boxes (not 06 in both). The exception to this rule concerns the 24 hour clock (see 4.4 below)

**(ii) Numeric Spaces (.....)**

These are sometimes employed in the questionnaires - usually for ease of design/layout purposes. Simply record the relevant number/s (e.g. ".75.%" - from Q6[b], Sect C).

Important: as a standard questionnaire convention, the insertion of a response in a field denotes that a question has been asked (and the answer recorded) - hence a blank field routinely means that a question has (and presumably, should) not have been asked. Further to this, we note the distinction between a zero and a blank field - the former being an actual value/response. Note: an exception to this rule occurs in the Event Sheet (Q's 12 and 13, Part 2 Manual) where, for practicality, the most common species/expenditure items have been structured on the form. Entries are only to be made where a catch of each species has been reported (i.e. there is no need to record zero for every other species on the form).

**4.3.4 Recording Answers in Writing**

In the rare cases where questions are "open-ended" - i.e. the respondent's answer is to be written down as opposed to categorised/coded, the following points should be remembered:

- write legibly, print or use upper case if necessary
- record the answer concisely, by summarising the respondent's words - do not record 'verbatim' responses unless this is vital to any understanding of the respondents answer
- when abbreviating, be certain that anyone else will know what you mean (i.e. the coding staff)

**4.3.5 "Other (specify)\_\_\_\_\_"**

This category is circled in cases where the respondent's answer does not fit into the specified answer categories. Please ensure that you record the answer as accurately as possible in the space provided, as well as circling the appropriate code number.

**4.4 Recording Time**

When recording time, the 24 hour clock must always be used.

E.G. 8.30 am = 0830; 2.40 pm = 1440; 8.05 pm = 2005; 12 midnight = 0000

Note: for those unfamiliar with the 24 hr system, the simple rule of adding 12 (hrs) to any time from 1 pm to 11 pm will help.

#### 4.5 Prompting vs. Probing

By definition, 'probing' refers to neutral questioning to provide further focus/detail to a respondent's answer - i.e. without suggesting any particular answer to the respondent. In many areas throughout the questionnaires, you are asked to 'probe' for further information - as instructed during training please ensure you that you do so in a neutral manner.

Further to this, probing can be of a 'terminating' nature (e.g. "anything else?" will neutrally invoke a yes/no response). On the other hand, a 'non-terminating' probe (e.g. "what else?" makes it harder for the respondent to answer in the negative - and is validly to be used where the interviewer is aware that there is other information to be gathered.

On the other hand, 'prompting' (by definition) provides specific answer choices to the respondent and although it is possible to 'neutrally' prompt (i.e. where all the possible answers are presented as equal options to the respondent e.g. yes/no type situations), in so many cases where further questioning is required to establish a clear response (e.g. reasons why), the range of answer options precludes such neutrality. Prompting, therefore, is to be rarely employed in this study - unless contained in structured questioning/answer categories to be read out by the interviewer (e.g. "very likely? quite likely? not very likely?" etc – from Q4, Sect A).

## 5 THE SCREENING SURVEY

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Listed in order of the questionnaire, this section comprises a discussion of relevant details and (additional) definitions for each question. However, where no additional information is required (to that contained in the questionnaire), little or no reference is made.

### 5.1 Section A: Administrative Section, Introduction and Initial Screening

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#### 5.1.1 Administrative Section

Relevant details of each dwelling/selection are 'over-printed' by computer into the vacant 1<sup>st</sup> row of the of this section – see discussion in (A) to (C) below.

##### (A) Sample Number

Each selected dwelling has a unique Sample Number - no two numbers are the same. Each household is therefore identifiable by this number during the survey and especially during computer editing and analysis. The Sample Numbers are determined during the sample selection process and are specified on the Workload Control Sheet for PD's (see Appendix A) and are also over-printed by computer to each Screening Survey (Sect. A) questionnaire in your workload (see Appendix B). In all cases where you are required to transcribe a sample number, you should do so with extreme care. The sample number is made up of 7 characters:-

(1) State: N – New South Wales and the ACT; V – Victoria; Q – Queensland; S – South Australia; W – Western Australia; T – Tasmania; and Y – Northern Territory.

(2)-(3) 'Ezone': the defined Economic Zone for that dwelling/selection – an important aid to interviewers in the Diary Survey. A two digit numeric code, unique within each state/territory.

(4)-(7) Unique: a unique four digit number within each State and Ezone - assigned at sample selection stage.

##### (B) Name and Address

Derived from the electronic 'white pages' listings – includes: initials, surname, street number, street name, suburb/town, state and postcode. **IMPORTANT:** as discussed in training, do not use this information to refer to respondents by name/etc, until such time as you have established, name/etc from the respondent (i.e. through Section E of the Screening Survey – Diary Survey Invitation). In all other cases, name/etc. details are simply not required (see discussion in [C] below, Section 5.2 and 5.5).

**(C) STD and Phone Number**

The telephone number of the selected dwelling is the sampling unit for the survey and has been randomly selected by area. The phone number is the means by which (currently resident) dwellings/households are identified and changes since the phone listings were created are of no importance. If an entirely different household (from the original phone listings) is revealed, then the interview should be conducted as normal (unless as a result of dialing a wrong number – refer training/survey manager). Further to this, the selected phone number can only be changed in our sampling after the screening phase - e.g. during the Diary Survey, when a household has moved (or changes it's phone number – again refer training, Part 2 Manual).

Also, if a number is revealed to be a business listing only (i.e. no-one lives there), or has been disconnected, then this fact is recorded in the Response Report for that selection. Here, no further work is required by the interviewer – do not (e.g.) attempt to locate the 'new' number for a disconnection revealed in the Screening Survey.

Note: some addresses, postcodes and STD codes for your state/territory may appear to be in error (e.g. the postcode 3644 is valid in NSW, as is (07) a valid STD code for NSW). However, if at all concerned, you should verify any such cases with the survey office.

**(D) Interviewer Initials**

A unique identifier for each interviewer in each state. To be determined during training, to ensure there are no duplicates.

**(E) Call and Appointment Details**

The Call Details Section provides a dual role of being an administrative aid to the interviewer and evidence to the survey office of calls made and effort expended in attempting to contact each household.

For many reasons therefore, interviewers should complete this section accurately and to facilitate this, special codes/abbreviations should be used (see earlier in 3.2.6).

The Appointments Section should be used for all ('appointment') call-backs (ie. where either a formal appointment was made with/through a household member or a 'try-again' type arrangement was made. This section should not be used simply for cases where the interviewer is merely reminding him/herself to call (ie. without some 'arrangement'). Obviously, any appointments made should be punctually adhered to - in spite of the fact that your respondent may often not be so punctual. If any details should be noted for the next appointment, these should also be recorded here.

**(F) Response Report**

To be completed after finalising the initial survey questionnaire as follows: -

- Fully responding (Code 1): cases where all of the required information for the Screening Survey was obtained, including for all persons classified as "in" the survey
- Full Refusal (Code 2): where all survey questions were declined by all respondents.

Note: whilst the survey is obviously being conducted on a voluntary basis, every effort should be made to convince un-cooperative respondents of the importance of their inclusion in the study. You should therefore politely persist, but never harass in such cases - remember a skilled and confident interviewer will rarely incur refusals (but never through misleading or 'brow-beating' the respondent)

- Part Refusal (Code 3 ): where at least one survey question was declined (but not all)
- Full non-contact (Code 4): where no survey information was obtained from the household due to an inability to contact household members

Note: in all such cases, at least ten effective calls to the household must be made – including over the specified workload period for the Screening Survey (refer also instructions in training and earlier in 3.2.2)

- Part non-contact (Code 5): where some (but not all) survey questions unanswered due to inability to contact one or more household members - again the 'ten call-back' rule applies to individual respondents.
- Number disconnected (Code 6): established/verified through Telstra
- Business number (Code 7): i.e. no-one lives at the address where the phone is located OR where residents do exist, but another 'white pages' listed number exists there. These latter cases you will need to be resolved through careful probing (but only where the matter is raised by the respondent). Note: all phone numbers classed as 'Business Numbers' have been removed from the sampling 'universe' before selection.
- Other (specify) (Code 8): all other cases of 'non-response' (e.g. (i) language difficulties – specify language, if possible and (ii) recent death/illness) and 'sample loss' (e.g. all residents out of survey scope – namely, international visitors who have no residency status – touring/holidaying etc).

Note: this Response Report refers to the Screening Survey only. Any refusals from 'intending fishers' in terms of Diary Survey participation are detailed in Q1(b) Section E, not this classification.



### 5.1.2 Remainder of Section A – Question 1 - 9

**Q1. INTRODUCTION:** your introductory statement to the household. This issue is discussed in some detail earlier (see 3.3.1) and will also be thoroughly addressed during training.

Note: your introduction should be as brief as necessary and where further explanation is required, you should draw upon the 'keys' provided. 'ARA' = any responsible adult member of the household.

**Q2(a) and (b):** virtually one question, but split due to the length/definitive complexity. The first 'triggers' for sequencing to Sections B-F (more detailed, person-based questioning).

**Q2(c):** due to varying renewal arrangements for some licences, this question refers to licences held at any time during the previous 12 months and not necessarily current. The third 'trigger' for Sections B-F.

**Q3:** refers to current membership only and includes all kinds of related clubs/associations (e.g. informal 'hotel' fishing clubs). The fourth 'trigger' for Sections B-F.

**Q4:** the fifth 'trigger' for Sections B-F (and the sole eligibility criterion for the Diary Survey). Although it will be quite uncommon that a respondent answers 'Very or Quite Likely' here, (most will have fished in the previous 12 months), it is nevertheless vital that each such case be correctly sequenced to Section B.

**IMPORTANT:** whereas proxy responses are valid in Q's 2-4 above, "UNSURE" is not valid as an initial proxy response in these questions – unless it refers to children in Q4. In all other cases, every reasonable effort should be made to get the information personally to 'establish the facts' in Q's 2-3 (or assess fishing likelihood in Q4).

**Q5:** the sixth and final 'trigger' for Sections B-F – although unlike Q's 2-4, a different procedure applies. In this case, the survey is only interested in establishing boat details on a household basis (they don't fish, intend to fish etc). Therefore sequencing is to Section D only - and then, back to Q6(a) Section A. For further details on boat-related definitions, see Section 5.5.

**Q6(a):** as the first of the demographic questions for non-fishing/etc households (i.e after the substantive survey questions have all been answered 'no' [exception: Q5]), an appropriate 'linking statement' is required before asking these (refer instructions in training). Note: out of scope' residents per Q7 are to be excluded from the total recorded (amended). Conversely, 'in-scope' visitors per Q8 are to be included. Note also: UR = usual resident.

**Q6(b):** this question is fully contained in brackets – and is not to be asked where only one household member exists (observation)

**Q6(c):** as the definition of age refers to last birthday, infants not yet one year old are to be recorded as '0'. Conversely, any respondent aged more than 99 should be recorded as '99'. Where a respondent is reluctant to provide his/her age, probe for/record a '0-4 mid-point' age group as follows: 2 for 0-4; 7 for 5-9; 12 for 10-14; and so on. Note: absence of exact ages here is not to be classified as (part) refusal, unless other survey data are declined.

**Q7:** the first of two questions (see also Q8 below) to ensure that each person in the survey/population has the same and equal chance of selection in the survey. If queried by a respondent, please carefully (but briefly explain) e.g. “that we don’t want to double-count or miss people”. In the very rare cases where you are required to exclude a usual resident, please ensure that you amend Q’ns 6(a)-(c) accordingly. Note: this question is fully contained in brackets – and is not to be asked where only one household member exists.

**Q8:** the ‘obverse’ of Q7, where obverse rules apply – except for non-inclusion of ‘long-term’ visitors who are usual residents (UR) of a non-private dwelling (‘NPD’ - hotel, nursing home etc) or overseas (these are excluded from the survey scope). **IMPORTANT:** although expected to be very rare, it is possible that inclusion of an ‘in-scope’ visitor could substantively change the results of the survey for that dwelling/selection (i.e. Q’ns 2-5 have to be re-asked for the visitor/s. If any are answered ‘Yes’, then different sequencing applies (Sections B-F).

**Q9:** this question is asked to enable full classification of our sample population in accordance with ABS definitions. Note: the ‘unconventional’ recording procedures for circling age/s where only some household members are ‘Yes’ (refer also instructions during training).

**COMMENTS:** insert here any explanatory notes or comments of relevance to the interview/survey office. The reverse side of the questionnaire can also be used, but please ensure that you ‘flag’ this on the front page. Alternatively, a formal Field Query might be required (refer training and Part 2 Manual).

## 5.2 Section B: Household Structure

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**Sample Number:** to ensure that provide a link to the database records it is VITAL that you accurately transcribe the sample number from Sect. A in every case (regardless of how soon you staple the two forms together).

**Q1 INTRO/‘LINK’:** as discussed in training, an effective ‘linking’ statement is required here to ‘explain’ to respondents that you now require person-based information. Note: the ‘head of household’ concept is a convenience/tool to elicit a simple and clear response - if a respondent queries you as to the definition here, it can be the older person of two (‘joint heads’) or as the person deems it.

A household is defined as any group of people who share kitchen/cooking facilities. This can be a conventional nuclear or extended family, a group of co-tenants, or a single-person household. If you detect at this stage of the interview that more than one household exists at the selected dwelling (ie. phone number), simply record the additional respondents on the form and make a note to this effect in the Comments Section. Importantly, the survey design does not require that multiple households be ‘separated’ in such cases – only if there are insufficient Person Numbers on the first form.

**PERSON NUMBER:** there are 9 unique PERSON NUMBERS on the questionnaire. This number when appended to the Sample Number creates a unique identifier for each respondent in the survey. Once again, care is required when transcribing these numbers and in the rare cases where a dwelling/selection has more than nine members, you should complete a second

questionnaire - repeating the sample number, and numbering each of the forms "1 of 2" and "2 of 2" in the top right-hand corner on Page 1. The Person Numbers on the second form should be changed to 10, 11, 12 etc. The two forms should then be stapled together.

***For each member of the selected household the following details should be recorded:-***

**Q1(a):** Name/Identifier: First name or some 'coding' (e.g. H, W, S, D etc - refer training) enabling the interviewer to distinguish between household members. This information is not punched and is not essential (unless the household is included in the Diary Survey).

**Q1(b)-(c):** Age-Sex – see 5.1.2 earlier. Also the sex of each respondent is often revealed in response to the intro. question "wife, son etc."

**Q'ns 2 and 3:** See Q'ns 7 and 8 – 5.1.2 earlier

**Q4:** In the Survey? – Code 1 applies to each respondent who is aged 5 years or more at the time of the Screening Survey and is also 'included' through Q'ns 2 and 3

**SG5:** then sequences 'in survey' respondents' to Section C.

### **5.3 Section C: Past and Future Fishing**

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**PERSON NUMBER:** there are 6 Person Numbers/columns in the questionnaire and you should record the Person Numbers of all respondents 'in the survey', starting with the lowest such number (or your first/proxy respondent – refer training) in the left-hand column, then insert others in ascending order, leaving no gaps. For example, in a 5 person household where the parents are Persons 1 & 2, two children < 5 years of age are Persons 3 & 4 (and are not "in" the survey) and Person 5 is a visitor "in" the survey, you should insert person numbers 1, 2 and 5 in the first three columns, leaving the last three blank. It is also important to ensure that the same order is maintained at the head of every subsequent page in the questionnaire.

**Q1:** Record for each respondent, to show whether the interview was conducted on a fully personal basis (Code 1) or at least partly by proxy (Code 2). Procedures for personal and proxy interviews are also discussed in 3.3.5 earlier.

**Q'ns 2 and 3:** counterparts to Q'ns 2(a) and (b), Section A, but refer to fishing the 'home' state. Note: in both these questions, the words "(or the ACT)" are only to be read out for respondents based in the ACT.

**Q4:** when combined with results from Q'ns 2 and 3, provides comparability with Q'ns 2(a) and (b) Section A.

**SG5/Q6:** a 'best estimate' of fishing effort in the previous 12 months. As discussed in training, do not 'unduly dwell' on this with respondents – it is a guide to 'avidity' only and the more precise data will come (in aggregate) from the Diary Survey.

**Q7(a):** counterpart to Q2(c), Section A (see discussion in 5.1.2)

**Q7(b)-(c):** establish the number and types of licences held. Note: state/territory recreational fishing licences are not applicable in Queensland and the Northern Territory, although some ‘access fees’ are applicable for certain ‘impoundments’ in Qld. (please record as other specify, if reported). Also, if you are at all unsure how to classify a response, ‘write it all done’ and check with the survey office.

**Q8(a):** counterpart to Q3, Section A (see discussion in 5.1.2)

**Q8(b)-(c):** establish the number and types of clubs or associations, of which the respondent is a member. Because of the large numbers involved, all coding of these will be conducted by the survey office – so please obtain the clearest description you can for each club/association. Also, where several respondents in the one dwelling/selection are members of the same club/association, remember to clearly code them 1,2 etc (the first time you record it) and use the code numbers for other respondents (refer training).

**Q9:** counterpart to Q4, Section A – importantly, (as discussed in training) there is no need to ‘agonise’ with a respondent in terms of (a) ‘very vs. quite likely’ to fish or (b) ‘not very vs. not at all likely’. But it is important in terms of (c) ‘quite likely vs. not very likely’ – again, the difference being inclusion or exclusion for the Diary survey (N.B. the 50/50 rule discussed in training).

**SG10:** directs you to conduct proxy interviews with your first respondent, where you can and should do so – care with privacy, precision, co-tenants etc.

#### 5.4 Section D: Boats

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As a household-basis applies here, this question sequence can be routinely asked of a proxy respondent. However, others in the household may need to be interviewed in some cases.

**Q1(a)-(b) and Q2:** assess household boat ownership and the number of boats owned wholly (or partly) by any member of the household. A boat is defined by the ‘Gunwale Rule’ – i.e. if it has ‘sides’ and a gunwale (top-side) and can carry at least one person e.g. a canoe, dinghy. With the exception of ‘jet skis’, all craft without sides/gunwales are excluded by definition (regardless of size) e.g. windsurfers, paddle skis and rafts. Include any private and corporate-owned vessels (if asked, do not probe/prompt here), including those vessels which might be used for commercial purposes only (see further discussion under Q3 below).

**BOAT NUMBER/Identifier:** up to 4 Boat Numbers are provided on the questionnaire. If in the rare case that more are reported, an extra questionnaire can be completed and attached, as per Person Numbers. The space for ‘Boat Identifier’ is for interviewer reference – principally where more than one boat is reported.

**Q3:** this question has been carefully designed to accurately estimate the number of boats owned by households. Just as the ‘scope’ questions in Sections A and B provide a ‘chance of selection’ for respondents at either the selected dwelling or another, so does this question - for boats which are ‘owned’ by more than one household. Put simply, if a boat is mainly owned by the selected household (>50% by one or more members), then we want to include

it – and collect details through Q'ns 4-8. If not, it is excluded from further questioning and therefore from the eventual estimates.

In cases where a boat is owned equally by the selected dwelling/household and (say) one other, the 'Alpha Rule' is to be applied, whereby the Surnames of the 'competing' households (and then first names, if necessary) are used to decide. After explaining/probing carefully, you should assign ownership (i.e. include) to the household with the surname (first name etc) which is lowest in alphabetical order (first letter closest to A). Where more than two households are involved, the same principal should be applied, but not where the shares are disproportionate (e.g. 50%, 25% and 25% - refer training).

In terms of corporate ownership (again, only if mentioned by the respondent), a boat is to be classified as owned by the selected household, on the basis of who mainly owns the company/etc. If it's the selected household then include (code 1) – if not, exclude.

Finally, in rare cases where a corporate financier (e.g. bank) is viewed as being the owner of vessel because of the terms of a loan agreement (e.g. hire purchase), any such ownership by the bank/etc is invalid for purposes of this survey (other than formal/complete foreclosure or re-possession).

**Q4:** the answer to this question can be recorded in either metres or feet – depending on the respondent's reporting preference. For rounding of decimals e.g. 4.4 metres = 4 and 4.5 metres = 5.

**Q5:** Definition – PWC: personal water craft

**Q6(a):** 'usage' in this question is not confined to members of the selected dwelling/household and it can arise that you get a 'yes' here from a totally non-fishing household (e.g. grandparent allows grandchild to go fishing in the boat).

Note: after this, the questions focus on 'fishing boats' only

**Q6(b):** as discussed in training, this question aims to provide a 'usage coefficient' for recreational fishing. Use the 'best estimate' approach (considering respondent needs) to obtain a percentage here.

**Q6(c):** approximate current market value of the boat, trailer and fixtures. Simply read out the question, using optional wording as appropriate and if necessary, stating "not the retail or replacement cost". As a general guide, answers should be recorded to the nearest \$'000, where appropriate e.g. \$6,000 (or nearest \$100 e.g. \$500; or nearest \$10,000 e.g. \$240,000) – but this only applies where a respondent is 'agonising' of the value.

**Q'ns 7-8:** simply read these as worded for all boats. Although it is unlikely that a canoe might have an echo sounder or GPS, hand-held units are available and therefore it is possible. Further to this, where (say) a portable GPS unit is shared by two boats in the household, both are to be recorded as 'Yes' (i.e. we are not counting GPS units – but boats which have them). Also, be prepared to quickly explain/define an echo sounder or GPS to some respondents.

**SG9: remember** - the first sequencing instruction here relates to those households directly sequenced to this Section from Q5, Section A – they have a boat, boat don't fish or expect to fish.

## 5.5 Section E: Diary Survey Invitation

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This section applies to all households where one or more 'intending fishers' exist (i.e. Code 1 or 2 in Q9, Section C). Proxy responses here are often valid/appropriate e.g. where a parent (who may or may not fish) answers for a child who does. More commonly though, in nuclear family situations, a 'main fisher' (refer training) will be happy to commit the whole family to the Diary Survey.

On the other hand, be alert for any situations where you should be asking these questions personally and a quick probe is advisable, where the other respondent is an adult e.g. "are you sure this'll be OK with him/her?" Note: many co-tenant households are effectively separate (one-person) households/entities and personal interviews are usually required here.

**Q'ns 1(a) and (b):** as per instructions in training, we are seeking optimum response here and all initially reluctant respondents should be strongly encouraged to at least look over the survey kit before declining the survey. Previous experience has shown that the vast majority of these cases are people who are 'busy', don't fish much and are surprised at just how simple the diary system is and therefore, how little burden, in terms of their 'business' (e.g. a parent declining for a Year 12 student). As always (of course), this is a voluntary survey and interviewers should in no way harass here.

**Q2(a):** please take care to explain/probe for first names here – if necessary, double-check (using age) from Section B that you have this correct.

**Q2(b):** be especially careful here to simply ask the respondent for a name and mailing address for the kit despatch.. Do not 'offer' any information from our sampling details either before or after obtaining their mailing details (refer discussion re confidentiality breaches in training). Rather, you should (silently) check, record if necessary and **PRECISELY AMEND** our database information, which is only shown for convenience purposes. Note: in every case, you will at least need to record a 'title' (Mr/Ms etc)

**Q3:** refer instructions in training for projected mail-outs of survey kits. Ideally, all 'Diary Explanation Interviews' should be conducted in the last two weeks of April 2000.

## 5.6 Section F: Socio-demographics

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**SG1:** because all children 5 to 14 years of age are assumed to be current school students (or yet to attend school), they are sequenced past Q'ns 2-3, to Q4.

**Q2(a):** Labour Force/Activity Status - by reading the question and the answer categories until your respondent chooses one, you will invariably encounter no difficulties with this question.

As a main activity, only one answer code is required and if in doubt, let the respondent decide, or he/she can't, apply the lower (numerically) code number of those in contention.

Note: only those respondents answering work of some kind (codes 1 or 2) are sequenced to Q2(b).

**Q2(b):** Occupation – classify occupation of main job (if more than one, but do not probe for this). Main job is defined as the one in which the respondent usually works the most hours. By adhering to the following guidelines, you will readily be able to code most responses here. Where any difficulties arise, you should firstly ensure that you have obtained an adequate description from the respondent and resolve the matter after the interview – i.e. if you cannot code any occupation virtually instantly during the interview, you should use this approach.

A key determinant here is “what the respondent actually does” – not what they might be qualified to do (e.g. a medical nurse may be employed as a sales assistant in a retail store). Also, do not confuse the ‘industry’ with the ‘occupation’ (refer training). The ‘golden rule’ in all this is ... if you are certain that you can code the occupation, do so. If not, then record details in ‘Other (specify)’. A separate OCCUPATION CODING GUIDE will be provided during training

**Q3:** Education - this question will often attract the curiosity of the respondent ("what's that got to do with fishing?") and yet it is often a significant variable in terms of respondent behaviour and attitudes - and especially in terms of awareness issues (refer instructions in training).

**Q4:** Languages other than English - this is a simple but very effective determinant of ethnicity and (aligns with ABS Census definitions). Note: while numbers of ‘ethnic’ people may be interviewed, some will not respond positively here (even though they may speak several languages) – simply on the ‘spoken at home’ basis.

**Q5:** Counterpart to Q9, Section A – see 5.1.2

**Q6: important** - for Diary Survey participants, it is vital that relevant information be transferred to the Diary Survey Cover Sheet (see Part 2 Manual) immediately after the Screening Survey interview.



## 6 INTERVIEWER NOTES

[illegible]



# **Survey of Recreational Fishing in Australia - 2000/01**

## **Interviewer Manual<sup>®</sup> - New South Wales**

### **Part 2: Diary Survey**

**May 2000**

**Fisheries Action Program (Natural Heritage Trust)  
Fisheries Research and Development Corporation  
and NSW Fisheries  
Project 1999/158**

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## 1 INTRODUCTION

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The information contained in this manual (Part 2) refers to the Diary Survey phase of the National Telephone Survey (incl. Diary Explanation Interview). Additional information of relevance to the Diary Survey (e.g. study objectives, scope etc) is contained in the Screening Survey Manual (Part 1). Although a standardised national survey, some minor state/ territory differences do exist - e.g. different fish species have resulted in different questionnaire wording in some cases. A separate manual (Part 3) will be provided in 2001 for the final phase of the survey (Attitudinal Survey).

As for the Part 1 Manual, this document provides discussion and definitions as a supplement to information contained on the various questionnaires. Where no additional information is required, little or no reference is made. Also, your own notes (or further definitions) can be added over time (see Section 7).

## 2 THE DIARY EXPLANATION INTERVIEW

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Each household identified in the Screening Survey as eligible and willing to take part in the Diary Survey will be sent a survey kit (covering letter, Fish Species Identification Guide and a Diary Card for each intending fisher – Appendices A, B and C respectively). Your state/territory survey office will advise of despatch dates – at least some of which will be in May 2000.

As discussed during the second training session, the Diary Survey is to be explained to each such household as soon as possible after receipt of the survey kit and depending on individual needs, the structure of this ‘interview’ may vary substantially. The information contained on the Diary Explanation Interview (see Appendix D) represents the maximum information which might be imparted at this time. Usually, a more abbreviated version of the interview will be required and the following minimum requirements apply:-

- establish that the survey kit has been received, understood etc. (per Q1, Appendix D)
- explain that “there’s no need to write down every little thing you do” etc (per Q2, including the example of the “same river all the time”)
- refer to/explain Example 3 on the Diary Card in terms of Split Events for each different type of fishing (per the paragraph immediately preceding Q3)
- establish any fishing plans for May, make appointment as appropriate and explain design philosophy in terms of “normal” fishing behaviour (per Q3)

Alternative phone number/contact person (Q4) should be also be asked at this time – but not where any respondent sensitivity/potential refusal exists. However, as discussed in training, any cases which are deferred here, must be followed up as soon as practicable (and ideally, during May).

Depending on needs, the Explanation Interview can be conducted with each intending fisher or a ‘main fisher’ in the household. For example, the former applies to cases where independent fishing/expenditure activity is likely among the diarists (e.g. unrelated co-tenants) and the latter, where ‘joint’ activity is the norm (e.g. a parent who reports for younger children and him/herself). Clearly, combinations of the two approaches might also be appropriate within the one household.

Finally, every effort should be made during the Explanation Interview to gain the co-operation of those respondents who were ‘Unsure’ in the Screening Survey (Q1(b), Sect. E) as to whether they would take part in the Diary Survey. Similarly, as discussed in training, some respondents who actually declined the Diary Survey at that stage (but others in the household accepted) might now be persuaded to take part, e.g. where a parent declined for a child. In both the above cases, the sample/status of each household must be established before the end of May (see further discussion in Section 6 – Workload Control Sheet).

Note: procedures in relation to the Supplementary Survey are discussed in Section 5.

### 3 THE DIARY SURVEY

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#### 3.1 Overview and Design Philosophy

The interviewing approach required in the Diary Survey differs substantially from the Screening Survey, where a highly 'structured', conventionally-sequenced questionnaire was appropriate. The large array of possible fishing/expenditure activities (and the way that respondents report this information) during the Diary Survey, render conventional questionnaire structures impractical.

As a feature of the design, the answer categories relevant to each fishing/expenditure event are properly structured (and sequenced) on the **Event Sheet** (see Appendix F), but the questions (although clearly structured in many cases) are contained within a separate 'checklist/navigation system' on **Section B of the Diary Survey Cover Sheet** (see Pages 2 and 3, Appendix E). This checklist contains 'cross-reference' information for question numbers on the Event Sheet. Note: Sections A and C of the Diary Survey Cover Sheet (Pages 1 and 4) provide various administrative functions (see further discussion in Section 3.2 and 3.4 respectively).

#### 3.2 Diary Survey Cover Sheet – Section A: Administrative Section

The various elements/data fields on the first page of the Cover Sheet are discussed below - including the stage of the survey, at which each is to be completed:-

- (a) *Sample No:* after Screening Survey – please ensure that you transcribe accurately from the Screening Survey questionnaire
- (b) *Sub-sample No. (Supplem. Survey):* at commencement of Diary Survey – assigned randomly by the survey database in the range 1-6; transcribe from Workload Control Sheet. See further discussion/procedures in Sections 5 and 6
- (c) *Final Response Report:* at end of Diary Survey – to be completed in accordance with definitions for the Screening Survey, on a 'whole-household' basis (incl. for the Supplementary Survey) and for the whole of the Diary Survey period. However, any refusal by an intending fisher to take part in the Diary Survey (at or before the Explanation Interview) is to be ignored for purposes of this assessment. That is, the sample of intending fishers (and others in survey) is to be 'set' for each household at the start of the Diary Survey and response is to be assessed on the basis of "did we get full response for each diarist/other (as appropriate) during the entire survey period?" (incl. for the Supplementary Survey)
- (d) *Surname, Home Phone, Suburb/Town:* after Screening Survey – transcribe from Screening Survey (name from Section E)
- (e) *Alternative Contact Person, Relationship and Phone No:* (ideally) at Diary Explanation Interview – a vital component in tracking of households during the Diary Survey

**(f) Intending Fishers – Person No:** after Screening Survey – transcribe from Section E of Screening Survey. IMPORTANT: the definition here refers only to those intending fishers who ultimately become diarists for the Diary Survey (note: a diarist here includes people for whom survey information will be routinely provided by another household member e.g. a parent who reports for a child). These will be ‘logged on’ as such in the database for the survey. Although fairly uncommon, those intending fishers within a diary household who decline the Diary Survey (as established/confirmed at the Explanation Interview) are to be recorded as ‘Others In Survey’ (see (m) below). Also, as discussed in (c) above, these procedures ‘set’ the sample for the Diary Survey – a ‘person-based’ sample, where the fishing/expenditure behaviour of diarists (intending fishers) is measured over the survey period. Within the scope definitions of the study, all diarists are ‘tracked’ over time (e.g. interstate moves, see Section 4) and no other (or new) respondents are to be taken into the survey

Note: where a diary household contains more than 6 intending fishers (as defined), refer to equivalent procedures for the Screening Survey (Section 5.2, Part 1 Manual). However, in the case of (say) a 7 fisher household, the 7<sup>th</sup> respondent can be recorded by creating an extra ‘column’ on the right-hand side of the form.

**(g) First Name/Other ID** (Intending Fishers): after Screening Survey – transcribe from Section E of Screening Survey, including any surname which might be different from the ‘household surname’ (see (d) above). Also include here any relevant relationship coding/age information as required e.g. Bob (H/46); Mary (W/39), Jenny (D/12), David (S/8). Note: as for the Screening Survey, this ‘personal’ information is for interviewer use only during the Diary Survey, will not be entered onto the database and will be destroyed after survey processing has been completed

**(h) Other Phone No.** (Intending Fishers): (ideally) at Diary Explanation Interview – especially important for ‘busy’ respondents. The general rule here is ‘whatever is OK by the respondent’ (e.g. mobiles, work numbers etc), but please ensure that you establish and record appropriate protocols in each case

**(i) Best Time to Call** (Intending Fishers): after Screening Survey and modified as appropriate over time. See Part 1 Manual for further details

**(j) Other (incl. away info)** (Intending Fishers): after Screening Survey and modified as appropriate over time. Note: often it’s best to use this space for important ongoing descriptive information (e.g. ‘fly fisher’), as opposed to more ‘transient’ comments (e.g. away info. of a short-term nature), which can be recorded on the back page

**(k) Final Response Code** (Intending Fishers): at end of Diary Survey – to be completed on a person basis, for the whole of the Diary Survey period (see instructions in (c) above)

**(l) If Response Code > 1, last whole month diary data** (Intending Fishers): at end of Diary Survey – where non-response occurs (see (k) above), record here the last whole month (May 00 = 5, June 00 = 6, ... April 01 = 4) for which survey data are complete

**(m) Others ‘In Survey’ – Person No:** after Screening Survey – transcribe from Sections B and E of Screening Survey, including for any Intending Fishers within a diary household,



who ultimately decline the Diary Survey (as at Explanation Interview stage). Do not record any 'out of scope' respondents here. Any case where a young child (less than 5 years at the time of Screening) has been provided with a diary card for 'PR' purposes, should be noted on the back page of the Cover Sheet. Note: where a diary household contains more than 6 intending fishers, refer instructions in (f) above

**(n) First Name/Other ID** (others 'in survey'): after Screening Survey – transcribe from Section B of Screening Survey. Although names are not 'essential' here, they are helpful in terms of the Supplementary Survey and also in general interviewing work for the Diary Survey. Also record relationship/age information as per (g) above

**(o) Other** (others 'in survey'): after Screening Survey – as per (j) above

**(p) Call Details:** record as appropriate throughout the Diary Survey (incl. for the Diary Explanation Interview) in accordance with procedures in the Part 1 Manual. See Section 3.3.3 below for call frequency information

**(q) Appointments:** record as appropriate throughout the Diary Survey (incl. for the Diary Explanation Interview) in accordance with procedures in the Part 1 Manual. As a general rule, do not record an 'appointment' where a simple 'check-in call' is to be made (in a few weeks). As discussed in training, correct use of your expansion folder (and a 'blank' record here) are all that's required in such cases (the majority). However, any positive 'fishing plan' information mentioned (even quite vague possibilities) should be noted here. See further discussion in Section 3.3.4 below

### **3.3 Diary Survey Cover Sheet – Section B: Diary Interviews (and Event Sheet)**

#### **3.3.1 Summary of Interviewing Procedures**

The questions/procedures contained in Section B of the Diary Survey Cover Sheet address three distinct components of a diary contact interview:-

**Part 1** (Page 2, Appendix E): identification of any fishing/expenditure activity since previous contact and if so, the number of separate days involved

**Part 2** (Pages 2 and 3, Appendix E): if any activity, the details of each fishing/expenditure event. The questioning sequence here is repeated (for each event) until all activities are recorded for that diary contact, and

**Part 3** (Page 3, Appendix E): any plans for future fishing and appointment-making for the next contact.

The above provide considerable detail in terms of specific questions, procedures and definitions, but minimal direction in terms of sequencing the interview. However, as discussed during training, genuine fluency and overall competence with the interviewing process can only be achieved with experience. Over time, the need to refer to this section will diminish, as the sequencing patterns become more easily recognised and question wording becomes rote learnt.

### 3.3.2 Identification of Days/Dates - Part 1, Section B, Diary Survey Cover Sheet

This question sequence establishes for each respondent whether any fishing/expenditure activity has occurred since the last diary contact and facilitates the recording of any such activity by identifying:-

- the number of separate fishing/expenditure days
- if more than one fishing day, the region/s fished (often only one, which obviates further questioning on this issue) and
- similarly, whether these activities have been diarised for each day (again, to obviate further questioning).

If no fishing/expenditure activity has occurred for a household, the interviewer simply probes for any fishing plans for the next two/three weeks through Part 3 (see Section 3.3.3). Note where no activity/fishing plans are reported (the majority of diary contacts), no special data recording is required – other than in Call Details, Part A of the Diary Survey Cover Sheet. That is, recording of the time, date and a “C” in the result field, together with the Appointments field being left ‘blank’, denotes that no activity has taken place since the previous contact ... or is planned for the immediate future.

Note: as specified at the start of Section B on the Cover Sheet, **proxy interviews** are valid for the Diary Survey, but only for definite cases of nil (or joint) activity. Although proxy information can often be reliably provided in terms of fishing activity (especially in terms of whether another household member has fished or not since the last contact), a greater risk of omission/error exists with expenditure data. Therefore, as discussed in training, care is required with the latter when accepting ‘nil’ responses. Further to this, where a ‘main fisher’ routinely reports data (and diarises) for the whole household, additional probing/personal checking is recommended from time to time.

### 3.3.3 For Each Date/Event – Part 2, Section B, Diary Survey Cover Sheet & Event Sheet

#### (i) Chronological’ versus ‘Method-based’ Data Collection

As discussed in training, a fully ‘**chronological approach**’ is generally recommended for Diary Survey data collection both within and across any days of fishing/expenditure activity. This approach not only enhances data precision (by minimising the risk of omission), but also the overall efficiency and flow of the interview. This standardised “what did you do first/next?” method is clearly the best approach where ‘active’ fishing methods (e.g. line fishing, diving etc.) are involved. It is also the default approach where combinations of ‘active’ and ‘passive’ activities occur simultaneously.

However, in certain cases of ‘passive’ gear usage (e.g. continuous fishing with crab or lobster pots over an extended period), the use of a ‘**method-based**’ approach to data collection can be useful, whereby each ‘passive’ fishing method is dealt with separately for the period concerned (and chronologically within method). Then, starting again at the first day, a

chronological approach is applied to any/all 'active' fishing methods for the period (i.e. in the one chronological 'pass').

Obviously, this latter approach should only be employed where the respondent is sufficiently familiar/comfortable with the process. Often, preliminary 'note-taking' is required, before attempting to complete the Event Sheets - i.e. where the initial questioning in Part 1 (days/dates) is 'extended' to identify the fishing methods involved. This 'note-taking' can take the form of a matrix (or table), covering the key variables (e.g. days/dates, persons, methods etc – as appropriate) to provide a structure for subsequent completion of the Event Sheets.

## (ii) *Event Sheet Procedures and Definitions*

**Event Definition:** for each fishing/expenditure event revealed in diary contact interviews, a separate Event Sheet should be completed. A **FISHING EVENT** is generally defined as any non-commercial harvesting (or attempted harvesting) of aquatic organisms (not plants), by 'in-scope' respondents personally (active involvement), in marine or freshwater within the defined study area/period (see Part 1 Manual for further scope definitions). As a general rule, a separate Event Sheet (i.e. 'split event') should be completed when any particular fishing activity covers more than one answer category in any data field where the notation "(split)" appears (e.g. Q6 Region). Split events are further discussed below under each relevant data field of the Event Sheet and summarised in Section 4.1. An **EXPENDITURE EVENT** is generally defined as any recreational fishing-related expenditure by 'in-scope' respondents personally (the actual purchase), within the defined study area/period. Such expenditure may be wholly related to fishing (e.g. fishing tackle) or only partly related (e.g. accommodation costs on a trip where other activities [e.g. water skiing] were undertaken). Private vehicle travel is also classed as 'expenditure' (see Q13 below). Unlike for fishing activity, 'split events' are rarely required in terms of expenditure (see discussion under Q13 below and in Section 4.1). Also, where both a fishing and expenditure event occur on the one day, both can be recorded on the one Event Sheet (see Q5 below).

The following definitions/procedures are presented in the order of the Event Sheet, as a supplement to those contained in Part 2, Section B of the Diary Survey Cover Sheet. However, more complex issues where the definitions/procedures embrace a number of data fields on the Event Sheet (e.g. 'split events') are discussed in Section 4:-

- **Sample No:** immediate and accurate transcription is vital here - especially given the large number of Event Sheets which will be produced in the study. Also, systematic storage of completed sheets in the Diary Survey Cover Sheet (until stapling and monthly despatch) will also maximise security/precision
- **Event No:** fishing/expenditure events are defined under Q5 below. To ensure 'uniqueness' of each record in the database, a separate Event No. (starting at 1 and ascending) is to be allocated to each new event within each household (Sample No.) and day. Although Event No's will naturally tend to be in ascending chronological order, no requirement exists in this regard. For example, 'method-based' reporting or 'split events' might result in Event No's appearing to be 'out of order' for a given day/household.

However, for editing purposes, please ensure that no ‘breaks’ occur in a sequence of Event No’s – the highest Event No. therefore indicates the total number of Event Sheets for a given day/household. Also, different Person No’s do not affect this structure, other than to add to the total number of events (1-‘n’) for a given day/household – i.e. there is no need to have separate Event No’s (1-‘n’) for each person

- **1. Person Numbers:** record here the Person Number/s of the respondent/s to whom the event relates, per Section A of the Diary Survey Cover Sheet (and originally, from Section B of the Screening Survey). In the ‘normal’ Diary Survey, only the Person No’s of specified Intending Fishers (diarists) are valid here (see Section 5 for discussion of ‘Others In Survey’ and the Supplementary Survey). As discussed in training, multiple Person No’s are valid here (5 boxes provided) and this is an important tool for genuine cases of ‘shared’ fishing effort (e.g. crab/lobster pots). This issue is further discussed in Section 4-2
- **2. Date:** insert the start date of the event in the box provided (e.g. 7 May = 7/5, 14 November = 14/11). The year is not recorded as this is ‘obvious’ in the database. Where the end date of an event is different from the start (usually as a result of ‘overnight sets’ with passive gear, but occasionally e.g. line fishing through midnight), simply insert the number of additional days (dates) in the box provided, e.g. if the end date is the following day, insert “1” in this code box. Where the end date is the same, this box should be left blank. Notwithstanding the above, a ‘split’ event should generally be created for each day (or 24 hour period covering two dates) where ‘daily’ catch data have been collected. Note also: the scope of the study includes fishing events that commence in the survey reference period – i.e. from 0000 hours, 1 May, 2000 through to 2359 hours, 30 April, 2001. A valid event can therefore be completed in May 2001, if continuous fishing occurs. On the other hand, all expenditure events should be fully ‘contained’ within the reference period – i.e. purchases actually made within the period. However, although ‘splitting hairs’ (and quite unlikely), fishing-related vehicle travel is to be treated here in the same way as fishing itself – namely that any such travel which commences within the period and continues beyond (i.e. to 1 May 2001) should be wholly included
- **3. Personal/Proxy Data:** an important indicator of reporting precision. This field is simply to be recorded (obviously, without any ‘questioning’) as Code 1 where all data for the event are provided personally, or Code 2 where any of the data are provided by proxy. By definition therefore, any ‘multiple person event’ (see Q1 above), would be classed as the latter. Note: the coding procedures for this field have no relation to whether the activities have been diarised (see Q4 below)
- **4. Diarised Data:** a further indicator of reporting precision. As discussed in training, Code 1 applies where the event was ‘adequately’ diarised, in terms of critical survey information (e.g. times and catch). The answer category here “Yes (all)” is therefore more appropriately defined as “all critical data”. There’s no need to ‘grill’ respondents over this – just ask the question and accept/record the answer. In some cases, it may be obvious later in the interview that some critical data was not diarised (e.g. where a catch is reported, but prompting reveals a released species was not diarised) – these can then be re-coded, as appropriate

- **5. Event Type:** this field merely acts as a sequencing tool in that an event which only relates to expenditure (no fishing activity) is coded as “\$ only” (Code 1) and therefore sequenced past subsequent questions (6-12) to Q13. Any ‘fishing only’ event (or a fishing and expenditure event) are Code 2. Note: in this respect, the ‘(split)’ notation on the Event Sheet is incorrect and will be removed from any future re-prints of the Event Sheet
- **6. Fishing Region:** having established the location of the fishing activity, simply insert the Region Code as appropriate from the Fishing Regions Map (see Appendix H). In cases where, you are unable to quickly classify the region, probe for sufficient detail (including ... “where is it near?”) and record in the space provide for coding after the interview. Note: although not stated on the Diary Survey Cover Sheet, in rare cases where a fishing event occurs very close to (or continually on either side of) a regional boundary, and no practical way of ‘splitting’ the event exists, a main region should be allocated on the basis of information available (as for Sub-region)
- **7. Sub-region:** or ‘water body’ type – an important further descriptor to Fishing Region. Where the Sub-region is ‘evident’ from information already obtained in the interview (e.g. certain Fishing Regions have only one Sub-region type), no specific/further questioning is required (just code as appropriate). The following specific definitions are additional to those contained on the Diary Survey Cover Sheet, but may be varied in certain cases, by instructions in Appendix H (boundary definitions):-
  - (a) Code 1 (Offshore >5km): ocean waters extending from 5km seaward to the boundary of the overall study area (Australian EEZ) i.e. up to many hundreds of kilometres seaward. Note: although the respondent’s perception of distance (> or < 5km) is the determinant here, if queried, note that ‘seaward’ is defined as a straight line at right angles (90 degrees) to the coast
  - (b) Code 2 (Inshore <5km): therefore refers to ocean waters within a 5km ‘band’ of the coastline of Australia (incl. specified islands). Coastal beach and rock fishing are therefore in this category
  - (c) Code 3 River/estuary (marine): saltwater and ‘brackish’ (combined fresh/salt) water bodies along the coastal strip. Unless otherwise specified in Appendix H, the boundary between a coastal river/estuary (Code 3) and inshore ocean waters (Code 2) is generally defined as a line continuing along the coast and across the ‘bar’ area of the river/etc. For less obvious delineations (e.g. wider bays and harbours), the line is to be drawn between the two most seaward headlands. As stated on the Diary Survey Cover Sheet, the boundaries between the marine/brackish (Code 3) and freshwater (Code 4) areas of major rivers/etc in each state are specified in Appendix H. For minor rivers, respondent perception is required (see Cover Sheet)
  - (d) Codes 5 and 6 Lake/dam (fresh): as discussed in training, ‘privately’ owned dams are included in the scope of the study. ‘Private’ here includes corporate-ownership and access fees are applicable to some such properties. However, all government owned/managed dams are to be classed as ‘public’ (even if an access fee is applicable)

- **8(a/b) Targeting:** describes any ‘main’ and ‘second main’ target species (or species groups) for an individual fishing event. Consistent use of the structured questioning “Were you fishing for anything in particular or not?” will often elicit a complete response here (incl. both main and second targets). This will also minimise any problems with respondents who might otherwise want to report targets as the species that they ultimately caught (when often the two are totally different). Nevertheless, vigilance and careful briefing of respondents will always be required here. Where the question elicits only one species/group, the ‘follow-up’ probe “anything else” is required. The following definitions/procedures are to be applied:-

- (a) Main Target: where a particular species (or species group) is reported as a main target, record the relevant species code (from Q12) in the left-hand code box. If the species is not contained on the Event Sheet (or you are unable to quickly establish the code) simply record details in the space provided for office/later coding. Also, as discussed in training, a species target will often be validly reported as the species group, e.g. crabs (or tuna), where the respondent may catch (or be happy to catch) any number of different (e.g. crab or tuna) species. In such cases, the ‘unspecified’ code for the species group is to be applied and if not contained in Q12 on the Event Sheet, details are to be written in the space provided. If no main target species/group is reported (e.g. ‘catch a feed’, ‘anything’ etc), then one of the ‘No specific target’ codes in the first ‘column’ (w, x, or y) is to be used. Where appropriate, either code ‘w’ or ‘x’ is to be used (in preference to Code ‘y’) to provide greater ‘focus’ in terms of any general targeting of ‘surface’ vs. ‘bottom fish’ species (pelagic vs. demersal). For boat fishing in ocean waters, virtually all fishing can be categorised this way (and therefore Code ‘y’ should rarely be used in these cases). Because of the depth of the water, surface/pelagic fish (e.g. tuna, mackerel, tailor etc) are usually targeted using ‘surface’ methods such as trolling (lures or baits) or from a stationary boat with ‘floating’ baits or ‘spinning’ (casting lures). On the other hand, bottom/demersal fish species (sometimes referred to as ‘reef fish’ e.g. snapper, blue morwong etc) invariably involve line fishing from a stationary boat using lead ‘sinkers’ to get the bait down to the bottom. This is generically referred to as ‘reef fishing’ and will often be reported this way. For other kinds of fishing (usually in deeper water), codes ‘w’ and ‘x’ may also be appropriate (instead of Code ‘y’) and this can be established by probing with e.g. “... for surface fish or bottom fish?”
- (b) Second Main Target: the above procedures also apply to the second ‘column’ on the form. However, Code ‘z’ is to be applied where a ‘negative’ response results from the probe “Anything else?” (i.e. implying that the respondent was only fishing for one species/group). On the other hand (and although a ‘mute’ point), Code ‘y’ is only to be used where the respondent provides a ‘positive’ response of some kind to the probe (e.g. ‘anything else that comes along’) – but, there is no need to ‘grill’ respondents over this. Note: a range of main and second main target combinations can be valid for an individual event, including e.g. where surface and bottom fishing (Codes ‘w’ and ‘x’) occur simultaneously. Note also: where more than two target species/groups are reported for an individual event, these are to be ignored for recording purposes, unless a split event is required for other reasons e.g. a change in targeting (see (c) below), or where different method codes apply in Q9.

