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A Guide to the Fishers of Queensland

Part B: TRC-Analysis and Social Profiles of Queensland's Harvest Industry

D. Mark Fenton and Nadine A. Marshall

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Contents

TRC Profiles

Executive Summary

This report describes the social and financial characteristics of the harvest fishing industry in Queensland. It also identifies the social and financial relationships that exist between the fisheries resource and coastal communities using a research framework known as Town Resource Cluster (TRC) Analysis.

This report provides a comprehensive profile of the harvest industry in Queensland that can assist in assessing potential social and financial impacts of changes in fisheries policy and management. This information is not a social impact assessment.

In this report, only those fishers that were identified as 'harvesters' were included. Harvesters are defined as those commercial fishers who collect marine products such as trochus, sea-cucumber, aquarium fish, coral, coral sands, shells, beachworms and bloodworms.

Social and financial information was collected from harvesters using structured telephone interviews. The interview included questions on the charter fishing business and the use of the marine resource. It included questions on the location of homeports, years of business operation, number of boats, size of boats, type of fishing activity and seasonal variations in fishing. There were also questions about the number of employees, the value and location of sales and the town locations for business expenditure, as well as the location of resource use and the use of coastal ports when accessing different areas of resource use.

To develop social profiles of fishers within the industry, business owners gave information about their family and employees (including age, gender, marital status, housing tenure, educational levels, place of residence, hours worked in the industry) and the towns from which they purchased household goods and services.

Ninety-six percent of harvest fishers that could be contacted participated in the research (101 questionnaires), representing 68% of the industry. Of the 194 licence holders that exist in Queensland at this time, 44 (22.5%) were considered latent, or had not been actively engaged in harvest fishing within the last year.

The profiles were analysed using a recently developed framework for social assessment in natural resource management known as Town Resource Cluster Analysis (TRC-Analysis). This framework describes adn eaxamines the relationship between resource systems and human social systems. Specifically, the analysis identifies clusters of mutually interdependent towns and communities (TRCs) that have relationships to specific areas of marine resource use.

Twenty-two TRCs were identified along the Queensland coast from Karumba in the north to Southport in the south of Queensland. A detailed description of the social and financial profiles within each TRC is provided for those TRCs in which there were at least five harvesters.
A summary of the socio-financial profiles of harvesters is presented in Tables A (business characteristics) and B (business owner characteristics). Comparisons of profiles across TRCs show distinctive business characteristics among TRCs. The majority of harvesting businesses were found in the Cairns, Mackay and Brisbane TRCs (Table A). Only those harvesters that live in the north harvested trochus and sea-cucumber, while only those in the south harvested sandworms and bloodworms. Aquarium fish and coral sands were harvested throughout Queensland. Harvesting businesses had been owned by the current harvester for between one and 38 years, with some of the oldest harvesting businesses being found in the Innisfail, Yeppoon, Maryborough and Southport TRCs. Businesses with the most boats were from the Mackay and Gladstone TRCs, and those with the largest boats were from the Port Douglas, Cairns and Townsville TRCs. Businesses with the largest median gross value of production (GVP) were from the Port Douglas, Cairns and Gladstone TRCs. The TRC with the greatest total GVP was the Cairns TRC, which had a total GVP from harvest fishing of $5.1 million.

A comparison of the social profiles for each of the seven major TRCs (Table B) also shows unique characteristics for each TRC. For instance, the youngest harvesters were found in the Hervey Bay TRC, and the oldest harvesters were found in the Mooloolaba TRC. Fishers that had resided in their home town for the longest period of time were from the Brisbane, Townsville and Southport TRCs. Most fishers were employed in another industry in addition to the harvest fishing industry, although those from the Mooloolaba TRC were most reliant on income from the harvesting industry.

While the social and financial profiles of harvest fishing businesses may be of interest in their own right, they are most useful when developed further in terms of indicators of sensitivity to change. For instance, characteristics such as age, income, and years in the industry can be used to describe the sensitivity of businesses and harvesters to changes in fisheries policy or changes that affect the quality of the resource. The development of 'indicators of sensitivity to change' will be developed in future reports in this research series.