As stated on the Diary Survey Cover Sheet, a 'split event' is only required here where the initial targeting changes – even if only for the second main target. However, sometimes this may be difficult to detect and often relates to a move of fishing location. Note: by definition, the recording of a second main target is only valid where all details of the event (times etc) are the same. If, for example, a fisher undertakes brief/intermittent fishing for a second species/group (e.g. casting lures at a school of surface fish) during a longer/continuous fishing event (for a separate main target, e.g. reef fishing), then a separate event is required to show the different fishing effort levels involved (time). Again, this may not be obvious in some cases, but strict adherence to the 'chronological' interviewing approach will help greatly – as does effective respondent 'briefing' in the early stages

- **9(a) Method:** record only one of the structured codes (1 to 18). Two 'combination' codes employed here to obviate unnecessary event-splitting – for line fishing (Code 3, where both Codes 1 and 2 apply) and 'Other diving' (Code 15, where both Codes 13 and 14 apply). But these are only to be applied where all other details of the event are the same. Note: 'unconventional' sequence guide procedures have been used here to save space, where \* means 'go to Q 10' and other instructions (e.g. 'go b, d') describe the sequencing required in terms of Q's 9(b) through (d). Although state/territory legislation varies around Australia (and some gear types may be illegal or not used in certain areas), the following methods are valid for the survey:-
  - (a) Codes 1-3: refer to 'active' fishing with a handline, rod and reel etc. For survey purposes, a fisher may use more than one such line (with multiple hooks) in a single event – line fishing effort is only measured in 'fisher hours'. Further to this, 'Active' line fishing includes cases where the respondent is 'in attendance' of the line, but is not necessarily holding the line (e.g. set in a rod holder) – see also discussion of game fishing in 4.2). Bait is defined as 'organic' material (including e.g. live or cut bait, weed, cheese, bread and manufactured baits). Lure/jig/fly refers to any man-made device designed to imitate a baitfish/etc and commonly involves movement of the lure/etc either by 'trolling' (lines towed behind a moving boat), 'spinning/casting' (casting out and retrieving a lure/etc horizontally through the water, usually from a stationery boat or the shore) and 'jigging' (as for spinning, but the lure/jig is retrieved vertically). Note: these methods are not solely reserved for lure/etc fishing e.g. bait is quite commonly used when trolling
  - (b) Code 4: any 'passive' line fishing where the fisher is largely not 'in attendance' e.g. a baited line tied to a wharf overnight
  - (c) Code 5: any 'passive' pot, trap or enclosure, designed to entrap crabs, lobsters, yabbies, fish etc – whereby (attracted by a bait) they enter the device through a small entry hole, but are unable to escape due to the shape/location of the entry hole/trap. By definition, these devices are passively fished by being left in the water for a period of time (often overnight) – i.e. the pot/trap does the catching (not the fisher, see (d) below). Examples of these include: traditional lobster pots; crab pots/traps (not 'witches hats'/'dillies'); passive yabby traps and bait traps (e.g. small plastic cylinders, often used to catch 'poddy mullet')

- (d) Code 6: any 'active' devices used to capture crabs, lobsters etc, but where the animal is captured by either rapid lifting by the fisher and/or where 'entanglement' (not net Codes 7 through 10) is involved. The most common example of this in NSW is the 'witches hat' net (or 'dilly') which is used to catch crabs, usually by passive entanglement (as opposed to active use)
- (e) Codes 7-10: the various nets defined as follows: Code 7 (cast net) – an active net thrown across the water, usually to catch bait fish from the shore; Code 8 (drag/seine net) – an active net usually operated by two or more people from the shore to encircle the catch (prawns, bait etc), which is hauled/onto the shore (note: sometimes referred to as 'bait nets' in some states, though these can also be cast nets); Code 9 (gill/set net) – a passive net designed to catch fish (and sometimes other species) by entanglement ('meshing'); Code 10 (scoop/push net) – an active net with 'handle/s' operated by one person usually to catch prawns. Apart from mesh size, a prawn scoop net is very similar to a traditional 'landing net' (used to avoid lifting/breaking-off a line-caught fish). When used conventionally, a landing net is to be ignored as a method for purposes of the survey – the primary fishing method being line fishing. However, when used as the primary method (e.g. catching crabs on the surface at night), Code 10 applies. Note: use of scoop/landing nets while diving for aquarium fish is to be classed as 'Other diving' see discussion in (h) below
- (f) Code 11: use of a hand-spear or spear gun while 'swimming' – including snorkelling, or with scuba/surface air (as defined in Q's 13-15 below)
- (g) Code 12: any other spearing (including bow and arrow) – i.e. surface-based (including wading)
- (h) Codes 13-15: all other forms of 'dive harvesting', including hand-collecting (e.g. for lobsters) or a digging/levering tool of some kind (e.g. for abalone). Note: any dive-collection of live aquarium fish is to be coded here – including cases where (small) 'scoop' nets are used. Code 13 – 'Scuba' = Self Contained Breathing Apparatus (compressed air in tank/s) and 'surf. air' = surface air pumped down a hose to the diver (sometimes referred to as a 'hookah'). By definition, snorkelling (Code 14) involves the diver returning to the surface for each breath and therefore limits depth capability
- (i) Code 16: refers to all other forms of digging etc where a tool of some kind was used (i.e. other than diving, codes 13-15) e.g. crabbing with a wire hook, pumping for yabbies-nippers (marine bait species), rake for shellfish, spade for worms (bait), 'pliers' for beach worms (beach-worming by hand only, is Code 17). Note: although rare, use of a 'gaff' (a large barb-less hook on a pole) as a primary fishing method would be classified here, but as a secondary method (for landing a line-caught fish) is to be ignored (as for landing nets).
- (j) Code 17: all other collecting by hand/foot etc (other than diving codes 13-15) and where no digging/etc tool was involved e.g. simply picking up shellfish by hand or by 'digging' with the feet



(k) **Code 18: 'Other (specify)'** – use of this code should be quite rare (e.g. draining a property dam, firearms etc)

- **9(b) No. of Pots/Nets:** probe for and record here the number of pots, traps or nets used – only for events where Q9(a) is Code 5, 6, 9 or 10. In all other cases, this field is to be left blank. Note: more than one cast net (Code 7) or drag/seine net (Code 8) cannot be operated simultaneously by the one person. As discussed in training, the multiple person/shared effort rules permit inclusion here of pots/etc by other fishers within and outside the selected household. These are fully discussed in 4.2 (as are split events in 4.1). However, cases where pots/nets are set and lost, may require special procedures here and these are discussed under Q11 (Times)
- **9(c): No. of Hauls:** this field applies only to events where a drag/seine net (Code 8 in Q9[a]) is used and is an important measure of fishing effort, when analysed in conjunction with times fished. A haul is defined as each time the net is pulled out of the water and the catch checked/removed
- **9(d): No. of Persons (shared effort only):** this field applies only to events where shared fishing effort has occurred (as discussed in Section 4.2). Although shared effort commonly occurs with pots/nets, it can also be valid for line fishing (see 4.2). Where the event relates to more than person, record here the total number of persons involved (including any from outside the selected household). Where only one person is involved, this field is to be left blank (and is assumed in the database to be '1')
- **10(a) Platform:** as a 'combined code' is included here (Code 3 = both), no event-splitting is required for this field. A boat is defined as any kind of vessel, including some not included for purposes of the Screening Survey (e.g. surfboards, paddle skis were excluded on the basis of the 'gunwale rule'). Note: if queried, boat-based fishing while attached to the shore (jetty etc.) is to be classified as shore-based
- **10(b) Boat type:** private boats (Code 1) include all cases where the boat was not formally hired or chartered (and therefore can include corporate-owned boats). Hire and charter (codes 2 and 3) therefore refer to cases where a formal/conventional arrangement was made with a business providing such services. All cases where a person contributes money for the use of (say) a friend's boat are to be classed as private. Although expected to be extremely rare, a split event is required where more than one answer category applies. Note: the 'unconventional' sequence guide here directs those reporting 'boat only' (Code 1) in Q10(a), past Q10(c) Shore type
- **10(c) Shore type (main):** as a 'mainly' response applies here, no event-splitting is required for this field. Whereas, most question/answer structures in the survey are nationally standardised, a unique answer category/coding structure applies here to each state/territory. The allocated codes are as follows: NSW/ACT (Codes 1-4); Vic. (Codes 5-7), Qld. (Codes 8-12), SA (Codes 13-15), WA (Codes 16-19), Tas. (Codes 20-22) and NT (Codes 23-24). In each case, details of the questions/definitions and answer categories are contained on each state-based Diary Survey Cover Sheet and Event Sheet

- **11. Times:** the data collection procedures here (in combination with Q2 Date) provide considerable recording flexibility – ranging from simple fishing events (e.g. a brief line fishing episode on the one day) to quite complex situations (e.g. continuous fishing with passive gear over several days). The objective here is to accurately measure the amount of fishing effort (time) for each event. Routinely, this is achieved by establishing the start and finish times of the event and the total of any reported breaks from fishing during the elapsed time. The following procedures/definitions apply:-
  - (a) Start and Finish Times: are to be established using the 24 hour clock for each event, with maximum 'reasonable' precision (although respondents are not expected to record 'stopwatch' times, to the minute). Start/finish times refer to commencement/cessation of actual fishing activity (i.e. lines/etc. in/out of the water) and do not include on-water travelling/searching time (unless e.g. trolling was involved). See also discussion of game fishing in 4.2
  - (b) Breaks: Any breaks in fishing activity are to be recorded in hours and minutes and refer to the total of any breaks for the period between the start and finish times. For example, a fisher might report a number of short breaks (say 4 x 5 minutes each, for minor location changes) – therefore the total of the breaks is to be recorded (20 mins. in this case). Equally, quite large breaks can also be recorded (e.g. several hours in the middle of a day), without needing to 'split' the event. However, in keeping with the policy of 'daily times and catch data', any breaks which cause the event to transcend more than one day (date) would require separate event recording. Where no breaks from fishing are reported, a 'slash' should be inserted in the code box on the Event Sheet to show that the question was asked
  - (c) Continuous fishing: where continuous fishing activity covers more than one day (date) the start and end dates of the event are established in Q2. Accordingly, the start and finish times must relate to these two dates (respectively). However, to facilitate data collection for continuous passive fishing over a number of days (e.g. crab or lobster pots), the 'last check' concept was created. Recorded as the finish time for a day, the 'last check' refers to the time of the last check of the pot/etc for each day. Any earlier checks in the day are effectively ignored and the daily catch is reported on a 24 hour basis (since the 'last check' on the previous day). However, daily catch data can only be recorded where gear is checked each day. Some respondents might go several days without checking and the event dates and times should reflect this. As explained during training, reporting precision for 'last checks' is relatively unimportant, as the start time for the next event simply follows on from this (i.e. the 'add one minute' rule - e.g. if the last check time is 1600 hrs, then the start time for the next event [same gear etc.] should be 1601). However, normal precision is required in terms of start/finish times on the first/last day of a period of continuous fishing. Similarly, breaks from fishing are important – but not to the extent of 'prompting' for very brief breaks (say 2 minutes), when a pot/etc is being checked/re-baited. Note also: because of the nature of continuous fishing with pots/etc, full details for an individual event may need to be collected from two separate diary contacts e.g. where information is collected in terms of the start time/etc. at the first call ... and the finish time, catch details etc. at the second call. Termed 'open events', care should be taken to 'flag' such cases in the Appointments Section for the next call

and also in terms of end-of-month despatches to the Survey Office (only 'closed' events to be sent please)

- (d) Lost/stolen pots/nets: sometimes pots/nets go missing after being set. Although a minority occurrence, the implications for our database are important – namely, that the event cannot be 'closed' as the finish time/date and catch are not known. Where this occurs and all pots/etc are lost, the event is to be recorded as usual except for: the end date is always to be left blank in Q2; the finish time is to be recorded as the start time (i.e. zero fishing effort); the catch in Q12 is to be left blank (not nil catch) and a brief note is to be inserted under Comments (e.g. all pots lost). However, where just some of the pots/etc are lost, a split event is to be created for the lost pots/etc as per the above procedures and the second event is to be recorded as normal (incl. for times and catch)
- **12. Catch:** record here the number of each species caught and (i) kept and (ii) released for the particular event, by the person/s involved (for multiple person events/shared effort, see 4.2). Where no catch or released species are reported, code 'x' is to be circled at the bottom of Q12 ('NIL CATCH/RELEASE'). Other definitions/procedures include:-
  - (a) Kept vs. Released: 'kept' is generally defined as 'retained' or 'used' and includes any catches used as bait (at the time, or later), but is more broadly defined as any cases where a fish/etc is not returned to the water (i.e. other than as bait). 'Released' is therefore defined as 'returned to the water', regardless of the condition of the fish/etc. Because mortality rates for released fish/etc can vary substantially (due to catch depth, handling etc), no specific data are collected in this regard. Therefore, 'released' can include cases ranging from a carefully handled/ released fish, through diseased or mutilated species (e.g. predator attack), to dead/damaged 'pest' species (e.g. toads/puffer fish). Further to this, it is illegal to return certain pest species (e.g. European carp) and where any such catches are killed/discarded, but not returned to the water, please classify these as 'kept'. Also, as discussed in training, please be alert for cases where at the end of a day's fishing, any 'unused' live bait are returned to the water. This is a relatively common practice and amendment of numbers kept/released is required here. Note: 'strikes', 'hook-ups' and cases where the fish/etc simply 'got off' before being landed (or boated) are not to be recorded as released – the difference being that the fish/etc was not intentionally released, from a position where it could have been landed/boated
  - (b) Numbers kept or released: simply record the number reported by the respondent in each case – caught personally by the respondent (single person event) or collectively (in a multiple person/shared effort event). Where large numbers are involved, precision can decrease, especially with released species or catches of bait species. As discussed in training, simple estimation here on the part of the respondent invariably results in significant under-estimation of large catches. Wherever possible, please attempt to get the respondent to strengthen the estimation process by (e.g.) physically counting a proportion of the catch (small baitfish, prawns etc) into a small container and then measuring the number of such containers for the whole catch. Once established, this benchmark can be re-applied to similar catches (e.g. with individual

respondents, a standard bucket can be calibrated to provide reliable estimates over time)

- (c) 'Listed' Species: the species code list for the survey has been developed on a national basis, with over 300 individual (or grouped) species codes included. For each state/territory, the most commonly reported (50 or so) species/groups have been structured on the Event Sheet – commencing with marine fishes, followed by freshwater fishes and the non-fish species last (crabs, shellfish etc). By design, most of the species on the Event Sheet are included on the Fish Identification Guide for each state/territory. Using the ID Guide, respondents should be able to identify these species/groups quite readily. Where a catch or release of a 'listed' species/ group is clearly reported, simply record the number kept or released in the space provided. As discussed in training, the 'certainty' of identification by the respondent should be probed and also whether the ID Guide was checked (i.e. without offending the 'expert' fishers over very common fish species). However, the so-called 'expert' fishers are often the main offenders in terms of confusion of 'local' species names – hence the importance of early 'training' of all respondents to report species on the basis of the ID Guide
- (d) 'Unlisted' Species: However, where a species is 'not listed' (or you are unsure), the blank rows at the bottom of Q12 are to be used. Simply record the reported name (and any alternative names, together with number kept/released) for possible re-coding after the interview (i.e. only where you are certain) or later coding by the survey office. For clearly 'unlisted' species, maximum details are required here to facilitate coding. For example, where a respondent reports capture of a "marlin", probing/reporting should be undertaken in terms of 'certainty' and any additional descriptors. There are several 'types' of marlin, so responses might range from quite specific e.g. black, blue or striped marlin to "some kind of marlin". The 'whole story' should be reported here and the rear of the form can be used, if insufficient space. In other cases, the respondent might not be able to identify the species or give any useful description. After probing as to whether it was a 'fish' (or not), please record e.g. 'fish unknown', 'shellfish unknown' etc and the number/s etc in the blank space at the bottom of Q12
- (e) Important – 'all' vs. 'unsp' vs. 'other': in the design of the species list, certain species have been deliberately grouped on the basis that, even with the aid of the ID Guide, respondents would be unlikely to identify the individual species within that group. For example, although there are several flathead species (dusky, sand etc), 'flathead-all' (Code 60) is shown on the Event Sheet, with a 'generic' flathead on the ID Guide. As discussed in training, any species group with the 'all' suffix indicates that no further dissection of the species within the group is required (even if a respondent is able to report e.g. that it was a dusky or sand flathead). In other cases, individual species codes have been employed within a species group (e.g. tuna-albacore [Code 197], tuna-bonito [Code 198] etc) and often, an 'unspecified' category is also included (e.g. tuna-unsp [Code 204]). This 'unspecified' code is for cases where the respondent is able to identify the species generally (e.g. as a 'tuna') but is uncertain as to the type of tuna (i.e. possibly one from the ID Guide). However, where the respondent can establish that it was not one of the individual species on the ID guide, then the 'unspecified' code is not to be used. Here, the interviewer should probe for

any further description/type (e.g. big-eye tuna or dog-tooth tuna) and record details in a blank row at the end of Q12. However, if no further information can be provided, then e.g. 'tuna-other' should be recorded in the blank space – which is far more specific than e.g. 'tuna-unsp'. Note: in some states, the listed species on the Event Sheet include such 'other' codes for certain species

N.B. Remember the general rule here - when in any doubt, write it all down and let the Survey Office resolve the problem.

- **13. Expenditure:** record here details of all 'valid' expenditure by the respondent (as defined below). Unlike for fishing activity, 'multiple person' expenditure events are not valid (see further discussion in 4.2) and for the normal Diary Survey, expenditure data are only required from Intending Fisher/Diarists. Any such expenditure by 'Others In Survey' is measured through the Supplementary Survey (see Section 5). The following definitions will ensure that no omission/duplication of valid expenditure occurs within each 'intending fisher' household (nor across such households in the sample/population). They are also designed to ensure that expenditure data are consistently and practically collected in the normal Diary Survey, so that truly additional expenditure (by any non-diarists in a household) can be measured through the Supplementary Survey. Key definitions/criteria for valid expenditure are:-
  - (a) the purchase involved 'personal' expenditure (or incurred expense) on the part of the respondent. Usually, this will mean that the person who actually made the purchase (e.g. went into the shop) and paid his/her money will be recorded as such for Event Sheet purposes – but not always. Personal expenditure includes payments from 'pocket money' (a child can make a valid purchase) or from 'joint' funds (e.g. couples). Where 'joint' funds/purchases are involved within a household, simply assign the whole purchase to the person most responsible for making the purchase (or the purchase decision) ... and therefore, the person most likely to be reporting it to you. In some cases (although you will normally be unaware), this will not be the person who actually made the purchase, e.g. as discussed in training, a child might go into the shop for a parent, parked outside. Note: really, this issue only becomes important for households containing non-diarists – where the potential for inconsistent reporting exists between the normal Diary Survey and Supplementary Survey. Where all are diarists, assigning expenditure personally is primarily to ensure completeness of the data. However, where a 'joint' purchase involves a person outside the selected household, the 'external' component of the expenditure is to be excluded. Also, any borrowings in relation to a purchase (e.g. credit cards, personal loans) are to be regarded as 'personal' expenditure, regardless of the repayment term involved. Therefore, all repayments relating to such purchases are to be excluded. Furthermore, any 'receipts' to the respondent are to be ignored for purposes of the study (e.g. trade-ins or sales of fishing-related items) as these simply refer to earlier expenditure by respondents
  - (b) the purchase itself occurred within the defined study period – whether or not the product/service was actually 'consumed' in the period (see earlier discussion under Q2, Start date)

- (c) the purchase itself occurred within the defined study area (i.e. from a business/etc located within the area) – whether or not the product/service was actually ‘consumed’ in the area (e.g. locally-purchased fishing gear may be used on an overseas trip). However, any payments made directly in relation to an overseas fishing trip (e.g. airfares, accommodation etc) are to be excluded – even if the payments are made to an Australian-based firm (e.g. Qantas for an overseas airfare)
- (d) the purchase was in some way related to recreational fishing (i.e. at least 1% attributable to recreational fishing, as defined below) – whether or not the product/service was for the respondent’s own use/benefit (e.g. a gift is valid expenditure)
- (e) while many product/service categories are valid for the normal Diary Survey (as defined below), some are excluded but valid in the Supplementary Survey (e.g. food and drink, see below). Others have been excluded from both these surveys, on the basis that they are better dealt with through the ‘Wash-up’ Survey at the end of the diary period – namely: registration and insurance expenses for a boat or trailer; and purchase/ maintenance costs for real estate (e.g. fishing shacks). Finally, some items are excluded totally from the study, namely: (i) telephone calls and other communication costs (e.g. postage, internet), simply on the basis that they are too difficult to measure and (ii) ‘normal’ motor vehicle purchase costs, on the basis that these are accounted for in the rates that will be applied to kilometres travelled for fishing-related private vehicle usage (see further discussion under Codes 16 and 17 below)

Other Procedures: where appropriate, expenditure can be recorded as a separate ‘expenditure only’ event, or as part of a fishing event (see Q5 earlier). Where more than one fishing event is reported for a given day/respondent, expenditure details are usually recorded on the last event of the day (a ‘safe’ approach in chronological reporting to avoid omission/duplication). However, if appropriate, expenditure information for an individual respondent may be pooled/aggregated to a weekly level (or more - but not across calendar months please). Unlike fishing activity, the actual dates of the expenditure are relatively unimportant, but the accuracy of the data must of course be maintained. Split events are quite rare for expenditure – and usually, where more than two ‘away ezones’ apply in Q14 (see below). Note: for each completed Event Sheet (\$ only or fishing), an ‘entry’ of some kind is required in Q13 – either expenditure data or by circling code ‘x’ at the bottom of Q13 (NIL EXPENDITURE).

The questioning on the Diary Survey Cover Sheet also specifies probing by the interviewer for ‘obvious’ expenditure (from information provided) which might have been omitted by the respondent. These invariably refer to ‘less-direct’ forms of expenditure (e.g. accommodation costs on a weekend trip) and while most respondents will report private vehicle travel in relation to fishing events, many will neglect to do so for ‘expenditure only’ events (until they get used to it). Accordingly, “How did you get there?” and “Did you make a special trip?” are very much standard probes here.

‘Cost’ Column: for each reported expenditure category (defined below), an appropriate entry should be made (whole dollars rounded up or down - 50 cents up; 49 cents down), representing the total amount paid by the respondent in relation to the item. Where more

than one purchase occurs for a given item, the purchases may be combined and the total recorded – unless different attribution rates apply (see below). Note: where GST is applicable, this should be included in costs reported. If no expenditure occurred for a particular category, then the field is to be left blank.

'Prop' Column ('attribution'): for each entry in the Cost column, an appropriate entry is to be made representing the percentage of the cost 'attributable' to recreational fishing (as assessed by the respondent). Where 100% applies, then a 'tick' only is required. If less than this, then a number should be inserted in the range 1 to 99 (%). In some cases (Expenditure Items 1 to 4), no questioning is required as all are classed as 100% attributable (the 'tick' is printed on the form). For all others, appropriate questioning/probing is required, as structured on the Diary Survey Cover Sheet. These 'questions' provide a 'quantitative guide' (proportions of people/activities involved etc) for respondents and specifically refer to 'what people actually did', as opposed to planned activities. Also, while the questioning focuses on outdoor 'activities' of people (for simplicity purposes), quite 'passive' pursuits are nonetheless valid (e.g. sun-baking, reading, or just 'relaxing'). For many reasons therefore, more 'qualitative' responses can apply here. For example, as discussed in training, accommodation costs on a trip, where only one of (say) four people went fishing, might logically be assessed by many respondents as 25% (or less, if the fisher did other things). Yet, in the same basic scenario, others might validly report 100% attribution on the basis that, if it weren't for fishing, the trip would not have taken place at all. Put simply ... so long as respondents understand the concept (through early briefing), the ultimate decision here is theirs and no 'grilling' is required – other than appropriate reminders about the concept during the survey. Note: while some precision is required here, it is generally unreasonable to expect respondents to report more 'accurately' than in 10% increments and in many cases 'quarters, thirds or halves' may be appropriate.

Definitions/criteria for each expenditure category (in order of the Event Sheet) are as follows:-

- 1) Tackle – capital: purchase of 'capital' equipment used directly in fishing, such as rods, reels, fishing line, tackle boxes, gaffs, and nets – which are not 'expendable' items like hooks etc (see Code 3 below). Include new or used equipment here and any 'add-ons' are defined as 'capital' (see further discussion under Code 7 below), whereas repairs to existing equipment are classed as 'maintenance' (Code 2)
- 2) Tackle – maintenance: repairs/servicing etc to existing fishing equipment, but excluding any 'add-ons'
- 3) Tackle – terminal: all items of tackle that can be attached to the end of a fishing line, such as traces, lures, hooks, sinkers, swivels etc. Also include here any other 'expendable' fishing items (not included elsewhere, e.g. balloons for floating baits)
- 4) Bait/berley: purchases of any kind of bait (incl. manufactured bait), berley (or ingredients for), or other organic attractants (e.g. tuna oil)
- 5) Ice: for storage/preservation of either fish/bait/etc or food/drink on a fishing-related trip. Note: although food/drink expenses are only included during the Supplementary

- Survey (see Code 23 below), expenditure on ice is to be included here (even if only for food/drink on a fishing trip in the normal Diary Survey) and the attribution assessed in terms of other activities/etc
- 6) Books/maps: include here all books and magazines directly related to fishing (e.g. fishing magazine) or partly related (e.g. boating magazine). Maps and other related 'documentation' should also be included here
  - 7) Boat – capital: purchase of any boat, motor or boat equipment (per the 'add-on' rule – see below), where the purchase is in some way related to recreational fishing (e.g. a water-skiing 'pole' would be excluded here – even if added to a 'fishing' boat). Again, new or used items are valid here, but repairs/servicing (incl. replacement parts) are to be classified separately (Code 8). Note: certain 'replacement parts' are to be classed as 'add-ons', namely where the whole item is being replaced (e.g. new/replacement rod holder, echo sounder, or outboard motor). However, replacement of a part within such an item is classed as Code 8. Note also: boat insurance/registration fees are to be collected through the 'Wash-up Survey'
  - 8) Boat – maintenance: repairs/servicing etc to an existing boat or boat equipment, but excluding any 'add-ons' (as defined in Code 7 above). Examples include: repairs/servicing/replacement parts for motors; replacement of damaged glass in a windscreen; welding/repairs to the hull of a boat; and cleaning/anti-fouling of a boat hull (including any slipway fees)
  - 9) Boat – moor: all fees associated with storage of a boat, whether in the water (e.g. marina or mooring, including rainwater 'pump-out' fees), or on land (e.g. dry-storage racks, where the boat is launched/stored by forklift/etc for each use). Note: slipway fees are classed as Code 8
  - 10) Boat – ramp \$: fees directly for the use of a boat ramp (quite common in some states) – as distinct from more general access fees to an area (e.g. a national park) where boat ramp facilities exist (see Code 29 below)
  - 11) Boat - fuel/oil: any purchase of boat fuel, oil or fuel/oil mixture for fishing-related purposes. Note: where a boat is also used for purposes other than fishing, attribution assessment can present difficulties. A 'best estimate' approach is required here and as discussed in training, simple 'time-based' apportioning can be entirely inappropriate here (e.g. typically, water skiing consumes far more fuel per hour than fishing)
  - 12) Boat – hire: fees associated with the hire of a 'self-drive' boat (but not fuel, if separable)
  - 13) Boat – charter: all fees associated with chartering a 'skippered' boat (including fuel, but excluding food/drink charges)
  - 14) Trailer – capital: i.e. boat trailer - definitions as per Boat-capital (Code 7)
  - 15) Trailer – maintenance: i.e. boat trailer – definitions as per Boat-maintenance (Code 8)



- 16) *Car + KMS*: probe for/record here the total kilometres travelled (round trip) for private vehicle travel by the respondent in relation to fishing (including 'expenditure only' trips, where appropriate). Private vehicle travel includes: jointly-owned vehicles (e.g. couples); 'company cars' (also used for private purposes); and any type of motorised road vehicle (cars, vans, trucks, motor-bikes etc). As discussed in training, the types of vehicles used for fishing will be assessed/weighted for each household at the end of the survey and appropriate 'cents per km' rates (per NRMA, RACV etc) applied to the kilometres reported
- 17) *Car – 'capital'*: refers mostly to fishing-related 'add-ons' such as rod racks, tow bars etc. Vehicle purchase costs, 'general add-ons' (e.g. a new stereo) and running/maintenance costs will be accounted for in the rates applied per kilometre (see Code 16 above). However, any vehicles purchased/used solely (or mainly) for fishing purposes (e.g. an exclusive tow vehicle for a boat) will be assessed in the 'Wash-up' Survey, but are not to be recorded here
- 18) *Car – maintenance*: further to the above, this field is valid only for the Supplementary Survey (as denoted by the box around the code number) and refers to vehicle repairs/maintenance expenses on a fishing-related trip, incurred greater than 40 km away from home (see Section 5 for further details)
- 19) *Car – fuel/oil*: Supplementary Survey only - as for Code 18 above, but relating to fuel/oil purchases
- 20) *Car – hire/charter*: expenses incurred in hiring a motor vehicle (car rental), or 'chartering' a vehicle (i.e. with driver, e.g. taxi, limousine). Note: whereas 'fishing guide' services involving boat fishing are classed as Boat – charter (Code 13), vehicle-based guide services are not to be included here – please record/describe in one of the 'blank' rows at the end of Q13
- 21) *Airfares*: airfares or charter costs for travel within Australia only. International airfares are to be excluded totally (together with any component cost for 'domestic link' flights)
- 22) *Other public transport/travel*: all other public transport fares (not taxi – see Code 20)
- 23) *Food/drink*: Supplementary Survey only - as for Code 18 above, but relating to food/drink purchases
- 24) *Accommodation (fees)*: all hotel, motel, holiday cottage/unit, camping ground fees in relation to 'room/bed/site rental'. Food/drink expenses are to be excluded (e.g. mini-bar, room service). Purchases of camping equipment are included under Code 25 below. Note: any real estate purchase or maintenance costs related to fishing will be assessed in the 'Wash-up' Survey
- 25) *Camp – capital*: any capital item purchased in relation to fishing, such as caravans, tents, sleeping bags, 'eskys', portable stoves etc. Note: maintenance/repairs of such equipment are to be recorded as 'other' (blank row at the end of Q13)

- 26) Fees – club: membership fees for a fishing or diving club or association
- 27) Fees – competition: entry fees for fishing competitions/tournaments
- 28) Fees – licence: government fishing licence fees in any state/territory of Australia.  
Note: access/entry fees which also ‘entitle’ the payee to fishing activity are included in Code 29 below
- 29) Other access \$: all access fees not elsewhere classified, including national park entry and access to private fishing areas/impoundments etc
- 30) *Contributions*: actual payments made as a contribution to another person (invariably, outside the selected household) for fishing-related costs incurred by that person e.g. as per the Diary Card Example No. 3 - \$20 paid to mate, for boat and car costs. Importantly, the main purpose of this category is to provide ‘exhaustiveness’ for the respondent in terms of all expenditure. Although relevant for certain analysis purposes, the amounts recorded here will not be included in any total assessment of expenditure by fishers, as this would amount to double-counting. Note: where such contributions take the form of valid purchases (e.g. one buys the tackle, the other buys the boat fuel), then conventional recording will properly deal with this

Finally, the blank rows at the end of the listed expenditure items for Q13 are to be used for any cases which clearly (or possibly) don’t apply to the listed categories. Simply record the details of the expenditure, cost (\$) and attribution (%) as normal – but leave the bracketed coding area blank.

- **14(a/b) Economic Zone/s:** this questioning establishes the location of the business etc. for each purchase recorded in Q13, except for Code 16 (Car – KMS) and Code 30 (Contributions). Each location is to be classified in terms of defined ‘Ezones’ (see map, Appendix I). Only businesses/etc located within Australia are valid here (and therefore only purchases made within Australia). In effect, Q14 amounts to an extra column in Q13 (like ‘Cost’ and ‘Prop’), but for efficiency purposes has been structured separately on the form. As the defined Ezones are relatively large in area, rarely will more than three Ezones be reported for the one event. However, where this occurs, a ‘split event’ is required (see 4.1 for further details). Note: although the location of the purchase/business will be readily reported and classified in most cases, other cases can be less straightforward. For example, where a respondent makes a purchase by mail order or through the internet, the location of the business may not be known/obvious (please get the respondent to check and make a call-back if needed). Others will occasionally report obscure localities – as for Fishing Regions, probe for a nearest landmark/town etc and record for later coding.

In terms of the questioning required, two broad options exist:-

- (a) where a number of purchases have been reported and (from information available e.g. only local fishing activity reported), you have reason to suspect that all purchases were made in the one Ezone (e.g. the home zone), then you should ask the

‘convenient’ question ... “was any of this expenditure made outside of (e.g.) the Sydney region?”. However, this approach requires some care to ensure that the respondent’s understanding of the area described, ‘safely’ aligns with the Ezone concerned – i.e. the actual Ezone needs to extend beyond any normal definition of the region (as it does in the case of Sydney). Also, for respondents who report regular activity (or live near the border of an Ezone), it may be helpful to brief them in terms of relevant home Ezone boundaries (on a town/locality basis). If you do this, please be sure to record details on the Diary Survey Cover Sheet for your reference ... OR

- (b) where one purchase only is reported (or potential cross-zonal purchases exist), individual questioning might be required for each item/category “where did you buy ...?”

For convenient recording of Ezone information, Q14 has two parts. Q14a (i.e. Codes 1 to 3) allows for coding as follows:-

- 1) where all purchases from Q13 were made in the respondent’s Home Ezone (as denoted by the first 2 digits of the Sample No. for each household) – simply circle Code 1
  - 2) where all purchases from Q13 were made in another Ezone (just one), then Code 2 applies and the Ezone No. (from the Ezone Map) is to be inserted in the 1<sup>st</sup> of the two code boxes provided in Q14b
  - 3) where more than one Ezone is reported, then Code 3 applies and the details are to be shown in Q14b, by recording up to five Item No’s from Q13 (not the costs) for up to three Ezones (the Home Ezone, plus two ‘away’ zones). That is, in the first row, record any Item No’s that refer to the Home Ezone. In the next row, record the first ‘away’ Ezone No. in the code box and the relevant Item No’s which apply and in the last row, record the second ‘away’ Ezone No. and relevant Item No’s
- **15. Comments:** please record here any comments of relevance to survey office/processing staff, by circling Code ‘x’ to denote that a comment has been recorded and either recording the details in the space below (if brief) or if more space required, on the back of the Event Sheet. Important: where an unresolved matter exists (i.e. an issue has to be resolved before the Event Sheet can be completed) a pink Field Query Form should be used.

### 3.3.4 After Last Event Recorded – Part 3, Section B, Diary Survey Cover Sheet

This brief question sequence is to be asked at the end of each diary contact interview, whether any fishing/expenditure activity has been reported or not. As discussed in training, the vast majority of responses here will be negative and where this occurs, a ‘general arrangement’ should be made to contact the respondent “in a few weeks” (usually for the first two contacts in the Diary Survey). After this, less frequent contacts can be applied for those with continuing inactivity – ideally, on a calendar-monthly basis. This approach provides a

good balance in terms of ‘annoying’ respondents (with a 20 second phone call each month) and minimising recall bias in survey data, where any unexpected fishing/expenditure activity occurs. However in other cases, longer intervals may be appropriate (where a respondent is clearly unable to fish/etc e.g. illness or overseas trip), but expenditure activity can be a problem here and you can ‘sell’ more frequent contact to these respondents on this basis (and the fact that “it’s only a 20 second call to check in”).

Where any planned (or possible) fishing activity is reported, an appointment should be made for as soon as possible afterwards (e.g. for a weekend trip, the Monday), but in accordance with BTC requirements. This is especially important in the earlier stages of the Diary Survey, where the real ‘training’ of more avid respondents takes place (in the first few reportings). For those avid fishers who fish at least once a week, regular weekly contact can often be the best approach (once they are ‘trained’). Some, however, will prefer less or more frequent contact and flexibility is important here to minimise respondent burden.

Note: procedures for recording appointments (Section A of the Diary Survey Cover Sheet) are discussed in 3-2 earlier (item [q]).

### **3.4 Diary Survey Cover Sheet – Section C: Additional Calls/Appointments/etc**

This section of the Diary Survey Cover Sheet provides additional recording space for Call Details and Appointments (for the more avid fishing households) and below this, for any additional/detailed interviewer notes.

## 4 SPECIAL PROCEDURES/DEFINITIONS FOR THE DIARY SURVEY

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### 4.1 Split Events

The 'split event' concept is a vital component of the overall survey design and primarily relates to fishing activity/events. By definition, a single fishing outing (on one day, by one respondent) may produce a number of separate fishing 'events' (usually through different types of fishing – i.e. methods/targets), requiring separate Event Sheets to be completed for each. Rigorous adherence to event-splitting procedures will enable consistent analysis of the survey data for particular recreational 'fisheries'. These 'fisheries' are often defined by combinations of variables such as region, species and fishing method and a major output from the survey, will be 'catch rate' analyses for key species (e.g. number of fish caught per fisher hour). By comparing targeting vs. catch information from the Event Sheet, these catch rates can be analysed to show e.g. whereas a 'prime' species might be heavily targeted by fishers, the actual catch rates (and catches) are relatively low and typically, that other less sought-after species dominate the catch.

Put simply, a 'split event' is required whenever more than one answer code applies to any question on the Event Sheet, where the notation "(split)" is shown after the heading for the question. For fishing activities, 'split events' are routinely required for Q6 Fishing Region, Q7 Sub-region, Q8(a/b) Targeting, Q9(a) Method and (although rare) Q10(b) Boat type. In certain circumstances (but not all), 'split events' also apply to Q2 Start date (see details in 3.3.3 earlier). However, contrary to the notation on the Event Sheet, event-splitting is not required for Q5 Event type (see details in 3.3.3 earlier).

As discussed in training, the routine use of 'anything else' probing in chronological data collection (e.g. "did you fish anywhere else that day?") is a valuable tool to identify 'split events' (and also to eliminate further such questioning – for that day). The use of preliminary interviewing/note-taking can also be of assistance here, but (as discussed in 3.3.3 earlier), should only be employed where such complexities are evident/expected (e.g. respondents who use both active and passive fishing methods).

In practice, a 'split event' requires that a separate Event Sheet be completed for each of the applicable answer codes, within the question that 'triggered' the split. In many instances, doing so for one question, will immediately avoid further splitting caused by other questions. For example, on the one day, a respondent firstly sets pots/traps in a harbour, targeting lobster/crabs, then goes reef fishing offshore, then removes the pots/traps before going home. Here two events are (ostensibly) required – one for the pots/traps and the other for reef fishing. However, entirely different responses would be recorded in each (at least) for Q7 Sub-region, Q8(a/b) Targeting, Q9(a) Method and importantly, Q11 Times. By creating two events here, the 'whole story is told' on the Event Sheets for each of the two different types of fishing (and separate analyses can therefore be undertaken).

However, other less obvious 'event-splitting' can occur – perhaps the best example of which concerns 'initial targeting' changes for line fishing. This can sometimes be confused with 'multiple targeting' (two or more species) in the one event and is further discussed in 3.3.3 earlier.

Yet, accurate event-splitting may not be achievable/practical in some cases. Where this occurs as a result of fishing activity on the border of a Fishing Region or Sub-region, a ‘mainly’ approach can be applied (see discussion in 3.3.3 earlier) and the event can remain ‘un-split’. But, in all other cases, a ‘best estimate’ approach should be employed to separate the details (and split the event) – including for changes in initial targeting. Note: any remaining difficulties in this regard should be fully documented on a Field Query Form.

N.B. the general rule applies here ... *‘when in doubt, create a split event’*. Any resultant ‘unnecessary’ event-splitting presents absolutely no difficulties in data processing/analysis.

As discussed earlier in 3.3.3, event-splitting in the expenditure questions is extremely rare and will mostly occur in two areas: (i) in Q13, where two purchases within the one expenditure category (normally totalled) have different attribution rates (% of cost attributable to fishing) and perhaps more commonly (ii) in Q14 where more than two ‘away’ Ezones apply to the expenditure reported in Q13.

## 4.2 Multiple-person Events and Shared Effort

For purposes of practical reporting, multiple-person events are permissible for fishing activity (i.e. where a single Event Sheet covers the activities of more than one person) – but only where all the activities described are the same for each person (e.g. times fished, breaks etc) and the catch is fairly evenly distributed among the participants ... or is irrelevant on a personal basis (e.g. shared pots/traps).

For passive fishing methods (e.g. pots/traps and some nets), this reporting approach is quite common and is often the only way of accurately describing the activity – i.e. where the fishing simply does not occur on a personal basis (rather, by the gear used/owned by the people). For some active methods (not line fishing), this may also be the case, e.g. a drag/seine net invariably requires two or more people to operate it. For line fishing, this approach is necessary where large catches are involved and can’t be practically separated. It can also be applied where quite small catches can’t be practically separated, but as discussed in training, never where any substantive difference exists in the fishing effort or catch distribution among the diarists concerned (see example below). In these cases, it is better to estimate the dissection of the catch and to more accurately describe the fishing effort of the individuals.

To accurately ‘tell the story’ of a multiple-person event, three key questions need to be carefully recorded on the Event Sheet:-

- Q1 Person Numbers: record here the assigned Person No’s for the members involved from the selected household – i.e. the diarists in the normal Diary Survey (see discussion in Section 5, regarding separating non-diarists for the Supplementary Survey)
- Q9(d) No. of Persons (shared effort only): record here the total number of persons actively involved in the fishing event, including any non-diarists from within the selected household, or others from outside the household. Note: all non-diarists can be included here (even in the normal Diary Survey), but their share of catch will be ignored in the

analysis (see Q12 below). Therefore, the number of persons recorded in Q9(d) must be equal to/greater than the number of persons recorded in Q1

- Q12 Catch: record here the total catch (kept and released) for the event by all persons recorded in Q9(d) (or from all pots/etc used by these people). This allows for the share of the total catch to be calculated in the database for each person (sometimes e.g. 1.3 crabs/lobsters) and assigned to each Person No. reported in Q1 for the analysis

An important example of how this reporting method can be efficiently applied to accurately reflect line fishing behaviour/expertise is ... the parent who goes line fishing with three young children ... they all fish for the same period of time, targets etc ... for a total catch of (say) seven fish, but all were caught by the parent. In this case, two Event Sheets should be completed to reflect the reality of the activity/expertise – one for the parent (a catch of seven) and a multiple-person Event Sheet for the three children (a nil catch).

A note on game fishing: although comparatively rare, the practice of offshore game fishing (for large pelagic fish e.g. marlin or sharks) often involves a number of lines being fished from a boat (usually set in rod holders) and a number of anglers who take it in turns at being 'on strike' during the day (catches can be quite rare and multiple/simultaneous 'hook-ups' more so). Although it might be 'tempting' to create a multiple-person event here, difficulties exist in terms of over-reporting of fishing effort. Given that line fishing effort is measured in fisher hours (regardless of the number of lines in the water, see Q9(a) in 3.3.3 earlier), it is preferable to report this kind of activity on a personal basis and to record times that reflect when the respondent was actually fishing (or 'on strike'). Although quite rare, this is an important illustration of how an understanding of survey objectives will ensure accurate and appropriate reporting of the data.

### 4.3 Interstate Fishing and Tracking

While for most diarists, all fishing/expenditure activity during the survey will be confined to their home state/territory, a proportion will undertake activity in other parts of Australia. As a national survey, it is important that all 'in-scope' activity is collected and reported accurately. It is equally important that, having 'set the sample' for the Diary Survey, the activities of each respondent are monitored throughout the whole period, including those who might permanently re-locate interstate (or intrastate). In many cases, interstate activity is to be handled by the 'home state' interviewer, but in other cases, assistance by the local state/territory will be required (see discussion below). Accordingly, each interviewer has been provided with relevant interviewing material for each state/territory (Event Sheets, Fish ID Guides, Fishing Region and Ezone Maps). In certain cases (or where in doubt), the respondents should also be provided with the Fish ID Guide/s for the other state/s etc concerned.

Little difference exists between the Event Sheets for each state/territory – namely: the answer categories for Q10(c) Shore type; the structured common species in Q12 Catch; and the eligible coding for Regions and Ezones (Q6 and Q14). (Note: because the questioning is virtually identical, state-specific Diary Survey Cover Sheets have not been provided). The local state/territory Event Sheet (white) is distinguished from the 'other states' sheets which

are yellow. When recording interstate fishing/expenditure activity, all relevant state/etc coding is therefore to be applied and in the database, the information will be distinguished from the 'normal' data for that state/etc through the 'foreign' Sample No and Person No's used (i.e. you must record the full Sample No, including the alpha code (N, V, Q etc) for the 'home' state/territory.

In broad summary, there are four types of interstate fishing/expenditure activity:-

- 1) 'episodal' cross-border activity, often by people who live close to a state/territory border ... or short-term holidays/visits to friend or relatives
- 2) longer-term holidays (e.g. the 'big trip') where the respondent moves around and several different states/etc may be visited
- 3) longer term visits to friends/relatives (or work-related) where the respondent is based in the one location, and
- 4) permanent re-locations of one or more members of a selected household

In the first three cases above, all interviewing/data recording for the interstate activity would usually be handled by the 'home state' interviewer. Put simply, any interviewer-familiarity problems which might arise in terms of species, regions etc, will usually be outweighed by the familiarity between the interviewer and the respondent. In the fourth case, a 'hand-over' to the relevant state/territory would usually be required. However, exceptional cases will no doubt arise e.g. a respondent who moves permanently interstate, but very late in the diary period, might be 'retained' by the original interviewer.

As discussed in training, the major concern in all of the above refers to 'tracking' respondents, maintaining regular contact and therefore, reliable data collection ... and the 'big trip' can present the greatest problems here. However, in any situation where a substantial absence from home is involved, the range of available contact 'tools' should be explored with the respondent and appropriately used, including: mobiles phones (notwithstanding coverage problems in some areas); conventional phone contact (e.g. friends/relatives being visited interstate); and advance itinerary information and monitoring (e.g. through a third party/alternative contact person). Reverse-charge calls from the respondent are also acceptable (e.g. where no mobile phone), but any reliance on respondents contacting the interviewer is usually unsuccessful (despite the best intentions, they simply forget!). Note: contact during a relatively short holiday (e.g. mobile phone) can also be beneficial and is often quite acceptable to respondents.

Note: where intrastate re-location occurs, interviewing is to be continued by the original interviewer and phone numbers, 'general' address details amended on the Diary Survey Cover Sheet. Where overseas re-locations occur, the permanency of the move needs to be established with certainty and if so, the Diary Survey Cover Sheet is to be appropriately noted and returned to the Survey Office. Where a short-term overseas relocation occurs and the respondent is expected to return to the original dwelling before the end of the diary period, then the Cover Sheet should be retained by the interviewer and the situation monitored as appropriate (e.g. alternative contact person). Situations where the return is uncertain (in terms of timing, or to where) should be discussed with the Survey Office.



Unexpected moves/re-locations of all kinds will also occur and for 'whole household' moves, the alternative contact person is vital. Where 'partial household' moves occur, care and sensitivity are required in cases where relationship breakdowns are involved and sometimes, the alternative contact person may be required/appropriate.

**Note:** by design, 'tracking' of respondents is only required for those respondents identified at the start of the Diary Survey as intending fisher/diarists. Although the status of household structures will be assessed in terms of 'others in survey' as part of the 'Wash-up' Survey, no other 'tracking' is required in this respect (including, within the Supplementary Survey).

## 5 THE SUPPLEMENTARY SURVEY

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The role of the Supplementary Survey is to provide important additional information (see below) to the normal Diary Survey. To minimise reporting burden for respondents generally (and avid fishers specifically), a sub-sampling approach has been employed whereby each household in the Diary Survey has been assigned a random number (stratified by area) in the range 1-6 (i.e. the Sub-sample No. as shown on the Workload Control Sheet). The Sub-sample No. denotes a two calendar month period within the general survey period, in which the Supplementary Survey is to be conducted for each household ... and therefore, when the extra information is required. Sub-sample No's and relevant two month periods are as follows: (1) May-Jun 00, (2) Jul-Aug 00, (3) Sep-Oct 00, (4) Nov-Dec 00, (5) Jan-Feb 01 and (6) Mar-Apr 01.

In summary, the Supplementary Survey will collect the following (extra) information:-

- for respondents classified on the Diary Survey Cover Sheet as 'Others in Survey' (i.e. non-diarists), any fishing/expenditure activity which might occur during the period (as per the normal Diary Survey), and
- for all 'In Survey' respondents (i.e. diarist and non-diarists), any expenditure on food/drink and private vehicle fuel/oil and repairs/maintenance – where the expenditure occurred greater than 40 kilometres (by road) away from home and on a fishing-related trip

Although rarely resulting in any reported activity, the inclusion of non-diarists will enable complete assessment/calibration of fishing/expenditure activity on a 'whole' household basis for the Diary Survey period. The inclusion of additional expenditure items for all respondents will provide important information in terms of 'away from home' expenditure on food/drink and vehicle expenses for fishing-related trips. This information will enable complete regional analysis of visitor expenditure related to recreational fishing. Note: in the normal Diary Survey these items are excluded and private vehicle travel is only assessed in terms of total kilometres travelled (and not assigned to any Ezone).

When reporting any such additional information, the normal Event Sheet is to be used and the extra information 'revealed' in the database through the use of unique Person No's (i.e. diarists can be distinguished in the database from non-diarists in a household). For this reason, multiple-person events should not be used, where diarist and non-diarist Person No's are recorded on the one Event Sheet. Please refer any cases where this presents difficulties to the Survey Office. Note: the additional expenditure items are shown on the standard Event Sheet (Codes 18, 19 and 23) and are highlighted by a box outlining the Item No.

As discussed in training, the Supplementary Survey will have a negligible effect on many households. In fact, in some cases, a household may never become aware of this survey at all – for example, where all household members are diarists and no fishing/expenditure activity occurs in the two month period (or none that could involve purchases > 40km away from home), then there is simply no need to mention the issue to these respondents. Because of this, advance briefing of respondents before the Supplementary Survey is often not required.

Rather, appropriate briefing can be provided when e.g. plans for some fishing activity emerge. Similarly, for households where no activity is being reported by the diarists, the first assessment of any non-diarist activity (and briefing) might be conducted early in the two month period, as part of a scheduled contact in the normal Diary Survey. In the very rare cases where any non-diarist activity emerges here, any 'recall' difficulties/bias would be minimal.

On the other hand, care is required to ensure appropriate briefing/monitoring of any households where such activity is likely to occur. For example, a relatively common cause of activity by a non-diarist will be where e.g. a child is the only fisher in the household and a parent makes fishing-related purchases for him/her ... or importantly, drives the child in the family car for him/her to go fishing. This is to be recorded as private vehicle travel by the parent (not the child) and is excluded from the normal Diary Survey.

Finally, to assist interviewers in remembering to correctly 'apply' the Supplementary Survey for each household, the use of the coloured stickers is strongly recommended. At the end of each two month Sub-sample period, these stickers should be removed from the expiring sub-sample and stickers attached to the new sub-sample.

## 6 WORKLOAD CONTROL SHEET

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For each calendar month in the Diary Survey, a new/updated Workload Control Sheet (see Appendix J) will be issued by the Survey Office. Commencing at the end of the first month (May 00), the Diary Survey status of each household is to be recorded by the interviewer using the coding system provided at the bottom of the form. The Workload Control Sheet is to be returned to the Survey Office (in accordance with local procedures), along with all completed Event Sheets for that month. This provides a reconciliation in terms of households 'with vs. without' Event Sheets for the month. However, as discussed in training, care is always required to ensure that completed Event Sheets are safely stored in the relevant Diary Survey Cover Sheet, until despatch at the end of each month.

Note: during May 00, the person-based sample of diarists within each household is to be established, recorded and 'set for the diary period' by the interviewer (see 'Diary Person No's' column on the Workload Control Sheet and earlier discussion in Section 2, Diary Explanation Interview).

Although most Monthly Status Codes are largely self-explanatory, some codes (e.g. NP, AW and S) have been devised to 'explain' that no attempted contact was made/appropriate for the household, during the month concerned (i.e. an arrangement was made with the respondent/s not to call). Because the ultimate objective of status coding is to establish that either some activity (Code Y) or no activity (NA) occurred for each month/household, subsequent Workload Control Sheets should be updated for earlier months, where any 'temporary' coding was applied (including NC) and the activity status has since been established. The ultimate objective here is that the very last sheet for the diary period will contain a 'Y' or 'NA' for every month/household.

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[illegible]

This image shows a full page of a handwriting practice worksheet. It consists of approximately 20 horizontal rows. Each row is defined by two parallel dotted lines, creating a series of uniform gaps for letter height. The lines are evenly spaced across the entire page, providing a guide for consistent letter formation. There is no text or other markings on the page.

## **ATTACHMENT 12.19**

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### ***INDIGENOUS FISHING SURVEY***

**A National Survey  
of Recreational  
and Indigenous  
Fishing**

**Indigenous Survey  
Component**

**prepared by  
Anne Coleman  
September 1999**



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# National Recreational and Indigenous Fishing Survey

## 1. **Background**

'Recreational Fishing in Australia: A National Policy' was published in 1994 and included a recommendation for a national survey of recreational fishing every five years. Consequently, the Standing Committee for Fisheries and Aquaculture requested a Survey Steering Committee be formed, comprising representatives from various national and state/territory agencies with responsibilities/interest in fisheries research and management. From the outset it was acknowledged that considerable benefits could accrue from a coordinated approach to the development and implementation of a national survey.

The aim of the national survey is to provide detailed information on a total fishery basis, in some states this will be provided by combining the recreational catch with that of the commercial sector. However in some areas, particularly northern Australia, Indigenous people are also an important, if not the major users of fisheries resources. On this basis the Survey Steering Committee expanded the terms of reference to include all non-commercial fishing (ie. Indigenous and overseas visitors) and commissioned a Feasibility Study to define output requirements for the survey, review existing survey methodologies and identify and evaluate relevant implementation options. The feasibility study suggested a methodology for the recreational component plus a separate study of traditional fishing in regions of the states and territories. A community/dwelling based area sample with face to face interviewing was suggested for the Indigenous component, but only after substantial further development, liaison and testing.

## 2. **Objectives**

### 2.1 **"Non-commercial" or "recreational and Indigenous"**

The primary focus of the National Survey is to collect nationally consistent and comparable data on catch, effort, participation rates, demographics, economic activity, attitudes and awareness in all 'non-commercial' fishing. In addition to the telephone / diary survey of recreational fishing in the general population, two other components of the overall Survey have been designed – a survey of Indigenous communities and of international visiting fishers. While these latter components will have a different value to each State and Territory, the combination of recreational, Indigenous and international fishing data will provide a comprehensive picture of non-commercial fishing, and allow complete analysis of the extractive sectors of Australia's fishing resources.

However, the title of the National Survey as a "Recreational and Indigenous Survey" may lead to misconceptions and therefore wrong expectations: An important distinction needs to be made between a "Non-commercial" fishing survey and a "Recreational and Indigenous" fishing survey".

The latter suggests that the total Indigenous harvest will be produced for each State/Territory – even in the instance where the Indigenous harvest is not significant in the overall harvest.

A “non-commercial” survey will produce harvest estimates of any significant non-commercial fishing - which in a given area could be only recreational fishing, only Indigenous fishing or a combination of both. A “non-commercial” survey, by definition, will therefore not necessarily produce total Indigenous harvest, particularly in those States or areas of States where there are low numbers of Aboriginal people and the impact on the total non-commercial harvest can also be assumed to be low.

This report assumes the development of the National Survey was to produce a cost-effective method to assess all non-commercial fishing.

## **2.2 Objectives for the development phase**

1. To develop and refine the output specifications, sampling design, survey methodology and survey instruments for a survey of Indigenous fishing communities.
2. To pilot test the methodology and questionnaires on a small sample.
3. To prepare final documentation for the implementation of the Indigenous survey, as part of the National Recreational and Indigenous Fishing Survey.
4. To prepare the final costing of the Indigenous survey, as part of the National Recreational and Indigenous Fishing Survey.

## **3. Methods**

The Indigenous fishing component of the survey has been progressed over the past year, alongside the development of the recreational component (see main report for reporting schedule etc).

A literature review was undertaken to find any information pertinent to the survey, particularly information on indigenous survey methodologies. A data search was also undertaken which compiled data from various sources to be used in the development phase.

Advice was sought during all stages of the development through informal consultations with various people and agencies including:- Aboriginal Liaison Officers within Western Australia (WA), Northern Territory (NT) and Queensland (Qld) fisheries and other agencies, four of the Land Councils and finally the people within the communities involved in the pilot surveys.

A pilot survey was conducted (see below) and finally recommendations for the survey methodology, survey documentation and a sampling procedure have been produced.

## **4. Results of Development Work**

### **4.1 Literature and data search**

#### **4.1.1 Use of Resources**

##### **Food**

Obviously food is the major use of fisheries resources taken by Indigenous people and many studies have documented the importance of wildlife in the diet. Roberts et al

(1996) and Mulholland (pers. com.) suggest that fresh meat or fish is a preferred source of protein, although the proportion of harvested food in the diet may reflect a number of factors such as the availability of and access to wildlife and the availability of store foods.

### **Totemism and taboos**

Traditionally Aboriginal people are associated with at least one totemic animal (Tindale and Lindsay 1963). However the relationship between the person and the animal may vary. Some may be able to eat the animal at certain times whilst others may not eat the animal at all (Bennett 1983). Certain members of the community may also place taboos at other times for other reasons (E. Mulholland – pers. com.).

### **Social value**

The social value of food collecting, hunting and fishing is seen as important in maintaining the social cohesion of communities (Walsh 1992). Social networks are reinforced through the customary sharing of gathered food (Caughley et al 1996). Hunting is also used as an important educational tool for teaching younger people Aboriginal law through the expression of knowledge and reinforcement of spiritual beliefs (Collins 1996). Caughley et al (1996) suggests that without food gathering social networks would be disrupted.

Some resources are harvested for community celebrations. In New Mapoon (Qld), 17% of hunts were for feasts (Roberts et al 1996) and these hunts tended to involve more people and equipment hunting cooperatively.

#### **4.1.2 Sea Country**

“Country” refers to an Indigenous persons place of origin – either culturally or spiritually – and therefore it refers to more than just a geographical area and contains all the values, places, resources, stories and cultural obligations for the area (Smyth 1994, Langton et al). The origins of islands, reefs and other features are also contained in creation beliefs, as are geographical features on the land (Smyth 1993). So, for coastal Aboriginal people ‘country’ can also refer to the sea, which is seen as inseparable from the land (Smyth 1994).

The system of ownership of ‘country’ varies from place to place, but generally membership of a clan and therefore association with a clan ‘country’ is given at birth (Smyth 1994, Langton et al). Aboriginal people have a moral obligation to care for their country (Rose 1984 cited in Collins 1996). Clan membership then provides access to hunting and fishing on the clan’s ‘country’ and may also provide access to resources to another clan’s area (Smyth 1994).

About half of the Australian Indigenous population live within 20km of the Australian coastline (Smyth 1993) and around the coast there are approximately 100 coastal communities occupying land under a leasehold, freehold, reserve or native title agreement (Smyth 1993). There are also an additional 200 outstations or homeland centers with permanent or semi-permanent occupation (Smyth 1993).

In the NT Aboriginal coastal land ownership has been granted to mean low-water mark and in Queensland, Indigenous control on Aboriginal Reserves and Trust areas extends to high-water mark. Aboriginal people have no other controls below high water mark (Smyth 1994). The importance of traditional harvest is recognised in the

NT Fisheries Act which states that any legislation under the fisheries act must not “limit the right of Aboriginals who have traditionally used the resources of an area of land or water in a traditional manner from continuing to use those resources in that area in that manner” (*NT Fisheries Act 1988*).

In Northern Australia, Indigenous people are exempt from most recreational fisheries legislation, however in New South Wales, Victoria, Tasmania and South Australia recreational fishing limits apply (Smyth 1994).

#### **4.1.3 Political Jurisdictions**

The following agencies have political jurisdiction within the region in scope:

**Northern Territory** –There are 4 ATSIC regions Yilli Rreung (Darwin), Garrak Jarru (Katherine), Jabiru and Miwatj (Nhulunbuy). There are three land councils: the Northern Land Council, the Anindilyakwa Land Council and the Tiwi Land Council. Local government in the Northern Territory (NT) consists of Municipal and Community Government Councils plus Incorporated Associations. The Fisheries Division also has 7 Aboriginal Consultative Committees that cover most of the coastline and most of the coastal hinterland.

**Western Australia** –There are two areas within the Aboriginal Affairs Department: West and East Kimberley and 3 ATSIC regions: Wunan (Kununurra), Derby and Kullari (Broome). There is one land council – the Kimberley Land Council. Local government consists of the shires of Wyndham-East Kimberley, Derby-West Kimberley, Halls Creek and Broome.

**Queensland** – There are 3 ATSIC regions: Peninsula, Cairns and District and Mount Isa and Gulf. There are 2 Land Councils within the survey area – the Cape Yorke Land Council and the North Queensland Land Council. There is also an Aboriginal representative on each of the Queensland Zonal Advisory Committees belonging to the Queensland Fisheries Management Authority.

#### **4.1.4 Review of Indigenous survey methodologies**

##### **Australia (National)**

- ♦ The National Aboriginal and Torres Strait Islander Survey (NATSIS) (Australian Bureau of Statistics 1994a/1994b/1995). NATSIS collected extended social demographic data on family and culture, health, housing, education, employment and law and justice information. NATSIS also collected participation in ‘hunting, fishing or gathering bush food’ however, this was listed in the results under ‘work that you are not paid for’. It is unclear how the question was framed during the actual interview but generally it is questionable if Indigenous people would see hunting or fishing as work they were not paid for. The survey was conducted on a household and persons basis, with households being taken from selected collection districts (CDs). The CDs were stratified by ATSIC region, by size (large or small) and by status (major urban, other urban or rural). All Aboriginal/Torres Strait Islander dwellings within these collection districts were identified by a census of all households prior to enumeration and then sampled using an integer skip methodology. In rural areas local agencies and organisations such as the Royal Flying Doctor Service, Australia Post, Local Councils and Police Stations were

contacted. In remote communities household selection was made from maps of the community, either provided by the community or prepared by the field officer.

### **Northern Territory**

- ◆ Subsistence fishing in NE Arnhem Land (Davis 1983). This study was a qualitative description of fishing activities in NE Arnhem Land. A 2-week field trip was conducted to each region every 2 months. One week was spent fishing with the Aboriginal men, delineating areas fished, identifying species caught and fishing methods used, recording tides and weather conditions etc. The remaining time was used to interview Aboriginal people about ownership of sites, ownership and rights in surrounding clan estates and other information about the area.

### **Queensland**

- ◆ Documentation of Marine Resource Usage by the Hopevale Community (Smith 1998). This study was a qualitative description of fishing activities by the Hopevale Community. Time at the community was divided between the community and beach camps, depending on the movements of the community residents. Interviews were both formal and informal plus information was obtained through participant observation.
- ◆ Survey package (Turner et. al. in press). A survey package has been designed for use within both urban and remote Indigenous communities and is aimed at Indigenous community management agencies. The survey package includes a pre-survey called the "community baseline fishing and interview style survey". This pre-survey sets the scene with interview style, cultural protocols and objectives for the fishing survey. A door to door survey is conducted, collecting recall data from community members in association with an "esky" (bus route)/access point fishing survey. The community fishing survey gathers anecdotal information on catch and effort information such as target species, use of catch, fishing spots, boat ownership in the community, fishing gear used, how many people fish and how often. It also obtains information about the community including cultural aspects to conducting a survey including how and where people would like to be interviewed and by whom. The door to door survey collects 'fuzzy' (ie average number of people who fished in a group over the year) recall data about general fishing activity plus more detailed information on the last and best fishing trip ("best" is not defined) including number of fish by species and their average length. The access point/esky surveys collect fishing information from all people fishing –not just those from the local community.

### **Torres Strait Islands**

- ◆ Traditional Fishing in Torres Strait (Johannes and MacFarlane 1991). A qualitative description of fishing activities in Torres Strait, except for detailed catch statistics for 2 islands (one of which is described by Poiner and Harris 1991).
- ◆ Catch monitoring on Boigu Island (Johannes and MacFarlane 1991). A quantitative description of all marine resources landed on the island, fishing sites and fishing methods. All community members (population size 330 people in 1987) who fished were interviewed daily by a resident interviewer. The fisher



counted all fish in the catch, not the interviewer, and the fishing site and method also recorded.

- ◆ Catch monitoring on Yorke Island (Poiner and Harris 1991). A quantitative description of all marine resources landed, fishing methods and sites of collection. The island was visited for 10 days every 6 weeks for 14 months followed by 10 days every 12 weeks for 8 months. Six to eight days were used to monitor the catch and involved noting all departures from first light and then interviewing fishers on their return. The fisher's gender, age and name were recorded along with fishing sites and methods. All fish were sorted to taxonomic group and weighed and counted. Fishers were also asked why they had been fishing and what the catch would be used for. The remaining time on the island was spent collecting descriptive information, mapping reef habitat and estimating fish abundance over the reef.
- ◆ Catch monitoring of all Islands (Harris et al 1993, 1995). A quantitative survey of all marine resources landed to communities within the Torres Strait Protected Zone. Initially a pilot study was conducted to find a subset of islands which would be representative of all communities. ABS census districts were used as sampling units and communities were grouped according to known fisheries information. A roving observer (CSIRO/AFMA staff) was used to document catch and daily fishing effort on all islands over a 21 day sampling trip. The sampling schedule was constrained by scheduled airline flights. In the second year a subset of islands was chosen and local fisheries observers were recruited and trained. If the observer did not sight the landed catch it was still possible to find out from the small community who had been fishing. The data was then classified in relation to its source and quality.
  - The catch was sighted weighed and identified by the observer and the fisher interviewed.
  - The fisher was interviewed the day following fishing and information about the catch collected
  - Fishing was known to have taken place, but the fisher was not interviewed. Information was obtained through sighting or conversations with other fishers
  - The information was collected when the observer was not on the island and the information could not be independently verified.
- ◆ Monitoring of hunting, both terrestrial and marine in North Queensland (Roberts et al 1996). A quantitative study of the harvest of wildlife resources by three communities in northern Queensland. Recall information was collected from the hunt leaders on a regular basis by trained Indigenous fieldworkers. The survey was preceded by consultation with the communities involved and lasted for 7 months. The information collected was quite detailed including sex ratios of harvest animals, reasons for hunting etc. However the survey method biased data collection towards large vertebrate animals.

#### **New Zealand**

- ◆ No Indigenous survey – a customary harvest permit has been issued which has reporting requirements. In addition, Indigenous people 'register' with a tribe, so a sampling framework is potentially available for surveying fishing among Indigenous people.

## **Canada:**

- ◆ Hunting and Fishing in Ontario. (Hughes et al 1994/1995) Land use in living memory was documented. Detailed questionnaire of "potential hunters" to map harvest locations over a one-year cycle (recall). Potential hunters were identified as all males over 18 and female heads of households having no adult males. Sampling on communities was conducted from band lists. Outside the reserve, sampling was from a list of native households. The questionnaire was administered orally and the interviewer (a member of each community) recorded the responses.

### **4.1.5 Recommendations for Indigenous survey design**

Aboriginal cultural diversity is a major consideration in survey design. Indigenous surveys share important methodological and survey technique issues such as ensuring the sample of people is representative of the Aboriginal population – as Aboriginal people live in a wide variety of places, in remote, rural or urban areas with significant differences in socio-economic circumstances and with a huge cultural diversity.

Three questions need to be considered - who constitutes the Aboriginal population?, how can Aboriginal people be located? and how can the response rate in a survey be maximised?

#### **Sampling of Aboriginal people**

ABS census data (and the recreational fishing) survey relies on the definition of a "household" and the members within a household, with a set of criteria to allow for visitors to that household or usual members of the household who are away. The mobility of Aboriginal household members and the fact that some Aboriginal households are not demarcated by the physical boundaries of the dwelling make these methods and assumptions invalid in Aboriginal communities and for some urban Aboriginal households (Smith 1992).

#### **Maximisation of response rates**

A period of consultation and negotiation with the Aboriginal community is required. The benefits of the survey must be explained. The intrusion of data gathering to the community must also be explained and the impact of this discussed (Ross 1992).

#### **Recommendations from ABS**

- ◆ ABS (1998) recommends that in urban areas, normal survey definitions and methods are appropriate, but for Aboriginal people living in communities, ABS suggest a new Indigenous Community Collection (ICC) method.
- ◆ Smith (1992) suggests a method in communities must take cultural and economic realities and specific age and gender roles into consideration and should use language interpreters both in constructing the questions and in conducting the survey.
- ◆ "Household" surveys are inappropriate and surveys should be based on a "discrete community" basis (ABS 1998).

## **Cultural Appropriateness**

If the final survey design does not 'work' for the respondents, it is unlikely to produce the required results. An integral part of the design philosophy for the recreational survey is the minimisation of respondent burden, ie. it should make little demand on the respondent and be easy to participate. This is also true for the Indigenous component, however this component also has a further design philosophy of cultural appropriateness. At all times, the development of the survey has strived to maintain cultural appropriateness through consultation and this will be a major factor in the outcomes of the final design.

The proposed survey methodology has been developed through advice and informal consultations with various people and agencies including Aboriginal Liaison Officers within WA, NT and Qld fisheries and other agencies, four of the Land Councils and finally the people within the communities involved in the pilot surveys.

## **4.2 Issues identified for consideration**

### **4.2.1.1 Refusal**

As most communities in scope will be surveyed, a refusal by a community for access to that community creates a major problem, particularly in sampling regions where all communities are to be surveyed. Until formal approaches are made to each community during the set-up phase, the likelihood of a full refusal is unknown. However, using the approach used for the pilot survey should minimise the possibility. It seems unlikely there will be any individual refusals within a community once the authoritative council/body has given permission for access.

### **4.2.2 Restricted Information**

Often there is a hierarchy of cultural knowledge and information can be restricted. However, as the nature of the survey is to collect catch and effort information this should not be a problem and has not been a problem during the pilot survey. Any qualitative information accessed will be a bonus but care must be taken when reporting such information, particularly in relation to ownership of intellectual property.

### **4.2.3 Language**

In many communities English may be a second (or more) language. This will be addressed through the employment of a community interviewer/guide.

### **4.2.4 Numeracy**

The pilot study ascertained a good general level of numeracy. Some levels of recording quantities such as 'sugar tins' / 'buckets' will be addressed during observation.

### **4.2.5 Restricted Entry to Communities**

There are two main reasons for restricted entry to a community or site – one is due to ritual performance, the other due to a death within the community. Following a death, the community and possibly the surrounding area –including roads may become

closed to non-community members. Funerals are also the time when fishing behaviour may change ie hunting dugong or turtle for important ritual. The use of a community interviewer may address the problem of a closed community – but must not burden the interviewer or the community and jeopardise continuation of the survey.

#### 4.2.6 Others

- ◆ Reluctance to ‘hand-over’ information to fisheries agencies and mistrust over usage of the information – an issue identified in Queensland and New Zealand. Hopefully a “big-picture” “non-commercial” survey, plus a good relationship with the regional interviewer should alleviate these fears. Localised resource usage can be documented by the communities for their own information using the Queensland methodology.
- ◆ NATSIS discovered that people are more likely to claim Aboriginal descent over the phone than during face to face interviews (however the face to face interviews were conducted by an Aboriginal person). Assuming a “non-commercial” survey, this may only be an issue for States using the general population telephone survey to estimate Indigenous harvest –however the main concern is accurate representation and the overall impact is likely to be minimal.
- ◆ Possible under reporting of turtle and dugong harvest in Queensland due to license system (S. Helmke, pers com). Again, a “big-picture” “non-commercial” survey, plus a good relationship with the regional interviewer should alleviate this problem.
- ◆ An Aboriginal Coastal license is available in the NT, which allows Aboriginal people to catch seafood for sale within the community. At present 12 have been issued. The regional interviewers will be aware of the individuals who hold these licenses, and care will be taken to only document non-commercial fishing if license holders are selected.
- ◆ A community may contain more than one language group/tribe that hunts and fishes in different ways. This will be addressed through the use of information obtained during the ‘background’ visit and the subsequent stratification of dwellings prior to set up. It may also be necessary to use more than one community guide – but this will be on the advice of the communities concerned.

#### 4.2.7 Review of existing data

ABS determines Aboriginality by:

*An Aboriginal or Torres Strait Islander is a person of Aboriginal or Torres Strait Islander descent who identifies as a Aboriginal or Torres Strait Islander and is accepted as such by the community in which he or she lives.*

Aboriginality is determined in the census by asking – ‘is the person of Aboriginal or Torres Strait Islander origin’ (ABS 1994a). Aboriginality in the census therefore relies on self-identification as an Aboriginal person.

The ABS data is derived from 2 sources – the 1996 census and the 1994 NATSIS. The census data provides total counts of the population and a description of that population by collection districts (CDs), statistical local area (SLAs), statistical sub-

divisions (SSDs) and statistical divisions (SDs) in hierarchical order. However the Indigenous data from the census is reported in a different but again hierarchical classification. It is based on collection districts, but built up from CDs to Indigenous locations (ILOC) to Indigenous areas (IARE) and then into ATSIC regions (AREGs). CDs usually contain about 20 dwellings or a community or group of outstations in remote areas and ILOCs are put together from CDs which together have at least 80 Indigenous people. IAREs have at least 280 Indigenous people. In total there are 934 ILOCs, 692 IAREs and 36 AREGs. The data has also been built from CDs into “localities”, which are classified as ‘urban’ – containing more than 1000 people, or non-urban – a locality containing less than 1000 people. The rural balance comprises people living away from an urban or non-urban environment.

NATSIS collected information on the basis of AREGs and included information on fishing, hunting and gathering, however the information is not statistically robust at such a high level of disaggregation (see description of NATSIS, section 6.1).

The following data is an amalgamation of the 3 sources of data reporting (by placing localities into SDs) without resorting to costly queries from ABS. Only in Tasmania, South Australia and the NT are AREGs similar to SDs or SSDs, so a direct comparison can be made between the census data and NATSIS information (without placing the same localities into AREGs). The data provided are intended as a guide only, on which to base decisions. Qualitative information is also provided where available.

## Tasmania

**Table 1.** Indigenous Population of Tasmania (by SDs)

	Total Indigenous		Urban total		Non-urban total		Rural balance total		Non-urban + rural
	No	% <sup>1</sup>	No	% <sup>1</sup>	No	% <sup>1</sup>	No	% <sup>1</sup>	% <sup>2</sup>
Greater Hobart	4705	2%	4237	3%	121	2%	347	2%	10%
Mersey-Lyell	4469	4%	3237	4%	241	4%	991	0%	28%
Northern	2759	2%	1956	2%	134	2%	669	2%	29%
Southern	1930	6%	165	10%	634	7%	1131	5%	91%
<b>Total</b>	<b>13863</b>	<b>3%</b>	<b>9595</b>	<b>3%</b>	<b>1130</b>	<b>4%</b>	<b>3138</b>	<b>3%</b>	<b>31%</b>

Note: 1. Percentage (%) refers to Indigenous percentage of the total population. 2. Percentage of non-urban and rural Indigenous as a percentage of the Indigenous population

**Table 2.** Participation in hunting, fishing and gathering, Indigenous people aged 15 or older

	Proportion harvesting		Time spent harvesting									
			<6		6 to10		11 to 24		> 25		unknown	
	No	%	No	%	No	%	No	%	No	%	No	%
Tasmania	424	7%	312	74%	23	5%	70	17%	18	4%		

Only one ABS locality in Tasmania has an Aboriginal population of over 20% (Cygnet, with 227 Indigenous people comprising 38% of the population). Only Hobart and Launceston have a total Indigenous population of over 1000 people.

Aboriginal people form the majority of the population on Cape Barren island and 30% of the population on Flinders Island. Fishing is an important cultural activity as well as providing subsistence food (Smyth 1993).

## Queensland

**Table 3.** Indigenous Population of Queensland (by SDs)\*

	Total Indigenous		Urban total		Non-urban total		Rural balance total		Non-urban + rural
	No	% <sup>1</sup>	No	% <sup>1</sup>	No	% <sup>1</sup>	No	% <sup>1</sup>	% <sup>2</sup>
Brisbane	21887	1%	20682	2%	356	5%	849	1%	6%
Central West	722	5%	338	4%	143	15%	241	5%	53%
Darling Downs	4408	2%	3506	3%	323	3%	579	1%	20%
Far North	25752	11%	14037	9%	5824	31%	5891	11%	45%
Fitzroy	7090	4%	6191	5%	254	4%	645	2%	13%
Mackay	3630	3%	2944	4%	203	3%	483	1%	19%
Moreton	5708	1%	4257	1%	212	1%	1239	1%	25%
North West	7967	21%	4301	15%	2447	59%	1219	19%	46%
Northern	10496	5%	9649	6%	304	3%	543	2%	8%
South West	2228	8%	1578	12%	422	10%	228	2%	29%
Wide Bay	5590	2%	4182	3%	354	3%	1054	1%	25%
<b>Total</b>	<b>89888</b>	<b>3%</b>	<b>67483</b>	<b>3%</b>	<b>10488</b>	<b>12%</b>	<b>11917</b>	<b>3%</b>	<b>25%</b>

Note: 1. Percentage (%) refers to Indigenous percentage of the total population. 2. Percentage of non-urban and rural Indigenous as a percentage of the Indigenous population

**Table 4.** Participation in hunting, fishing and gathering, Indigenous people aged 15 or older (AREG)

	Proportion harvesting		Time spent harvesting									
			<6		6 to 10		11 to 24		> 25		unknown	
	No	%	No	%	No	%	No	%	No	%	No	%
Brisbane	66	1%									66	100%
Cairns	1147	16%	694	61%	403	35%	36	3%			14	1%
Mount Isa	209	5%	109	52%	57	27%	6	3%	36	17%		
Cooktown	2208	50%	1665	75%	479	22%	64	3%				
Rockhampton	264	5%	152	58%	112	42%		0%				
Roma	31	1%	11	35%				0%			21	68%
Townsville	473	6%	262	55%	116	25%	95	20%				
Torres Strait	1003	24%	664	66%	204	20%	104	10%				
<b>Total</b>	<b>5401</b>	<b>11%</b>	<b>3557</b>	<b>66%</b>	<b>1371</b>	<b>25%</b>	<b>305</b>	<b>6%</b>	<b>36</b>	<b>1%</b>	<b>101</b>	<b>2%</b>

In Northern Queensland there are 12 Coastal Deed of Grant in Trust communities and 2 Shires (Aurukun and Mornington Island). There are also several small reserves such as Mossman and Cooktown.

Lockhart River - marine animals sought include salmon (handline), barramundi (spear), reef fish (spear), crayfish (diving), turtle (harpoon/rodeo), dugong (harpoon), stingray (spear), crabs and shellfish. (Gray and Zann 1988).

Hopevale – turtle, dugong and fish – the resources exploited follow the “fat” cycle. In 1993, the Great Barrier Reef Marine Park Authority began to issue permits to take dugong, which mainly affected the Hopevale community (Lawson 1993).

Wujal Wujal (formerly Bloomfield River community) – most of the residents in outstations rely heavily on traditional food sources (cited in Lawson 1984). The community mainly fishes at Cedar Bay and people fish with both lines and nets but have never used fish traps. Men will spear fish whilst women fish with handlines or gather shellfish (cited in Lawson 1984). Turtles, trevally, grunter, black bream, mangrove jack and salmon are among the resources caught. In 1985 there were few dugong and few people with dugong catching knowledge so they were not hunted (Gray and Zann 1988). The “fat” cycle is also used.

Yarrabah – dugongs, turtles, turtle eggs and shellfish are harvested (Gray and Zann 1988).

Palm Island – In 1985 fishing by the community was becoming a recreational activity and also reported local depletion of previously important species.

New Mapoon – Dugongs and green turtles are hunted by men, women make more regular and smaller trips gathering fish, squid and shellfish. Female dugong and turtle were taken most often, mostly during the breeding season (just before the wet season). Hawksbill turtles are found in the area, but are not harvested regularly as they have a poison gland which necessitates a correct method of butchering (Roberts et al 1996).

## New South Wales

Table 5. Indigenous Population of NSW (by SDs)\*

	Total Indigenous		Urban total		Non-urban total		Rural balance total		Non-urban + rural % <sup>2</sup>
	No	% <sup>1</sup>	No	% <sup>1</sup>	No	% <sup>1</sup>	No	% <sup>1</sup>	
Sydney	34438	1%	33256	1%	198	1%	984	1%	3%
ACT	2899	1%	2867	1%	0	0%	29	0%	1%
Central West	5261	3%	3731	3%	339	4%	1191	2%	29%
Far West	1295	5%	766	4%	574	38%	162	6%	49%
Hunter	9279	2%	8247	2%	608	3%	424	1%	11%
Illawarra	6080	2%	5991	2%	302	2%	-213	-7%	1%
Mid-north coast	5245	2%	5488	3%	530	3%	1914	2%	31%
Murray	2516	2%	1399	2%	554	6%	563	2%	44%
Murrumbidgee	4196	3%	3183	4%	275	4%	738	1%	24%
North western	11693	10%	8781	12%	763	22%	2149	5%	25%
Northern	8166	2%	7487	7%	940	12%	1791	3%	27%
Richmond-Tweed	4933	3%	4022	3%	160	2%	751	2%	18%
South eastern	3409	2%	3130	3%	395	3%	-116	0%	8%
Total	96001	2%	88348	2%	5638	5%	10367	2%	15%

Note: 1. Percentage (%) refers to Indigenous percentage of the total population. 2. Percentage of non-urban and rural Indigenous as a percentage of the Indigenous population

Table 6. Participation in hunting, fishing and gathering, Indigenous people aged 15 or older (AREG)

	Proportion harvesting		Time spent harvesting									
			<6		6 to 10		11 to 24		> 25		unknown	
	No	%	No	%	No	%	No	%	No	%	No	%
Coffs Harbour	942	8%	406	43%	255	27%	256	27%	24	3%		
Sydney	707	5%	487	69%			188	27%			32	5%
Tamworth	31	1%	31	100%								
Wagga Wagga	202	20%	58	29%	14	7%	130	64%				
Queanbeyan	389	9%	179	46%	128	33%	82	21%				
Bourke	169	4%	92	54%	53	31%	13	8%	12	7%		
Total	2440	6%	1253	51%	450	18%	669	27%	36	1%	32	1%



## Victoria

Table 7. Indigenous Population of Victoria (by SDs)\*

	Total Indigenous		Urban total		Non-urban total		Rural balance total		Non-urban + rural % <sup>2</sup>
	No	% <sup>1</sup>	No	% <sup>1</sup>	No	% <sup>1</sup>	No	% <sup>1</sup>	
Melbourne	10725	0%	10340	0%	52	1%	333	0%	4%
Barwon	1155	1%	968	1%	48	1%	139	0%	16%
Central Highlands	853	1%	683	1%	17	0%	153	0%	20%
East Gippsland	1312	2%	843	2%	105	2%	364	1%	36%
Gippsland	1020	1%	829	1%	26	0%	165	0%	19%
Goulburn	2302	1%	1778	2%	50	1%	474	1%	23%
Loddon	895	1%	612	1%	80	1%	203	0%	32%
Mallee	1703	2%	1435	3%	37	1%	231	1%	16%
Ovens-Murray	461	1%	328	1%	17	0%	116	0%	29%
Western District	691	1%	547	1%	35	0%	109	0%	21%
Wimmera	353	1%	226	1%	10	0%	117	1%	36%
<b>Total</b>	<b>21470</b>	<b>0%</b>	<b>18589</b>	<b>0%</b>	<b>477</b>	<b>1%</b>	<b>2404</b>	<b>1%</b>	<b>13%</b>

Note: 1. Percentage (%) refers to Indigenous percentage of the total population. 2. Percentage of non-urban and rural Indigenous as a percentage of the Indigenous population

Table 8. Participation in hunting, fishing and gathering, Indigenous people aged 15 or older

	Proportion harvesting		Time spent harvesting									
			<6		6 to10		11 to 24		> 25		unknown	
	No	%	No	%	No	%	No	%	No	%	No	%
Wangaratta	129	2%	23	18%	106	82%						
Ballarat	665	11%	279	42%	135	20%	192	29%	60	9%		
Total	794	7%	302	38%	241	30%	192	24%	60	8%		

No ABS localities in Victoria have an Aboriginal population of over 20% and only Melbourne and Shepparton-Mooroopna have a total Indigenous population of over 1000 people. Approximately 300 Indigenous people make up a large proportion (18%) of the total population in and around the Murray River town of Robinvale (Mallee SD). Lake Tyers and Framingham are the only two known discrete Indigenous communities in Victoria (what about Lake Condah), and that the combined population in these two communities is about 200 individuals.

More than two thirds of the total Victorian Indigenous population are scattered amongst the general population in urban areas of Melbourne or other large regional Victorian cities (Geelong, Ballarat, Bendigo, Mildura, Shepparton, Swan Hill, Warrnambool, Echuca, Morwell, Wodonga, Bairnsdale).

## South Australia

Table 9. Indigenous Population of South Australia (by SDs)

	Total Indigenous		Urban total		Non-urban total		Rural balance total		Non-urban + rural % <sup>2</sup>
	No	% <sup>1</sup>	No	% <sup>1</sup>	No	% <sup>1</sup>	No	% <sup>1</sup>	
Adelaide	9387	1%	9141	1%	12	1%	234	1%	3%
Eyre	1767	6%	1219	7%	272	6%	276	0%	31%
Murray Lands	1628	2%	937	3%	147	3%	544	2%	42%
Northern	5969	7%	3290	5%	97	2%	2582	17%	45%
Outer Adelaide	601	1%	468	1%	75	1%	58	0%	22%
South East	559	1%	399	1%	50	1%	110	1%	29%
Yorke	523	1%	125	1%	140	1%	258	2%	76%
<b>Total</b>	<b>20434</b>	<b>1%</b>	<b>15579</b>	<b>1%</b>	<b>793</b>	<b>2%</b>	<b>4062</b>	<b>3%</b>	<b>24%</b>

Note: 1. Percentage (%) refers to Indigenous percentage of the total population. 2. Percentage of non-urban and rural Indigenous as a percentage of the Indigenous population

Table 10. Indigenous Population of South Australia (by AREGs)

	Total Indigenous		Urban total		Non-urban total		Rural balance total		Non-urban + rural % <sup>2</sup>
	No	% <sup>1</sup>	No	% <sup>1</sup>	No	% <sup>1</sup>	No	% <sup>1</sup>	
Ceduna	1867	5%	1249	6%	275	6%	343	3%	33%
Adelaide	12689	1%	11070	1%	424	1%	1195	1%	13%
Port Augusta	5888	7%	3260	5%	94	2%	2534	16%	45%
<b>Total</b>	<b>20444</b>	<b>1%</b>	<b>15579</b>	<b>1%</b>	<b>793</b>	<b>2%</b>	<b>4072</b>	<b>3%</b>	<b>24%</b>

Note: 1. Percentage (%) refers to Indigenous percentage of the total population. 2. Percentage of non-urban and rural Indigenous as a percentage of the Indigenous population

Table 11. Participation in hunting, fishing and gathering, Indigenous people aged 15 or older (AREG)

	Proportion harvesting		Time spent harvesting									
			<6		6 to 10		11 to 24		> 25		unknown	
	No	%	No	%	No	%	No	%	No	%	No	%
Ceduna	111	2%	34	31%	77	69%						
Adelaide	151	15%	21	14%	33	22%	44	29%	52	34%		
Port Augusta	415	11%	268	65%	24	6%	32	8%	90	22%		
<b>Total</b>	<b>677</b>	<b>6%</b>	<b>323</b>	<b>48%</b>	<b>134</b>	<b>20%</b>	<b>76</b>	<b>11%</b>	<b>142</b>	<b>21%</b>		

Aboriginal people continue to live on or near their traditional country. There are several Aboriginal communities in the Coorong, Point Pearce, near Port Augusta, Whyalla, Port Lincoln, Ceduna and Yalata (Smyth 1993).

## Western Australia

Table 12. Indigenous Population of Western Australia (by SDs)\*

	Total Indigenous		Urban total		Non-urban total		Rural balance total		Non-urban + rural % <sup>2</sup>
	No	% <sup>1</sup>	No	% <sup>1</sup>	No	% <sup>1</sup>	No	% <sup>1</sup>	
Perth	17198	1%	16281	1%	39	1%	878	1%	5%
Central	5307	8%	3309	8%	1043	14%	955	0%	38%
Kimberley	10707	36%	4609	21%	2590	77%	3508	81%	57%
Lower Great Sth	1361	3%	1147	4%	248	13%	-34	0%	16%
Midlands	1780	4%	977	6%	565	5%	238	1%	45%
Pilbara	5006	10%	2689	7%	820	28%	1497	21%	46%
South Eastern	3848	7%	2315	5%	586	33%	947	24%	40%
South West	2797	2%	2359	2%	160	2%	278	1%	16%
Upper Great Sth	749	4%	400	5%	360	8%	-11	0%	47%
<b>Total</b>	<b>48753</b>	<b>3%</b>	<b>34086</b>	<b>2%</b>	<b>6411</b>	<b>14%</b>	<b>8256</b>	<b>5%</b>	<b>30%</b>

Note: 1. Percentage (%) refers to Indigenous percentage of the total population. 2. Percentage of non-urban and rural Indigenous as a percentage of the Indigenous population

Table 13. Participation in hunting, fishing and gathering, Indigenous people aged 15 or older (AREG)

	Proportion harvesting		Time spent harvesting									
			<6		6 to 10		11 to 24		> 25		unknown	
	No	%	No	%	No	%	No	%	No	%	No	%
Perth	50	1%	15	30%	25	50%			9	18%		
Narogin	93	3%			93	100%						
Kalgoorlie	16	1%	16	100%								
Geraldton	11	0%							11	100%		
Warburton	347	20%	57	16%	175	50%	83	24%				
South Hedland	51	2%	20	39%			18	35%			12	24%
Broome	767	36%	246	32%	261	34%	201	26%	59	8%		
Derby	154	5%	65	42%	21	14%	37	24%	32	21%		
Kunnunurra												
<b>Total</b>	<b>1489</b>	<b>5%</b>	<b>419</b>	<b>28%</b>	<b>575</b>	<b>39%</b>	<b>339</b>	<b>23%</b>	<b>111</b>	<b>7%</b>	<b>12</b>	<b>1%</b>

In the Southwest there is very little Aboriginal-owned coastal land, however they occupy coastal freehold, leasehold or reserve land between Carnarvon and the NT border. In the Kimberley region, Aboriginal people own several coastal cattle stations (Smyth 1993). Regional centers – Geraldton, Carnarvon, Onslow, Roebourne and La

Grange have populations of Aboriginal People who tend to be immigrants from inland areas and fishing may be due to social as well as economic reasons (Green 1988). Other areas –Broome, Beagle Bay, Lombadina, One arm Point, Kalumburu and Oombulgari tend to be coastal Aboriginal people and a large proportion of these people rely heavily on marine resources for part of their diet (Green 1988).

The Bardi people at One Arm Point recognise six seasons and the seasons influence which species are targeted (Green 1998). They utilise dugong, green turtles, fish and shellfish, although few dugongs are caught so they are highly prized. Fish are mostly caught by handlines or sometimes spears. Nets are very rarely used (Gray and Zann 1988). Trochus are taken to sell but the meat is not eaten (Gray and Zann 1988).

## Northern Territory

**Table 14.** Indigenous Population of the Northern Territory (by SSDs)

	Total Indigenous		Urban total		Non-urban total		Rural balance total		Non-urban +rural
	No	% <sup>1</sup>	No	% <sup>1</sup>	No	% <sup>1</sup>	No	% <sup>1</sup>	% <sup>2</sup>
Darwin city	5723	8%	5495	8%			228	10%	4%
Palmerston	1645	13%	1450	11%			195	0%	12%
Darwin Rural	1611	10%	645	6%	473	41%	493	10%	60%
Bathurst	1805	89%			1721	89%	84	86%	100%
Daly	2470	66%	50	10%	1468	90%	952	61%	98%
Alligator	3861	53%	104	6%	2321	90%	1436	48%	97%
East Arnhem	7001	58%	85	7%	5452	58%	1464	99%	99%
Lower Top End	6732	35%	1415	18%	2466	65%	2851	38%	79%
Barkly	3449	48%	1517	39%	1071	84%	861	43%	56%
Central	11967	29%	2846	11%	2486	89%	6635	51%	76%
<b>Total</b>	<b>46264</b>	<b>24%</b>	<b>13607</b>	<b>10%</b>	<b>17458</b>	<b>71%</b>	<b>15199</b>	<b>42%</b>	<b>71%</b>

Note: 1. Percentage (%) refers to Indigenous percentage of the total population. 2. Percentage of non-urban and rural Indigenous as a percentage of the Indigenous population

**Table 15.** Indigenous Population of the Northern Territory (by AREGs)

	Total Indigenous		Urban total		Non-urban total		Rural balance total		Non-urban + rural % <sup>2</sup>
	No	% <sup>1</sup>	No	% <sup>1</sup>	No	% <sup>1</sup>	No	% <sup>1</sup>	
Darwin city	8992	9%	7590	8%	473	41%	929	17%	16%
Jabiru	7746	64%	154	7%	5510	90%	2082	56%	98%
Katherine	7122	37%	1415	18%	2466	65%	3241	44%	80%
Nhulunbuy	7001	58%	85	7%	5452	58%	1464	103%	99%
Tennant Creek	3449	49%	1517	39%	1071	84%	861	46%	56%
Aputula	7518	62%	22	1%	2486	89%	5010	77%	100%
Alice Springs	4449	17%	2824	13%			1625	40%	37%
<b>Total</b>	<b>46277</b>	<b>24%</b>	<b>13607</b>	<b>10%</b>	<b>17458</b>	<b>71%</b>	<b>15212</b>	<b>50%</b>	<b>71%</b>

Note: 1. Percentage (%) refers to Indigenous percentage of the total population. 2. Percentage of non-urban and rural Indigenous as a percentage of the Indigenous population

**Table 16.** Participation in hunting, fishing and gathering, Indigenous people aged 15 or older (AREG)

	Proportion harvesting		Time spent harvesting									
			<6		6 to 10		11 to 24		> 25		unknown	
	No	%	No	%	No	%	No	%	No	%	No	%
Darwin city	606	12%	184	30%	116	19%	204	34%	101	17%		
Jabiru	2097	39%	868	41%	642	31%	482	23%	29	1%	76	4%
Katherine	675	16%	230	34%	115	17%	251	37%	79	12%		
Nhulunbuy	2560	64%	1153	45%	769	30%	419	16%	176	7%	43	2%
Tennant Creek	52	2%	30	58%	11	21%	11	21%				
Aputula	1635	34%	247	15%	556	34%	643	39%	190	12%		
Alice Springs	388	13%	53	14%	182	47%	45	12%	88	23%	19	5%
<b>Total</b>	<b>8013</b>	<b>28%</b>	<b>2765</b>	<b>35%</b>	<b>2391</b>	<b>30%</b>	<b>2055</b>	<b>26%</b>	<b>663</b>	<b>8%</b>	<b>138</b>	<b>2%</b>

Approximately 80% of the NT coastline is owned by Aboriginal People, which includes the intertidal zone to low water mark. The management of the land is the responsibility of statutory land councils (Smyth 1993).

In the Territory, Aboriginal people recognise 6 different seasons and these are marked by changes in flora, fauna and climatic conditions (Davis 1983). The seasons also influence which species are harvested as there is an emphasis on the food resource being in prime condition (fat possessing) (Davis 1983).

In 1986, 30% of the Aboriginal population lived in the major urban centers in the NT (which include Nhulunbuy, Tennant Creek, Alyangula and Yulara). A further 44% lived in Aboriginal townships, whilst the remainder (26%) lived in a variety of small rural communities (webnet). Approximately 30% of the Aboriginal population still

live in the urban areas, however there has been a move away from the townships and 33% now live outside of either urban areas or townships (ABS data –see table above).

Hyland Bay/Moyle River – The Nadiri-Phrida outstation to Port Keats, and has Marin-Djavin, Muringar and Murin-Jedi traditional owners which are salt-water people (cited in Lawson 1984). The people in this outstation use many aquatic species including turtle, dugong, crabs, shellfish, and finfish including barramundi and mullet (cited in Lawson 1984).

Maningrida – The Anbara people live in an outstation to Maningrida at the mouth of the Blyth River. In 1972, shellfish were the main component of their diet, which were mainly gathered by the women and girls (cited in Lawson 1984). The shellfish came from different habitats and there was a seasonal difference in the use of these habitats (cited in Lawson 1984). The men at the outstation caught fish including stingrays using spears from the beach on foot or from dugout canoes, they also used nets, traps and handlines (cited in Lawson 1984).

North East Arnhem Land – The Yolngu people live in Galiwinku, Milingimbi and Yirrkala and have strong associations with the sea. Along the North coast, the use of marine resources is highly seasonal depending on availability and the 'fat' cycle of the species (cited in Lawson 1984). Dugongs form a very important part of ceremonies in E Arnhem Land (Gray and Zann 1988) but this can differ from community to community (E. Holland pers. com.).

Roper/Limmen Bight – These rivers and sea area has been fished by the Mara sea-water people, who now reside in Ngukuur, Numbulwar and Borroloola (cited in Lawson 1984). Maria Island lies off the coast between these two rivers and this area is used to hunt dugong and turtle (cited in Lawson 1984).

Borroloola – The Yanyuwa and Mara people were granted a land claim to low water mark, which includes the Sir Edward Pellew Islands (pers comm - Pyne). Dugongs, turtle, stingray and other fish are taken. Only green turtles are eaten but all species of turtle eggs. (Gray and Zann 1988). The men hunt turtle and dugong, whilst the women gather crabs, shellfish and stingray (Lawson 1984).

### **4.3 Data assessment**

#### **4.3.1 Significant communities**

ABS "localities" have been assessed as potentially significant within each State/Territory. Four criteria have been used: -

- ◆ absolute numbers of Indigenous people – information taken from the 1996 census data.
- ◆ proportion of Indigenous people in the area – information taken from the 1996 census data.
- ◆ level of Indigenous fishing activity in proportion to total fishing activity – NATSIS data augmented by qualitative data from any source.
- ◆ Indigenous fishing activity occurring in an area significant for other reasons.

The potentially significant localities from census data either have an absolute Aboriginal population of over 1000 people or an Aboriginal population of at least

25% of the total. Large urban centres were included, pending investigation into the presence of discrete communities within the area (see Appendix A).

Information about the fishing activity for the localities/communities was collected from a variety of sources. Additional information pertinent to the survey such as access was also gathered (see Appendix B).

#### **4.3.2 Indigenous population in the study area**

Approximately 43,000 Indigenous people live within the study area (ABS locality data). Approximately 50% of these Indigenous people in WA and Qld, and 40% in the NT, live within designated ABS 'urban' localities, however these localities do contain discrete communities. There are 104 communities, as defined, within the study area.

**Table 17 Indigenous and non-indigenous population within study area**

<b>State</b>	<b>Indigenous</b>	<b>Non Indigenous</b>	<b>Total</b>	<b>% Indigenous</b>
WA	7000	14557	23271	30
NT	21103	84050	105153	20
Qld	14977	76032	103124	15
<b>Total</b>	<b>43080</b>	<b>174639</b>	<b>231548</b>	<b>19</b>

#### **4.4 Pilot Survey**

The pilot survey commenced in June and is currently ongoing in 6 communities and will be completed for design purposes by the end of October. The 6 communities have been divided between the three States/Territories involved, namely 2 communities in each of WA, the NT and Queensland (the names have not been included for confidentiality reasons).

The purpose of the pilot study was to test the total methodology – including the process of obtaining permission to conduct the survey within a particular community. Various other components of the methodology were also pilot tested including sampling, the screening survey, the collection of fishing information, cultural sensitivities to questions, quality of recall information and ways of recording quantities.

Following detailed consultation with Aboriginal liaison officers in fisheries agencies, an approach was made to each community. The approach was made through a 'known' community member who then introduced development staff to the rest of the community. Up to four visits are then being made to each community, to test the various components of the survey.

At the community level, the suggested methodology has produced very favourable results and an excellent response.

Pilot testing indicated that excellent recall can be expected for both major (eg turtle and dugong) and minor catches for the previous 7 days. This should be regarded as the minimum requirement, however in most cases, recall over the previous two weeks was good, particularly if a group of people were being interviewed together and could discuss the event.

The results of the pilot survey have shaped the proposed methodology as outlined below.

#### **4.5 Recommendations and Overview of Proposed Methodology**

The proposed methodology has been developed and refined following the review of available literature, ABS recommendations for Indigenous surveys, consultation with Indigenous people and conducting the pilot survey.

##### **4.5.1 Scope**

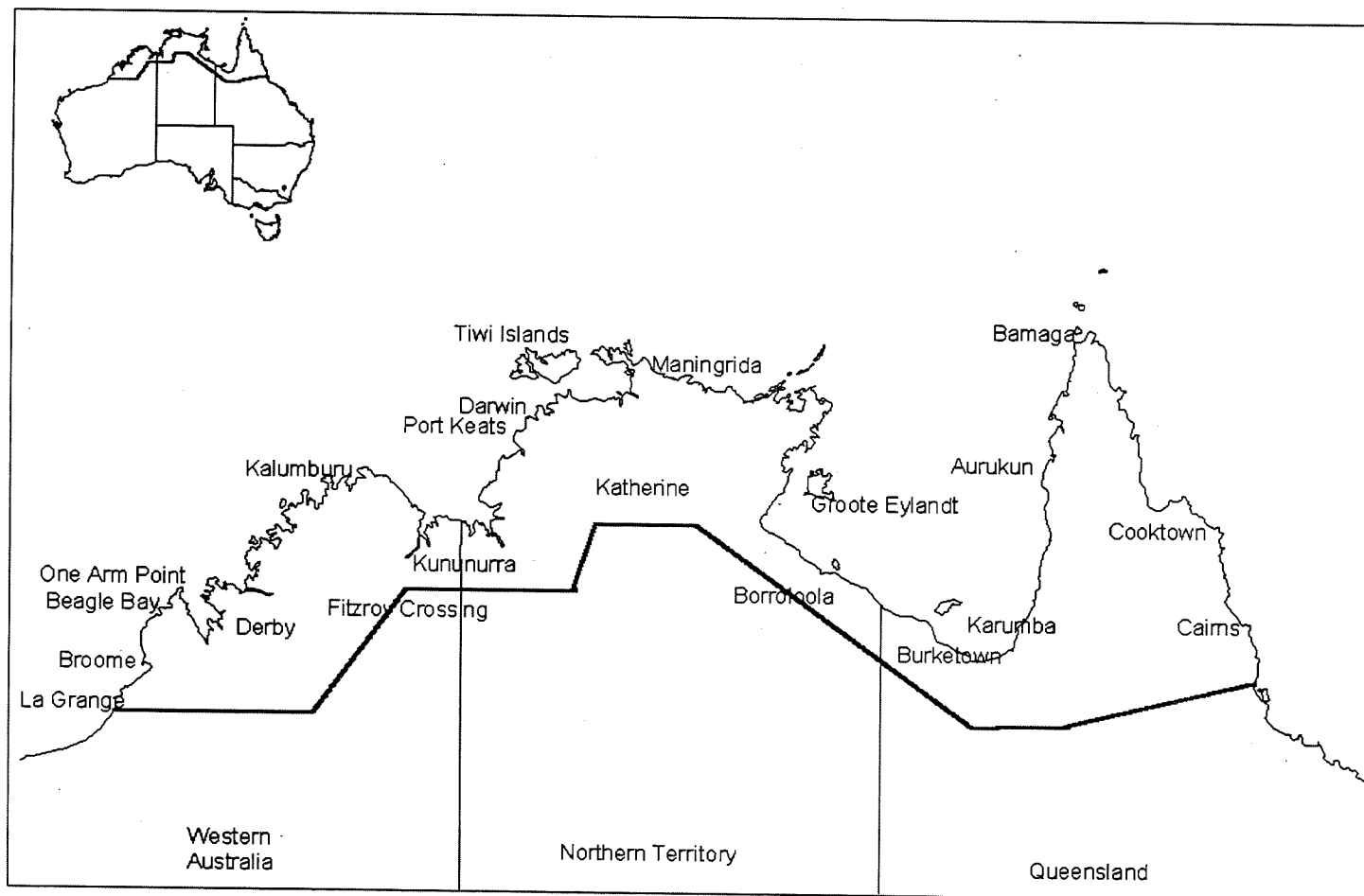
The Indigenous fishing survey will gather information on Indigenous people, five years of age and older, fishing in all waters (freshwater, estuarine, marine) within the Exclusive Economic Zone (EEZ), within northern Australia. All fishing techniques and harvesting activities will be included in the survey and all aquatic species harvested will be in scope. The survey will reflect the fishing activities over a 24-hour day for a period of one year. The scope of the national recreational fishing survey is detailed below and in the output specifications (Appendix B).

- ◆ Geographic – the geographic scope of the Indigenous component is not the whole of Australia. The scope is confined to northern Australia – the coastal areas and catchments of the Kimberley (WA), the NT and north Queensland (see Fig 1).
- ◆ Persons – Indigenous phone owners will be covered in the recreational component and therefore excluded from the Indigenous component (although specific coverage rules will apply for phone owners living on communities). Non-phone owners in unclustered urban/rural areas will also be excluded due to inefficiency and cost of sampling. Persons in scope are therefore Indigenous (non-phone owning) people living in discrete communities. The base of the sample will also be ‘person within a dwelling’ rather than ‘household’.
- ◆ Activities – all non-commercial fishing with maximum similarity to the recreational fishing component (NB: see issue regarding Aboriginal fishing licenses in the NT and commercial fishing activities for trepang and trochus in WA).
- ◆ Species – all aquatic species.
- ◆ Temporal – coverage will be all day and night fishing for a period of 12 months.
- ◆ Demographic – a range of relevant demographic data and component specific data eg. clan and sea country information will be collected.
- ◆ Catch and Effort - similarity to the recreational fishing component will be maximised, but the effort base will be “days on which fishing activity took place” instead of hours fished.

Economic – ‘conventional’ economic information will not be collected, however behavioural assessments such as importance of fish in the diet will be included. The questioning associated with such an assessment would be lengthy and could be considered intrusive. The relationship between the interviewer and respondents was not considered to be sufficiently well developed during the pilot test to test any such components.



Figure 1 Area 'in-scope' – Western Australia, Northern Territory and Queensland



- ◆ Attitudinal – surveys will be customised for each State and Territory. It is anticipated a range of management and research issues will be examined. As the attitudinal survey will not be conducted until the end of the 'catch and effort' phase (April 2001), the questions will not be developed until later in 2000, to allow for maximum relevance to the fishery agencies at the particular time.

#### 4.5.2 Sampling strategy

The sampling strategy for the survey has been designed to provide a careful balance between ultimate data utility/coverage and resource usage (field costs). By any measure, the nature of the study translates to relatively high field costs - due to the need for face-to-face interviewing methods, the overheads involved in 'setting-up' a community and the considerable distances involved in fieldwork (even with a well-distributed panel of regional interviewers). Although many sampling efficiency options have been explored in this regard, the primary output requirements of the survey (viz. catch and effort estimates at a broad regional level) and the absence of information in terms of behavioural differences/similarities between communities have prevented extensive spatial stratification of the sample - at the community level or above.

Apart from the larger centres, such as Cairns and Darwin (where several communities and some behavioural homogeneity exist), the sampling of certain communities (and therefore exclusion of others) within a given area is generally contra-indicated. Put simply, it is unreasonable to expect (for example) that one community can represent another where only two or three communities exist in a river catchment. Important, this is not to suggest that data for the study are to be published at the 'catchment level' (although the data will be collected at a catchment level, in line with the recreational fishing component). Rather, it is a matter of ensuring that the component data for each publication cell are collected and expanded in a representative manner. Seven publication regions have been identified, one in WA and three each in the NT and Queensland.

The current sampling strategy for the study is detailed in Table 18 and is subject to further refinement leading up to the commencement of the study (recruitment of regional interviewers in November 1999).

Key features of the proposed sampling strategy include: -

- ◆ a multi-stage area sample with a clear hierarchical structure and effective 'links' between ABS area definitions/secondary data (SSD's, Localities) and the survey-specific spatial descriptors (Publication Regions, Sampling Regions, and Communities).
- ◆ the identification of 42 'Sampling Regions' on the basis of fishing regions/river catchments, whereby each will be sampled (at some level) in the survey.
- ◆ the general principle that for Sampling Regions containing less than three communities, all would be sampled. Those with four or more communities would be stratified where appropriate and random selections made on a minimum 50% basis. Of the total 104 communities in the study area, a sample of 72 would be enumerated in the survey.
- ◆ the primary sampling unit is the 'dwelling'. Within each selected community, dwellings would be initially stratified (from community-sourced information) in

terms of (i) known fishers (with boat), (ii) other fishers and (iii) non-fishers (see further discussion below).

**Table 18 Sampling matrix**

State	Statistical Sub-divisions	Number of sampling regions	Number of Localities	Number of communities	Number of communities sampled
WA	Ord	4	4	6	6
	Fitzroy	7	7	19	14
NT	Darwin/Palmerston/Darwin rural	1	5	11	5
	Bathurst-Melville	1	3	3	2
	Daly	1	2	4	2
	Alligator	4	4	4	4
	East Arnhem	9	11	13	11
	Lower Top End	4	5	10	7
Qld	Far North (balance)/Cairns	7	12	30	17*
	North West	4	4	4	4
<b>Total</b>		<b>42</b>	<b>57</b>	<b>104</b>	<b>72</b>

\*Note: lower proportion due to high number of communities in Cairns area

- ◆ random selections would then be made from each stratum above - between 15 and 25 dwellings per community (depending mainly on travel time within). Note: appropriately disproportionate sampling of non-fisher vs. fisher dwellings would be undertaken to ensure the strength of the fisher data. These selections would be made (and the sample 'fixed') during the 'set-up' phase of the study.
- ◆ for all survey components (including the catch and effort phase), data would be collected from/for all residents and visitors aged 5 years or more of selected dwellings on the basis of their presence (staying) at the dwelling at the time of interview. This approach enables the 'dynamics' of the populations to be accounted for and (although resulting in a somewhat complex set of inclusion/exclusion rules), is considered the most appropriate method of maximising both the 'symmetry' of personal selection/coverage criteria and the ability of the survey to collect data on a personal interview basis. Note: hence, the inclusion in the design strategy of a separate stratum of 'non-fisher dwellings' to enable coverage of fishers/etc. who might move around during the survey - either within or across communities.
- ◆ after the 'set-up' phase, each community would be enumerated on a bi-monthly basis throughout the year to collect catch and effort data (either May, July, Sep ... or Jun, Aug, Oct ...) and random/alternating allocations would be made in a 'serpentine' fashion across the study area.
- ◆ catch and effort data would be collected on a recall basis for each respondent within the selected dwelling/community for the previous seven days (to the day of visit/interview). The interview days for each community/month would be randomly allocated in advance for the study.

Clearly, the above sampling strategy provides substantial spatial strength/coverage (at the regional community level). Excellent general coverage/representation of the 'fishers' within the communities would also be provided. However, it is recognised that temporal coverage in terms of fishing activity for individual respondents, dwellings or communities is less robust (one week per month, every second month of the year). While reliable participation assessments (and the like) might be achievable at quite small area levels (confidentiality issues aside), it is expected that more detailed catch and effort data will only be analysed at the 'publication region' level. As mentioned above, the sampling strategy will be further refined in the lead up to the commencement of the study - an integral part of which, will be the production of 'best-estimate' error term indicators for key data elements (based on a range of assumptions/very limited available data).

#### **4.5.3 Recruitment of Interviewers**

##### **Project staff**

The Indigenous component of the survey will be run centrally from the NT (in Darwin), with the Indigenous survey manager also taking the role of the NT State manager. An experienced senior interviewer will provide assistance. One office manager will assist both the Indigenous and recreational projects, but will be supported by additional data entry.

##### **Interviewers**

Two types of interviewers will be required - 'regional interviewers' and 'community interviewers/guides'. The 16 regional interviewers (4 in WA and 6 in both NT and Qld) would be responsible for up to 5 different communities. Recruitment of the regional interviewers will be in November 1999 and be from the local area of the communities to be assigned to that interviewer. Local recruitment will greatly reduce travel costs during the enumeration phase. The community interviewers would be responsible for the community in which they live and would also act as a guide for the regional interviewer. Recruitment of the community interviewers would be largely on the recommendation of the community, in some cases this may involve more than one person if different clans/language groups are involved. This process of community interviewer recruitment would occur during the set-up visits.

#### **4.5.4 Training**

Training of the regional interviewers will consist of a one-week training course in early February 2000, in Darwin. An experienced person (eg state manager or pilot interviewer) would then accompany the interviewers for the first little community visits for on-the-job training. The regional interviewers would then be responsible for working with the community interviewers whilst in the communities.

#### **4.5.5 Enumeration**

##### **Set up and screening**

Set up and screening will occur through February to April 2000 and has four distinct sequential stages:

### 1. Initial contact

Initial contact will be made with each selected community. This contact will most likely be with a community member or a person or organisation who has an appropriate relationship/responsibility within the community. This person will introduce the regional interviewer to the community.

### 2. Formal Permission

Formal permission to conduct the survey will be requested from the relevant authority (eg community council) for the community. The requirements and process of the survey will also be explained at this time. The community will also be asked to identify a suitable guide and community interviewer, including for separate outstations, as appropriate.

### 3. Background visit

Once permission has been given to conduct the survey, a background visit prior to the start of enumeration is required. This visit will require the services of the guide and will map the community and set the frame for sampling (see Appendix C) including;

- size – number of dwellings, people etc.
- level of phone ownership.
- dynamics – stability of population, likely people movements.
- level of boat and vehicle ownership.
- participation – male, female, age variation.
- type of fishing – methods, targets, key species, temporal, spatial, age and gender variation.
- details for observation procedures including fishing sites, catch-measuring requirements eg size of buckets.
- other information applicable to conducting the survey in that specific community.

### 4. Screening

The screening survey (see Appendix F) is administered for in-scope normal residents and visitors within each community. The survey primarily asks questions relating to previous or intending fishing activity, boat and vehicle ownership and demographic profiles.

#### **Catch and Effort data collection**

Catch and effort data collection will occur bi-monthly in each selected community and will commence in May 2000. Consistent with the pilot test results, recall information about the previous 7 days' fishing will be collected through face to face interviews (see event sheet Appendix G).

#### **4.5.6 Supervision, validation and supporting information**

Supervision of the regional interviewers will take place in the form of 4 visits per interviewer (2 during set-up, 2 during enumeration) by an experienced person (eg state manager or pilot interviewer). Visits will be structured into 'runs' of supervisory

visits. These runs will only be determined once recruitment takes place and the final locations of the regional interviewers are known.

Observation of fishing activity will also take place during community visits by the regional interviewers to provide supporting information such as local species names, forms of recording quantities, some quantification of a 'days' fishing in terms of hours fished (by fishery) etc.

#### **4.5.7 Survey Documentation**

A set of data forms and questionnaires has been developed to facilitate and simplify the collection/ recording of survey data. All data will be recorded on pre-printed survey forms. Instructions and a prompt for interviewers appear on forms immediately prior to the request for information. The survey documentation is essentially stand-alone material, but it should be used in conjunction with other components of the survey instrument to produce standardised data collection from a diverse team of interviewers. Survey documentation also makes extensive use of codes and pre-defined lists to record information obtained from a respondent.

##### **Community sampling sheet**

The sample sheet (Appendix E) is used within a community to set the sample of dwellings to be surveyed. This takes the place of the screening survey workload control sheet in the recreational survey.

##### **Screening Survey Questionnaire**

The screening survey (Appendix F) is administered to all people in randomly selected dwellings within a community. The survey primarily asks questions relating to previous or intending fishing activity, boat and vehicle ownership and basic demographic profiles. Unlike the recreational fishing survey, the same interview is conducted in fishing and non-fishing dwellings and takes about 10 minutes to complete on average. Members of these households intending to fish in the coming 12 months are asked to participate in the 'catch and effort' phase, which is the equivalent of the diary phase in the recreational fishing component.

##### **'Catch and Effort' Survey Cover Sheet**

The 'catch and effort' survey sheet will in essence, be the same document as the Diary Survey Cover Sheet (see main report). During the 12-month 'catch and effort' phase, respondents are regularly interviewed during community visits to collect their fishing information. Interviewers use their diary survey cover sheet to store respondent details, contact details and to assist with the collection of fishing related information.

##### **Event Sheet**

The event sheet (Appendix G) is the platform for recording respondents' answers. It has been designed on an (fishing) event basis, that is, each separate fishing activity (as defined) is recorded on a separate event sheet. The event sheet is the site for the collection of core recreational fishing data. Fishery statistics (fishing effort, fish catch, species composition), fishing location details (region, site, platform) and fishing gear (number and type, boat/ shore) is collected using the event sheet.

### **Workload Control Sheet ('Catch and effort' survey)**

The work load control sheet will in essence be the same document for both the recreational and Indigenous components of the survey (see main report). This Sheet forms the basis of contact between the interviewer and the Indigenous Survey Manager and enables the progress and performance of the interviewers to be monitored.

### **Regional Maps**

Interviewers will be provided with maps for their State / Territory which delineate the regions into which fishing and economic activity will be coded. Regional maps will contain the information necessary to enable interviewers to locate the exact fishing position of respondents. The regional maps are the same for both the recreational and Indigenous components (see main report).

### **Species Identification Booklet**

Each interviewer will use a booklet containing images of the 50 most commonly encountered fish in their State / Territory. The species included have been based on local experience and past surveys. The booklets have been customised for each State and are the same for both the recreational and Indigenous components (see main report). The full master species list will be compiled and each species provided with a national code to facilitate consistent reporting. The species identification booklet will allow interviewers and respondents to minimise errors associated with the inaccurate reporting of catch data.

### **Attitudinal Survey Questionnaires**

The attitudinal surveys will be conducted at the final interview of the 'catch and effort' survey and will be customised for each State / Territory. In this way, questions will be tailored to meet individual State's needs and reflect topics which are of interest to fishery agencies at the particular time. It is anticipated that a range of management and research issues will be examined by the attitudinal survey. As the attitudinal surveys will not be conducted until April 2001, the questionnaires will not be developed until later in 2000.

#### **4.5.8 Data handling strategy**

As the Indigenous component of the survey will be run centrally from the NT, the NT will also have responsibility for all Indigenous data handling in line with the data management strategy.

## **5. Remaining Development Work**

The major components of the survey instrument are essentially complete, however, some matters were designed to be amended in light of experience gained during the implementation of the survey and some matters will require further development in coming weeks. Other aspects of the indigenous survey need to be finalised in view of the experience gained from the extended pilot testing. The final stage of the attitudinal and awareness survey will be developed in January 2001 to allow agencies to assess issues for inclusion in that survey in light of changes in the political landscape between now and then.

Remaining development work includes the finalisation and printing of questionnaires and all survey stationary following completion of the pilot survey. Any design changes to the questionnaire will have a flow on effect to the final design of the data model, although any changes required to the data model would be minimal as the basic structure is already in place.

Recruitment procedures for regional interviewers also need to be finalised.

The work plan for the Indigenous component has been included in the overall workplan (see main report).

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WA Dept. Aboriginal Affairs [www.aad.wa.gov.au](http://www.aad.wa.gov.au)

### **6.2 Contacts**

Australian Bureau of Statistics – National center of Aboriginal and Torres Strait Islander Statistics 08 8943 2191

#### **ATSIC**

NT	08 89446655
QLD	07 3234 4222
NSW	02 9256 6100
Victoria	03 9604 4400
SA	08 8233 6700
WA	08 9220 3211

#### **Land Councils**

Kimberley	08 9193 1118
Northern	08 8920 5100
Anindilyakwa	08 8987 6638
Tiwi	08 8981 4898
Cape Yorke	07 4051 9077

AIATSIS 02 6246 1111 [ref@aiatsis.gov.au](mailto:ref@aiatsis.gov.au)

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## 7. Attachments

### Appendix A: Potentially significant localities

Table 19. New South Wales

Locality	Indigenous	Non Indigenous	Total	% Indigenous	In scope
Sydney	28739	3110938	3276207	1%	no
Newcastle	4089	259352	270324	2%	no
Central Coast	3025	217580	227657	1%	no
Wollongong	2989	210619	219761	1%	no
Canberra-Queanbeyan	2867	285863	297034	1%	no
Moree	1822	7091	9270	20%	no
Wagga Wagga	1258	40396	42848	3%	no
Tweed Heads	1023	35442	37775	3%	no
Bourke	868	1765	2775	31%	no
Maitland	850	48296	50108	2%	no
Walgett	832	1072	1970	42%	no
Albury-Wodonga	692	39391	41491	2%	no
Coonamble	631	2063	2754	23%	no
Brewarrina	607	475	1112	55%	no
Wilcannia	406	257	686	59%	no
Goodooga	302	60	375	81%	no
Boggabilla	276	349	639	43%	no
Coomealla	264	4	268	99%	no
Collarenebri	195	335	544	36%	no
Mungindi	188	430	647	29%	no
Gulargambone	170	305	490	35%	no
Tingha	166	557	732	23%	no
Dareton	158	482	652	24%	no
Menindee	138	230	385	36%	no
Ivanhoe	90	224	322	28%	no
Bodalla	78	224	309	25%	no
Mogo	64	152	230	28%	no

**Table 20. Victoria**

<b>Locality</b>	<b>Indigenous</b>	<b>Non Indigenous</b>	<b>Total</b>	<b>% Indigenous</b>	<b>In scope</b>
Melbourne	9373	2755393	2865329	0%	no
Shepparton-Mooroopna	1068	30063	31945	3%	no

**Table 21. Tasmania**

<b>Locality</b>	<b>Indigenous</b>	<b>Non Indigenous</b>	<b>Total</b>	<b>% Indigenous</b>	<b>In scope</b>
Hobart	2843	118396	126118	2%	no
Launceston	1428	63947	67701	2%	no
Cygnnet	227	601	851	38%	no

**Table 22. South Australia**

<b>Locality</b>	<b>Indigenous</b>	<b>Non Indigenous</b>	<b>Total</b>	<b>% Indigenous</b>	<b>In scope</b>
Adelaide	9056	940851	978100	1%	no
Port Augusta	1899	11587	13914	14%	no
Ceduna	620	1874	2598	24%	no
Yalata (L)	240	32	272	88%	no

Table 23. Western Australia

Locality	Indigenous	Non Indigenous	Total	% Indigenous	In scope
Perth	14957	1047323	1096829	1%	no
<b>Broome</b>	<b>1942</b>	<b>8181</b>	<b>11368</b>	<b>17%</b>	<b>yes</b>
Geraldton	1812	22717	25243	7%	no
Port Hedland	1661	9754	12846	13%	no
Kalgoorlie-Boulder	1354	25329	28087	5%	no
<b>Derby</b>	<b>1164</b>	<b>1873</b>	<b>3236</b>	<b>36%</b>	<b>yes</b>
<b>Kununurra</b>	<b>597</b>	<b>3415</b>	<b>4012</b>	<b>15%</b>	<b>yes</b>
Roebourne	572	330	958	60%	no
<b>Fitzroy Crossing</b>	<b>517</b>	<b>565</b>	<b>1147</b>	<b>45%</b>	<b>yes</b>
<b>La Grange</b>	<b>510</b>	<b>46</b>	<b>559</b>	<b>91%</b>	<b>yes</b>
<b>Warburton</b>	<b>400</b>	<b>56</b>	<b>456</b>	<b>88%</b>	<b>yes</b>
Meekatharra	393	700	1270	31%	no
Halls Creek	389	539	1263	31%	no
<b>Wyndham</b>	<b>358</b>	<b>316</b>	<b>868</b>	<b>41%</b>	<b>yes</b>
<b>Looma</b>	<b>353</b>	<b>3</b>	<b>359</b>	<b>98%</b>	<b>yes</b>
<b>Kalumburu</b>	<b>340</b>	<b>26</b>	<b>366</b>	<b>93%</b>	<b>yes</b>
<b>Oombulgurri</b>	<b>282</b>	<b>22</b>	<b>304</b>	<b>93%</b>	<b>yes</b>
<b>Bardi (One Arm Point)</b>	<b>280</b>	<b>31</b>	<b>311</b>	<b>90%</b>	<b>yes</b>
<b>Beagle Bay</b>	<b>257</b>	<b>23</b>	<b>285</b>	<b>90%</b>	<b>yes</b>
Mungullah	248	18	266	93%	no
Mullewa	219	352	591	37%	no
Turkey Creek	210	90	306	69%	no
Laverton	183	435	644	28%	no
Marble Bar	161	134	318	51%	no
Wiluna	134	122	262	51%	no
Brookton	119	398	526	23%	no
Tambellup	101	222	323	31%	no
Kondinin	70	246	322	22%	no

Table 24. Northern Territory

Locality	Indigenous	Non-Indigenous	Total	% Indigenous	In scope
<b>Darwin</b>	<b>5495</b>	<b>64756</b>	<b>70251</b>	<b>8%</b>	<b>yes</b>
Alice Springs	2824	19664	22488	13%	no
Tennant Creek	1517	2339	3856	39%	no
<b>Palmerston</b>	<b>1438</b>	<b>10795</b>	<b>12233</b>	<b>12%</b>	<b>yes</b>
<b>Katherine</b>	<b>1415</b>	<b>6564</b>	<b>7979</b>	<b>18%</b>	<b>yes</b>
<b>Galiwinku</b>	<b>1230</b>	<b>56</b>	<b>1286</b>	<b>96%</b>	<b>yes</b>
<b>Maningrida</b>	<b>1195</b>	<b>133</b>	<b>1328</b>	<b>90%</b>	<b>yes</b>
<b>Port Keats</b>	<b>1183</b>	<b>107</b>	<b>1290</b>	<b>92%</b>	<b>yes</b>
<b>Nguiu</b>	<b>1049</b>	<b>145</b>	<b>1194</b>	<b>88%</b>	<b>yes</b>
<b>Milingimbi</b>	<b>881</b>	<b>60</b>	<b>941</b>	<b>94%</b>	<b>yes</b>
<b>Ngukurr</b>	<b>837</b>	<b>67</b>	<b>904</b>	<b>93%</b>	<b>yes</b>
<b>Angurugu</b>	<b>699</b>	<b>18</b>	<b>717</b>	<b>97%</b>	<b>yes</b>
<b>Oenpelli</b>	<b>657</b>	<b>84</b>	<b>741</b>	<b>89%</b>	<b>yes</b>
<b>Greater Darwin</b>	<b>645</b>	<b>8869</b>	<b>9514</b>	<b>7%</b>	<b>yes</b>
Yeundumu	607	132	739	82%	no
<b>Nunbulwar</b>	<b>572</b>	<b>47</b>	<b>619</b>	<b>92%</b>	<b>yes</b>
Lajamanu	571	20	591	97%	no
<b>Umbakumba/Alyangula</b>	<b>465</b>	<b>1005</b>	<b>1470</b>	<b>32%</b>	<b>yes</b>
<b>Ramingining</b>	<b>439</b>	<b>34</b>	<b>473</b>	<b>93%</b>	<b>yes</b>
Santa Teresa	426	32	458	93%	no
<b>Milikapiti</b>	<b>421</b>	<b>35</b>	<b>456</b>	<b>92%</b>	<b>yes</b>
Hermansberg	419	43	462	91%	no
<b>Yirrkala</b>	<b>396</b>	<b>125</b>	<b>521</b>	<b>76%</b>	<b>yes</b>
Warrabri	395	34	429	92%	no
Alpururulam	393	28	421	93%	no
<b>Gapuwiyak</b>	<b>375</b>	<b>72</b>	<b>447</b>	<b>84%</b>	<b>yes</b>
<b>Borrooloola</b>	<b>351</b>	<b>200</b>	<b>551</b>	<b>64%</b>	<b>yes</b>
<b>Gunyangara</b>	<b>341</b>	<b>27</b>	<b>368</b>	<b>93%</b>	<b>yes</b>
Kintore	319	15	334	96%	no
<b>Daly River</b>	<b>285</b>	<b>64</b>	<b>349</b>	<b>82%</b>	<b>yes</b>
Elliott	283	149	432	66%	no
<b>Waruwi</b>	<b>278</b>	<b>16</b>	<b>294</b>	<b>95%</b>	<b>yes</b>
<b>Pirlangimpi</b>	<b>251</b>	<b>34</b>	<b>285</b>	<b>88%</b>	<b>yes</b>

Papunya	248	28	276	90%	no
Kaltukatjara	246	31	277	89%	no
<b>Bamyili</b>	<b>229</b>	<b>20</b>	<b>249</b>	<b>92%</b>	<b>yes</b>
<b>Belyeun</b>	<b>224</b>	<b>10</b>	<b>234</b>	<b>96%</b>	<b>yes</b>
Ampilatwatja	221	21	242	91%	no
<b>Timber Creek</b>	<b>221</b>	<b>345</b>	<b>566</b>	<b>39%</b>	<b>yes</b>
Kalkaringi	195	64	259	75%	no
<b>Minjilang</b>	<b>191</b>	<b>16</b>	<b>207</b>	<b>92%</b>	<b>yes</b>
Batchelor	179	466	645	28%	no
<b>Adelaide River</b>	<b>70</b>	<b>209</b>	<b>279</b>	<b>25%</b>	<b>yes</b>

Table 25. Queensland

Locality	Indigenous	Non Indigenous	Total	% Indigenous	In scope
Brisbane	19221	1223993	1291117	1%	no
<b>Cairns</b>	<b>6020</b>	<b>74386</b>	<b>92273</b>	<b>7%</b>	<b>yes</b>
Townsville-Thuringowa	5423	100078	109914	5%	no
Mount Isa	2832	17915	21751	13%	no
Rockhampton	2727	53062	57770	5%	no
Toowoomba	2199	77639	83350	3%	no
Mackay	2015	41285	44880	4%	no
Palm Islands	1946	102	2073	94%	no
Gold Coast	1922	250568	274157	1%	no
<b>Yarrabah</b>	<b>1879</b>	<b>63</b>	<b>1978</b>	<b>95%</b>	<b>yes</b>
Thursday Island	1657	695	2483	67%	no
Innisfail	1115	7584	8987	12%	no
Cherbourg	1064	31	1100	97%	no
Bundaberg	1055	38517	41025	3%	no
Woorabinda	1001	95	1119	89%	no
<b>Kowanyama</b>	<b>821</b>	<b>80</b>	<b>912</b>	<b>90%</b>	<b>yes</b>
<b>Napranum (Weipa South)</b>	<b>722</b>	<b>44</b>	<b>777</b>	<b>93%</b>	<b>yes</b>
<b>Normanton</b>	<b>714</b>	<b>582</b>	<b>1330</b>	<b>54%</b>	<b>yes</b>
<b>Aurukun</b>	<b>691</b>	<b>84</b>	<b>778</b>	<b>89%</b>	<b>yes</b>
<b>Hope Vale</b>	<b>671</b>	<b>32</b>	<b>706</b>	<b>95%</b>	<b>yes</b>
<b>Doomadgee</b>	<b>651</b>	<b>91</b>	<b>753</b>	<b>86%</b>	<b>yes</b>
<b>Bamaga</b>	<b>609</b>	<b>112</b>	<b>757</b>	<b>80%</b>	<b>yes</b>
Cloncurry	597	1743	2459	24%	no

Cunnamulla	508	924	1460	35%	no
<b>Pormpuraaw (Edward River)</b>	<b>475</b>	<b>68</b>	<b>553</b>	<b>86%</b>	<b>yes</b>
<b>Lockhart River</b>	<b>461</b>	<b>39</b>	<b>504</b>	<b>91%</b>	<b>yes</b>
<b>Injinoo (Cowal Creek)</b>	<b>320</b>	<b>9</b>	<b>337</b>	<b>95%</b>	<b>yes</b>
<b>Wujal Wujal</b>	<b>280</b>	<b>9</b>	<b>293</b>	<b>96%</b>	<b>yes</b>
Dunwich	280	589	896	31%	no
St Pauls	260	21	281	93%	no
<b>New Mapoon</b>	<b>258</b>	<b>7</b>	<b>276</b>	<b>93%</b>	<b>yes</b>
<b>Kuranda</b>	<b>203</b>	<b>420</b>	<b>666</b>	<b>30%</b>	<b>yes</b>
<b>Umagico</b>	<b>202</b>	<b>6</b>	<b>231</b>	<b>87%</b>	<b>yes</b>
Eidsvold	194	307	519	37%	no
Ravenshoe	193	612	867	22%	no
Dajarra	170	30	203	84%	no
Tully Heads	144	286	446	32%	no
Camooweal	119	128	259	46%	no
Mount Garnet	117	264	405	29%	no
Dirranbandi	114	282	401	28%	no
Boulia	106	136	242	44%	no
Burketown	89	107	220	40%	no
Croydon	88	131	222	40%	no
Merinda	84	186	270	31%	no



## Appendix B

**Table 26: Scope of the survey**

Specification	Sub-item	Definition/Answer Categories	Comments
<b>SCOPE OF THE STUDY</b>			
Geographic scope		State specific: WA - Kimberley region, NT - coastal drainages, QLD – coastal areas, north of Townsville	Not total coverage, community surveys only required in areas where Indigenous harvest is a significant component of the total harvest
Persons in scope	Residency status	All Indigenous residents/visitors to the area	major ceremonies can cause a major influx of people to a small area, or closure of sample area
	Age criteria	participation - 5 yrs plus attitudinal data - 15 yrs plus	may not be culturally appropriate to have individual attitudinal views, plus different age groups are likely to have different knowledge
Activities/methods in scope	Various components	all non-commercial fishing, plus in the NT Aboriginal coastal licenses	approx 10 coastal Aboriginal licences in NT -allows selling of product to local community - no log books, details of WA commercial licenses
Species in scope		all aquatic organisms	although, if becomes too difficult to record all species then turtle, dugong, crocodile, dolphin, whale, trepang, trochus, commercially important and potential commercial species the minimum requirement
Temporal	Standard survey	24hr/annual coverage	

# **DATA ELEMENTS - SCREENING SURVEY**

**(mainly population base, but also community, fishers, boats, vehicles)**

Participation in non-commercial fishing	Active personal - last 12 mths	y/n	
	Intention to fish in survey period	y/n	
Socio-demographic/profiling	Age	last birthday/grouped for analysis	use broad age category due to age unawareness - use ABS age groups
	Sex	m/f	
	own sea country	y/n	relates to traditional ownership/access to the sea
	living on sea country	y/n	
Boat ownership/access	Community or personal basis	number	community or personal based information - qualitative description
Boats base	Length	metres	
	Propulsion	power/sail/row	
	use	proportional use	
	equipment	GPS/echo sounder – y/n	as appropriate
Vehicle ownership/access	Community or personal basis		community or personal based information

**DATA ELEMENTS – OBSERVATION/RECALL SURVEY**  
**(fishing event base - either personal or gear)**

Fishing effort	All fishing	days on which fishing activity took place	weekly recall data only
	Line fishing	fisher hours (personally)	qualitative observed data only, compatible to rec. fish component
	Other active gear (e.g. drag net)	gear hours (personally)	qualitative observed data only, compatible to rec. fish component
	Passive gear (e.g. pots)	gear hours (personally)	qualitative observed data only, compatible to rec. fish component
	Gathering	person hours	qualitative observed data only, compatible to rec. fish component
Catch data	numbers harvested (personally)	by species/group - varying by jurisdiction	release very unlikely
Fishing region		varying by jurisdiction	same as rec. fish component
Water body type	or 'sub-region' type	e.g. river, offshore, bay/coastal etc	same as rec. fish component
Shore type		e.g. ocean rocks, bridge etc	same as rec. fish component
Targeting	Broad targeting descriptor	e.g. rock, beach, reef fishing, sport/game, estuarine, 'nothing in particular'	same as rec. fish component
	Individual species/groups		compatible to rec. fish component

Fishing method	gear list	varying by jurisdiction	same as rec. fish component
Platform		boat, shore, both	same as rec. fish component
Other fishing-based data elements	Date	Day/mth/year	
Consumption (to be developed)		proportion of meat meals	possibly a sub-component – dependent on development of 'relationship' – taken as a 'snap-shot' rather than on-going
<b>DATA ELEMENTS - ATTITUDINAL SURVEY</b>			
<b>(mostly on fisher base)</b>			
Opinions (to be developed)			as and if required

## Appendix C: locality information

Table 27 Locality information

Community	No Indigenous people	% Indigenous people	Number of outstations	Access	Proportion fishing	Comments
X	1230	96%	32	all year access - plane	Very high proportion fish, all marine fish, seasonal cycle in target, but small in effort	Major incorporated community, free hold land, consultative committee in place, representative of island communities, one Aboriginal coastal licence, one of the more difficult to access,
Y	1195	90%	32	dry season — drive all year - plane	High proportion fish, less marine and some inland fishing, seasonal cycle in target but little in effort	Major incorporated community, freehold land, mainland coastal community, big community with more infrastructure, less traditional fishing activity, some outstations close during wet others are cut off, ranger program plus researching freshwater wildlife use already, interested in the national survey
Z			no		high proportion fishing, good access to mangroves	minor (incorporated) community, leasehold land permanent community, but mixed origins, about 15 dwellings, approx 5% phone ownership, low amount of transients, at least one or two boats

Note: data manipulated to preserve confidentiality

## Appendix D: qualitative data

Table 28: Background qualitative information

size	outstations	phone ownership	dynamics	participation	boat/vehicle	temporal variation
approx 60 people, 23 children in the school, 16 dwellings	one outstation, used temporarily during dry except for the dry season school holiday	no personal ownership - three phones - shop, council, public	mostly interchange with XXX, some movement to other YYY communities and Darwin	most community members fish - only the old people don't	one power boat (privately owned) in the community, old tinnie used to paddle at boat ramp (not open access). No vehicles at present, but will walk to the ramp	minimal fishing during wet season (stingers) - only from a boat. Most fishing at weekends, mostly Sunday, less on Saturday during footie season, any fishing during the week in the afternoon, after work. No fishing at night
approx 1200 people, 900 Aboriginal, 60 Aboriginal dwellings	9 outstations, between 1 and 5 hours drive from ZZZ, ranging from 10 to 100 people	approx 12 private phone lines (not always operational)	population growing - movement into the community from outstations	contradictory info on older people not fishing, but older women fish more regularly	few privately owned boats, club also owns a boat. Few vehicles -but are needed to access fishing spots	peak fishing during run-off at end of the wet (march-June). Sunday big fishing day. Occasional fishing at night

Note: data manipulated to preserve confidentiality

## **Appendix E: community/outstation sample sheet**

## **ATTACHMENT 12.20**

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### ***DOCUMENTATION FOR THE INDIGENOUS FISHING SURVEY***



**COMMUNITY/OUTSTATION SAMPLE SHEET®**

**In Confidence**

Date:

## Community

[illegible]

Comments (Quote Unique)

# SURVEY OF INDIGENOUS FISHING IN NORTHERN AUSTRALIA—2000/01 SCREENING SURVEY QUESTIONNAIRE<sup>©</sup>

SAMPLE No:

## B: INTRODUCTION, INITIAL SCREENING AND HOUSEHOLD STRUCTURE

### Q1. INTRODUCTION: (INTRODUCTION FROM FIELD GUIDE)

Do you have a phone at home?

Yes\* 1

(PROBE — WHITE PAGES LISTINGS: \*IF YES EXCLUDE

No 2

THROUGH BELOW 'OUT' OF SURVEY)

Q2. ) I'll just get a few details about who normally lives here ... could you tell me all the people who usually live there, starting with the head of the household (or the oldest person)? (INTERVIEWER: PROBE AS INSTRUCTED AND RECORD BELOW)

PERSON NO:	1	2	3	4	5	6	7	8	9	10
------------	---	---	---	---	---	---	---	---	---	----

(a) NAME IDENTIFIER  
(not punched)

.....

(b) How old are you? (age groups as appropriate: 5-19, 20-34, 35-49, 50-64, 64+)

(c) SEX	Male	1	1	1	1	1	1	1	1	1
(observation)	Female	2	2	2	2	2	2	2	2	2

Q3. (And are any of these people staying away at present?) (\*IF YES, PROBE WHETHER RETURNING BEFORE END SCREENING: IF YES INCLUDE; OTHERWISE EXCLUDE THROUGH Q4 BELOW 'OUT' OF SURVEY)

Yes (probe\*) 1  
No 2

Q4. (And) is anyone else staying with your household (at present)? (\*IF YES, PROBE WHETHER RETURNING TO USUAL RESIDENCE BEFORE END SCREENING - IF YES EXCLUDE; OTHERWISE INCLUDE AND AMEND Q1(a)-(c) ABOVE)

Yes (probe\*) 1  
No 2

### Q5. IN SURVEY?

(Age 5 or more, Yes	1	1	1	1	1	1	1	1	1	1
1 & per Q2, 3, 4) No	2	2	2	2	2	2	2	2	2	2

### C: PAST AND FUTURE FISHING (respondents 'in survey' only)

PERSON NUMBER:

(TRANSCRIBE FROM SECT. B)

Q1: RECORD WHETHER PERSONAL OR PROXY

Personal  
Proxy

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

1	1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2	2

Q2. Thinking back over the last 12 months ....have you done any fishing at all in (HOME STATE/TERRITORY) whether you caught anything or not?

Yes (go to Q4)  
No

1	1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2	2

Q3. (And) during this time, have you done any other kind of fishing in (HOME STATE/TERRITORY) like crabbing, prawning, speartishing or even collecting oysters or aquarium fish?

Yes  
No

1	1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2	2

Q4. (And during the last 12 months) ... have you done any Fishing in another state or territory (or crabbing, prawning, etc ... again, whether you anything or not)?

Yes  
No

1	1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2	2

Q5. (And) thinking about the coming 12 months, how likely is it that you will do and kind of fishing,

crabbing, prawning, spearfishing, etc?

Would you say...

(PROBE \*'UNSURE' NOT

VALID AS PROXY RESPONSE,

ARRANGE PERSONAL INTERVIEW/

CALL-BACK ETC)

Very likely?  
Quite likely?  
Not likely?  
Not likely at all?  
UNSURE\*

1	1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5

### D: VEHICLE OWNERSHIP

Q1 Does anyone normally living here own a vehicle (car, truck, etc)?

Yes (go to section E)  
No

1	1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2	2

Q2 Does anyone normally living here have access to a vehicle (car, truck, etc)?

Yes  
No

1	1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2	2

### E: BOAT OWNERSHIP

Q1 Does anyone normally living here own a boat of any kind?

Yes  
No

1	1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2	2

Q2 Does anyone normally living here have access to a boat of any kind?

Yes  
No

1	1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2	2

SG 1

\* IF NO BOAT OWNERSHIP, GO TO SECTION G

## F: BOAT DETAILS (*dwelling basis*)

Q1. INTERVIEWER: PROBE TO IDENTIFY NUMBER AND TYPE/S OF BOATS OWNED WHOLLY OR PARTLY BY HOUSEHOLD MEMBERS OR ANY IN-SCOPE VISITOR

BOAT NUMBER

1 2 3 4

BOAT/IDENTIFIER (not punched)

Q2. (And) is this.... owned mainly by (a) member/s of this household ... or (mainly) by someone else? (IF QUERIED, EXPLAIN 'DOUBLE-COUNTING' PROBLEM; IF EQUAL SHARE, APPLY 'ALPHA' RULE; BANKS, FINANCE COYS ETC, NOT VALID FOR 'OTHER')

Wholly/mainly owned by h'holder  
Other (go to next boat/SG9)

1 1 1 1  
2 2 2 2

Q3. (And) how long is the.... in metres or feet?

M F M F M F M F  
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

('OVERALL' LENGTH, EXCLUDING BOWSPRIT ETC; NOT WATERLINE, ROUNDED WHOLE METRES/FEET)

Q4. (And) is the .... mainly propelled by a motor (of any kind), sail, or ... is it a row boat or canoe? (IF NEEDED, PROBE TO IDENTIFY/CODE JET SKIS [PWC-S])

Powered-jetski  
Power-all other  
Sail  
Row/Paddle

1 1 1 1  
2 2 2 2  
3 3 3 3  
4 4 4 4

Q5(a) (And) has the.... been used at all for Fishing/etc during the last 12 months?

Yes  
No (go to next Boat/section G)

1 1 1 1  
2 2 2 2

(b) (And) in the past 12 months has the ... been used for any other purpose, like water skiing or picnicking? So, thinking of all the times that the boat was used in the last 12 months ... what proportion (of these times) would have been for fishing, crabbing etc? (PROBE FOR %, FRACTION, 'N'OUT OF 10 DAYS AS APPROPRIATE)

% % % %

Q6. (And) in the last 12 months, was the ... mainly kept on (READ OUT UNTIL TERMINATED) a trailer?... a mooring or marina? ... or was it used as a car topper? ... or (directly) from the shore?

Trailer  
Mooring/marina  
Car topper  
Shore-based  
Jetskis

1 1 1 1  
2 2 2 2  
3 3 3 3  
4 4 4 4  
5 5 5 5

Q7(a) (And) does the ... have an echo sounder? ('FISH FINDER' OR 'SONAR')

Yes  
No

1 1 1 1  
2 2 2 2

(b) or a GPS? (GLOBAL POSITIONING SYSTEM)

Yes] go to next  
No ] boat/section G

1 1 1 1  
2 2 2 2

## G: Socio-demographic profiling

Q1 Do you have traditional ownership of sea Country? (PROBE)

Yes (go to Q2) 1 1 1 1 1 1  
No 2 2 2 2 2 2

Q2 Are you living on your sea country? (PROBE)

Yes 1 1 1 1 1 1  
No 2 2 2 2 2 2

**H: CATCH AND EFFORT SURVEY INVITATION**

**Explain "longitudinal" component of survey**

- 1) once every couple of months
- 2) ask about previous weeks fishing
- 3) explain type of information i.e. gear, place, catch

**Q1 Would you be willing to take part in the survey (STRONGLY ENCOURAGE; VERY EASY; IMPORTANT INFO. FOR SCIENTISTS - WHETHER YOU FISH A LOT OR A LITTLE; COMPLETELY CONFIDENTIAL SURVEY)**

**PERSON NUMBER OF INTENDING FISHER**

	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Yes	1	1	1	1	1	1	1	1	1	1
No (Thank and terminate)	2	2	2	2	2	2	2	2	2	2

**NOTES**

--	--	--	--	--	--

-

1
---

115


/

--	--

## 1

2

## 1

**(b) No. of Pots/Nets**

(c) No. of Hauls/etc

(d) No. of persons  
shared effort only

4

### 8(a) Platform

5

6

Shore (go to c)

..... 7

	Main	2nd
1. <i>Phragmites</i>	100%	100%
2. <i>Spartina patens</i>	100%	100%
3. <i>Spartina alterniflora</i>	100%	100%
4. <i>Spartina cynosuroides</i>	100%	100%
5. <i>Spartina anglica</i>	100%	100%
6. <i>Spartina foliosa</i>	100%	100%
7. <i>Spartina rostrata</i>	100%	100%
8. <i>Spartina patens</i>	100%	100%
9. <i>Spartina alterniflora</i>	100%	100%
10. <i>Spartina cynosuroides</i>	100%	100%
11. <i>Spartina anglica</i>	100%	100%
12. <i>Spartina foliosa</i>	100%	100%
13. <i>Spartina rostrata</i>	100%	100%
14. <i>Spartina patens</i>	100%	100%
15. <i>Spartina alterniflora</i>	100%	100%
16. <i>Spartina cynosuroides</i>	100%	100%
17. <i>Spartina anglica</i>	100%	100%
18. <i>Spartina foliosa</i>	100%	100%
19. <i>Spartina rostrata</i>	100%	100%
20. <i>Spartina patens</i>	100%	100%
21. <i>Spartina alterniflora</i>	100%	100%
22. <i>Spartina cynosuroides</i>	100%	100%
23. <i>Spartina anglica</i>	100%	100%
24. <i>Spartina foliosa</i>	100%	100%
25. <i>Spartina rostrata</i>	100%	100%
26. <i>Spartina patens</i>	100%	100%
27. <i>Spartina alterniflora</i>	100%	100%
28. <i>Spartina cynosuroides</i>	100%	100%
29. <i>Spartina anglica</i>	100%	100%
30. <i>Spartina foliosa</i>	100%	100%
31. <i>Spartina rostrata</i>	100%	100%
32. <i>Spartina patens</i>	100%	100%
33. <i>Spartina alterniflora</i>	100%	100%
34. <i>Spartina cynosuroides</i>	100%	100%
35. <i>Spartina anglica</i>	100%	100%
36. <i>Spartina foliosa</i>	100%	100%
37. <i>Spartina rostrata</i>	100%	100%
38. <i>Spartina patens</i>	100%	100%
39. <i>Spartina alterniflora</i>	100%	100%
40. <i>Spartina cynosuroides</i>	100%	100%
41. <i>Spartina anglica</i>	100%	100%
42. <i>Spartina foliosa</i>	100%	100%
43. <i>Spartina rostrata</i>	100%	100%
44. <i>Spartina patens</i>	100%	100%
45. <i>Spartina alterniflora</i>	100%	100%
46. <i>Spartina cynosuroides</i>	100%	100%
47. <i>Spartina anglica</i>	100%	100%
48. <i>Spartina foliosa</i>	100%	100%
49. <i>Spartina rostrata</i>	100%	100%
50. <i>Spartina patens</i>	100%	100%
51. <i>Spartina alterniflora</i>	100%	100%
52. <i>Spartina cynosuroides</i>	100%	100%
53. <i>Spartina anglica</i>	100%	100%
54. <i>Spartina foliosa</i>	100%	100%
55. <i>Spartina rostrata</i>	100%	100%
56. <i>Spartina patens</i>	100%	100%
57. <i>Spartina alterniflora</i>	100%	100%
58. <i>Spartina cynosuroides</i>	100%	100%
59. <i>Spartina anglica</i>	100%	100%
60. <i>Spartina foliosa</i>	100%	100%
61. <i>Spartina rostrata</i>	100%	100%
62. <i>Spartina patens</i>	100%	100%
63. <i>Spartina alterniflora</i>	100%	100%
64. <i>Spartina cynosuroides</i>	100%	100%
65. <i>Spartina anglica</i>	100%	100%
66. <i>Spartina foliosa</i>	100%	100%
67. <i>Spartina rostrata</i>	100%	100%
68. <i>Spartina patens</i>	100%	100%
69. <i>Spartina alterniflora</i>	100%	100%
70. <i>Spartina cynosuroides</i>	100%	100%
71. <i>Spartina anglica</i>	100%	100%
72. <i>Spartina foliosa</i>	100%	100%
73. <i>Spartina rostrata</i>	100%	100%
74. <i>Spartina patens</i>	100%	100%
75. <i>Spartina alterniflora</i>	100%	100%
76. <i>Spartina cynosuroides</i>	100%	100%
77. <i>Spartina anglica</i>	100%	100%
78. <i>Spartina foliosa</i>	100%	100%
79. <i>Spartina rostrata</i>	100%	100%
80. <i>Spartina patens</i>	100%	100%
81. <i>Spartina alterniflora</i>	100%	100%
82. <i>Spartina cynosuroides</i>	100%	100%
83. <i>Spartina anglica</i>	100%	100%
84. <i>Spartina foliosa</i>	100%	100%
85. <i>Spartina rostrata</i>	100%	100%
86. <i>Spartina patens</i>	100%	100%
87. <i>Spartina alterniflora</i>	100%	100%
88. <i>Spartina cynosuroides</i>	100%	100%
89. <i>Spartina anglica</i>	100%	100%
90. <i>Spartina foliosa</i>	100%	100%
91. <i>Spartina rostrata</i>	100%	100%
92. <i>Spartina patens</i>	100%	100%
93. <i>Spartina alterniflora</i>	100%	

.....		
-------	--	--

**(c) Shore type**

W W

**Y                      Y**

$\mathbf{v}$ 
 $\mathbf{v}$

No 2nd target

1

1

1

11

1

(6) Other shore ( $O6 > 2$ )	1
------------------------------	---

## Crab-unspec 193 ...../.....

NIL CATCH/RELEASE  $x$ 

**10. Comments .....**

## ATTACHMENT 12.21

---

### ***IVS QUESTIONNAIRE (INTERNATIONAL VISITOR SURVEY – BTR/NIELSENS)***

**2000: INTERNATIONAL VISITOR SURVEY**

NOTE: ALL QUESTIONS WITH 'H' PREFIXES ARE FOR HARDCOPY QUESTIONNAIRES ONLY, AND ALL 'C' PREFIXES ARE FOR CAPI ONLY.

**S.2 RECORD CAPI IDENT (OR LIKELY RANGE IF UNSURE)**

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	to	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
----------------------	----------------------	----------------------	----------------------	----------------------	----	----------------------	----------------------	----------------------	----------------------	----------------------

**S.3 RECORD LANGUAGE OF INTERVIEW:**

English.....1  
 German .....2  
 Indonesian/Malay .....3  
 Japanese .....4  
 Korean .....5  
 Mandarin.....6  
 Other (SPECIFY).....8

**S.4 RECORD FLIGHT NUMBER FROM CONTACT SHEET:**

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
----------------------	----------------------	----------------------	----------------------	----------------------

RECORD FLIGHT GROUP:

<input type="text"/>	<input type="text"/>
----------------------	----------------------

**SECTION I:  
INTERNATIONAL TRAVEL PATTERNS****Q.1 RECORD CITY OF INTERVIEW**

Sydney .....1  
 Melbourne .....2  
 Brisbane .....3  
 Perth .....4  
 Adelaide .....5  
 Darwin .....6  
 Cairns .....7

**Q.2 RECORD COUNTRY OF RESIDENCE FROM SCREENING SHEET**

Canada.....005  
 China.....502  
 England.....102  
 Germany.....210  
 Hong Kong .....302  
 Indonesia.....306  
 Ireland (Eire).....106  
 Japan.....500  
 Korea.....501  
 Malaysia .....304  
 New Zealand .....801  
 Northern Ireland .....105  
 Scotland .....104  
 Singapore.....303  
 Taiwan.....503  
 Thailand.....307  
 USA.....001  
 Wales .....103  
 Other (SPECIFY)

<input type="text"/>	<input type="text"/>	<input type="text"/>
----------------------	----------------------	----------------------



**HQ.3** How many nights have you spent in Australia for this visit?

Nights .....

--	--	--

→ GO TO Q.4

**CQ.3a** I'm now going to ask you how many nights you spent in Australia for this visit. Would it be easier for you to give me the date of your arrival or the total number of nights spent in Australia?

Date of arrival ..... 1 → Q.3b

Total nights ..... 2 → Q.3c

**CQ.3b** On what date did you arrive in Australia for this visit?

Date: ...../...../.....

**CQ.3c** How many nights have you spent in Australia on this visit?

Nights .....

--	--	--

**CQ.3d** So you have spent a total of *<insert number of nights>* in Australia. Is this correct?

Yes ..... 1

No (amend date) ..... 2 → Q.3b

**Q.4** On this trip to Australia, did you stay or will you stay for one or more nights in any other country, including your own? Please include stays both on the journey here and on the way home.

Yes ..... 1

No ..... 2 → Q.7

**Q.5** How many **nights** altogether will you spend outside Australia on these stays/stopovers.

Nights .....

--	--	--

**Q.6** Will any of those *<insert Q.5>* nights have been spent or will be spent in any of the following countries?

**MULTIPLE CHOICE**

**READ OUT**

Hawaii.....01  
Hong Kong.....02  
Indonesia.....03  
Malaysia .....04  
New Zealand .....05  
Singapore .....06  
Thailand.....07  
United States (not Hawaii).....08  
Japan.....09  
Korea .....10  
Taiwan .....11  
None of these .....97

- Q.7** Thinking about the whole trip:  
by the time you get back home, how many nights  
in total will you have been away? Please include  
any nights spent travelling.

**PROMPT:** Include nights spent travelling (e.g. on a  
plane or ship).

Nights .....

--	--	--

- Q.8** Is this your first visit to Australia?  
(IF ANSWER IS "BORN IN AUSTRALIA" ASK:  
Is this your first return visit to Australia?)

Yes ..... 1  
No ..... 2

## SECTION II: TRAVEL GROUPS

### → SHOWCARD 1

- Q.9** Looking at Card 1 (PAUSE), did you travel to  
Australia on a **group tour**? That is, did you come with  
a group of people who were associated in some way  
and travelled together?

Card 1 shows some examples of what I mean by  
"group tour".

Yes ..... 1  
No ..... 2 → Q.11

- Q.10** Is that.....

A sporting or special interest group tour?..... 1  
An ordinary group holiday tour? ..... 2  
A business or convention group tour?..... 3  
Other (SPECIFY) ..... 8

- Q.11** Is your trip part of a job bonus, reward or other  
incentive (e.g. for high level of sales)?

Yes ..... 1  
No ..... 2

### → SHOWCARD 2

- Q.12** Looking at Card 2 (PAUSE), which one of these  
statements best describes your immediate travel  
party?

Unaccompanied traveller..... 01  
Adult couple..... 02  
Family group - parent(s) & children..... 03  
Friends &/or relatives travelling  
together ..... 04  
Business associates travelling  
together with or without spouse..... 05

### SECTION III: REASONS FOR VISIT

#### → SHOWCARD 3

**Q.13** Looking at Card 3 (PAUSE), when you arrived in Australia and completed your INCOMING PASSENGER CARD, which one of these did you mark as your **main** reason for coming to Australia?

- Holiday ..... 01
- Visiting friends and relatives ..... 02
- Convention/Conference..... 03
- Business..... 04
- Employment ..... 05
- Education ..... 06
- Exhibition..... 07

Other reasons (SPECIFY - OR CODE BELOW)

- ..... 08
- In transit..... 09
- Immigration..... 10
- Incoming Card not completed ..... 11

#### → SHOWCARD 4

**Q.14** Looking at Card 4 (PAUSE), what **other** reasons, if any, did you have for this visit to Australia?

**PROBE:** Any others?

**MULTIPLE RESPONSE**

- In transit..... 01
- Attend convention/conference/seminar, trade fair/exhibition ..... 02
- Accompanying convention, conference/seminar, trade fair/exhibition visitor..... 03
- Business..... 04
- Accompanying business visitor ..... 05
- Visiting relatives ..... 06
- Holiday/pleasure..... 07
- Employment ..... 08
- Education ..... 09
- Visiting friends..... 10
- Visiting an international student relative or friend studying in Australia ..... 11
- Working holiday..... 12
- Medical reasons ..... 13
- On honeymoon..... 14
- Other reasons (specify) ..... 98
- NO OTHER REASONS ..... 97

**Q.15** In Australia, did you attend a convention/ conference/seminar, trade fair/exhibition or accompany someone who did?

- Yes..... 1
- No..... 2 → Q.17

#### → SHOWCARD 5

**Q.16** And which of the following did you or the person you accompanied attend while you were in Australia?  
**MULTIPLE RESPONSE**

→ SHOWCARD 6

**Q.17** Before you came to Australia, did any of the following influence your decision to come?

**MULTIPLE RESPONSE**

Sydney 2000 Olympic and Paralympic Games .....	<u>01</u>
To visit Australia's casinos .....	<u>02</u>
To experience Aboriginal culture .....	<u>03</u>
To experience Australia's nature, landscapes and wildlife .....	<u>04</u>
To experience Australia's coastline and beaches .....	<u>05</u>
To experience a nature based outdoor activity (e.g bushwalking, camping etc) .....	<u>06</u>
To attend a festival or carnival .....	<u>07</u>
To experience Australia's food, wines and wineries .....	<u>08</u>
To experience Australia's shopping .....	<u>09</u>
To visit rural areas or the outback .....	<u>10</u>
To experience Australia's cultural life (e.g theatre, music, arts etc) .....	<u>11</u>
To participate or watch an organised sporting event .....	<u>12</u>
NO PARTICULAR INFLUENCES .....	97
OTHER (SPECIFY) .....	<u>98</u>

**SECTION IV: DURATION OF STAY AND PLACES VISITED IN AUSTRALIA**

**Q.18** When you arrived in Australia on this visit, in which city did you come through Customs and Immigration?

Sydney .....	01
Melbourne .....	02
Brisbane .....	03
Perth .....	04
Adelaide .....	05
Darwin .....	06
Townsville .....	07
Cairns .....	08
Hobart .....	09
Broome .....	10
Coolangatta .....	11
Other (SPECIFY) .....	98

**Q.19 CHECK Q.3**

*Did respondent stay for one or more nights in Australia?*

Yes ..... 1  
No ..... 2 → Q.28

COMPLETE TRAVEL GRID ON FOLLOWING PAGE FOR ALL STOPOVERS.

USE CONTINUATION SHEETS IF NECESSARY AND STAPLE TO BACK OF TRAVEL GRID

## TRAVEL &amp; ACCOMMODATION GRID

CODING: NO STOPOVER

--	--	--

Q.20 What was the (.....) city or town you stayed in for one or more nights on this trip to Australia?

(IF NECESSARY, SHOW MAP - RECORD LOCALITY NAME/STATE. PROBE FOR STATE/TERRITORY WHERE TWO OR MORE LOCALITIES SHARE NAME)

Q.21 How many nights did you stay in (say place / location)?

→ SHOWCARD 7

Q.22 Looking at Card 7 (PAUSE), what was your reason for visiting (say place / location)?

SELECT ONLY ONE PURPOSE OF VISIT PER STOP

→ SHOWCARD 8

Q.23 Looking at Card 8 (PAUSE), which of these types of accommodation did you use in (say place / location)?

(ENTER CODE(S) OR RECORD DETAILS FOR OTHER)

NOTE: IF MORE THAN ONE TYPE OF ACCOMMODATION, USE TWO COLUMNS.

→ SHOWCARD 9

Q.24 Looking at Card 9 (PAUSE), which of these forms of transport did you use to get from (arrival point or previous stop) to (this stopover)?

RECORD MAIN FORM OF TRANSPORT ONLY

PROBE: Was this your last stopover?

IF "YES" → Q.25

OTHERWISE RETURN TO Q.20

Q.20 NAME OF STOPOVER

1st STOPOVER	2nd STOPOVER	3rd STOPOVER	4th STOPOVER	5th STOPOVER
.....	.....	.....	.....	.....

Q.21 NO. OF NIGHTS

.....	.....	.....	.....	.....
-------	-------	-------	-------	-------

Q.22 REASON FOR VISIT

.....	.....	.....	.....	.....
-------	-------	-------	-------	-------

Q.23 TYPE OF ACCOMMODATION

.....	.....	.....	.....	.....
-------	-------	-------	-------	-------

Q.24 TYPE OF TRANSPORT

.....	.....	.....	.....	.....
-------	-------	-------	-------	-------

Q.25 How did you travel from (last stopover) to the airport today? ..... 

.....
-------

Q.26 How many nights did you spend travelling in Australia - in trains, planes, buses and so on? WRITE IN: 

.....
-------

NOW CHECK TOTALS:

Total stopover nights (this page) .....

Stopover nights from continuation sheets .....

Nights spent travelling .....

TOTAL

IS THIS THE SAME AS  
ANSWER IN Q.3? IF NOT -



**Q.27 CHECK TRAVEL GRID**  
*Circle states/territories visited from Travel Grid and Q.18 in Q.28 below*

→ **SHOWCARD 10**

**Q.28** Looking at Card 10 (PAUSE), did you do any day-trips into any of these states (that is, you visited them but did not spend any nights there)? **CIRCLE STATES/TERRITORIES MENTIONED IN Q.28 BELOW.**

**STATES VISITED**

New South Wales .....	<u>1</u>
ACT (Canberra) .....	<u>2</u>
Victoria .....	<u>3</u>
Queensland .....	<u>4</u>
South Australia .....	<u>5</u>
Western Australia .....	<u>6</u>
Northern Territory .....	<u>7</u>
Tasmania .....	<u>8</u>

**IF NSW VISITED - ASK Q.29**  
**OTHERWISE → Q.30**

→ **SHOWCARD 11**

**Q.29** Looking at Card 11 (PAUSE), which of these places in New South Wales did you visit?

**MULTIPLE RESPONSE**

Fox Studios Australia .....	<u>01</u>
Sydney Opera House .....	<u>02</u>
Darling Harbour .....	<u>03</u>
Bondi Beach .....	<u>04</u>
Kings Cross .....	<u>05</u>
Special Event / Festival .....	<u>06</u>
The Rocks .....	<u>07</u>
Star City (Sydney) Casino .....	<u>08</u>
Sydney Olympic Site .....	<u>09</u>
Blue Mountains .....	<u>10</u>

**NONE OF THESE** ..... 97

**IF ACT VISITED - ASK Q.30**  
**OTHERWISE → Q.31**

→ **SHOWCARD 12**

**Q.30** Looking at Card 12 (PAUSE), which of these places in the ACT did you visit?

**MULTIPLE RESPONSE**

Australian War Memorial .....	<u>01</u>
Parliament House .....	<u>02</u>
Old Parliament House .....	<u>03</u>
National parks/Natural bushlands .....	<u>04</u>
Telstra Tower .....	<u>05</u>
National Science and Technology Centre .....	<u>06</u>
National Gallery of Australia .....	<u>07</u>
Australian Institute of Sport .....	<u>08</u>
Wineries .....	<u>09</u>
Festivals/events .....	<u>10</u>

**NONE OF THESE** ..... 97

**IF VICTORIA VISITED - ASK Q.31**  
**OTHERWISE → Q.32**

→ **SHOWCARD 13**

**Q.31** Looking at Card 13 (PAUSE), which of these places in Victoria did you visit?

**MULTIPLE RESPONSE**

Phillip Island, Penguin Parade .....	<u>01</u>
Sovereign Hill, Ballarat, Goldfields .....	<u>02</u>
Dandenong Ranges, Puffing Billy, Healesville Sanctuary .....	<u>03</u>
Great Ocean Road, Twelve Apostles .....	<u>04</u>
Grampians National Park .....	<u>05</u>
Mornington Peninsula .....	<u>06</u>
Wilsons Promontory .....	<u>07</u>
Daylesford, Macedon, Hepburn, Spa Country .....	<u>08</u>
Yarra Valley Wineries .....	<u>09</u>
High Country, Snowfields .....	<u>10</u>
<b>NONE OF THESE</b> .....	<u>97</u>

**IF QUEENSLAND VISITED - ASK Q.32**  
**OTHERWISE → Q.33**

→ **SHOWCARD 14**

**Q.32** Looking at Card 14 (PAUSE), which of these places in Queensland did you visit?

**MULTIPLE RESPONSE**

Theme Parks on the Gold Coast .....	<u>01</u>
Gold Coast Hinterland / Surrounding Hills / Mountains .....	<u>02</u>
Southbank Parklands in Brisbane .....	<u>03</u>
Fraser Island / Hervey Bay Whale Watching .....	<u>04</u>
The Great Barrier Reef .....	<u>05</u>
Daintree/Cape Tribulation .....	<u>06</u>
Arts and crafts markets .....	<u>07</u>
Noosa on the Sunshine Coast .....	<u>08</u>
National Parks / State Forest (excluding the Great Barrier Reef) .....	<u>09</u>
Festival/Sporting Event .....	<u>10</u>

**NONE OF THESE** ..... 97

**IF SOUTH AUSTRALIA VISITED - ASK Q.33**  
**OTHERWISE → Q.34**

→ **SHOWCARD 15**

**Q.33** Looking at Card 15 (PAUSE), which of these places in South Australia did you visit?

**MULTIPLE RESPONSE**

Barossa Valley .....	<u>01</u>
Adelaide Hills, Mt Lofty Summit, Hahndorf .....	<u>02</u>
Coober Pedy Opal Fields .....	<u>03</u>
Kangaroo Island .....	<u>04</u>
Flinders Ranges, Wilpena Pound, Arkaroola .....	<u>05</u>
Naracoorte Caves, Penola, Coonawarra .....	<u>06</u>
River Murray .....	<u>07</u>
Festivals/events .....	<u>08</u>
Wineries .....	<u>09</u>
Museums or art galleries .....	<u>10</u>

NONE OF THESE ..... 97

IF WESTERN AUSTRALIA VISITED - ASK Q.34  
OTHERWISE → Q.35

→ SHOWCARD 16

Q.34 Looking at Card 16 (PAUSE), which of these places in Western Australia did you visit?

**MULTIPLE RESPONSE**

Fremantle ..... 01  
Swan Valley ..... 02  
York/Toodyay/ Avon Valley ..... 03  
Margaret River/ Southern Forest Areas..... 04  
Albany / South Coastal and Range  
Areas ..... 05  
Kalgoorlie-Boulder/ Goldfields Area ..... 06  
Geraldton/ Kalbarri ..... 07  
Monkey Mia/ Shark Bay/ Exmouth ..... 08  
Karijini National Park/ Gorges ..... 09  
Broome / Kununurra ..... 10

NONE OF THESE ..... 97

IF TASMANIA VISITED - ASK Q.35  
OTHERWISE → Q.36

→ SHOWCARD 17

Q.35 Looking at Card 17 (PAUSE), which of these places in Tasmania did you visit?

**MULTIPLE RESPONSE**

Hobart..... 01  
Launceston..... 02  
Huon Valley ..... 03  
Strahan..... 04  
Stanley ..... 05  
St Helens..... 06  
Freycinet National Park ..... 07  
Port Arthur ..... 08  
Ross ..... 09  
Cradle Mountain National Park..... 10

NONE OF THESE ..... 97

IF NORTHERN TERRITORY VISITED - ASK Q.36  
OTHERWISE → Q.37

→ SHOWCARD 18

Q.36 Looking at Card 18 (PAUSE), which of these places in the Northern Territory did you visit?

**MULTIPLE RESPONSE**

Darwin ..... 01  
Katherine..... 02  
Tennant Creek..... 03  
Alice Springs ..... 04  
Uluru (Ayers Rock)..... 05  
Kakadu National Park..... 06  
Litchfield National Park..... 07  
Kings Canyon ..... 08  
West MacDonnell Ranges..... 09  
Arnhem Land..... 10

NONE OF THESE ..... 97



→ **SHOWCARD 19**

**Q.37** Looking at Card 19 (PAUSE), what (leisure activities) did you do during this trip?

**MULTIPLE RESPONSE**

Outdoor/Ecotourism

Go to the beach (incl. swimming, surfing, taking a picnic etc) .....	01
Visit national parks, bushwalking, rainforest walks .....	02
Visit botanical gardens or other public gardens .....	03
Go whale/dolphin watching in the ocean.....	04
Visit the outback.....	05
Visit farms .....	06

Active Outdoors/Sports

Go fishing .....	07
Play golf .....	08
Play other sports .....	09
Other outdoor activities (e.g. horse riding, rock climbing, white water rafting, bungee jumping, scuba diving etc).....	10

Arts/Heritage

Attend theatre, concerts or other performing arts .....	11
Visit museums or art galleries .....	12
Visit art/craft workshops/studios.....	13
Attend festivals/fairs or cultural events .....	14
Experience Aboriginal art/craft and cultural displays .....	15
Visit an Aboriginal site/community .....	16
Visit history/heritage buildings, sites or monuments .....	17

Local Attractions/Tourist Activities

Visit amusement/theme parks .....	18
Visit wildlife parks/zoos/aquariums .....	19
Go on guided tours or excursions .....	20
Go to markets (eg. street, arts & crafts) .....	21
Tourist trains .....	22
Visit industrial tourism attractions (e.g. breweries, mines).....	23
Visit wineries .....	24

Social/Other

Visit friends/relatives .....	25
Visit pubs, clubs and discos .....	26
Visit casinos .....	27
Attend an organised sporting event .....	28
Go shopping (for pleasure) .....	29
Other (specify).....	98
NONE OF THESE .....	97

## SECTION V: OLYMPICS

### ONLY ASK Q.38 TO Q.40 DURING AND AFTER THE 2000 OLYMPIC GAMES

Q.38 During your visit to Australia, did you attend ....

a) any Olympic Games event

Yes ..... 1  
No ..... 2

b) any Paralympic event

Yes ..... 1 → Q.39  
No ..... 2 → Q.41

#### → SHOWCARD A

Q.39 Looking at Card A (PAUSE), what event/s did you attend?

Opening / Closing Ceremony .....	1	←	→ Q.41
Athletics (Track events) .....	2		
Swimming .....	3	←	
Football (soccer) .....	4	→ → →	Q.40
Rowing .....	5	←	→ Q.41
Basketball .....	6		
Gymnastics .....	7		
Cycling (Track) .....	8		
Triathlon .....	9		
Hockey .....	10		
Other (Please Specify) .....	98	←	

#### → SHOWCARD B

Q.40 Looking at Card B (PAUSE), in what City/Cities did you attend Olympic football (soccer) matches?

Sydney .....	1
Melbourne .....	2
Canberra .....	3
Adelaide .....	4
Brisbane .....	5
Don't Know .....	9

## SECTION VI: TRAVEL EXPENDITURE

#### → SHOWCARD 20

Q.41 Did you arrive in Australia on a travel package? Card 20 explains what I mean by a travel package.

Yes ..... 1 → Q.42  
No ..... 2 → Q.45

#### → SHOWCARD 21

Q.42 Looking at Card 21 (PAUSE), which of these travel arrangements were included in your travel package?

#### MULTIPLE RESPONSE

PROMPT: Does this include international air/sea fares?

International (air/sea) fare .....	01
Airfares within Australia .....	02
Organised tours in Australia .....	03
Most accommodation in Australia .....	04
Some accommodation in Australia .....	05
Most ground transport within Australia .....	06
Some ground transport within Australia .....	07
Most meals in Australia .....	08
Some meals in Australia .....	09
Entertainment and/or recreation activities in Australia .....	10
Sightseeing tours .....	11
Convention fees .....	12
Other items (SPECIFY MOST EXPENSIVE ONE) .....	98
None/No Arrangements .....	97

#### Q.43 CHECK Q.42

Did the travel package include accommodation (codes 04 or 05)?

Yes ..... 1  
No ..... 2 → Q.45

Q.44 How many nights in paid accommodation were covered by that travel package?

Nights

--	--	--

#### → SHOWCARD 22

Q.45 I'd like to ask you about the cost of your trip and how much money you have spent in Australia.

Card 22 (PAUSE), shows what information to include. Is it easier for you to report on your own personal spending or for your travel party?

Personal only ..... 1 → Q.46  
Immediate Travel party ..... 2 → Q.48

No expenditure ..... 3 → Q.66 ONLY WHEN CONVINCED

**Q.46** I am now going to ask you some questions about your own personal expenditure. This includes what you *personally* have spent and any costs paid for by a company or organisation overseas on your behalf. Can you confirm again that you are only answering for yourself? That is, you are not reporting on behalf of your family or anyone else.

Yes ..... 1 → Q.49  
No ..... 2 → Q.47

**Q.47** You mentioned before that you were reporting your *personal* expenditure only. How many people, including yourself, are you in fact answering for?

Number of persons .....   → Q.49

**Q.48** I am now going to ask you some questions about the expenditure for you and your travel party. This includes what you have spent for you and your travel party, and any costs paid for by a company or organisation overseas on your behalf. How many people are you answering on behalf of?

Number of persons .....

**Q.49 CHECK Q.41:**  
*Did respondent arrive on a travel package (Code 1 in Q.41)?*

Yes ..... 1 → Q.50  
No ..... 2 → Q.52

**Q.50** Before arriving in Australia how much did (you/your party, or any other person or company on your behalf) pay for your travel package?

AMOUNT: .....

**Q.51 ASK OR RECORD**  
In which currency have you answered?

.....

CONVERSION TO A\$

\$

→ NOW SKIP TO Q.55

**Q.52** Before arriving in Australia, how much was paid for (your/your party's) international (air/sea) fares? Do not include any international fares paid for in Australia. Please include any payment you contributed for any persons travelling with you.

AMOUNT: .....

**Q.53 ASK OR RECORD**  
In which currency have you answered?

.....

CONVERSION TO A\$

\$

**Q.54** Did any of that expenditure cover the cost of airfares within Australia?

Yes ..... 1  
No ..... 2

→ SHOWCARD 23

**Q.55** Now I'm going to ask you about your expenditure in Australia. Card 23 lists the categories I will be asking about. When you are thinking about your expenditure, please include money spent in Australia, amounts to be paid after you leave, and amounts paid before arriving in Australia (apart from your international air fare or travel package).

ON THE FOLLOWING PAGE ASK Q.56, Q.57, Q.58 AND Q.59 FOR EACH ITEM IN TURN

Q.56	Did you spend anything on (item 1)...?	Q.56	Q.57	Q.58	Q.59
Q.57	<b>IF ANYTHING SPENT ON (item 1)...</b> Was any of your expenditure on ( <i>say item</i> ) pre-paid, apart from amounts already covered by your travel package?				
Q.58	<b>IF ANY PREPAID EXPENDITURE (code 1 in Q.57):</b> How much was prepaid on ( <i>say item</i> )?	Any expenditure on items	Any pre-paid	Pre-paid expenditure amount	Australian expenditure amount
Q.59	How much did (you/your party) spend on ( <i>say item</i> ) whilst in Australia? Include any amounts still to be paid.	Yes No	Pre-paid?	A\$	A\$
1.	Organised tours. Include tours which combine coach, train or plane travel	1 2	1		
2.	Airline fares for travel within Australia	1 2	1		
3.	a) International airfares bought in Australia	1 2	1		
Ivwr only	<b>b) CALCULATE TOTAL FOR Q.58 AND Q.59 - items 2 &amp; 3</b>			<b>TOTAL \$A</b>	
4.	Rental and leasing fees for self-drive cars, rent-a-cars, camper vans. Please exclude petrol and oil costs	1 2	1		
5.	Petrol and oil costs for self-drive cars or other vehicles driven	1 2	1		
6.	Other transport fares. Include fares for trains, coaches, ferries, taxis, limousines, public transport	1 2	1		
7.	Food, drink and accommodation. Include alcohol, restaurant and bar expenditure a) food, drink and accommodation inclusive b) accommodation c) food and drink	1 2 1 1 2 1 1 2 1	1 1 1		
Ivwr only	<b>d) Q.58 &amp; Q.59 TOTAL FDA (items 7a, b, &amp; c)</b>			<b>TOTAL \$A</b>	
8.	Shopping (includes goods you may just have bought or intend to buy before departing) a) items for use in Australia (eg film, cigarettes, toiletries, books, computers) b) items to take home (eg gifts, souvenirs, clothing, books, jewellery and duty free goods)	1 2 1 1 2 1	1 1		
9.	Gambling. Include casinos, horse racing, trotting, lotto etc	1 2	1		
10.	Entertainment such as theatres, movies, zoos, museums, nightclub, recreation, entry fees (Do not include alcohol)	1 2	1		
11.	Purchase of a motor vehicle.	1 2	1		
12.	a) Other major purchases (eg land, real estate, major business equipment, shares). (SPECIFY) .....	1 2	1		
Ivwr only	<b>b) CALCULATE TOTAL FOR Q.58 AND Q.59 - items 11 &amp; 12</b>			<b>TOTAL \$A</b>	
13.	Education fees (ask only if this is visit's purpose)	1 2	1		
14.	Education fees (if visit's purpose is <b>not</b> education)	1 2	1		
15.	Phone, Internet, fax &/or postage	1 2	1		
16.	Any other expenditure? Please include Convention registration fees, medical expenses, electricity, water and gas, laundry, dry cleaning, hairdressing, registration, insurance, car repairs, and any other expenses. (Probe for convention fee expenditure if purpose of visit to Australia and/or any location is convention/conference) (SPECIFY) .....	1 2	1		
	<b>CALCULATE TOTAL FOR Q.58 AND Q.59</b>				
Q.60	a) <b>CONFIRM TOTALS:</b> So that means a total of (Q.58 & Q.59) was spent on this trip to Australia	<b>RECORD TOTAL AUSTRALIAN AND PRE PAID EXPENDITURE</b>		<b>\$A</b>	
Ivwr only	b) <b>CALCULATE TOTAL EXPENDITURE MINUS TOTAL AIRFARES (ITEM 3b) AND MOTOR VEHICLES AND MAJOR GOODS (ITEM 12b)</b>	<b>TOTAL (item 60a) - (Item 3b + item 12b)</b>		<b>\$A</b>	

**Q.61a** Has the respondent reported more than 1 stopover in the travel grid?

More than one stop ..... 1 ➔ GO TO Q.61

One stop only ..... 2 ➔ GO TO Q.66

**CQ.61 SELECTION OF RANDOM LOCATION**

CAPI to select location..... 1 ➔ GO TO Q.63

Entering hardcopy interview  
with random selection..... 2 ➔ GO TO Q.62

**CQ.62 RANDOM STOPOVER NUMBER**

Enter random stopover number

CONTINUE

**CQ.63 PLEASE VERIFY THE FOLLOWING  
RANDOM LOCATION:**

Random Stop No.:

Location .....

Yes, it is correct..... 1 ➔ GO TO Q.64

No, it is not incorrect..... 2 ➔ Amend Q.62

**RECORD TOTAL EXPENDITURE FROM Q.60b**

TOTAL A\$

**Q.64** While you were staying in (*randomly selected location*), how much of your total expenditure of (Q.60b total) was spent in (*randomly selected location*)?

(IF NECESSARY: This is excluding expenditure on airfares, motor vehicles and major purchases)

A\$

**RECORD TOTAL FDA EXPENDITURE (item 7d)**

FDA A\$

**Q.65** Again, thinking about (*randomly selected location*), how much of your Australian and pre-paid food, drink and accommodation expenditure of (*item 7d*) was spent in (*randomly selected location*)?

A\$

**WRITE IN TOTAL FROM Q.59 AUSTRALIAN  
EXPENDITURE ONLY**

A\$

➔ SHOWCARD 24

**Q.66** Looking at Card 24 (PAUSE), which, if any, of the following did you or any of your travel party receive income from in Australia during this visit?

**MULTIPLE RESPONSE**

Sale of Capital Goods ..... 1

Gambling winnings ..... 2

Other income (e.g. work) ..... 3

No income received ..... 4 ➔ Q.68

**Q.67** About how much income was received? Please separate gambling income, sale of capital goods, and other income.

Sale of capital goods, such as real estate, car, boat, business equipment, etc

A\$

Gambling income

A\$

Other Income

A\$

**SECTION VII: IMPRESSIONS OF AUSTRALIA**

➔ SHOWCARD 25

**Q.68** Looking at Card 25 (PAUSE), please tell me how satisfied you were with certain aspects of your stay in Australia. How satisfied were you with...?

**READ OUT EACH ITEM.**

**IF 'DON'T KNOW' RECORD '9' IN THE BOX.**

**IF 'NOT APPLICABLE' RECORD '7' IN THE BOX.**

(1) The amount of tourist information  
available in Australia.....

(2) The cost of domestic airfares .....

(3) The cost of other forms of transport .....

(4) The availability of disabled/handicapped  
facilities.....

(5) Shop trading hours .....

(6) The cost of goods in shops.....

(7) The cost of accommodation .....

(8) Airport facilities in this airport.....

(9) Immigration/customs ..... ☐

(10) Visa requirements for Australia..... ☐

CONFIDENTIAL - INTERNAL USE ONLY

DATE: 10/10/00 BY: [illegible]

CONFIDENTIAL - INTERNAL USE ONLY

DATE: 10/10/00 BY: [illegible]

CONFIDENTIAL - INTERNAL USE ONLY

DATE: 10/10/00 BY: [illegible]

CONFIDENTIAL - INTERNAL USE ONLY

DATE: 10/10/00 BY: [illegible]

CONFIDENTIAL - INTERNAL USE ONLY

DATE: 10/10/00 BY: [illegible]

CONFIDENTIAL - INTERNAL USE ONLY

DATE: 10/10/00 BY: [illegible]

CONFIDENTIAL - INTERNAL USE ONLY

DATE: 10/10/00 BY: [illegible]

## SECTION VIII: INFORMATION SOURCES

**Q.69** Before you left <country of residence> did you get any information about Australia for this visit?

Yes ..... 1  
No ..... 2 → **Q.71**

### → SHOWCARD 26

**Q.70** Looking at Card 26 (PAUSE), where did you get that information?

#### MULTIPLE RESPONSE

Travel Agent ..... 01  
Internet ..... 02  
Airline ..... 03  
Tour Operator ..... 04  
Travel book or guide ..... 05  
Advertising in Newspaper, Magazine  
or on TV, radio ..... 06  
Travel article in Newspaper or  
Magazine ..... 07  
Films or TV/Radio program ..... 08  
Friend or relative living in Australia ..... 09  
Friend or relative who has visited  
Australia ..... 10  
Previous Visit(s) ..... 11  
Somewhere else (Specify)  
..... 98

**Q.71** Before you left <country of residence>, did you make any bookings for this visit on the Internet?

Yes ..... 1  
No ..... 2 → **Q.73**  
Don't Know ..... 3 → **Q.73**

### → SHOWCARD 27

**Q.72** Looking at Card 27 (PAUSE), which of the following did you book on the Internet?

#### MULTIPLE RESPONSE

International air Travel ..... 1  
Air Travel within Australia ..... 2  
Organised tours in Australia ..... 3  
Rental or leasing of self drive cars,  
rent-a-cars and campervans in  
Australia ..... 4  
Accommodation in Australia ..... 5  
Other (Please Specify)  
..... 98

**Q.73** Was the length of your stay in Australia....  
**READ OUT**

Longer than planned ..... 1  
Shorter than planned ..... 2  
Same as planned ..... 3

**Q.74** How much of your trip itinerary for this visit was planned before you arrived in Australia?

All planned ..... 1 → **Q.76**  
Mostly planned ..... 2  
Some planned ..... 3  
None planned ..... 4

**Q.75** Did you use tourism information obtained in Australia to help decide destinations to visit that were not planned?

Yes ..... 1  
No ..... 2

## SECTION IX: DEMOGRAPHICS

**Q.76** RECORD SEX:

Male ..... 1  
Female ..... 2

### → SHOWCARD 28

**Q.77** Looking at Card 28 (PAUSE), which of these age groups do you fall within?

15 to 19 ..... 01 } → **Q.78**  
20 to 24 ..... 02 }  
25 to 29 ..... 03 }  
30 to 34 ..... 04 }  
35 to 39 ..... 05 }  
40 to 44 ..... 06 }  
45 to 49 ..... 07 } → **Q.79**  
50 to 54 ..... 08 }  
55 to 59 ..... 09 }  
60 to 64 ..... 10 }  
65 to 69 ..... 11 }  
70 and over ..... 12 }

**Q.78** Do you live with your parent or guardian (in your country of residence)?

Yes ..... 1  
No ..... 2  
No answer ..... 3

### → SHOWCARD 29

**Q.79** Looking at Card 29 (PAUSE), what is your marital status?

Single (never married, divorced, separated,  
widowed) ..... 1  
Part of a couple (married, De facto,  
living together) ..... 2  
No answer ..... 3

**Q.80** Are you the parent or guardian of any children living with you?

Yes ..... 1  
No ..... 2 → **Q.82**  
No answer ..... 3 → **Q.82**

**Q.81** What age groups are these children?  
**MULTIPLE RESPONSE**

0-5 ..... 1  
6-14 ..... 2

15-24.....	3
25 and over.....	4
No answer.....	5

**Q.82** Thank you very much for your cooperation. We would like you to accept this item as a token of our appreciation.

**(HAND OVER PIN)**



**Q.83 FOR INTERVIEWERS ONLY**

Thinking about when the respondent was completing the **expenditure grid**, select one of the following four (4) categories that you think best describes the respondent's answers.

**Very accurate** (referred to receipts/diary/log book/budget) .....1

**Quite accurate** (occasional reference to receipt/budget, or answered confidently with appropriate thought).....2

**Quite rough** (no reference to any document; very quick, top-of-head response) .....3

**Very rough** (just guessing) .....4

**Q.84 FOR INTERVIEWERS ONLY**

Thinking about when the respondent was answering the random location questions, select one of the four (4) categories that you think best describes the respondents answers.

**Very accurate** (referred to receipts/diary/log book/budget) .....1

**Quite accurate** (occasional reference to receipt/budget, or answered confidently with appropriate thought) .....2

**Quite rough** (no reference to any document; very quick, top-of-head response) .....3

**Very rough** (just guessing) .....4

**S.1 Record Interview Type**

Normal CAPI .....1  
Interrupted CAPI .....2  
All Hardcopy.....3 → S.2

**S.2 Hardcopy Interviews Only**

(a) Please record the date this hardcopy interview was done on:

\_\_\_ / \_\_\_ / \_\_\_\_

(b) And record the reason why this interview was done on hardcopy:

---

---

---

---

---

---

---

**INTERVIEWER DECLARATION:**

I have conducted this interview. It is a full and to the best of my knowledge, accurate recording and has been completed in accordance with my interviewing and ICC/ESOMAR guidelines.

INTERVIEWER:.....

RECORD DATE: (DD/MM/YY)

				0	0
--	--	--	--	---	---

SIGNED:.....

INTERVIEWER NUMBER:

--	--	--	--	--	--

**IF HARDCOPY:**

**MAKE SURE THAT THIS QUESTIONNAIRE AND ANY TRAVEL GRID CONTINUATION SHEETS ARE STAPLED TOGETHER AND THAT THE QUESTIONNAIRE NUMBER IS WRITTEN ON THE FRONT OF THIS QUESTIONNAIRE AND ON ALL CONTINUATION SHEETS.**

**STAPLE SHEETS IN THE FOLLOWING ORDER:**

- **MAIN QUESTIONNAIRE**
- **GREEN CONTINUATION SHEET(S)**  
(if used)

**ATTACHMENT 12.22**

---

***VISITING INTERNATIONAL FISHER SURVEY  
QUESTIONNAIRE (SUPPLEMENTARY)***

**IN CONFIDENCE**      **VISITING INTERNATIONAL FISHER SURVEY<sup>®</sup>**      **<Sample No: Nielsens>**

SG1 (SG = Sequence Guide)

- Q2. (INTRO: EXPLAIN ABOUT RECREATIONAL FISHING SURVEY) Thinking back to when you decided to visit Australia (this time) ... how important was recreational fishing to that decision? Would you say ... (READ OUT UNTIL TERMINATED)**

- 1 Very important?
- 2 Quite important?
- 3 Not very important?
- 4 Not at all important?
- 5 UNSURE

- if visited only one state/territory, record in Q4 and go to Q5
- otherwise, go to Q4

**Q4. In which States (or Territories) of Australia did you go fishing? ('ANY OR ALL')**

- |   |                 |
|---|-----------------|
| 1 | NSW (incl. ACT) |
| 2 | Vic             |
| 3 | Qld             |
| 4 | WA              |
| 5 | SA              |
| 6 | Tas             |
| 7 | NT              |

**Q5. And on how many separate days did you go fishing in (EACH STATE/TERRITORY)? ... (Firstly)  
(PROBE FOR BEST ESTIMATES, CHRONOLOGICAL METHOD IF APPROPRIATE)**

[illegible]

**Q6. And which of the following types of fishing did you do in (FIRST STATE/TERRITORY)?**  
 (READ OUT FOR EACH STATE/TERRITORY FISHED IN; FILTER FIRSTLY ON FRESH VS. OCEAN VS  
 OTHER SALTWATER; 'ANY OR ALL')

	NSW/ACT	Vic	Qld	WA	SA	Tas	NT
<i>(to be refined)</i>							
<b>1 Freshwater - boat</b>	1	1	1	1	1	1	1
<b>2 " - shore</b>	1	1	1	1	1	1	1
<b>3 Ocean - sport/gamefishing</b>	1	1	1	1	1	1	1
<b>4 " - reef/bottom fishing</b>	1	1	1	1	1	1	1
<b>5 " - shore-based (rock/beach)</b>	1	1	1	1	1	1	1
<b>6 Other saltwater -boat</b>	1	1	1	1	1	1	1
<b>7 " - shore</b>	1	1	1	1	1	1	1

SG7.

- if more than one type of fishing in Q6 for any state, go to Q8
- otherwise, go to Q9

**Q8. (And) what was the main type of fishing you did in (FIRST STATE/TERRITORY)? ... (I mean the one you spent most time doing?)** (PROBE/REVIEW AS INSTRUCTED; RECORD APPROP. CODE 1-7 FROM Q6)

	NSW/ACT	Vic	Qld	WA	SA	Tas	NT
MAIN TYPE OF FISHING	.....	.....	.....	.....	.....	.....	.....

**Q9. (FOR MAIN/SOLE TYPE OF FISHING IN EACH STATE/TERRITORY ASK:) (And) when you went (MAIN TYPE OF) fishing in (FIRST STATE/TERRITORY), were you fishing for any particular species or not? (IF YES, PROBE FOR MAIN SPECIES AS INSTRUCTED; OTHERWISE CODE 9 APPLIES)**

MAIN TARGET SPECIES <i>(to be refined)</i>							
NSW/ACT	Vic	Qld	WA	SA	Tas	NT	
1 snapper	1 snapper	1 coral trout	1 snapper	1 KG whiting	1 tuna	1 barramundi	
2 tuna	2 shark	2 marlin	2 tuna	2 SB tuna	2 trout	2 reef fish	
3 marlin	3 tuna	3 barramundi	3 marlin	3 snapper	3 lobster	3 mackerel	
4 kingfish	4 kingfish	4 tailor	4 kingfish	4 sharks	4 flathead	4 mud crabs	
5 xxxx	5 xxxx	5 xxxx	5 xxxx	5 xxxx	5 xxxx	5 xxxx	
6 xxxx	6 xxxx	6 xxxx	6 xxxx	6 xxxx	6 xxxx	6 xxxx	
7 xxxx	7 xxxx	7 xxxx	7 xxxx	7 xxxx	7 xxxx	7 xxxx	
8 other specify	8 other spec	8 other spec	8 other spec	8 other spec	8 other spec	8 other spec	
.....	.....	.....	.....	.....	.....	.....	
9 no specific target	9 no specific target	9 no specific target	9 no specific target	9 no specific target	9 no specific target	9 no specific target	

**Q10. (FOR MAIN TARGET/ETC IN EACH STATE/TERRITORY IN Q9 ASK:) (And) did you personally/ actually catch any (TARGET SPECIES) ... OR (anything - IF NO SPECIFIC TARGET)? (NB: INCLUDES CATCH AND RELEASE)**

	NSW/ACT	Vic	Qld	WA	SA	Tas	NT
Yes	1	1	1	1	1	1	1
No	2	2	2	2	2	2	2

Q11. (And) in any of the fishing you did in Australia (this time), did you fish with a (READ OUT) ...

	Yes	No
1 Professional fishing guide (or on a charter boat - IF ANY BOAT-BASED)?	1	2
2 (with) any friends or relatives who are Australian residents?	1	2
3 (just/or any other fishing) on your own ... or with other travelers?	1	2

SG12.

- if more than one 'yes' in Q11, above go to Q13
- otherwise go to SG14

Q13. (And) did you mainly fish with (READ OUT CATEGORIES FROM Q11 AS APPROP AND RECORD BELOW)

- 1 Professional fishing guide (or on a charter boat - IF ANY BOAT-BASED)?
- 2 (with) any friends or relatives who are Australian residents?
- 3 (just/ or any other fishing) on your own ... or with other overseas visitors/etc?

SG14.

- if any guide/charter services in Q11, go to Q15
- otherwise, go to Q16

Q15 PROBE FOR BRIEF DETAILS OF GUIDES/CHARTER SERVICES USED AND RECORD BELOW ('ANY OR ALL')

	NSW/ACT	Vic	Qld	WA	SA	Tas	NT
(to be refined)							
1 Freshwater - boat	1	1	1	1	1	1	1
2 " - shore	1	1	1	1	1	1	1
3 Ocean - sport/gamefishing	1	1	1	1	1	1	1
4 " - reef/bottom fishing	1	1	1	1	1	1	1
5 " - shore-based (rock/beach)	1	1	1	1	1	1	1
6 Other saltwater -boat	1	1	1	1	1	1	1
7 " - shore	1	1	1	1	1	1	1

Q16. (to be refined) (And) thinking about (all) the fishing you've done in Australia (this time), ... how satisfied have you been with your overall fishing experience here? Would you say (READ OUT UNTIL TERMINATED)

- 1 Very satisfied?
- 2 Quite satisfied?
- 3 Not very satisfied?
- 4 Not at all satisfied?
- 5 UNSURE

SG17.

- if at least quite satisfied or unsure (codes 1,2 or 5) in Q16, ask Q18 as a 'positive' q'n, then Q19 as a 'negative'
- otherwise ('dissatisfieds'), ask Q18/19 (as neg/pos. respectively)

Q18. *(to be refined)* (And why do you say that? - NOT 'UNSURES') ... (What were the positive/negative aspects of your fishing trip/s or experience/s here?) Any others? (RECORD 'ANY OR ALL' IN POSITIVES/NEGATIVES FIELDS BELOW)

Q19. *(to be refined)* (And) were there any negative/positive aspects of your fishing trip/s or experience/s here?) Any others? (RECORD 'ANY OR ALL' IN NEGATIVES/POSITIVES FIELDS BELOW)

<i>(to be refined)</i>	POSITIVES	NEGATIVES
Fishing catch/rates	1 good, as/better than expected	1 poor, worse than expected
Scenery, environment	2 clean, unspoilt etc	2 degraded, litter, pollution
Peace and quiet	3 quiet, uncrowded,	3 busy, over-crowded etc
Climate and weather	4 pleasant etc	4 too hot/cold/windy/rough seas
Guide/charter - service	5 good, skilled, friendly	5 poor, unskilled, impolite
" - cost	6 cheap, good value	6 expensive, poor value
Tackle shops/boat hire/etc - service	7 good, skilled, friendly	7 poor, unskilled, impolite
" - cost	8 cheap, good value	8 expensive, poor value
Accom/other businesses- service	9 good, skilled, friendly	9 poor, unskilled, impolite
" - cost	10 cheap, good value	10 expensive, poor value
Interactions with others - locals	11 friendly, helpful	11 unfriendly, unhelpful
Interactions with other visitors	12 pleasant etc	12 unpleasant etc
Information, maps (NEC)	13 available, helpful	13 unavailable, poor
Infra-structure - facilities (fish cleaning, jetties, boat ramps)	14 good	14 poor
Other (specify) .....	15	15

## **ATTACHMENT 12.23**

---

### ***DATA MANAGEMENT STRATEGY***

***Data Management Strategy***  
***For***  
***The National Recreational***  
***&***  
***Indigenous Fishing Survey***

**Prepared For**  
**The National Recreational Fishing Survey**  
**Development Working Group**

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**September 1999**

**Version 1.6**



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## Document Revision History

Version 1.0, 10th February, 1999, Distribution Jeremy Lyle (TAFI)  
 Version 1.1, 15th February, 1999, Distribution Jeremy Lyle (TAFI)  
 Version 1.2, 18th February, 1999, Distribution Jeremy Lyle (TAFI), FARVIEW  
 Version 1.3, 5th March, 1999, Distribution Jeremy Lyle (TAFI)  
 Version 1.4, 25th March, 1999, Distribution Jeremy Lyle (TAFI)  
 Version 1.5, 16th September, 1999, Distribution Jeremy Lyle (TAFI), Anne Coleman (NTF)  
 Version 1.6, 21st September, 1999, Distribution Gary Henry (NSW Fisheries)

# 1.0 Purpose Of This Data Management Strategy

In October 1998, CSIRO Marine Research (CMR) was invited to make a general presentation on 'developing a data management strategy' at the 1st National Survey of Recreational and Indigenous Fishing Workshop, held in Brisbane (QLD). CMR was subsequently invited to develop a strategy, specifically addressing the data management requirements of the proposed National Recreational and Indigenous Fishing Survey (NRIFS).

The Strategy that follows outlines the major data management considerations that should be addressed in implementing the National Survey. The role of the Strategy is to provide a data management model that will:

- result in providing a consistent, comprehensive and qualified national dataset, and
- enable ready access to, and re-use of, all elements of the survey data.

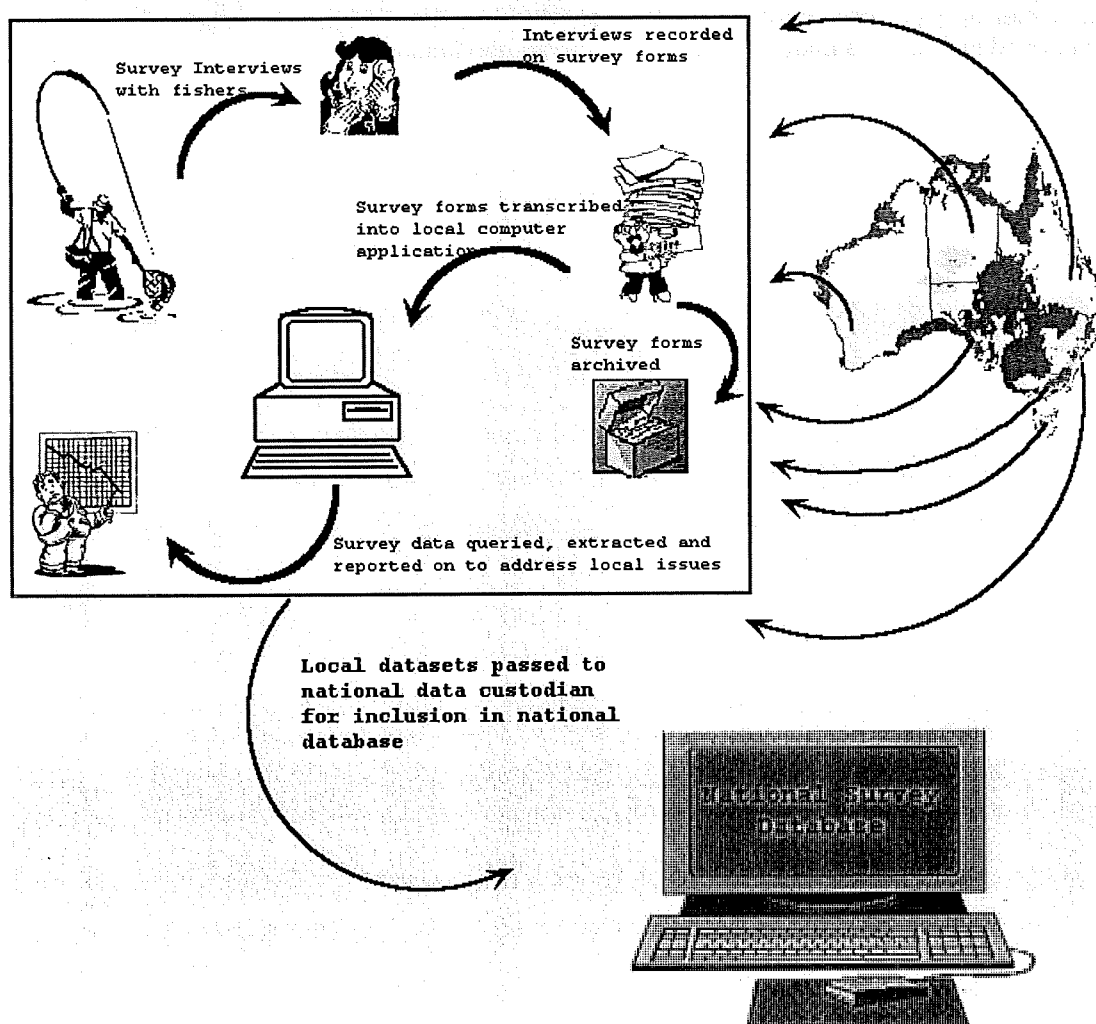


Figure 1 - Overview of National Recreational & Indigenous Fishing Survey Data Flows

Data will be collected at the State or Territory level and will then be aggregated and merged to form a single national dataset (Figure 1).

This data management strategy sets out what is required to develop a re-useable, national dataset and covers issues such as the development of:

- a common data model (incorporating standardised codes) amongst Survey participants so that data can be easily aggregated at the national level,
- procedures to update the data model as new requirements emerge,
- data custodianship and data archiving guidelines,
- data security & dissemination policies,
- local (State or Territory based) data repositories and applications to record and manage the data,
- a national repository for managing the integrated dataset and associated tools and procedures for acquiring, merging and disseminating statistical products to the public.

Where it has been possible to provide solutions (e.g. a first "cut" of a suitable data model) this has been undertaken, otherwise the strategy alerts the Development Working Group to the decisions which need to be made in connection with NRIFS data management.

Following each section in the document, any recommendations that have been discussed that require inter-agency agreement or Development Working Group action, have been summarised in bold type under the heading "Recommendations".

## 2.0 Overview Of Survey & Survey Instruments

The proposed NRIFS actually consists of three main components:

- Recreational Fishing Survey
- Indigenous Survey
- Overseas Visitor Survey

### 1. Recreational Fishing Survey

The Recreational Fishing Survey is further divided into the following modules:

#### (a) *Screening Survey*

A telephone survey where households are identified by selecting phone numbers, at random, from the white pages telephone directory. The purpose of the screening survey is to:

- gather some general demographic information about the composition of the household,
- establish information about the household's boat ownership,
- identify fishers and their general recreational fishing habits,
- obtain some personal information from householders regarding their occupation and socio-economic status, and
- identify potential participants for a subsequent Diary Survey.

See Appendix 1 for copy of survey form.

#### (b) *Diary Survey*

A longitudinal survey involving householders who have identified themselves as intending fishers and who have been willing to record their fishing or fishing expenditure events in a diary. The diarist is contacted periodically by telephone and asked a series of questions relating to their fishing activity within a specific intervening period of time. The purpose of the survey is to obtain information on:

- where fishing related events or expenditure took place,
- the methods used for fishing related activities,
- the catch and effort of fishing related activities, and
- the types of fishing related expenditure incurred.

See Appendix 1 for copy of survey event sheet.

#### (c) *Attitudinal Survey*

At the completion of the Diary Survey, follow-up contact is made with diary participants to gauge their attitude/awareness to a number fishing related questions. These questions, which are not standardised between States and Territories (as are the questions used in [a] and [b] above), comprise the Attitudinal Survey.

#### (d) *On-site Survey*

The purpose of this survey is to provide information on the size composition of fish harvested by anglers and will be achieved using standard creel survey techniques. This information will be used to convert harvest estimates (numbers) derived from diary survey, into weight. A secondary objective of the on-site surveys will be to evaluate fish identification skills of anglers. It will be the responsibility of the participating agencies to develop or modify existing

database to store on-site survey data. However, a link in terms of summarised information should be created between this information and the other recreational survey data structures.

## **2. Indigenous Survey**

The Indigenous Survey will be conducted through an initial background visit to an indigenous community where qualitative information will be gathered. The Survey is further divided into the following modules:

### *(a) Screening Survey*

A face to face survey where people are identified by selecting dwellings, at random, from within the selected community. The purpose of the screening survey is to:

- gather some general demographic information,
- establish information about people's boat and vehicle ownership,
- identify fishers and their general recreational fishing habits,
- obtain some personal information regarding their relationship to sea country, and
- identify potential participants for a subsequent 'diary' Survey.

See Appendix 1 for copy of survey form.

### *(b) Diary Survey*

A longitudinal survey involving people who have identified themselves as intending fishers and who have been willing to be interviewed regularly. The diarist is contacted periodically and asked a series of questions relating to their fishing activity during the previous week. The purpose of the survey is to obtain information on:

- where fishing related events took place,
- the methods used for fishing related activities, and
- the catch and effort of fishing related activities,

See Appendix 1 for copy of survey event sheet.

### *(c) Attitudinal Survey*

There will be an opportunity to gauge attitude/awareness of indigenous fishers to a variety of fishing related matters during the Diary Survey (face-to-face) interviews.

### *(d) On-site Survey*

Sampling of species and size composition will be undertaken, face-to-face where appropriate. A secondary objective of the on-site surveys will be to evaluate fish identification skills of indigenous fishers.

## **3. Visitor Survey (Out of Scope)**

The visitors survey will be undertaken as part of the existing Bureau of Tourism (BTR) Overseas Visitors Survey. Data collection, storage and analysis will be undertaken by BTA on behalf of NRIFS.

## 3.0 Data Model

### 3.1 What Is A Conceptual Data Model ?

The conceptual data model is a logical representation of the information that will be gathered by the various State/Territory fisheries agencies to support NRIFS. The model represents the meaning of the data, which includes its definition and relationships; it does not represent how this information is to be collected, exchanged, processed or physically stored.

The conceptual model consists of:

**Entities:** Objects consisting of logically related items of information

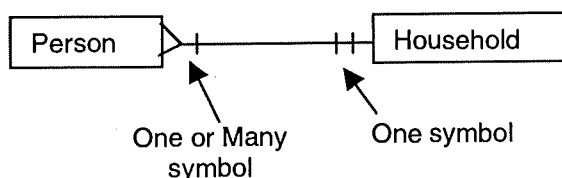
**Relationships:** The associations established between entities. These are also known as "Business Rules".

**Attributes:** Items of information describing the entities and relationships.

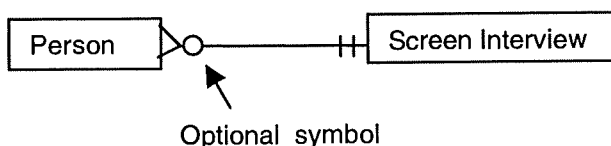
To establish the Conceptual Data Model, two models of varying levels of detail were produced, a very high level Conceptual Information Model (Figure 2 - Appendix 2) and a detailed Entity Relationship Model (Figure 3 - Appendix 3). The first model simply outlines the major groupings (or facets) of data that are relevant to the recreational fishing components (i.e. screening survey, diary survey and attitudinal survey) of NRIFS. The second model provides the detail and uses a set of standard conventions that are described below in section 3.2. It should be noted that the data model is not fully normalised.

### 3.2 Graphical Conventions Used In The Data Model

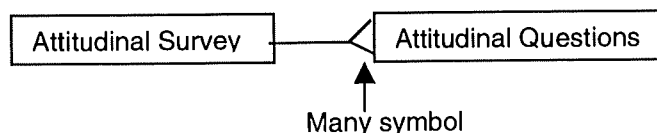
#### Many to One Relationship



A Household entity may have one or many Person entities associated with it.

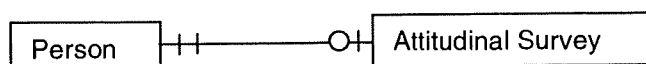


A Screen Interview entity may have none or many Person entities associated with it.



An Attitudinal Survey has many questions associated with it.

#### One to One Relationship



A Person entity may have none or one Attitudinal Survey entities associated with it.

### **3.3 Ongoing Data Model Documentation & Development**

The conceptual data model presented in this strategy (and the associated data dictionary) should be viewed as being dynamic. It represents an interpretation of requirements developed during the planning phase of the National Survey. It is highly likely that as the Survey Team's familiarity with the survey instruments increases and pilot tests are conducted to validate the survey methodology, the data model and data dictionary may require modification and/or enhancement. Physical implementation of the model also often requires some structural changes to the original data model design.

Where data is being collected by a number of different agencies the key function of the data model is to provide an agreed set of conventions and standards, that if followed, will ultimately allow for simple integration of the disparately collected datasets. So, whilst it is expected that the model will evolve, it is most important that agreed changes to the model are documented and promulgated to all Survey participants on an ongoing basis. For this function to be performed effectively a single agency should be nominated to take ownership of the data model and data dictionary and coordinate a response to any requested modifications. This agency should also disseminate up-to-date documentation on the data model in current use as well as provide information about changes to the model over time.

#### **Recommendation**

- 1. That a final data model and data dictionary be agreed upon by all participating State and Territory agencies at the conclusion of the pilot surveys and prior to implementation of NRIFS.**
- 2. That one agency be nominated as the data model & data dictionary custodian.**

### 3.4 Facets, Entities, Attributes and Relationships

For NRIFS the key facets are those that appear shaded in the diagram in Appendix 2 and are listed below:

- Project
- Interviewer
- Household
- Person
- Screen Interview
- Diary Survey Event (incorporating Fishing Trip Details; Expenditure; Fishing Activity)
- Attitudinal Survey
- ABS Census Data (external data that will link to NRIFS via SLA attribute)
- Indigenous Community
- On-site Survey
- Overseas Visitor Survey (out of scope)

Each Facet has then been further sub-divided into entities. An entity corresponds to tables in a relational database management system (RDBMS). These entities and their suggested attributes (based on information drawn from the survey forms and liaison with members of the Survey Working Group) are listed below. **Note:** Any required lookup tables are not listed here but are presented in section 4 (Data Dictionary).

#### (a) Project Facet

##### **Project Entity**

##### **Definition**

A contractually agreed national survey activity coordinated by a national or state agency that seeks to acquire information regarding recreational fishing activity. It has a definite start and end date.

##### **Entity Relationships (Business Rules)**

- Consists of a number of state/territory based SUB-PROJECTS

##### **Attributes (Indicative)**

Project ID  
Project Name  
Project Description  
Project Coordinator  
Supporting File Reference Number  
Start Date  
End Date

Primary Key



## **Sub-Project Entity**

### **Definition**

A concurrent state/territory survey activity in support of a national survey that seeks to acquire information regarding recreational fishing activity. It has a definite start and end date.

### **Entity Relationships (Business Rules)**

- employs one or more project INTERVIEWERS
- consists of one or many SCREEN INTERVIEWS
- consists of one or many DIARY SURVEY EVENTS
- consists of one or many ATTITUDINAL SURVEYS
- consists of one or more INDIGENOUS SURVEYS

### **Attributes (Indicative)**

Sub_Project ID	<u>Primary Key</u>
Sub_Project Name	
Sub_Project Description	
Sub_Project Manager	
Supporting File Reference Number	
Start Date	
End Date	
Survey Agency	
Survey State	
Project ID	<u>Foreign Key</u>

## **(b) Interviewer Facet**

### **Interviewer Entity**

#### **Definition**

A person contractually engaged to conduct surveys on behalf of the project sponsoring agency. He/she may be an existing employee of the agency or a contractor specifically brought in to assist with the project's execution.

#### **Entity Relationships (Business Rules)**

- May make initial contact with a HOUSEHOLD using only a telephone number from the white pages as part of a SCREEN INTERVIEW.
- May contact and SCREEN INTERVIEW other PERSONS within the HOUSEHOLD that is identified as a fisher household.
- May contact PERSONs to conduct a diary survey to record fishing related DIARY SURVEY EVENTS.
- May contact PERSONs to conduct an ATTITUDINAL SURVEY.
- Belongs to a SUB\_PROJECT.

#### **Attributes (Indicative)**

Interviewer Code	<u>Primary Key</u>
Interviewer Name	
Interviewer Surname	
Interviewer Salutation	
Interviewer Phone Number	
Interviewer Postal Address	

Interviewer Town  
 Interviewer Post Code  
 Interviewer State  
 Contract Start Date  
 Contract End Date  
 Sub\_Project ID

Foreign Key

## (c) Household Facet

### *Household Entity*

#### **Definition**

A household is a dwelling or residence in which one or a number of people live. A household is initially identified by selecting a phone number from the white pages telephone directory. A household's location is therefore only characterised by the telephone number (and by default the suburb and postcode). Within the household there may be one or a number of people who participate in recreational fishing activities. Households responding positively to the screening survey will have a specific household structure (resident/visitor composition). Probing questions are asked during the screening interview in an effort to identify fishers and to obtain information about the household. This entity, records initial responses to questions concerning the Household and summary information extracted from more in depth interviews during latter stages of the screening interview.

**NB. Caution should be exercised in how data is entered into this entity as there is great potential for data inconsistency between the responses registered as answers to Q1-Q6 (in Screening Interview - household probing questions) and data registered as responses made by individuals within the Household to the same questions that are re-asked later in the survey.**

#### **Entity Relationships (Business Rules)**

- Is initially identified by participating in a SCREEN INTERVIEW.
- May own none or a number of BOATS.
- May include one or a number of PERSONs who may or may not be willing to participate in the SCREEN INTERVIEW.
- May include one or a number of PERSONs who may or may not be willing, or not eligible to participate in a DIARY SURVEY.
- Has a location (suburb and postcode) that could form a link into ABS Census data.

#### **Attributes (Indicative)**

Sample ID	<u>Primary Key</u>
MultiFamily Code	<u>Primary Key</u>
Household Phone Number	
Salutation	
Surname	
Postal Address	
Town	
Postcode	
ABS Statistical Local Area	
Fished Last 12 Months	(boolean)
Other Fishing Last 12 Months	(boolean)
Fishing Licence Last 12 Months	(boolean)
Member Rec Fish/Dive Club	(boolean)

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Fishing Likelihood	
Boat Ownership	(boolean)
Total Number of Residents	
Total Number of Males	
Total Number of Females	
Total Number of Fishers_Intending	
Total Number of Fishers_Previous	
Total Number of Boats	
Total Number of ATSI	
Fishing Household_Intending	
Fishing Household_Previous	(boolean)

### ***Boat\_Ownership Entity***

#### **Definition**

Information about boat ownership, as ascribed to the household.

#### **Entity Relationships (Business Rules)**

- Is related to the HOUSEHOLD rather than an individual.
- Information is gathered as part of the SCREEN INTERVIEW.
- The HOUSEHOLD may own none or many boats.

#### **Attributes (Indicative)**

Boat ID	<u>Primary Key</u>
Boat Number	
Wholly Owned	(boolean)
Length	
Length Units	
Power Type Code	
% Used For Fishing	("0" or a value in %)
\$Boat Value	
Boat Location	
Echo Sounder	(boolean)
GPS	(boolean)
Sample Number	<u>Foreign Key Element</u>
MutiFamily Code	<u>Foreign Key Element</u>
Screen Interview Id	

## **(d) PERSON Facet**

### ***Person Entity***

#### **Definition**

A Person is some-one residing in a household at the time of the screen interview. A Person may or may not be a fisher.

#### **Entity Relationships (Business Rules)**

- Is initially identified by participating in a SCREEN INTERVIEW.
- May participate in a DIARY SURVEY.
- May participate in an ATTITUDINAL SURVEY.
- Belongs to a HOUSEHOLD.

**Attributes (Indicative)**

Person ID	<u>Primary Key</u>
Person Number	
Person Sex	
Person Age	
Person Final Response Code	
In Diary Response Valid To	
ATSI	(boolean)
Stratum Code	
Sample Number	<u>Foreign Key Element</u>
MutiFamily Code	<u>Foreign Key Element</u>
Household Id	<u>Foreign Key Element</u>

***Fisher\_Household\_Person\_Details Entity*****Definition**

A person within a household who identifies as an in-scope person (> 5 yrs of age) in a fisher household.

**Entity Relationships (Business Rules)**

- Holds information related to a PERSON and their detailed fishing behaviour.
- Is associated with CONTACT DETAILS if the PERSON agrees to be sent a Diary survey kit.
- May be associated with none or a number of FISHING CLUBS.
- May be associated with none or a number of FISHING LICENCES in one or many states.

**Attributes (Indicative)**

Person ID	<u>Primary Key Element</u>
Person Number	<u>Primary Key Element</u>
Fisher Household Person Details ID	<u>Primary Key Element</u>
Personal Interview	(boolean)
Job Category	
Work Type	
Education	
Fished Last 12 Months	(boolean)
Days Fished Last 12 Months	
Other Types of Fishing	(boolean)
Fished in Other State	(boolean)
Hold Fishing Licence	(boolean)
Fishing Likelihood	
Member Fishing Club	(boolean)
Language	(boolean)
Main Language Code	

***Fish\_Club\_Membership Entity*****Definition**

Details concerning fishing/diving club associations & memberships of fishers.

**Entity Relationships (Business Rules)**

- Is associated with FISHER HOUSEHOLD PERSON DETAILS

#### Attributes (Indicative)

Fish Club Membership ID	<u>Primary Key</u>
Club Name	
Club State Code	
Person ID	<u>Foreign Key Element</u>
Person Number	<u>Foreign Key Element</u>
Fisher Household Person Details ID	<u>Foreign Key Element</u>

### ***Fish\_Licence Entity***

#### Definition

Details concerning fishing licences held by fishers.

#### Entity Relationships (Business Rules)

- Is associated with a FISHER HOUSEHOLD PERSON DETAILS

#### Attributes (Indicative)

Fish Licence ID	<u>Primary Key</u>
Licence Type	
Licence State	
Person ID	<u>Foreign Key Element</u>
Person Number	<u>Foreign Key Element</u>
Fisher Household Person Details ID	<u>Foreign Key Element</u>

## **(e) Screen Interview Facet**

### ***Screen\_Interview Entity***

#### Definition

A telephone Screen Interview is conducted to initially make contact with the household to establish the structure of the household and to identify household residents/visitors who have participated, or expect to participate in, recreational fishing related activities. The Interview also records information about boat ownership within the household.

#### Entity Relationships (Business Rules)

- Is conducted by an INTERVIEWER.
- Is performed on a HOUSEHOLD.
- Is associated with a particular SUB PROJECT.
- May be responsible for soliciting fisher PERSON's participation in subsequent DIARY SURVEYS.
- May be associated with information on HOUSEHOLD BOAT OWNERSHIP.

#### Attributes (Indicative)

Sample Number	<u>Primary Key Element</u>
Multi-Family Code	<u>Primary Key Element</u>

Screen Interview ID	<u>Primary Key Element</u>
Response Report Code	
Interview Date	
Interviewer Code	<u>Foreign Key</u>
Sub Project ID	<u>Foreign Key</u>
Screen Survey ID	<u>Foreign Key</u>

### **Screen\_Survey Entity**

#### **Definition**

A screen survey is conducted over a specific time frame and consists of screen interviews.

#### **Entity Relationships (Business Rules)**

- Is associated with a SCREEN INTERVIEW.

#### **Attributes (Indicative)**

Screen Survey ID	<u>Primary Key Element</u>
Screen Survey Wave Start Date	
Screen Survey Wave End Date	
Survey Questionnaire Version Number	
Diary Period Start Date	
Diary Period End Date	
Comments	

### **Stratum Detail Entity**

#### **Definition**

A stratum is a geographic subdivision of the population, generally based on ABS geographic statistical areas.

#### **Entity Relationships (Business Rules)**

- Is associated with a SCREEN SURVEY.

#### **Attributes (Indicative)**

Stratum Detail ID	<u>Primary Key Element</u>
Stratum Code	
Stratum Description	
Stratum Population Number	
Screen Survey ID	<u>Foreign Key</u>

## **(f) Diary Survey Facet**

### **Diary\_Survey\_Event\_Type Entity**

#### **Definition**

If a fisher-person agrees, during the Screen Interview, to participate further in the survey process he/she may agree to record information regarding their fishing related

activities in a diary for a set period of time. The Diary Survey Event Type entity stores all the attributes that are common to any type of diary event. Diary events can either just involve expenditure or can involve a fishing activity or can involve both expenditure and fishing activity.

Once the fisher person has agreed to participate in a Diary Survey an interviewer periodically calls the Fisher to extract information from the Fisher's Diary regarding fishing related Diary Events, or if not diarised, from his/her memory of events. If the Fisher is unavailable when the interviewer calls a proxy can relate the event information over the phone on the Fisher's behalf. A Diary Event is uniquely characterised by:

- Event duration (start and end date)
- Type of activity (fishing activity/just expenditure/both)
- Region in which activity took place

A change in any one of these characteristics during an activity causes the activity to be registered as two or more separate events.

#### **Entity Relationships (Business Rules)**

- Is conducted by an INTERVIEWER.
- Is performed on a FISHER HOUSEHOLD PERSON.
- Is associated with a SCREEN INTERVIEW.
- Is associated with a particular SUB PROJECT.
- May be associated with an EXPENDITURE EVENT.
- May be associated with a FISHING EVENT

#### **Attributes (Indicative)**

Diary Survey Event Type ID	<u>Primary Key Element</u>
Event Number	<u>Primary Key Element</u>
Event Start Date	
Event End Date	
Personal Interview	(boolean)
Diarised	(boolean)
Event Type	
Region Code	
Interviewer Notes	
Sample Number	<u>Foreign Key Element</u>
MutiFamily Code	<u>Foreign Key Element</u>
Screen Interview ID	<u>Foreign Key Element</u>
Person ID	<u>Foreign Key Element</u>
Person Number	<u>Foreign Key Element</u>
Interviewer Code	<u>Foreign Key</u>
Sub Project ID	<u>Foreign Key</u>
Comment	

### ***Expenditure\_Event Entity***

#### **Definition**

A diary Event may incur expenditure. This entity records expenditure information.

#### **Entity Relationships (Business Rules)**

- Is associated with a DIARY SURVEY EVENT TYPE.

**Attributes (Indicative)**

Diary Survey Event Type ID  
 Event Number  
 Expenditure Event ID  
 Item Code  
 \$Value  
 %Cost To Fishing  
 Location Code

Primary Key ElementPrimary Key ElementPrimary Key Element

(at "home" or "away")

***Fishing\_Trip\_Type Entity*****Definition**

A diary Event can be classified as a specific type of fishing trip.

**Entity Relationships (Business Rules)**

- Is associated with a DIARY SURVEY EVENT TYPE.

**Attributes (Indicative)**

Fishing Trip Type ID  
 Trip Type Code  
 Days Away  
 % Rec Fishing

Primary Key Element***Fishing\_Event\_Detail Entity*****Definition**

A diary Event may involve physical fishing activity. This entity records information about that activity.

**Entity Relationships (Business Rules)**

- Is associated with a DIARY SURVEY EVENT TYPE.
- May involve using a particular FISHING METHOD along a particular SHORE TYPE
- May involve using a boat as a fishing PLATFORM.
- May involve TARGETING specific FISH SPECIES or TARGET GROUPS.
- May involve CATCHING and releasing fish.

**Attributes (Indicative)**

Diary Survey Event Type ID  
 Event Number  
 Fishing Event ID  
 Sub Region Code  
 Method Code  
 No Of Pots/Nets  
 No Of Hauls  
 No of Persons

Primary Key ElementPrimary Key ElementPrimary Key Element



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Platform Code	
Boat Code*	
Ocean Rocks*	Boolean
Ocean Beach*	Boolean
Breakwall_Dam Wall*	Boolean
Public Wharf_Jetty*	Boolean
Bridge*	Boolean
Other Shore*	Boolean
PrimaryTarget Code	
Secondary Target Code	
Start Time	
Finish Time	
Breaks	
Valid Event	
* Boat code may or may not be "filled" depending on whether a boat was used for fishing. An alternative to having Boat Detail in this entity is to create a separate entity for Boat Details.	

\*An alternative to having Shore Types listed as attributes in this entity is to create a separate entity with:

Diary Survey Event Type ID	<u>Primary Key Element</u>
Event Number	<u>Primary Key Element</u>
Fishing Event ID	<u>Primary Key Element</u>
Shore Type ID	<u>Primary Key Element</u>
Shore code	

### ***Catch\_Detail Entity***

#### **Definition**

A Fishing Event may involve catching and releasing fish. This entity records information about that activity.

#### **Entity Relationships (Business Rules)**

- Is associated with a FISHING EVENT.

#### **Attributes (Indicative)**

Diary Survey Event Type ID	<u>Primary Key Element</u>
Event Number	<u>Primary Key Element</u>
Fishing Event ID	<u>Primary Key Element</u>
Catch Detail ID	<u>Primary Key Element</u>
Species code	
No. Kept	
No. Released	

### **(g) Attitudinal Survey Facet**

#### ***Attitudinal\_Survey Entity***

#### **Definition**

A survey conducted with a diarist at the end of a diary survey.

**Entity Relationships (Business Rules)**

- Is associated with a FISHER\_HOUSEHOLD\_PERSON.
- Is conducted by an INTERVIEWER.
- Is associated with a SUB\_PROJECT

**Attributes (Indicative)**

Attitudinal Survey ID	<u>Primary Key</u>
Attitudinal Survey Start Date	
Attitudinal Survey End Date	
Attitudinal Survey Questionnaire Version No.	
Sub Project ID	<u>Foreign Key</u>

***Attitudinal\_Question Entity*****Definition**

Questions asked in the attitudinal survey. Questions may differ between States/Territories.

**Entity Relationships (Business Rules)**

- Is associated with an ATTITUDINAL SURVEY.

**Attributes (Indicative)**

Attitudinal Question ID	<u>Primary Key</u>
Question Number	
Question Description	
Attitudinal Survey ID	<u>Foreign Key</u>

***Attitudinal\_Answer Entity*****Definition**

Answers to questions asked in the attitudinal survey.

**Entity Relationships (Business Rules)**

- Is associated with an ATTITUDINAL SURVEY.
- Answers a particular ATTITUDINAL SURVEY QUESTION.
- Is solicited by an INTERVIEWER.
- Is associated with a particular FISHER HOUSEHOLD PERSON.

**Attributes (Indicative)**

Attitudinal Answer ID	<u>Primary Key</u>
Answer Code	
Comment	
Question Number	
Question ID	<u>Foreign Key</u>
Attitudinal Survey ID	<u>Foreign Key</u>
Interviewer ID	<u>Foreign Key</u>
Fisher Household Person ID	<u>Foreign Key</u>

## (h) Indigenous Facet

### *Indigenous Community Entity*

#### **Definition**

An indigenous community identifies itself as a specific aboriginal community.

#### **Entity Relationships (Business Rules)**

- Consists of PERSON(s) and HOUSEHOLD(s)
- May own or have access to a BOAT
- May own or have access to a VEHICLE
- Resides in a particular SLA

#### **Attributes (Indicative)**

Community ID	<u>Primary Key</u>
Community Name	
Community Location	
Community SLA	<u>Foreign Key</u>
Community Size	
Number of Dwellings	
Community Dynamics	
Community Participation	
Temporal Fishing Variation	
Spatial Fishing Variation	
Fishing Targets	
Fishing Methods	
Map Location	
Comments	

### *Vehicle Entity*

#### **Definition**

A vehicle is a mode of transport (e.g. car or truck) that may be used by a person or a community in pursuit of fishing related activities.

#### **Entity Relationships (Business Rules)**

- May be owned or accessed by a COMMUNITY
- May be owned by a PERSON

#### **Attributes (Indicative)**

Vehicle ID	<u>Primary Key</u>
Vehicle Number	
Community ID	<u>Foreign Key</u>
Vehicle Type	
Description	

## (i) On-site Survey Facet

### **Average Weight Entity**

#### **Definition**

A summary table produced by each State and Territory NRIFS participating organisation from in-house creel survey data. The main data item in the table is the average weights of particular species caught by fishers (aggregated over a specific time period and by a particular fishing method).

#### **Entity Relationships (Business Rules)**

Is a stand-alone lookup table that should link to other data entities by SLA.

#### **Attributes (Indicative)**

To be determined (some suggestions made in data dictionary in section 4)

## 4.0 Data Dictionary & Standardised Code Lists

The data dictionary that follows has been grouped by entity and contains a description of the attributes listed on previous pages. It also contains descriptions of the look-up tables that are required to standardise on the use of codes.

The dictionary contains the attribute name, a brief description of the attribute, a definition of its data type (e.g. text, number, boolean or date/time) and an indication of the attributes range or valid options. Further work is required on data ranges and valid options.

Attributes in **bold type** are related to the Indigenous Survey only. Attributes in *italics* are used for the Recreational Fishing Survey only.

### Project

Attribute	Description	Type (FORMAT)	Range or Valid Options
Project ID	A unique identifying code for national project.	Text	
Project Name	Title given to national project.	Text	
Project Description	A very brief description of the national project.	Text	
Project Coordinator	The full name of the person coordinating or managing the project.	Text	
Supporting File Reference No.	Reference to paper file pertaining to project.	Text	
Start date	The date on which the national project commenced.	Date/Time	
End date	The date on which the national project finished	Date/Time	

### Sub Project

Attribute	Description	Type (FORMAT)	Range or Valid Options
Sub Project ID	A unique identifying code for each project initiated by a State/Territory Agency. Must be unique both within the State and within a National database.	Perhaps need some combination of ABS State Identifier and number	
Sub Project Name	Title given to project.	Text	
Sub Project Description	A very brief description of the project.	Text	
Sub Project Manager	The full name of the person coordinating or managing the project.	Text	
Supporting File Reference No.	Reference to paper file pertaining to project.	Text	
Start date	The date on which the sub project commenced.	Date/Time	
End date	The date on which the sub project finished	Date/Time	
Survey Agency	A code used to indicate the agency sponsoring the sub project.	Text	See below
Survey State	State or Territory in which project is being conducted.	Text	
Project ID	A unique identifying code for national project.	Text	

## Survey Agency Codes

Attribute	Description	Type (FORMAT)	Range or Valid Options
Agency	Agency code	Text	See below
Agency Name	Name of agency	Text	
Description	A very brief description of the Agency.	Text	

## Agency Code List

TAFI                      Tasmania Aquaculture & Fisheries Institute  
 NTFISH                NT Fisheries  
 WAFISH                WA Fisheries

etc  
 RECFISH                Association of Recreational Fishers

## Interviewer

Attribute	Description	Type (FORMAT)	Range or Valid Options
Interviewer Code	A unique code given to a person who conducts survey interviews. Should be unique in both State and National databases.	Text	
Interviewer Name	Name	Text	
Interviewer Surname	Surname	Text	
Interviewer Salutation	Ms, Mrs, Dr etc	Text	
Interviewer Phone No.	Contact number for interviewer.	Text	
Interviewer Postal Address	Postal address of interviewer.	Text	
Interviewer Town	Town in which interviewer lives.	Text	
Interviewer Post Code	Post code of interviewer.	Number	
Interviewer State	State in which interviewer resides.	Text	
Sub Project ID	Unique identifier for Project	Text	

## Household

Attribute	Description	Type (FORMAT)	Range or Valid Options
Sample ID	A unique identifier given to a household. Should be unique in both State and National databases.	Text	Part of Sample ID could be ABS SLA Code.
MultiFamily Code	Part of the unique identifier. Refers to designated Family number in household (for more than one family households)	Number	
Household Phone No.	Telephone number of household	Text	
Community ID	Indigenous Community unique Identifier	Text	
Salutation	Mr, Dr, Ms etc	Text	
Surname	Household contact persons surname.	Text	
Postal Address	Street Number/Post Box Number and street for mail-out purposes.	Text	
Town	Suburb in which household is located, derived from telephone number.	Text	
Postcode	Post code in which household is located, derived from telephone number.	Text	
ABS SLA	ABS Statistical Local Area to which the household belongs, derived from telephone number.	Number??	

Fished Last 12 Months	Whether anyone in the household has fished in the last 12 months.	Text	Yes, No or Blank
Other Fishing Last 12 Months	Whether anyone in the household has crabbed, prawned etc in the last 12 months.	Text	Yes, No or Blank
Fishing Licence Last 12 Months	Whether anyone in the household has held a fishing licence in the last 12 months.	Text	Yes, No or Blank
Member Rec Fish/Dive Club	Whether anyone in the household is a member of a fishing or diving club.	Text	Yes, No or Blank
Fishing Likelihood Code	Whether anyone in the household expects to go fishing in the next period.	Number	See below.
Boat Ownership	Whether anyone in the household owns a boat.	Text	Yes, No or Blank
Total No Residents	Total number of "in scope" residents living in the household. *	Number	
Total No Males	Total number of males living in the household. *	Number	
Total No Females	Total number of females living in the household. *	Number	
Total No Fishers Intending	Total number of (intending) fishers living in the household. *	Number	
Total No Fishers Previous	Total number of (previously fished) fishers living in the household. *	Number	
Total No Boats	Total number of boats owned in the household. *	Number	
Total No ATSI	Total number of ATSI living in the household. *	Number	
Fishing Household Intending	Whether or not this household is a fishing household based on the intent to fish*	Boolean	See Fishing Likelihood Codes
Fishing Household Previous	Whether or not this household is a fishing household based on previous fishing activity*	Boolean	

\*These attributes could all be derived from the database by querying the Person characteristics for each household. These attributes have only been included to improve the ease of querying.

\* This could be derived from the database using a query to search for all households where Total No. Fishers = 0. This attribute has only been included to improve the ease of querying.

### Fishing Likelihood Code List

1	Very Likely	<input type="text"/>	Yes	Answers determine response recorded for Fishing Likelihood Intending
2	Quite Likely	<input type="text"/>		
3	Not Very Likely	<input type="text"/>		
4	Not at all likely	<input type="text"/>	No	
5	Unsure	<input type="text"/>		

### Boat Ownership

Attribute	Description	Type (FORMAT)	Range or Valid Options
Boat ID	A unique identifier given to a boat. Should be unique in both State and National databases.	Text	
Boat Number	The number ascribed to the boat during the screening interview.	Number	
Community ID	Indigenous community unique identifier.	Text	
Wholly Owned	An attribute to establish if the boat is owned predominantly by someone in the household. Used to obviate double-counting in survey.	Boolean	
Length	Length of boat	Number	
Length Units	Units of length measurement	Text	
Power Type Code	Method of propulsion selected from controlled list.		1=Power - Jet Ski 2=Power - all other

			3=Sail 4=Row/paddle
% Used For Fishing	Percentage of time the boat is used for fishing	Number	Either '0' or a number equal to or below 100.
\$Boat Value	"private sale value" of the boat.	Number	
Boat Location	Where boat has mainly been kept during last 12 months selected from a controlled list.		1=Trailer 2=Mooring/marina 3=Car topper 4=Shore-based
Echo Sounder	Whether the boat is equipped with an echo sounder	Boolean	
GPS	Whether the boat is equipped with a global positioning system.	Boolean	
Sample Number	Compound unique Id of Household	Text	
Multifamily Code	Compound unique Id of Household	Number	
Screen Interview ID	Compound unique Id of Screen Interview	Number	

### Vehicle Ownership (Indigenous Survey only)

Attribute	Description	Type (FORMAT)	Range or Valid Options
Vehicle ID	A unique identifier given to a vehicle. Should be unique in both State and National databases.	Text	
Vehicle Number	The number ascribed to the vehicle during the screening interview.	Number	
Community ID	Indigenous community unique identifier	Text	
Vehicle_type	2WD or 4WD	Text	
Description	Any other comments on vehicle	Text	
Sample Number	Compound unique Id of Household	Text	
Multifamily Code	Compound unique Id of Household	Number	
Screen Interview ID	Compound unique Id of Screen Interview	Number	

### Person

Attribute	Description	Type (FORMAT)	Range or Valid Options
Person ID	A unique identifier for a person about whom information is being recorded. Should be unique in both State and National databases.	Text	
Person Number	The number ascribed to the Person during the screening interview.	Number	
Community ID	Indigenous Community unique identifier	Text	
Person Sex	Sex of person	Text	M or F
Person Age	Age of person		
Person Final Response Code	Code indicating level at which the person finished the diary survey	Text	Codes to be defined similar for response codes.
In Diary Response Valid To	Final Date at which the person remained in the diary survey	Date	Defaults to end of survey unless specified otherwise
Stratum Code	Strata to which the person belongs.	Number	Codes yet to be specified.
ATSI	Whether the person is of ATSI decent	Boolean	
Own Sea Country	Does Indigenous person have own sea country	Boolean	
Live Sea Country	Does Indigenous person live in own sea country	Boolean	
Household ID	Unique Id of household	Text	
Sample Number	Compound unique Id of Screen Interview	Text	
Multifamily Code	Compound unique Id of Screen Interview	Number	



## Fisher\_Household\_Person\_Details

Attribute	Description	Type (FORMAT)	Range or Valid Options
Person ID	A unique identifier for a person about whom information is being recorded, Should be unique in both State and National databases.	Text	
Person Number	The number ascribed to the Person during the screening interview.	Number	
Fisher Household Details ID	A unique identifier for a fisher person about whom fishing information is being recorded.	Number	
Personal Interview	Whether the interviewer is obtaining information from the person or someone on their behalf (proxy).	Boolean	
Job Category	<i>The code for the main category of work that the person performs</i>	Number	See job category codes
Work Type	<i>The code for the main type of work that the person performs</i>	Number	See work type codes
Education	<i>The code for the highest level of education attained by the person</i>	Number	See Education codes
Fished Last 12 Months	Whether the person has fished in the last 12 months in home state or territory	Boolean	
Other Types Of Fishing	Whether the person has undertaken other types of fishing such as crabbing, prawning, spearfishing, collecting oyster or aquarium fish	Boolean	
Fished In Other State	Whether the person has fished in the last 12 months out of home state or territory	Boolean	
Hold Fishing Licence	<i>Whether the person has held a fishing Licence in the last 12 months in any state or territory</i>	Boolean	
Fishing Likelihood	Likelihood of fishing within next period	Number	See Previous Fishing Likelihood Codes
Member Fishing Club	<i>Whether the person is currently a member of a fishing, diving club</i>	Boolean	
Language	<i>Whether the person speaks a language other than English.</i>	Boolean	
Main Language Code	<i>The main language, other than English. Spoken by the person.</i>	Boolean	See Main Language Code List

### Job Category Code List

- 1 Full-time work in a job or business
- 2 Part-time or casual work (in a job or business)
- 3 Full-time Student
- 4 Looking For Work
- 5 Retired or Aged Pensioner
- 6 Other Pensioner
- 7 Home Duties
- 8 Other (Specify) \*\*Will need to generate a table of recorded alternatives

### Work Type Code List

- 1 Managers
- 2 Professionals
- 3 Technicians and Associate Professionals
- 4 Tradespersons
- 5 Production, plant and transport operators
- 6 Clerical Sales & Service advanced/intermediate
- 7 Clerical Sales & Service elementary
- 8 Labourers, process workers, cleaners
- 9 Other (Specify) \*\*Will need to generate a table of recorded alternatives

### Education Code List

1	< Junior High (or <15yrs)
2	Gained Junior (or >14yrs)
3	Gained HSC/matriculation
4	Trade /etc qualification
5	Degree/diploma

### Main Language Code List

2	Italian
3	Greek
4	Cantonese
5	Mandarin
6	Vietnamese
7	Arabic
8	German

..  
..  
(list incomplete)

### Fish Club Membership (Recreational Survey only)

Attribute	Description	Type (FORMAT)	Range or Valid Options
<i>Fish Club Membership ID</i>	<i>A unique identifier for fishing club membership.</i>	<i>Text</i>	
<i>Club Name</i>	<i>Name of fishing club</i>	<i>Text</i>	
<i>Club State Code</i>	<i>Code for state or territory of membership</i>	<i>Number</i>	<i>See State Codes suggestions below.</i>
<i>Person ID</i>	<i>A unique identifier for a person about whom information is being recorded.</i>	<i>Text</i>	
<i>Person Number</i>	<i>The number ascribed to the Person during the screening interview.</i>	<i>Number</i>	
<i>Fisher Household Person Details ID</i>	<i>A unique identifier for a fisher person about whom fishing information is being recorded.</i>	<i>Text</i>	

### Club State Code List ??? {not given in survey but need to assign}

1	Tasmania
2	Queensland
3	Northern Territory
4	Western Australia
5	South Australia
6	New South Wales
7	ACT
8	Victoria

### Fish Licence (Recreational Survey only)

Attribute	Description	Type (FORMAT)	Range or Valid Options
<i>Fish Licence ID</i>	<i>A unique identifier for fishing Licence details</i>	<i>Text</i>	
<i>Licence Type</i>	<i>Type of Licence</i>	<i>Text</i>	<i>See Licence list below</i>
<i>Licence Code</i>	<i>Code for State in which Licence is held.</i>	<i>Number</i>	<i>See Licence Codes</i>
<i>Person ID</i>	<i>A unique identifier for a person about whom information is being recorded.</i>	<i>Text</i>	
<i>Person Number</i>	<i>The number ascribed to the Person during the screening interview.</i>	<i>Number</i>	
<i>Fisher Household Person Details ID</i>	<i>A unique identifier for a fisher person about whom fishing information is being recorded.</i>	<i>Text</i>	

### ***(Fishing) Licence Type List***

NSW Inland  
 VIC Inland/Lob/Ab  
 WA Abalone  
 WA Rock Lobster  
 WA Net  
 WA Marron  
 WA SW Inland  
 SA Rock Lobster  
 SA Net  
 TAS Inland  
 TAS Sea Fishing  
 Other (Specify)

### ***Licence Code***

*{numeric code to be defined}*

### **Screen Interview**

Attribute	Description	Type (FORMAT)	Range or Valid Options
Sample Number	A unique identifier component for Household	Number	
MultiFamily Code	A unique identifier component for household	Number	
Screen Interview ID	A unique identifier component for Screen Interview.		
Response Report Code	Code indicating outcome of the screen interview	Number	See Response Code below.
Interview Date	Start date of screen interview	Date/Time	
Interviewer Code	Code identifying the interviewer	Text	
Sub Project ID	Unique identifier for the sub project	Text	
Screen Survey ID	Unique identifier for the screen survey	Text	

### ***Response Report Code List***

- |   |                     |
|---|---------------------|
| 1 | Fully Responding    |
| 2 | Full Refusal        |
| 3 | Part Refusal        |
| 4 | Full non contact    |
| 5 | Part non contact    |
| 6 | Number disconnected |
| 7 | Business Number     |
| 8 | Other (specify)     |

### **Screen Survey**

Attribute	Description	Type (FORMAT)	Range or Valid Options
Screen Survey ID	A unique identifier for a Screen Survey	Number	
Screen Survey Wave Start Date	Start date of survey wave.	Date/Time	
Screen Survey Wave End Date	End date of survey wave.	Date/Time	
Screen Survey Questionnaire Version Number	Identifying information regarding the version of the questionnaire used for the Screen Survey	Number	
Diary Period Start Date	Start of diary survey period associated with Screen Surveys.	Date/Time	
Diary Period End Date	End of diary survey period associated with Screen Surveys.	Date/Time	
Comments	Notes	Text	

## Stratum Detail

Attribute	Description	Type (FORMAT)	Range or Valid Options
Stratum Detail ID	A unique identifier for a Stratum.	Number	
Stratum Code	Code given to a particular stratum.	Number	
Stratum Description	Description of the geographic extents of the stratum.	Text	
Stratum Population Number	Total recorded population (from ABS data) for the stratum.	Number	
Screen Survey ID	Unique identifier for a screen survey.	Number	

## Diary Survey Event Type

Attribute	Description	Type (FORMAT)	Range or Valid Options
Diary Survey Event Type ID	A unique identifier given to the diary event details. Should be unique in State and nationally.	Text	
Event Number	Number given to diary event.	Number	
Event Start Date	Date event begins.	Date/time	
Event End Date	Date event ends.	Date/time	
Personal Interview	Whether the interviewer is obtaining information from the person or someone on their behalf.	Boolean	
Diarised	Was the event diarised.	Boolean	
Event Type	The type of event.	Text	Fishing Activity, Expenditure, Both,
Region Code	Code given to geographic region.	Number	Region Code see below.
Interviewer Notes	Comments	Text	
Sample Number	A unique number given to the screen interview details.	Number	
Multifamily Code	Part of the unique number for the screen interview to identify if there is more than one family living in the household.	Number	
Screen Interview ID	A unique identifier for the screen interview.	Text	
Person ID	A unique identifier for a person about whom information is being recorded.	Text	
Person Number	The number ascribed to the Person during the screening interview.	Number	
Interviewer Code	Code identifying the interviewer	Text	
Sub Project ID	Unique identifier for the sub project	Text	

## Region Codes \*(lookup table)

Attribute	Description	Type (FORMAT)	Range or Valid Options
Region	Region code	Number	See below
Region Name	Name of region	Text	
Description	A very brief description of the region.	Text	

## Region Code List

XXX	XXXXXX
XXX	XXXXXX
XXX	XXXXXX

## ABS SLA Codes \*(lookup table)

Attribute	Description	Type (FORMAT)	Range or Valid Options
ABS SLA Code	SLA code	Number ???	See below
SLA Name	Name of SLA	Text	
SLA Description	Description of SLA boundaries	Text	

## SLA Code List

XXX                XXXXXX  
 XXX                XXXXXX

## SLA\_Region\_Join \*(lookup table)

Attribute	Description	Type (FORMAT)	Range or Valid Options
SLA_Region ID	Unique identifier for SLA/region code associative entity (or join table).	Number	
Region Code	SLA code	Number	
SLA Code	Name of SLA	Number	

## Expenditure Event

Attribute	Description	Type (FORMAT)	Range or Valid Options
Diary Survey Event Type ID	A unique identifier diary event detail	Text	
Event Number	Number given to diary event.	Number	
Expenditure Event ID	A unique identifier given to the diary event details. Should be unique in State and nationally.	Text	
Item Code	Item on which money has been spent.	Number	Items - see list below
\$Value	Dollar value of item	Number	
%Cost to Fishing	Percentage of money spent on item attributable to fishing.	Number	
Location Code	Where money was spent.	Text	Home or Away

## Item List

- 1                Tackle-C/M
- 2                Tackle-Maint
- 3                Tackle-Term
- 4                Bait/berley
- 5                Ice
- 6                Books/mags
- 7                Boat-capital
- 8                Boat-maint
- 9                Boat-ins/reg
- 10              Boat-moor
- 11              Boat-fuel/oil
- 12              Boat-hire
- 13              Boat-chart
- 14              Trlr-capital
- 15              Trlr-maint
- 16              Trlr-ins/reg
- 17              Car-capital
- 18              Car-hire/ch
- 19              Car-KMS
- 20              Other travel
- 21              Accom.
- 22              Fees-Licence
- 23              Fees-club
- 24              Fees-moor

## Fishing Trip Type

Attribute	Description	Type (FORMAT)	Range or Valid Options
Fishing Trip Type ID	A unique identifier for fishing trip type details.	Number	
Trip Type Code	Code given to fishing trip type	Text	1=Overnight 2=Day 3=Other
Days Away	Number of days away on trip	Number	
%Rec Fishing	% of trip attributable to recreational fishing	Number	

## Fishing Event Detail

Attribute	Description	Type (FORMAT)	Range or Valid Options
Diary Survey Event Type ID	A unique identifier for fishing event detail	Text	
Event Number	Number given to diary event.	Number	
Fishing Event ID	A unique identifier given to the diary event details. Should be unique in State and nationally.	Text	
Sub Region Code	A code to characterise the type of geographic location.	Number	See below for codes
Method Code	A code to identify the type of fishing method.	Number	See below for codes
No Of Pots/Nets*	The number of pots/nets used in association with specific fishing methods.	Number	
No of Hauls*	The number of hauls made in association with specific fishing methods.	Number	
No of Persons*	No of persons involved in conducting a specific type of fishing method.	Number	
Platform Code	Code identifying platform from which fishing activity was conducted.	Number	See below for codes
Boat Code	Code for type of boat	Boolean	
Ocean Rocks	Fished off rocks	Boolean	
Ocean Beach	Fished off beach	Boolean	
Breakwall- Damwall	Fished off Break wall or Dam wall	Boolean	
Public Wharf-Jetty	Fished off Public wharf or jetty	Boolean	
Bridge	Fished off bridge	Boolean	
Other Shore	Fished off other type shore	Boolean	
Primary Target Code	Species or group sought as primary target.	Text	See below for codes
Secondary Target Code	Species or group sought as primary target.	Text	
Start Time	Start time in 24 hour clock	Date/Time	
Finish Time	Finish time in 24 hour clock	Date/Time	
Breaks	Breaks during fishing activity (in hrs & mins)	Number	
Valid Event	Whether the event was valid	Boolean	Defaults to yes

\*These attributes may or may not be filled, depending on the fishing method used. These attributes have only been included within this table to improve the ease of querying. In a fully normalised data model they would be placed in separate tables.

## Sub Region Code List

- 1 Offshore (>5km)
- 2 Inshore (<5km)
- 3 River/est/bay (marine)
- 4 River/stream (fresh)
- 5 Lake/dam (fresh) public
- 6 Lake/dam (fresh) private
- 7 Other (specify)

### Method Code List

1	Lines - bait
2	Lines - lure/jig/fly
3	Lines - both
4	Lines - set (passive)
5	Pot/trap - pass
6	Pot/trap - act
7	Net - cast
8	Net - drag/seine
9	Net - gill/set
10	Net - scoop/push
11	Spearfishing - diving
12	Other spearfishing - surface
13	Other diving - scuba/surf/air
14	Other diving - snorkel
15	Other diving - both
16	Hook/pump/spade
17	Other hand collecting
18	Other (specify)

### Platform Code List

1	Boat
2	Shore
3	Both (boat and shore)

### Species Code \*(lookup table)

Attribute	Description	Type (FORMAT)	Range or Valid Options
Species Code	Code given to species or group within the survey	Text	
Common Name	Common name given to species.	Text	
Species Name	Species name (scientific)	Text	
CAAB Code	CAAB code given to species	Text	

\*Will need to incorporate Target Group Code List from survey form so that there is only one code table.

### Species Code List

2	Barracouta
6	Bream-black/sth
10	Bream-other
11	Bream-unspec
237	Cod
36	Flathead
37	Flounder/sole
41	Garfish-unspec
47	Gurnard
55	Leatherjacket
.	
.	
217	Abalone-unspec*
w	surface pelagic*
x	bottom/demers*
y	all other*
z	No 2nd Target*
999	Nil Catch Release *

As per event sheet in  
Appendix 1

### Boat Type Code List

1	Private
2	Hire
3	Charter

## Catch Detail

Attribute	Description	Type (FORMAT)	Range or Valid Options
Diary Survey Event Type ID	A unique identifier for expenditure details.	Text	
Event Number	Number given to diary event.	Number	
Fishing Event ID	A unique identifier given to the fishing event details. Should be unique in State and nationally.	Text	
Catch ID	A unique identifier for a catch effort record.	Number	
Species Code	A code identifying fish species.	Number	See previous species code table.
No Kept	Number of species caught	Number	
No Released	Number of species released	Number	

## Attitudinal Survey

Attribute	Description	Type (FORMAT)	Range or Valid Options
Attitudinal Survey ID	A unique identifier for the attitudinal survey.	Number	
Attitudinal Survey Start Date	Start of survey wave.	Date/Time	
Attitudinal Survey End Date	End of survey wave.	Date/Time	
Attitudinal Survey Questionnaire Version No.	Questionnaire version number.	Number	
Sub Project ID	Unique identifier for sub-project.	Number	

## Attitudinal Question

Attribute	Description	Type (FORMAT)	Range or Valid Options
Attitudinal Question ID	A unique identifier for the attitudinal survey question.	Number	
Question Number	Number of question on survey proforma.	Number	
Question Description	Text of question.	Text	
Attitudinal Survey ID	Unique identifier for the Attitudinal Survey.	Number	

## Attitudinal Answer

Attribute	Description	Type (FORMAT)	Range or Valid Options
Attitudinal Answer ID	A unique identifier for an attitudinal survey answer.	Number	
Answer Code	Code given to response.	Number	See Code Lists
Comment	Textual description of response.	Text	
Question Number	Question Number that response relates to.	Number	
Question ID	A unique identifier for the Question	Number	
Attitudinal Survey ID	A unique identifier for the attitudinal survey.	Number	
Interviewer ID	A unique identifier for the interviewer.	Number	
Fisher Household Person ID	A unique identifier for the fisher household person.	Number	



## Answer Code List

{to be defined}

## Indigenous Community Entity

Attribute	Description	Type (FORMAT)	Range or Valid Options
Community id	A unique Identifier given to a community. Should be unique in both State and National databases.	Text	
Community name	Name of community	Text	
Community location	Location description	Text	
Community SLA	ABS locator (derived from map)	Text	
Community size	Approx size of community	number	
Number dwellings	Number of dwellings in community area	number	
Community dynamics	Movement amongst communities or between regions	Text	
Community participation	Qualitative assessment of community's inclination to fish	Text	
Temporal fishing variation	Description of how fishing may vary over time	Text	
Spatial fishing variation	Description of how fishing may vary over space	Text	
Fishing targets	Qualitative description of likely fishing targets	Text	
Fishing methods	Qualitative description of likely fishing methods	Text	
Map location	Location of hardcopy community map	Text	
Comments	Any additional information on community	Text	

## Average Weight \*(On-site Survey summary lookup table) ???

Attribute	Description	Type (FORMAT)	Range or Valid Options
Region Code	Code given for geographic location	Number	See previous region code list
Month	Temporal period for aggregate data		
Fishing Method	Type of fishing method for which data is being reported		
Species Code	Type of species data relates to		
Average Weight	Average weight of the species being reported		

*\*This table requires more thought as there are a number of ways to record, and report on this type of data and a single summary table may not be the most efficient way to store and subsequently retrieve the data. This is because there are potentially a number of nested many to many relationships in the summary data (e.g. A fishing method may have information on many species associated with it).*

## Recommendation

1. That the NRIFS Survey Development Working Group (SDWG) finalise all standard code lists and tables before commencing NRIFS.

## 5.0 Data Entry, Extraction & Reporting Requirements

The Survey Development Working Group requires that:

- transcription of data from the Survey Instruments to a digital storage medium should be as efficient and as accurate as possible,
- that subsequent management and extraction of the digital data is as simple as is possible, and
- data collected and digitally recorded regionally be consistent and readily aggregated at the national level.

To achieve these goals it is suggested that a specific application be developed for the National Survey that can be used by all Survey participants to manage their survey data. It should be based on (or encompass) a relational database management system (RDBMS). Some general considerations in developing, or acquiring, such an application should include an assessment of:

- the support base for any proprietary software components (i.e. company commitment to future software releases, bug fixing and product enhancements),
- the ease with which the application can be extended, (i.e. the level of expertise required and/or available to modify, or enhance the functionality, or operation of the application and the likely cost of doing so),
- the availability of off-the-shelf products that can provide the required functionality,
- the application's ability to run on a number of platforms and operating systems (or at least those platforms currently supported by regional data collectors),
- security features,
- cost of development, and
- robustness of the application,

An indication of the systems being used by the various NRIFS participating agencies appears below in Table 1.

**Table 1 - RDBMS In Current Use Within Participating Agencies**

State Agency	Software	Current Version	Migrating To
Queensland	Open Ingres Ms-Access	V2.0 V7.0	
Northern Territory	Oracle MS-Access	V7.3.4 V7.0	V8.05
South Australia	Oracle MS-Access	V7.0.4 V7.0	V8.03
Victoria	MS-Access	V2.0	V7.0
Western Australia	MS-Access	V7.0	
Tasmania	Oracle, MS-Access	V7.3.4, V7.0	V8.05
NSW	MS-Access	V7.0	

Sections 5.1 to 5.4, which follow discuss specific requirements in relation to data entry, data query (and extraction), data reporting and security for the proposed application.

## 5.1 Data Entry

All survey data will be recorded on pre-printed survey forms (see section 2.0 and Appendix 1). The forms have been designed to facilitate and simplify the recording of survey data. Transcription of the data from "form" to "digital data repository" would be most efficient if the digital data entry screens closely resembled the forms, and/or the logical sequencing of analogue data recording.

The Survey forms make extensive use of codes and pre-defined lists to record information obtained from a respondent. Any application developed for the Survey should make these codes & lists available at the time of data entry, as menu options or pick lists, as well as allowing for direct entry of the code. The code should then be linked internally to a look-up table.

Each survey response has a range of valid options (e.g. a number from 1 to 9 or a text field with a maximum number of 10 characters, etc) so the application should check for valid options at the time of data entry. Invalid entries should not be allowed and the data entry person should be notified (perhaps audibly) that their entry has been rejected.

In many cases, lists defined by the Survey Working Group are open ended, i.e. if the option being sought is not on the list the option can be entered under the category "Other". In these cases the application will need to provide a mechanism for the user to enter the new option and this option will then be automatically added to the available list of options (against the original option of "Other"). When data entry is complete for a particular Regional Survey some homogenisation of terminology will be required at the national level and for subsequent Surveys the agreed list of options may be extended to include some new options in the pick list. Therefore, the application should be able to be administered so that the pick lists can be readily edited locally (by controlled access), once national agreement has been reached regarding the new standard pick lists.

In some cases it is probably useful if certain information remains visible in a computer window, whilst other data is being entered in a separate on-screen window. This will require that the application be capable of providing multi window views. An example of where this would be necessary is depicted below in Figure 4. It should be possible to enter data from Screen Survey's, conducted by a particular interviewer, without having to enter the interviewer's details every time.

SCREEN INTERVIEW - Household Data

Interviewer Code: 21 Paul Smith, TAFL, Tasmania

Fished Last 12 months: Y

Other Fishing Last 12 months: Y

Fish Club/Dive Clubs: N

Fished Last 12 months:

Boat ownership: Y

Fish Licences: Y

Fish Next 12 months: Y

Boat ownership: Y

Record 1 of 10

PERSON DETAILS

BOAT DETAILS

Figure 4 - Sample Screen Mock-up For Initial Household Data

The Indigenous Survey component shares the data model with the Recreational Fishing Survey component. However, the data entry screens for these two components should be individually customised and distinguishable. It should be possible from the opening menu screens to select data entry for either indigenous or recreational fishing surveys. The indigenous data entry screens should show only those data elements that are captured as part of the indigenous survey. The data dictionary presented earlier in this document indicated which data elements are related to the indigenous survey only and those that are common to both the recreational and the indigenous survey. These data elements should be used to construct the indigenous data entry screens.

## 5.2 Data Query & Extraction

Querying the application database should be possible either by combining attributes and SQL operators, by using a simple query builder interface, by executing standard, pre-configured queries, or for advanced users by issuing an SQL command statement. It should be possible to add to the list of frequently used stored queries. If using the query builder interface, attribute options should appear in pick lists.

Consideration should also be given to embedding spatial query functionality in the application, if the cost of doing so is not prohibitive. By embedding spatial query functionality the user should be able, as part of the querying process, to select a geographic region (or regions) from a map to define the spatial extents for the query. Selecting regions from the map would be performed by using the mouse to draw a bounding box or by point and click in specific region polygons.

A range of "user-defined", on the fly, queries should be possible using the application. A few example queries have been provided below that give an idea of the scope of required database functionality:

- List all Projects (or Interviewers, or Screen Interviews, or Households, or Persons, or Diary Surveys, or Attitudinal Surveys etc) showing all (or specifically nominated) associated attributes,
- For a specific Household show all Boat Ownership records,
- For a specific Interviewer show all Screen Interviews,
- List all Contact Details for Fishers,
- How many Households have more than one Boat,
- In how many Fishing Events were pelagic fish species targeted,
- How many Morwong were caught during the Diary Survey Period for all Fishers involved in a Diary Survey,
- Of all Households in which there were Fishers, how many of the Fishers were female,
- Of all Households in which there were Fishers, how many were between 30 and 40 years of age,
- For a specific region how many fishing households are there,
- List number of fishing events undertaken between period x and y in region z,
- List total expenditure by region

Having queried the database it should then be possible to export the data (which has been retrieved from the database and which is viewable on the screen), as a file in a number of standard formats. The majority of NRIFS participating agencies use MS-Excel for data analysis, therefore the ability to export in an Excel compatible format should be a standard inclusion. It should also be possible to export the entire database (in a specific format - yet to be defined), so that it can be sent to the National Survey database custodian for inclusion in the national database.

### 5.3 Data Reporting

The application should be capable of producing a range of standard reports of summary statistics from the database. Ideally, these summary statistics could be produced from the raw data or from data which has had a population expansion factor applied to it. Appropriate expansion factors would need to be included in the database for this to be possible and the data model has included attributes to facilitate inclusion of this type of information. Typical tabular summary statistics would include (but would not be limited to):

#### From Screening Survey

- Number of Fishers/non Fishers by home region
- Number of Fishers/non Fishers by age group, sex, indigenous
- Indigenous communities by region
- Club membership numbers by home region
- Boat ownership numbers by recreational fishing household and non-fishing household
- Boat ownership by indigenous community
- Vehicle ownership by indigenous community
- Number of boats by proportion of time used for fishing and by boat type (e.g. group proportions into "Not used for rec fishing", '<50%', '50% or more', '100%')

#### From Diary Survey

- (Effort) - Days and hours by month by home region by fishing region
- (Effort) - Days and hours by fishing method by fishing region (for indigenous and non indigenous fishers)
- (Catch) - Harvest and release (combined spp) by target fishery by fishing region
- (Catch) - Harvest and release by species and by method by region
- (Catch Rate) - catch rate by month by method by fishing region
- (Catch Rate) - catch rate by method by target fishery
- Expenditure & investment reports

The user should also be able to easily construct customised data summary reports from the database by dragging and dropping database components onto a layout page.

### 5.4 Data Security

Access to data within the proposed application should be provided using different levels of security. For example, a Database Administrator might be given full access privileges, including an ability to update and modify data and modify the application itself. Privileges granted at the next level might allow a general user to view and edit data and the third level of privileges might allow the user to view data but not allow them to make change or updates (read only). A database administrator should have the ability to manage and set user privileges within the application environment.

#### Recommendation

1. That an RDBMS based application be developed for NRIFS that, as a minimum, meets the requirements outlined in section 5 above. In practice, a more detailed requirements analysis and specification should be developed prior to commissioning any development activity.

## 6.0 Data Custodianship

Recently, the Australia and New Zealand Land Information Council (ANZLIC) published "Data Custodianship Guidelines" for those organisations that it expects to participate in the national Spatial Data Infrastructure (SDI) initiative (ANZLIC, 1998). These guidelines are nonetheless useful for any organisation, or consortium, that needs to manage data (be it spatial or non-spatial).

According to the Commonwealth Spatial Data Committee (CSDC, 1998), custodianship refers to the day-to-day operational management of datasets. The Committee states further that a custodian has various rights and responsibilities in relation to that data. Although CSDC only has jurisdiction within the Commonwealth it works very closely with ANZLIC, (which has jurisdiction across States, Territories and the Commonwealth), to support the development and promotion of data standards and guides, nationally. Guidelines promulgated by ANZLIC and the CSDC will therefore be used as the basis for all recommendations in this Strategy.

A summary of the custodial issues that need to be addressed by those agencies participating in the NRIFS are as follows.

### 6.1 Local vs National Dataset Custodianship

Within the NRIFS it was generally agreed, during the first workshop, that data collected in support of the national survey, by State and Territory agencies, would remain with those agencies. A copy of the data, however, would be submitted to a national custodian who would manage the composite national survey dataset. Custodianship will therefore need to be exercised at two levels.

#### (a) Local Custodianship

It is reasonable to expect that the authoritative source for the highest resolution data (i.e. that related to individual States or Territories) will be the State or Territory data collecting agency. In acting as the authoritative source, the State or Territory custodian agency becomes the preferred supplier of this information. "This lessens confusion for users and overcomes the accuracy and reliability problems that may be encountered when supposedly identical information is held separately by several agencies, where several agencies contribute to a common database, or where information provided by different agencies is combined" (ANZLIC, 1998).

At this level the custodian is accountable for the integrity and longevity of the data in its care and is also responsible for making public, information about the data (metadata). It is recommended that the Marine and Coastal Data Directory or "Blue Pages" metadata directory be used to register the NRIFS metadata (Blue Pages is currently the system associated with the Australian Coastal Atlas). In registering the local NRIFS datasets, reference should be made to the fact that the dataset is a component of the NRIFS (preferably in the metadata abstract). Agreement should be reached by participating agencies as to the terminology that will be used to register the datasets so that all component datasets of the national survey can be picked up easily during distributed searches of the Blue Pages directory.

Under the framework of this data management strategy, the State or Territory custodian is also responsible for collecting the data according to the standards agreed in the national data model. It is responsible for forwarding data to the national dataset custodian, within a specified time period and in a given format with appropriate accompanying documentation. The local custodian organisation should appoint or nominate a data manager to oversee its custodial responsibilities. This person should then form the prime contact for matters to do with the data between the organisation, data users and the national custodian.

It is ultimately up to each local custodian to determine how best to provide public access to the NRIFS survey data (i.e. via mail-out of hardcopy report or digital report on disk, FTP, file attachment to an email, or web access). The method of delivery will depend very much on the

existing infrastructure within the local organisation and the resources available to service data requests. It should be agreed, however, by all local custodians that survey data, in a suitably aggregated form, that does not breach any privacy or confidentiality laws, be made publicly available. National agreement should be reached on the length of any exclusive use period that researchers within custodial agencies need in order to publish from the collected data, before the data is made public.

### **(b) National Custodianship**

The national dataset custodian has similar responsibilities to the local custodian, but with a few variations.

The national custodian should coordinate the ongoing development and implementation of standards associated with the NRIFS dataset (e.g. data model), through liaison with State and Territory agencies.

The national custodian should also provide feedback to State and Territory data contributors regarding the quality and completeness of data that is submitted to it for incorporation in the national dataset and ensure the timeliness of State/Territory data submissions.

The national custodian will hold the data in trust on behalf of the State and Territory agencies and as such will re-direct data enquiries, that fall within a specific State or Territory's geographic domain, to that State or Territory's NRIFS data manager. In general, without prior approval, the national custodian will not release high-resolution data.

The national custodian will acquire data from State and Territory data collecting agencies and merge the data into a uniform dataset in a multi-user, relational database environment (e.g. ORACLE, SYBASE, INFORMIX, SQL-SERVER ). The national custodian will also nominate a database manager to administer the national NRIFS database who will also liaise with State/Territory data managers. Issues associated with managing the importation of local datasets into the national database will be discussed in section 7.

The national custodian should provide a public access point to a number of standard NRIFS data products, or summary statistics, derived from the NRIFS national dataset. The specification for such products needs to be determined by the NRIFS Working Group. In specifying these products consideration should also be given to the type of information that should be provided with the data to guard against data misinterpretation or misuse (e.g. explanations of statistical methods used, glossary of terms and appropriate disclaimers). These national data products should be available via the web. Consideration should be given to the level of effort that would be involved in creating dynamic links between the web and an underlying database to create the products on the fly vs a web space with pre-configured products on static web pages. These issues should be determined before a national custodian is appointed so that the agency taking responsibility for national custodianship is quite clear about the level of resources it will require to perform the national custodial role.

### **Recommendation**

1. **It is recommended that the Marine and Coastal Data Directory or "Blue Pages" metadata directory be used to register the NRIFS metadata (Blue Pages is currently the system associated with the Australian Coastal Atlas).**
2. **The NRIFS SDWG approach an agency to assume the role of national custodian\*.**
3. **That agencies agree that there are two levels of custodianship within the NRIFS framework. Each participating agency should then agree to the responsibilities outlined for these levels of custodianship before commencing participation in NRIFS.**

4. **The NRIFS SDWG develops guidelines on data "exclusive use periods" to protect agency research publication interests.**
5. **The NRIFS SDWG develops specifications or guidelines for standard NRIFS data products that will be made available by the national custodian.**
6. **Each agency should submit a one-page outline, to the NRIFS SDWG, prior to NRIFS commencement, regarding the steps that it will take to ensure that its responsibilities can be met.**

\* The Bureau of Resource Science (BRS) has indicated in principle willingness to assume the role of national custodian including ongoing maintenance of the national dataset in an oracle environment.



## 7.0 Data Accessibility & Data Exchange

Access to local and national NRIFS datasets and the exchange of data between local agencies and the national data custodian are issues that require some guidelines and inter agency agreements.

### 7.1 Confidentiality Issues

Data collected during the surveys contain personal information about householders that should not be released, as collected, into the public arena. Data provided should therefore be treated as confidential (in both hardcopy and digital form). This requires that each local collecting agency should provide moderated access to hardcopy and digital data repositories. Password security should be instituted for access to NRIFS databases. When transferring data between local agencies and the national custodian the data should be treated as if it is confidential and reasonable precautions taken to ensure that data is secure during data transactions.

Although the "raw" data collected during the NRIFS contains information that should not be generally released, it is anticipated that aggregated forms of the data will be released for public consumption, policy and decision making. The Working Group must, therefore, determine standards that will be applied for aggregating data for public release. It might be desirable to apply different standards for different types of 'data use' or a single standard may suffice. Care needs to be taken when setting standards to make sure that the method of aggregation used will not inadvertently lead to breach of confidentiality. For example, aggregating by geographic region, may in some exceptional circumstances (where sample sizes are particularly small), lead to geographic aggregations that include only one household. Information released should not identify individual households.

### 7.2 Database Version Control

The envisaged flow of data within the NRIFS has been depicted in Figure 1. It is feasible, however, that data collected at the local level could be edited or updated after the local dataset has been forwarded to the national custodian. This is a problem because then there will inevitably be differences in content between local databases and the national database. For this reason it should always be assumed, as has been previously stated, that the local database contains the most current version of the data.

There are a number of sophisticated data tagging mechanisms that could be employed to enable the tracking of data updates within and between databases, but the effort involved in implementing and maintaining such mechanisms eventually outweighs their usefulness. This would be particularly true for the NRIFS dataset. Given that the national custodian should not be modifying the data provided by local agencies, re-merging updated local data into the national database should not present many problems. Agreement should be reached between the national custodian and local agencies that if a "significant" (to be defined) number of changes are made to a local dataset, after it has been forwarded to the national custodian, then the local agency will notify the national custodian and re-send the data so that it can be merged into the national dataset, over-writing the previously provided data.

To facilitate tracking of the currency of data provided to the national custodian the national database should include attributes that record the history of imported datasets. The most basic type of information recorded might include:

- Name of data provider agency
- Name of data manager
- Date data received
- Date of data importation
- File No for accompanying hardcopy information

- Data importation officer
- Comments

If the national custodian is required, for any reason, to provide data to a third party and date stamps the provided dataset, it will always be possible to provide some indication of the completeness (or currency) of the dataset provided relative to the present state of the database.

### **7.3 Exchange Formats & Required Documentation**

Data provided to the national custodian should conform to an agreed standard format to reduce the amount of work involved in merging data into the national database. The simplest and most transportable format will be one, which is independent of any particular proprietary RDBMS. A database independent format negates the need to continuously tamper with the data export file functionality (that will be provided as a component of the proposed NRIFS local survey application), every time the destination database changes or is upgraded to the next software release.

An ASCII text file, containing individual database records, should be designed after the data model has been finalised. Most multi-user RDBMS' on the market today provide for a bulk data up-load using a data file (e.g. the NRIFS locally exported ASCII file) in combination with a script that defines and interprets the data file format. Attributes contained in the ASCII file records should be delimited by a character that is infrequently used (e.g. a tilde) so that interpretation scripts do not erroneously detect some delimiters as attribute separators when they are components of textual attributes. For example, if commas are used as delimiters, an interpreter script might split a comment field, containing commas, into several attributes.

In addition to agreeing on a standard data exchange format, the NRIFS participants should also agree on codes that will be applied for missing attribute values. Where data is missing it is preferable to provide a code for the attribute value, particularly if a "blank" value actually has some significance during data interpretation.

Accompanying the dataset submitted to the national custodian should be documentation that identifies, as a minimum, the data source agency, who extracted the data from the database, when the data was extracted and any other comments or information that are relevant to data interpretation or data merging.

#### **Recommendation**

- 1. The NRIFS SDWG develop guidelines regarding the release of data with respect to "confidentiality" issues.**
- 2. The NRIFS SDWG develop a specification file format for the exchange of data between local agencies and the national custodian.**

## 8.0 Data Archiving

While most of the data captured by interviewers will be transcribed into local agency databases some information, generally interviewer notes on appointments, call backs etc will not be captured. The only place that this information then exists is on the hardcopy forms. It is vitally important that all hardcopy material associated with the NRIFS be appropriately catalogued (or filed) and archived. Often, after data has been analysed, which is sometimes a considerable time after the data has been collected, an analyst will detect problems with the data. In many cases the only reasonable way to determine whether the problems are apparent or real is to return to the original data. If good record management practices have been exercised it is a simple matter to get back to that original data.

Each local agency should take responsibility, as part of its custodial role, for the ongoing management of hardcopy material associated with NRIFS. Usually, the easiest way to achieve this is to use existing in-house records management systems to register and archive the material. To cross-reference between the hard-copy material and the digital data, the data model suggested for the NRIFS, documented earlier, contains an attribute for recording file references.

The digital data, recorded within the database, should be subjected to frequent backup, with one copy of the backup kept off-site. If there will be a considerable period of time between national surveys and if the NRIFS local application database is not upgraded or ported to newer releases of the underlying proprietary software, on a frequent basis, it would be wise to back-up the local databases using the databases' native format as well as using an exported ASCII file dump of all tables.

## References

Australia and New Zealand Land Information Council (ANZLIC), April 1998, Guidelines For Custodianship.

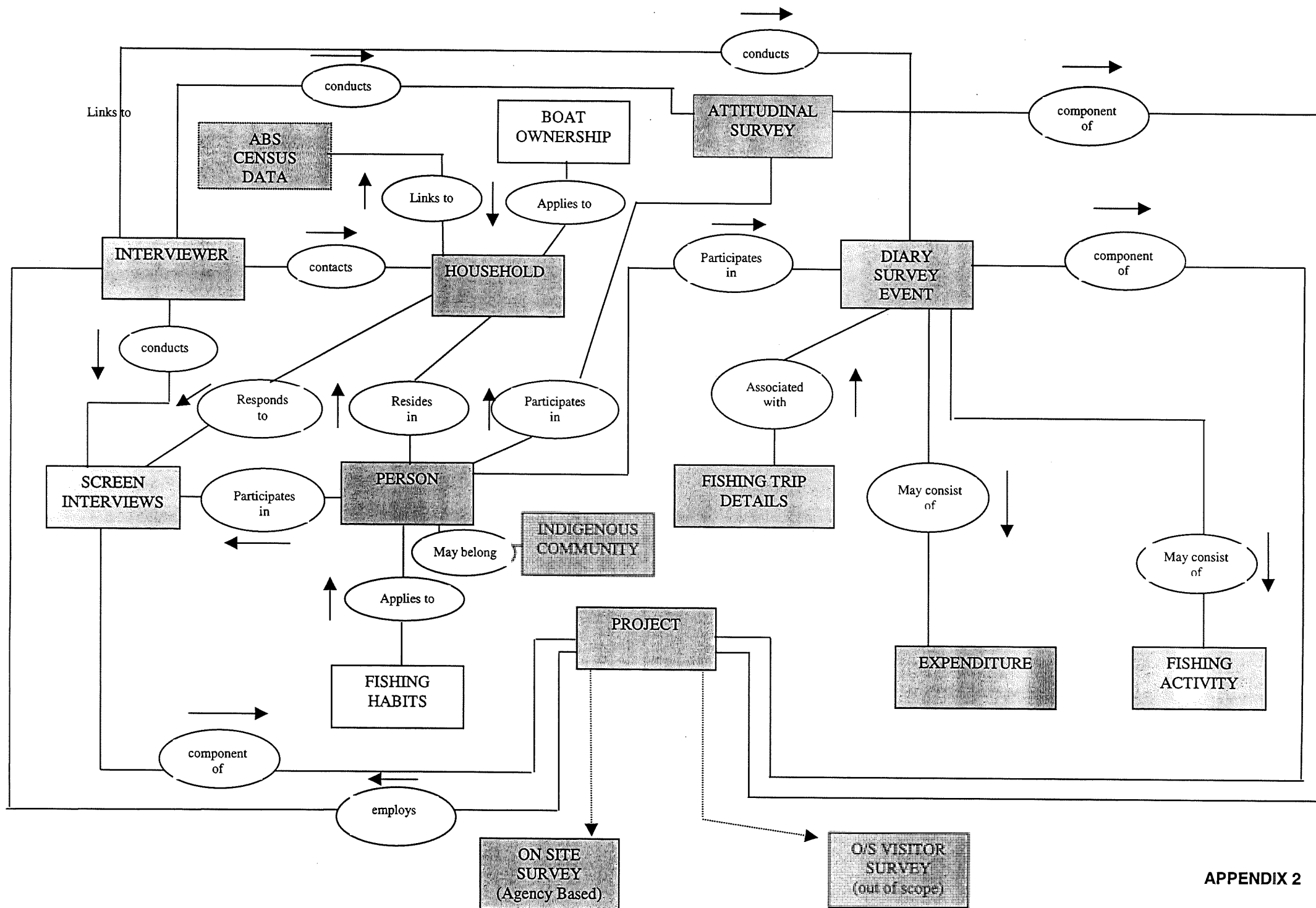
Commonwealth Spatial data Committee (CSDC) Annual Report 1997-1998.

## Appendices

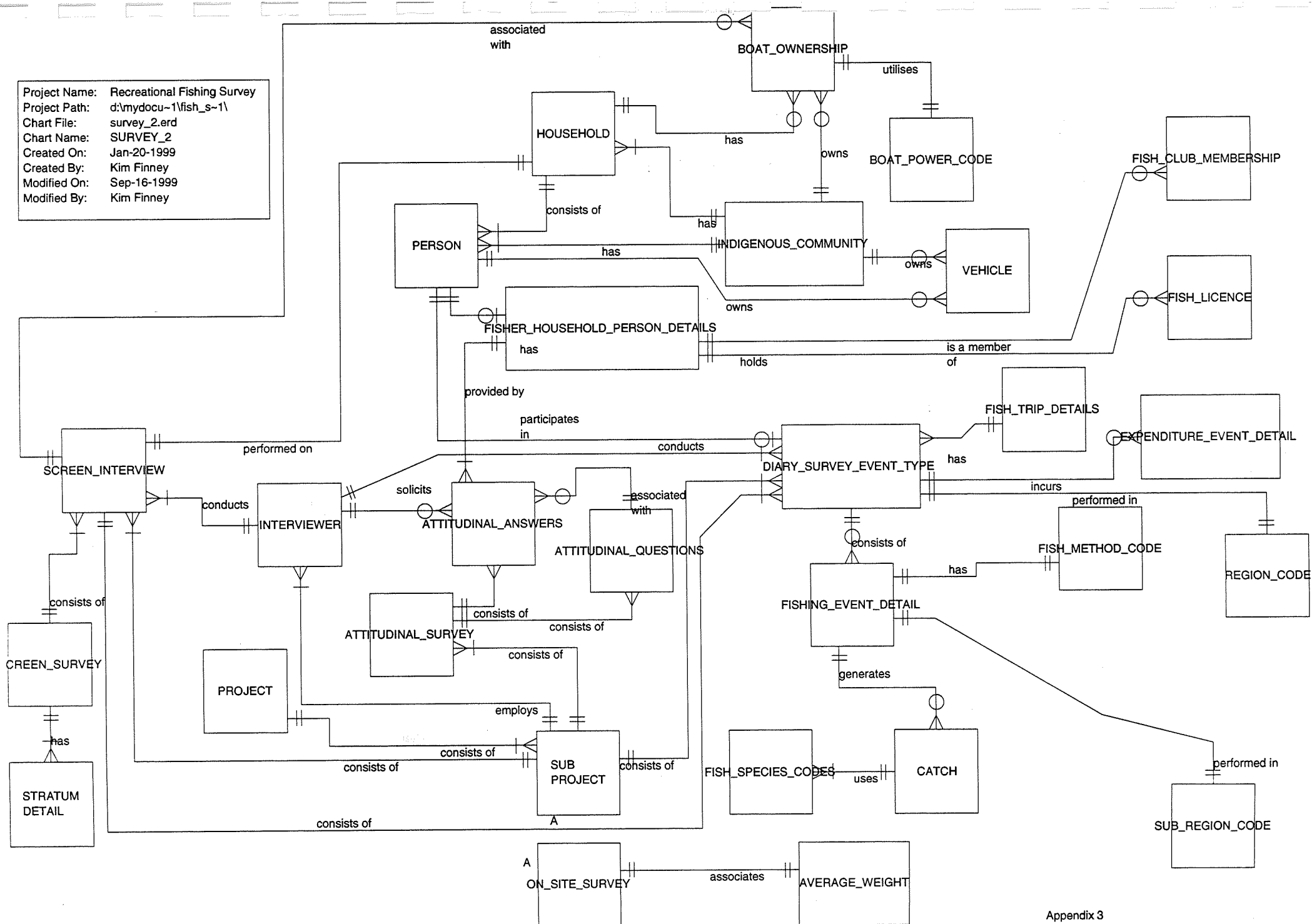
Appendix 1 - Copies of Survey Forms

Appendix 2 - Conceptual Information Model

Appendix 3 - Entity Relationship Model



Project Name:	Recreational Fishing Survey
Project Path:	d:\mydocu~1\fish_s~1\
Chart File:	survey_2.erd
Chart Name:	SURVEY_2
Created On:	Jan-20-1999
Created By:	Kim Finney
Modified On:	Sep-16-1999
Modified By:	Kim Finney



**ATTACHMENT 12.24**

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***NATIONAL SURVEY WORK PLAN***

[illegible]



**ATTACHMENT 12.25**

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***NATIONAL SURVEY BUDGET***

**Notes**

1. Total estimated project cost has been allocated between funding sources by: NHT 49%, FRDC 25%, States and Territories 26%; allocation of individual items can be seen in Section C of the FRDC application
2. Between States & Territories, fixed costs have been shared equally and costs associated with relative sample size have been apportioned accordingly
3. Funding assumes current model of two separate screening and diary surveys - this model is currently under review but use of an alternative model would have no effect on 1999/00 budget and would reduce the overall budget
4. State and Territory infrastructure contributions are not included in this budget but have been added in Section C of the FRDC application

ITEM	TOTAL	1999/00		2000/01		2001/02		
		%	\$	%	\$	%	\$	
<b>RECREATIONAL FISHER SURVEY</b>								
Preparation	\$270,220	100%	\$270,220		\$0		\$0	100%
Staff & interviewer recruitment	\$93,830	100%	\$93,830		\$0		\$0	100%
Training	\$218,848	100%	\$218,848		\$0		\$0	100%
<b>Enumeration</b>								
Direct field costs	\$799,216	20%	\$159,843	80%	\$639,373	0%	\$0	100%
Supplementary surveys, support costs	\$938,927	20%	\$187,785	80%	\$751,142	0%	\$0	100%
Field surveys	\$195,199	20%	\$39,040	80%	\$156,159	0%	\$0	100%
Analysis & reporting	\$267,800	0%	\$0	50%	\$133,900	50%	\$133,900	100%
<b>Sub-total</b>	<b>\$2,784,040</b>		<b>\$969,566</b>		<b>\$1,680,574</b>		<b>\$133,900</b>	<b><u>\$2,784,040</u></b>
<b>OVERSEAS FISHER SURVEY</b>								
Preparation/sampling/training	\$14,000							
Implementation/management	\$28,400							
Analysis/reporting	\$11,400							
	\$53,800	25%	\$13,450	60%	\$32,280	15%	\$8,070	<b><u>\$53,800</u></b>
<b>INDIGENOUS FISHER SURVEY</b>								
Preparation	\$56,380	100%	\$56,380					
Recruitment/training	\$54,020	100%	\$54,020					
Set-up interviews/screening survey	\$87,420	100%	\$87,420					
Catch and Effort Survey	\$219,212	20%	\$43,842	80%	\$175,370			
Analysis/reporting	\$36,400			50%	\$18,200	50%	\$18,200	
	\$453,432		\$241,662		\$193,570		\$18,200	<b><u>\$453,432</u></b>
<b>Total</b>			<b>\$1,224,679</b>		<b>\$1,906,423</b>		<b>\$160,170</b>	<b>\$3,291,272</b>
			37%		58%		5%	
NHT	0.49		\$595,194		\$926,522		\$77,843	<b><u>\$1,599,558</u></b>
FRDC	0.25		\$306,170		\$476,606		\$40,043	<b><u>\$822,818</u></b>
STATES	0.26		\$323,315		\$503,296		\$42,285	<b><u>\$868,896</u></b>

# **FUND ALLOCATION BY STATE**

	TOTAL	NHT	FRDC	STATE	TOTAL	NHT	FRDC	STATE
	Recreational & overseas fisher surveys				Indigenous fisher survey			
NSW	\$495,845	\$240,980	\$123,961	\$130,903				
QLD	\$443,586	\$215,583	\$110,897	\$117,107	\$151,144	\$73,456	\$37,786	\$39,902
VIC	\$452,336	\$219,835	\$113,084	\$119,417				
SA	\$383,184	\$186,228	\$95,796	\$101,161				
WA	\$395,966	\$192,440	\$98,992	\$104,535	\$151,144	\$73,456	\$37,786	\$39,902
TAS	\$357,435	\$173,713	\$89,359	\$94,363				
NT	\$309,487	\$150,411	\$77,372	\$81,705	\$151,144	\$73,456	\$37,786	\$39,902
	<b>\$2,837,840</b>	<b>\$1,379,190</b>	<b>\$709,460</b>	<b>\$749,190</b>	<b>\$453,432</b>	<b>\$220,368</b>	<b>\$113,358</b>	<b>\$119,706</b>

# **ANNUAL STATE COMMITMENT**

	1999/00	2000/01	2001/02	TOTAL
NSW	\$48,709	\$75,824	\$6,370	\$130,903
QLD	\$58,423	\$90,945	\$7,641	\$157,009
VIC	\$44,435	\$69,171	\$5,811	\$119,417
SA	\$37,642	\$58,596	\$4,923	\$101,161
WA	\$53,745	\$83,663	\$7,029	\$144,437
TAS	\$35,112	\$54,658	\$4,592	\$94,363
NT	\$45,250	\$70,439	\$5,918	\$121,607
				<b>\$868,896</b>

## **ATTACHMENT 12.26**

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### ***NATIONAL POLICY ON RECREATIONAL FISHING***

# RECREATIONAL FISHING IN AUSTRALIA

## A NATIONAL POLICY

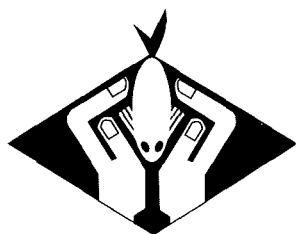


NATIONAL RECREATIONAL FISHERIES WORKING GROUP

December 1994

# **RECREATIONAL FISHING IN AUSTRALIA**

## **A NATIONAL POLICY**



**NATIONAL RECREATIONAL FISHERIES WORKING GROUP**

C/- Department of Primary Industries and Energy,  
GPO Box 858, Canberra ACT 2601.

December 1994

Published by the National Steering Committee on Recreational Fishing, C/- The Executive Officer, National Steering Committee on Recreational Fishing, Department of Primary Industries and Energy, GPO Box 858, Canberra ACT 2601.

December 1994

Recreational fishing in Australia: A national policy.

ISBN 0 7309 6433 7

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# RECREATIONAL FISHING IN AUSTRALIA

## A NATIONAL POLICY

### Foreword

Recreational fishing in Australia is a multi-billion dollar a year industry, and an important leisure activity for over 4.5 million Australians.

However, recreational fisheries around Australia are at the crossroads. The next decade could see the decline and destruction of many of our key recreational fisheries, or these valuable fish stocks and their environment could be conserved and restored for the next generation.

Our fish stocks and their habitats are under threat from many directions.

Increasing fishing pressure on inshore fish stocks from both recreational, subsistence and commercial fishers, environmental damage and aquatic habitat degradation from poor land management practices, and pollution from industrial and urban discharge are joining forces to push many fish stocks into decline. Existing land use and aquatic resource management strategies do not adequately address these issues at a national level.

How do we, as a nation, prevent the decline in fish stocks, and guarantee the future for recreational fishing as an integral part of the Australian lifestyle?

Management policies for recreational fishing should become an integral part of total ecosystem management Australia-wide. A national policy will help ensure the continuation of quality fishing and the maintenance and restoration of fish stocks, and improve coordination of management and funding strategies at all levels of government.

The urgent need for a national policy, which can be used as a guiding, conceptual document to be adopted and built upon by government, recreational fishers and the wider community, has been recognised by the Commonwealth and all State and Territory governments.

In 1991 the Australian and New Zealand Fisheries and Aquaculture Council (ANZFAC), which comprises Commonwealth, State and Territory ministers responsible for fisheries, put together a representative National Working Group to draft a national policy on recreational fishing for public discussion.

The Group compiled a draft national policy document in August 1992 and was then replaced by a Steering Committee, with fishing tackle and boating industry representatives, recreational fishers, and Commonwealth, State and Territory fisheries managers.

In December 1992 the Steering Committee circulated Australia-wide *Recreational Fishing in Australia - a draft national policy for public discussion* and a companion appendices document, and implemented a comprehensive public consultation program.

The draft policy espoused five primary goals and 17 key principles for the management of recreational fishing across Australia. These principles incorporated the essence of ecologically sustainable development, as defined by the Brundtland Report in 1987:

To meet the needs of the present without compromising the ability of future generations to meet their own needs.

Fishers and the recreational fishing and boating industries across the nation have provided comment on ways to refine and improve the principles set out in the draft policy.



The Steering Committee has taken full account of opinion expressed at 61 public meetings and views in 431 written submissions and 4,957 questionnaires from around Australia. There was strong public support for the key goals and principles set out in the draft. The next challenge is to make them work for the betterment of recreational fishing and aquatic environments throughout the country.

This is a two-way process, and fishers should ensure that they play their part by not only incorporating the goals of this policy in their fishing practices, but by ensuring that government agencies do the same.

It should be recognised that some of the broad strategic directions and actions outlined in the policy may require substantial funding. In the light of significant budgetary constraints facing all levels of government for the foreseeable future, each jurisdiction will determine its own priorities for implementation of actions following assessment of budgetary priorities.

This national policy has been endorsed by the Ministerial Council on Forestry, Fisheries and Aquaculture (MCFFA, which replaced ANZFAC on 1 January 1994) which espouses all the aims and ideals envisaged for recreational fishing at the start of this long consultative process. Accordingly, the principles and goals should at least be considered by all government agencies whose policies and operations directly or indirectly affect recreational fishing.

MCFFA urges Australia's legions of anglers, along with State, Territory and Commonwealth governments and the wider community, to embrace the policy so that recreational fishing can prosper and develop during this decade and beyond into the 21st century.



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*Successful fishing and a healthy catch is the goal of recreational fisheries management and environmental care.*  
(Pic: A. Cribb)



## Five goals for recreational fisheries

Five primary goals flow from the 16 guiding principles which form the basis for this national recreational fishing policy.



To ensure quality fishing, and maintain or enhance fish stocks and their habitats, for present and future generations as part of the environmental endowment of all Australians.



To develop partnerships between governments, the recreational fishing community, and associated industries to conserve, restore and enhance the values of recreational fisheries throughout Australia.



To allocate a fair and reasonable share of Australian fish resources to recreational fishers, taking into account the needs of other user groups.



To establish an information base at national and regional levels to meet the needs of recreational fisheries management.



To establish a funding base to effectively manage the nation's recreational fisheries.



*(Pic: C. Barnham)*



*Sound recreational fisheries management and education of fishers toward responsible behaviour are designed to safeguard the pleasures of fishing for future generations.  
(Pic: D. Steel)*



## Key principles for recreational fishing

**1** Recreational fishing should be managed as part of the total fisheries resource to ensure quality fishing, and to maintain fish stocks and their habitats, for present and future generations of Australians.

**2** Our aquatic habitats and ecosystems are part of the environmental endowment of all Australians, and are the key to a healthy fisheries resource which requires protection, restoration and enhancement.

**3** Government, in its stewardship role, must encourage and assist the community to be involved in all aspects of fisheries management.

**4** Recreational fishers and the recreational fishing industry should participate in the protection and management of their fishing heritage to ensure that it is available for future generations.

**5** Community consultation at Federal, State/Territory and local levels should be a key component of recreational fisheries management programs.

**6** Recreational fishers are entitled to a fair and reasonable share of Australian fish resources taking into account long-term sustainable yields; the rights and entitlements of others; and the need to optimise community returns from available stocks.

**7** Recreational fishers throughout Australia should be encouraged to adopt their own Codes of Practice consistent with the goals of this policy.

**8** Preference should be given to recreational fishing methods in which the fisher is present and which aim to catch target species.

**9** The catching of fish for sale or profit, including barter, by recreational fishers is unacceptable.

**10** Programs, consistent with the goals of this policy, which seek to increase recreational fishing opportunities throughout Australia should be encouraged.

**11** Reasonable physical access to recreational fishing areas should be provided for throughout Australia.

**12** Community awareness, education and enforcement programs should focus on encouraging positive changes in community attitudes to develop a stronger conservation ethic.

**13** The economic, educational, health and other social benefits of recreational fishing should be widely recognised and actively promoted.

**14** Fisheries management decisions should be based on sound information including fish biology, fishing activity, catches, and the economic and social values of recreational fishing.

**15** Adequate funding and support should be provided to manage recreational fishing as part of integrated resource and environmental management strategies.

**16** Recreational fishers should continue to contribute to the cost of managing and developing recreational fishing.



## Introduction

Our vast island continent, with its huge, diverse coastline and limited yet valuable freshwater resources, is one of the world's last great fishing frontiers.

We are a land of stark climatic contrasts blessed with a diversity of fishing opportunities in environments spanning thousands of kilometres. From the sultry tropics to the cool, temperate waters of the south, shore and boat fishers seek a multitude of species, in thousands of locations.

Fishing for food has been practised in Australia by Aboriginal people for thousands of years and since the earliest visits by explorers.

Nowadays recreational fishing is a traditional sport or pastime enjoyed by millions of Australians. It is an integral part of our relaxed, outdoor lifestyle and a significant contributor to our economy, health and social well-being.

Our reasons for going fishing are as diverse as the species we seek, the techniques, bait and tackle we use and the areas we frequent.

We look to fishing for food, relaxation, solitude, companionship, family togetherness, sport, adventure, competition, the chance to develop skills with tackle, an escape from modern pressures and enjoyment of the environment.

We look to the quality of our aquatic environment not only for fishing, but for the conservation of bio-diversity and the protection of habitats. A range of non-exploitative uses such as education, tourism, underwater exploration, photography and scientific research also all depend on healthy aquatic environments.

A definition of recreational fishing is that fishers aim to catch a fish, and for a variety of personal reasons enjoy the experience, without commercial gain or profit, and without affecting the sustainability of fish stocks or the enjoyment of others.

But, as with most things in modern life, there has been a price to pay. Ever-increasing numbers of fishers, aided by improved mobility and sophisticated tackle and techniques, have contributed to growing pressure on many of our key fish stocks and prime angling areas - particularly near major population centres.

At the same time, Australia's marine and freshwater habitats are under increasing threat from poor land management practices in catchment areas and coastal zones.

These threats include coastal developments, industrial, urban and agricultural pollution, and land clearing and forestry practices. In many cases important aquatic habitats and fish nursery areas have been seriously degraded.

Despite their capacity for natural renewal, Australia's fish stocks are very much a finite resource. The resolution of competition and conflict between recreational and commercial interests over the available, and in some cases diminishing, catch will present an increasing challenge for governments and user groups well into the next century.



The needs of conservation and groups other than commercial and recreational fishers must also be met when planning for the responsible use of aquatic resources.

A widely held perception among recreational fishers throughout Australia is that when fisheries and other resource management decisions are being made, recreational fishers get scant consideration, and have little or no say in the end result.

Many conservation and fisheries management agencies are perceived as placing the major emphasis on commercial or conservation interests. A large number of the submissions in response to the draft policy strongly reiterated this view.

These perceptions all point to the lack of a co-ordinated planning approach to resource use, and to resource allocation. They show shortcomings in the existing consultative and communication process.

The management of recreational fishing cannot be viewed in isolation - it is an integral part of the management of the total fish resource and the environment it depends upon. In recent years commercial fisheries throughout Australia have come under increasingly stringent management programs which seek to ensure the sustainability of stocks, and maintain the economic viability of the industry. These programs impose real, but necessary, constraints on commercial activities and catches. In addition, the establishment and implementation of marine parks and other conservation areas has seen the removal of access, and tighter controls on many activities, including recreational fishing, in specific areas.

Before the development of this policy, recreational fishing management, particularly angling, had received little attention, and virtually no management or funding at a national level.

However, in recent years some State and Territory governments have paid increasing heed to a fundamental reality - recreational fishing is a major activity which provides substantial community benefits, but which can also have a significant impact on many fish stocks.

The time has come for a national policy that puts the management of recreational fishing into the overall context of environmental and aquatic resource management.

This policy provides a framework and a common set of goals within which each responsible Commonwealth, State and Territory authority can work with the recreational fishing community to develop suitable long-term policies.

It does not aim to usurp the recreational fishing management responsibilities of the States and Territories. Rather, it is intended to offer guiding principles for conserving and enhancing Australia's recreational fish stocks and their habitats. Its goals and objectives offer a conceptual foundation for governments and recreational fishers to build upon.





*Many people enjoy the relaxation of fishing and a chance to get outdoors but the protection of the fishing environment is everyone's responsibility. (Pic: C. Barnham)*



# 1 Protecting the resource

***Principle 1:*** *Recreational fishing should be managed as part of the total fisheries resource to ensure quality fishing, and to maintain fish stocks and their habitats, for present and future generations of Australians.*

Co-ordinated management and conservation of our vast fisheries resource is paramount and central to this national policy.

Warnings are coming from fisheries managers, informed anglers and the wider community about the parlous state of some of our freshwater, estuarine and marine fish stocks and their habitats. This is particularly so in waters near many of our major cities.

The crux of these warnings is:

*Quality fishing requires environmental quality*

It is fundamental to this national policy for recreational fishing that it reflects the key principles of ecologically sustainable development (ESD).

In its final report the ESD Working Group on Fisheries recommended that Australian fisheries management be undertaken within an ecosystem management framework. In other words, we must manage the entire ecosystem, with fishing activity a component in the overall management of the aquatic resource.

It follows naturally that management policies for recreational fishing should become an integral part of total environmental management Australia-wide.

The essence of ESD, as defined by the Brundtland Report in 1987, is to:

*Meet the needs of the present without compromising the ability of future generations to meet their own needs.*

This definition is the heart of this national recreational fishing policy.

## **2** Habitat: the key to a healthy fisheries resource

***Principle 2:** Our aquatic habitats and ecosystems are part of the environmental endowment of all Australians, and are the key to a healthy fisheries resource which requires protection, restoration and enhancement.*

The quality of Australia's recreational fishing, both in the short and long term, is linked inextricably to the health of our aquatic habitat.

This policy supports a key recommendation of the Ecologically Sustainable Development Working Group on Fisheries:

That all levels of government should initiate urgent action to ensure the conservation of critical habitats for wild fish. Such action should include legislative protection for known spawning and nursery grounds; increased research on the ecological and economic functions and significance of these areas; and steps to restore habitats and ameliorate existing impacts.

Fisheries resources and their aquatic habitats are national assets which require protection by the general community as part of the environmental endowment of all Australians.

It is no longer sufficient to reduce or control habitat destruction. The aquatic habitat must be maintained, restored or improved to increase productivity, particularly in freshwater, estuaries, coastal wetlands, and inshore seagrass areas.

The community and government authorities must recognise the importance of a healthy, productive environment if recreational fishing is to prosper in the future. The success of any management is dependent on the environment being able to allow natural reproduction and recruitment for all except the few species in limited areas which can be supplemented through stocking.

However, stocking should not be seen as a substitute for loss of natural reproduction and recruitment caused by habitat degradation. Indeed, stocking of native or exotic species outside their normal range needs careful assessment to avoid any negative side-effects.

Fish should be allowed unimpeded migration throughout their natural ranges. Where man-made structures impede migration there needs to be adequate provision for the movement of fish.

This policy seeks responsible land use and farming practices, protection of shoreline and floodplain areas and wetlands, and careful use of chemicals and fertilisers which have an impact, direct or indirect, on aquatic habitats or fish stocks. Any adverse impacts should be met with appropriate penalties and restoration programs.

Most importantly, all Australians should recognise that catchments, estuaries and coastal wetlands are the very heart of some of our most popular and important recreational fisheries. They play a vital role in the life cycle of many aquatic species and exert an influence on our lives which extends far beyond fishing.



It is the responsibility of the entire community - not just fishers - to insist that water quality be maintained at an appropriate level, and if necessary improved, in all aquatic environments.

Long-term degradation of the aquatic environment will not only result in a reduced quality of recreational fishing, but will also affect many other water-based recreational pursuits. Our waterways are indicators of the health of adjacent environments and their catchments.



*Pollution of urban waterways eventually finds its way into estuarine and ocean systems, affecting the whole complex ecological web.*  
(Pic: N. Harrison)



*Fishing line and plastic waste discarded by fishers can become deathtraps for wildlife.*  
(Pic: N. Harrison)

## 3 The role of Government

***Principle 3:*** *Government, in its stewardship role, must encourage and assist the community to be involved in all aspects of fisheries management.*

The key challenge facing the Commonwealth, State, Territory, and local governments and the recreational fishing community is to work together to protect, develop and enhance recreational fishing in Australia.

Fish are a common property resource that know no borders. Many migrate from one state water to another, and from State to Commonwealth waters. All species are dependent on a food chain which relies on the environmental quality of their habitats. Species in freshwater, estuaries and inshore areas are particularly vulnerable to the impact of development.

For these reasons, we must develop a co-ordinated strategy to manage our aquatic resources. Decisions can no longer be made in isolation.

As custodians of the resource, governments have a special responsibility to achieve ecologically sustainable fisheries. They must ensure prudent management which safeguards the aquatic resource and the environment.

At the same time management must allow for the balanced development of recreational and commercial fishing, and allocation of resource shares to maximise community benefits.

Government responsibility should include conserving, restoring and enhancing the aquatic resource, as well as ensuring that recreational fishing is integrated into the overall management of the fishery resource.

Up to now State, Territory and Commonwealth governments have shared responsibility for many fisheries. There are numerous Commonwealth and State/Territory authorities which have had direct or indirect responsibilities relating to recreational fisheries.

Overall there is a pressing need for improved co-ordination at all levels of government, and this policy is intended to provide an essential framework.

The Commonwealth has an important stewardship role in the implementation of this national recreational fishing policy. It can fulfil this role, where appropriate, through proper consultation with State and Territory governments and user groups and participation in programs of national significance.

There is an urgent need for government agencies to get a better understanding of the contribution of recreational fishing to tourism, the domestic and international economy, and in particular to regional development. This is a national database requirement.





The Commonwealth's stewardship should involve developing overall community goals and protecting and enhancing aquatic resources together with State and Territory governments. It also has specific responsibilities for managing recreational fishing which falls within its jurisdiction.

State and Territory governments have direct management control over recreational fishing in most areas within their boundaries. Their responsibilities include resource and habitat protection and enhancement; the preparation of regional development plans; decisions about sustainable yields; access sharing; interstate and intrastate controls on fish movements and diseases; and provision of facilities for recreational fishing. They are also principally responsible for coastal and catchment management.

Fisheries agencies may not have direct control of all these functions, but they, and fishers, should be consulted to ensure that the needs of the aquatic resource are met by management.

If a national recreational fishing policy is to be successful and workable, each State and Territory will need to co-operate with and consult other states and the Commonwealth Government. This is to ensure that fishing regulations are soundly based, equitable, enforceable and, where appropriate, consistent throughout Australia.

Management must also reflect the conservation needs of the aquatic environment and allow for non-exploitative uses, particularly in areas of high conservation value.



*The lure of a delicious bag of Tasmanian brown trout can bring valuable tourist dollars to a local economy.*  
(Pic: P. Cummins)

## **4** Community involvement

***Principle 4:** Recreational fishers and the recreational fishing industry should participate in the protection and management of their fishing heritage to ensure that it is available for future generations.*

***Principle 5:** Community consultation at Federal, State/Territory and local levels should be a key component of recreational fisheries management programs.*

Improved planning and consultation for resource use has the capacity to alleviate much of the conflict between user groups that dominates public debate on aquatic resource use and fishing issues.

Such planning will not only clarify resource allocation issues, but will accommodate a range of recreational, commercial and conservation opportunities to meet social, resource and environmental needs.

Local economies are a major beneficiary of good fisheries management. Local governments also have a responsibility to provide facilities and opportunities for recreational fishing, and to ensure that planning and zoning processes under their control do not adversely affect the aquatic resource.

Recreational fishers should be encouraged to focus on the total fishing experience, not just the quantity of catch. This policy emphasises the need for a strong conservation ethic when fishing.

It is important for all recreational fishers to realise that they should contain their catches to immediate personal and family needs.

Similarly, it is essential that they co-operate with fisheries agencies to assist in curtailing illegal activities.

Members of the recreational fishing community have a major role to play in educating their fellow fishers, and assisting in management programs.

One of the fundamental aims of this policy is to give the nation's recreational fishers an equitable say in the management of our fisheries.

The opinion of peak fishing bodies, fishing clubs, the recreational fishing media, casual fishers, commercial fishermen, community groups and the general public should be actively sought on management plans or policies of interest to recreational fishers.

Management proposals need to be made readily available and all public authorities should ensure that fishers are given adequate time to comment on them.



The needs of recreational fishers should be recognised and considered. They should be consulted on commercial fisheries proposals and other Commonwealth, State, Territory and local government plans and developments which may affect recreational fisheries or the aquatic environment.

After consideration of all submissions in response to management proposals, reasons for implementation should be made available.

Governments should establish a consultative body on matters of recreational fishing policy. These bodies must have majority representation by recreational fishers, with some members nominated by recreational fishing advisory councils which exist at Commonwealth, State and Territory level.



*Recreational anglers can help researchers by participating in their programs and using forums such as angling clubs and government committees to express views and remain informed.*



## 5 Sharing the resource

***Principle 6:*** *Recreational fishers are entitled to a fair and reasonable share of Australian fish resources taking into account long-term sustainable yields; the rights and entitlements of others; and the need to optimise community returns from available stocks.*

This national recreational fishing policy recognises the right of members of the public to take fish from public waters for their private use. However, it must also ensure that catches remain within the limits of the resource's capacity to sustain total fishing effort - recreational and commercial.

It is important for fishers to realise that in many fisheries the recreational take is significant. In some it may be larger than the commercial component (examples are tailor, bream and most freshwater species). There are signs of overfishing and stock depletion in some fisheries, contributed to at least in part by recreational effort. This has certainly occurred in the case of tailor, some of the gropers, and Murray cod.

In the area of resource allocation, recreational fishers should be given a fair and reasonable share of the total fishery.

In fisheries where there is conflict between user groups, recreational fishers have the right to be consulted before a decision is made on allocation of the resource.

The respective social and economic benefits of recreational and commercial fishing, as well as the impact of other users, and the status of the resource should form the basis of resource allocation.

As recreational fishing continues to expand, especially in areas close to the major population centres, the allocation of resources between user groups will continue to be a major issue.

There is little doubt that in the future there will be resource re-allocation from commercial to recreational in some fisheries - particularly in inshore and estuarine waters of major recreational importance.

There will also be a shift in emphasis towards fishing techniques which offer maximum benefits to the wider fishing community.

Commercial licence buy-out is an option in fisheries where a change in resource share is seen as the best use of fish stocks from either a social or economic viewpoint.

The other side of the resource allocation coin is that recreational fishers will have to accept constraints in some fisheries to comply with long-term sustainable yields; the rights and entitlements of others; and the need to maximise community returns from available stocks.



Some commercial fisheries in Australia have already had to accept considerable restraints on their fishing activities, boat numbers and allowable gear to meet stock conservation and other management objectives.

All users of the resource, including recreational and commercial fishers, have a common interest - to ensure the maintenance of fish stocks and their habitats.

Rather than each blaming the other for taking too large a share of a diminishing resource, all sectors need to work together for its long-term well-being.

Management also needs to accommodate conservation and non-exploitative uses of the aquatic environment such as scientific research, marine education, underwater photography and fish observation.



*Word of good fishing quickly spreads and holiday spots and commercial fishing grounds may overlap as fishing pressure increases. (Pic: B. Classon)*

## 6 Acceptable recreational fishing practices

***Principle 7:** Recreational fishers throughout Australia should be encouraged to adopt their own Codes of Practice consistent with the goals of this policy.*

***Principle 8:** Preference should be given to recreational fishing methods in which the fisher is present and which aim to catch target species.*

***Principle 9:** The catching of fish for sale or profit, including barter, by recreational fishers is unacceptable.*

Recreational fishers should be encouraged to develop codes of practice and fishing ethics which complement the established codes of organised recreational fishing groups.

As a starting point, codes of practice could include these guidelines:

- ☐ Observe bag and size limit rules and other fisheries regulations, and try to guide other fishers along the same path.
- ☐ Take no more than your immediate needs, even if this is less than the bag limit.
- ☐ Aim to release unwanted or excess fish unharmed wherever possible.
- ☐ Co-operate in recognized fish tagging programs for research purposes.
- ☐ Promote fishing ethics by killing fish quickly, using tackle appropriate to the fishing situation, and frequently attending gear.
- ☐ Respect the needs of fellow fishers, other resource users including commercial fishers, and especially the environment.
- ☐ Treat fishing locations with respect. Don't leave bait to foul rocks and beaches and plastic packaging or discarded nylon line to pollute the aquatic environment and possibly entrap birds and other aquatic creatures.
- ☐ Travel carefully, especially in 4WD vehicles in fragile conservation areas. Stick to gazetted roads and obvious tracks and resist the temptation to go "bush bashing" to create your own track.
- ☐ Respect the rights of owners when travelling through or camping on private property.
- ☐ Report pollution and degradation of the aquatic environment, especially as a result of irresponsible use of fertilisers and pesticides or thoughtless runoff of toxic waste.
- ☐ Report illegal fishing activities (such as fish selling by recreational fishers) as soon as they are noticed, and with as much information as is available.
- ☐ Work through recreational fishing bodies, the fishing media or government authorities, rather than trying to deal with such problems in isolation.



Recreational fishing methods where the fisher is actively involved, or which are selective in the species and quantity caught should be given preference over less discriminate methods such as unattended nets or setlines.

In addition, management planning for both commercial and recreational fisheries needs to minimise detrimental side-effects on other species or the environment.

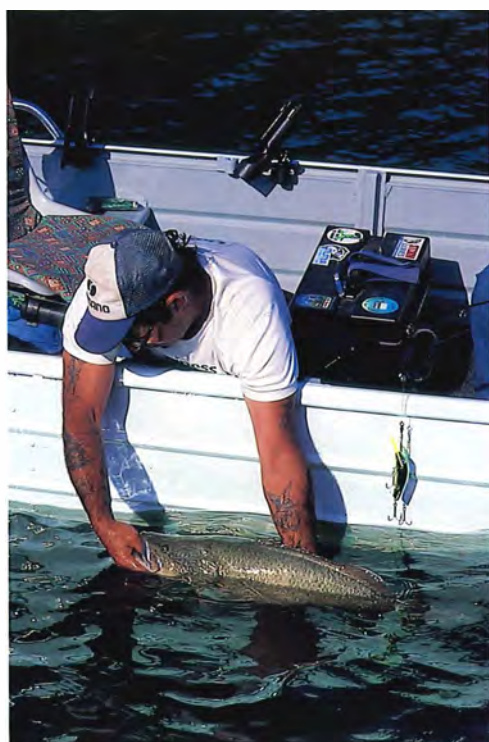
Side-effects which should be considered include: the incidental take of juvenile and non-target fish and invertebrates; the impact on species at the base of the aquatic food chain; and the effect on aquatic mammals, birds, reptiles, and seabed and benthic (bottom) communities.

This national policy emphasises that there must be recognition of a clear demarcation between recreational and commercial fishing. Recreational fishing is a sport or pastime carried out without financial gain, whereas commercial fishers rely on their catch for their livelihood.

Unfortunately there are some fishers throughout Australia who fail to see, or simply ignore, this distinction by acting as unlicensed commercial fishers.

Codes of practice among recreational fishers should make it clear that illegal buying or selling of fish is not acceptable, and such behaviour should attract severe financial and other penalties.

This national policy also supports a trend throughout Australia towards community-based 'Fish Watch' systems, with 24-hour toll-free phone numbers, through which people can immediately report fisheries offences or other impacts on the aquatic environment to State and Territory fisheries enforcement agencies.



*A Lake Eildon cod is released - catch and release competitions and observance of bag and size limits preserve breeding stocks. (Pic: B. Classon)*

## 7 Opportunities for recreational fishing

**Principle 10:** *Programs, consistent with the goals of this policy, which seek to increase recreational fishing opportunities throughout Australia should be encouraged.*

**Principle 11:** *Reasonable physical access to recreational fishing areas should be provided for throughout Australia.*

Some of the programs which seek to increase recreational fishing opportunities are, for example, artificial reefs, stocking and restocking species in fresh and salt water, improved access to freshwater impoundments, and constructing or improving boat ramps and fish ladders.

This policy urges that recreational fishers be given fair and reasonable physical access to fishing areas.

Land and water management agencies, local government authorities and construction organisations should formally consult with recreational fishing representatives to determine fishing access needs when planning for national parks and aquatic conservation areas, or physical structures such as marinas, harbours, dams and bridges and similar facilities. These should also take into account the needs of disabled fishers. These agencies should present sound justification for any proposed reduction of access to fishing areas.

Unlike other countries in the world, Australians have relatively free access to inland and marine waters. This access should continue, however, these opportunities carry with them an obligation of responsible behaviour.



*Early morning crabbers try their luck in shallow estuaries.  
(Pic: D. Sarson)*



## 8 Education and compliance

**Principle 12:** *Community awareness, education and enforcement programs should focus on encouraging positive changes in community attitudes to develop a stronger conservation ethic.*

Recreational fishing has significant value as an educational activity. It teaches personal skills such as self-reliance, confidence, and analytical skills, but, perhaps most importantly, it promotes the concept of responsibility for the fish stocks and the environment they inhabit and we depend upon.

Effective management of recreational fishing relies as much on the adoption of positive attitudes by the community as on legislation and enforcement.

Education programs should be aimed at bringing about changes in the attitude and behaviour of many fishers who still have no realisation of the cumulative impact of their activities.

Young fishers should also be key targets in a wide public awareness campaign to instil the need for responsible fishing practices. Such an approach can help to ensure that the next generation of adult fishers will be more aware of their responsibilities, and the need for conservative management.

Established fishing organisations have an important role to play in this education process.

Education and compliance should complement each other, since successful management of our recreational fisheries is largely dependent on the voluntary acceptance of fishing rules.

The community should be properly informed of the reasons for management decisions - for example, in relation to key issues such as bag limits and resource sharing - and given a clear lead on the values and attitudes which will assist in sustaining fish stocks.

Education programs should take advantage of all possible media coverage. In a multi-cultural society such as Australia there is also a need for specific programs to deal with identified ethnic groups.

Effective policing of our recreational fishing is not just about increasing fines and imposing further restrictions. It is about providing a visible presence which makes the would-be errant fisher think twice about the chances of being caught. This effect can be greatly enhanced if peer pressure becomes a major force as community values and attitudes towards recreational fishing change for the better.

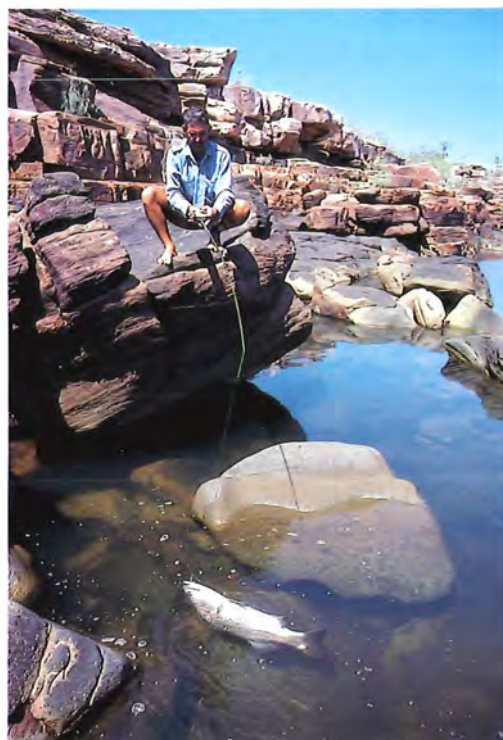
Governments and fisheries authorities have an obligation to provide adequate staff to improve or increase compliance with recreational fishing regulations.

Fisheries offences affect all users of the resource, can have a significant collective impact on fish stocks, and should be considered a crime. Penalties should reflect the seriousness of offences.





*Recreational fishing, in all its forms, is a sport and leisure pursuit for more than 4.5 million Australians every year.*



*Almost every part of the Australian coastline and river systems offers good fishing for a wide range of species-on Northern Territory shores mud crabs and barramundi provide a feast.*  
(L. Pic: C. Roberts, R. Pic: B. Classon)



## 9 Building up a store of knowledge

**Principle 13:** *The economic, educational, health and other social benefits of recreational fishing should be widely recognised and actively promoted.*

**Principle 14:** *Fisheries management decisions should be based on sound information including fish biology, fishing activity, catches, and the economic and social values of recreational fishing.*

Recreational fishing in Australia has developed into a multi-billion dollar a year industry which contributes significantly to the health and social well-being of the nation.

It has direct economic benefits from the sale of tackle, bait, boats and recreational vehicles, and indirect benefits flowing from anglers who travel to fish and pay for air fares, boat charters, food, fuel and accommodation.

Fishing is often a shared family or group activity, contributing to community cohesion and development. It also provides benefits through its outdoor, physical nature and improved diets associated with increased fish consumption.

In 1990 it provided employment for about 80,000 Australians in the tackle, boating, tourism, charter and associated industries and was enjoyed by an estimated 4.5 million people who fished at some time during the year.

Out of this total more than 800,000 go fishing more than 20 days a year, and about 200,000 are members of fishing clubs.

State and national surveys have shown that fishing is a sport and leisure activity highly preferred by people of all ages. More than 25 per cent of most age groups participate in recreational fishing.

High quality recreational fishing opportunities are likely to lead to greater employment and benefits to the economy associated with domestic and international tourism. These often have significant flow-on impacts in regional areas.

Around 100,000 overseas tourists who visit Australia each year fish at some time during their stay.

It is likely that this number would increase considerably if the management of both tourism and recreational fishing were better co-ordinated, promoted and developed.

It is estimated that the annual wholesale turnover for the Australian fishing tackle and bait industry is about \$170m, while the value of the recreational boating industry, at least 60 per cent of which is fishing-related, is thought to be about \$500m per year.

A significant number of public submissions have questioned both participation and economic estimates. There is an urgent need to get accurate national information on the values of recreational fishing, and changes in these values over a period of time.



National surveys of expenditure and participation rates of recreational fishing should be undertaken on a five-yearly basis.

A national survey can obtain information on participation and expenditure by resident fishers and overseas tourists as well as basic demographic data and participation by fishery type.

Additionally, it can establish the role of fishing in choice of destination of overseas visitors, the species they most want to catch and how much they catch.

There is also a need to identify the attitudes of anglers towards their pastime and determine the reasons why people fish and the best means of incorporating these needs in management policies.

The results of all surveys should be available to the community on a national data base.

State research should be capable of providing specific data on habitat requirements and effects of degradation; species biology; stock structure; and recreational and commercial fishery participation, distribution, catch and effort.

Fishery specific and local surveys should be used to provide more detailed catch and effort data and additional information.

We need to know more about the biology of important species as well as recreational catch rates. The impact of recreational fishing is largely unknown, and all levels of government have inadequate information for managing many fish stocks of most importance to recreational fishing, and for making properly informed decisions about resource management and resource sharing.

The overall catch must be quantified in various fisheries so that resource impacts can be determined, and allocations made between users. This allocation should take into account economic and social benefits.

This policy urges fishers to fully co-operate with research and monitoring programs and surveys, either by way of catch censuses, boat ramp interviews or circulated questionnaires.



*Research is needed to understand the biology, stock structures and habitat requirements of recreational fishing species such as marlin (above) and Australian bass (below).  
(Pics: R. Harrison)*



## **10** Funding: the key to proper management

***Principle 15:** Adequate funding and support should be provided to manage recreational fishing as part of integrated resource and environmental management strategies.*

***Principle 16:** Recreational fishers should continue to contribute to the cost of managing and developing recreational fishing.*

The enormous socio-economic benefits of recreational fishing and its supportive industries are only now being recognised. However, the impact that recreational fishing has had, and can have, on the fish resource cannot be ignored.

Quality recreational fishing is a catalyst for significant regional economic activity in the form of tourism and fishing-related expenditure. It also contributes revenue, as part of overall revenue-raising arrangements, to the Commonwealth in the form of federal taxes, levies and excise.

A higher economic return from recreational fishing may also be realised, for at least some fisheries, through a reallocation of a larger proportion of resources to the recreational sector, as the ESD Working Group stated in its final report.

Historically State and Territory governments have met the greatest proportion of the cost of recreational fishing management. This expenditure covers research, enforcement and management programs across a range of fisheries.

Governments and recreational fishers recognise that funds additional to the estimated \$23m spent by state fisheries management agencies in 1992 are needed to increase the benefits from recreational fishing and take into account the principles of ecologically sustainable development.

A broad estimate indicates that the total amount required for recreational fishing management is in the order of \$44m at 1993 prices. Priority areas for additional funding include research, policy development, community education, resource monitoring, enhancement, enforcement, recreational fisher representation and further development of recreational fishing opportunities.

In a number of states recreational fishers already contribute directly towards managing the fisheries in which they participate, in line with a 'user pays' principle. It seems inevitable that recreational fishers will continue to contribute, as in most other sports and pastimes.

In many instances recreational fishers have been reluctant to contribute further towards the cost of management because they feel that these funds would not be used solely to benefit recreational fishing. Fishers have indicated that they are only prepared to support any extension of a user-pays system on the condition that:



- ❑ All levels of government acknowledge the contribution of recreational fishing to the economy and should provide assistance in line with their stewardship responsibilities.
- ❑ All funds raised should go into trusts dedicated to recreational fishing expenditure which cannot be diverted into consolidated revenue.
- ❑ Recreational fishers have a say in the allocation of funds raised under any user-pays system.

All governments have stewardship responsibilities in fisheries resource management. As governments contribute to programs concerning the environment, sports, health, tourism and economic development generally, they should also contribute to programs of benefit to recreational fishing.

In the light of the significant budgetary constraints facing all levels of government for the foreseeable future, each jurisdiction will determine its own priorities for implementation of actions following assessment of budget priorities.



*(Pic: R. Harrison)*