Table A. Summary of Harvesting Business Characteristics for each TRC.

TRC	Number of Businesses	Number of Employees	Predominant Activities	Mean Years Owned Business	Mean Number of Boats	Mean Boat Length	Median GVP ($'000)	Total GVP ($'000)
Cairns	21	218	T, S, A	10.4	1.8	10.6	76	5,121
Innisfail	5	20	T, S, A	22.3	1.0	8.6	25	137
Townsville	8	20	T, S, A	12.3	1.0	11.4	31	170
Mackay	14	53	T, S, A	10.0	1.3	7.7	50	699
Yeppoon	5	8	A, S	20.0	1.7	6.0	15	38
Gladstone	6	15	A, B	6.4	2.0	4.1	80	975
Hervey Bay	8	17	A, B	7.2	1.6	8.9	5	56
Tin Can Bay	6	6	B	11.1	0.3	5.8	27	180
Mooloolaba	12	24	A, S	14.8	1.4	6.5	44	310
Brisbane	49	81	A, S, B	11.5	1.2	5.4	20	1,433
Southport	14	21	S, B	15.1	1.6	5.8	8	201

Note: T=trochus; S=Seacucumber; A=Aquarium fish, coral, coral sand; S=Sandworms; B=Bloodworms

Table B. Owner-Operator Summary Profiles for each TRC.

TRC	Mean Age	Years in Industry	Years in Town	% Employed Elsewhere	%Own Home	%Completed Year 12	% Use Bus. Plan	% Married	Family Size	Total Family Members	Average Income
Cairns	44.6	13.7	11.4	30.8	38.5	61.5	46.2	38.5	2.1	41	42
Townsville	49.8	13.0	25.3	40.0	60.0	60.0	40.0	80.0	3.0	15	27
Mackay	47.1	12.1	19.0	44.4	66.7	22.2	44.4	66.7	1.4	13	25
Hervey Bay	39.0	10.2	7.8	40.0	0.0	0.0	60.0	60.0	1.4	7	14
Mooloolaba	51.5	22.2	12.3	16.7	50.0	50.4	0.0	66.7	2.6	18	30
Brisbane	44.7	17.2	26.5	31.3	31.3	21.9	12.5	65.6	1.9	62	37
Southport	44.3	19.6	24.2	44.4	62.5	37.5	55.6	66.7	2.6	23	35

Note: Years in Industry, Years in town, Family Size are all Mean values

1. Introduction

This report is the outcome of the first phase of a social assessment research project, which examines the harvest fishing industry in Queensland. It forms the second report of a set of three. The first report examines the commercial fishing industry in Queensland, which includes the trawl, line fishing, net and crab fisheries. The third report examines the tourism fishing-charter industry (Figure 1.1). These reports provide a descriptive overview of the social and financial characteristics of Queensland's commercial fishing industries, the harvest, and tourism fishing charter industries. They summarise the findings of survey research undertaken with each industry using a recently developed framework for social assessment in natural resource management known as Town Resource Cluster (TRC) Analysis.

Further research in the fisheries social assessment research project will (a) develop specific social indicators of vulnerability and sensitivity to change using survey research data in this report and additional secondary data and information, and (b) conduct a more detailed assessment and analysis of the location and patterns of marine resource use as identified in the current survey research and by assessing fishing industry log book data (Figure 1.1).

In addition, much of the social profile and financial information in this report is being developed into a database which will allow specific queries about the use of fisheries resources (Figure 1.1).

The current report is only the first phase of the fisheries social assessment research project. The report presents basic social assessment profiles of the fishing industry and employees within the industry. It has not been developed to assess the social and financial impacts of any specific future changes in fisheries management, but simply provides descriptive profiles which may be useful in understanding how changes may impact coastal communities and the fishing industry.

This report consists of several chapters:

Chapter 2: An overview of social assessment and the application of Town Resource Cluster Analysis (TRC-Analysis) in natural resource management.

Chapter 3: A description of the survey research methodology used in the current study

Chapter 4: A description of the Town Resource Clusters (TRCs) and their identification.

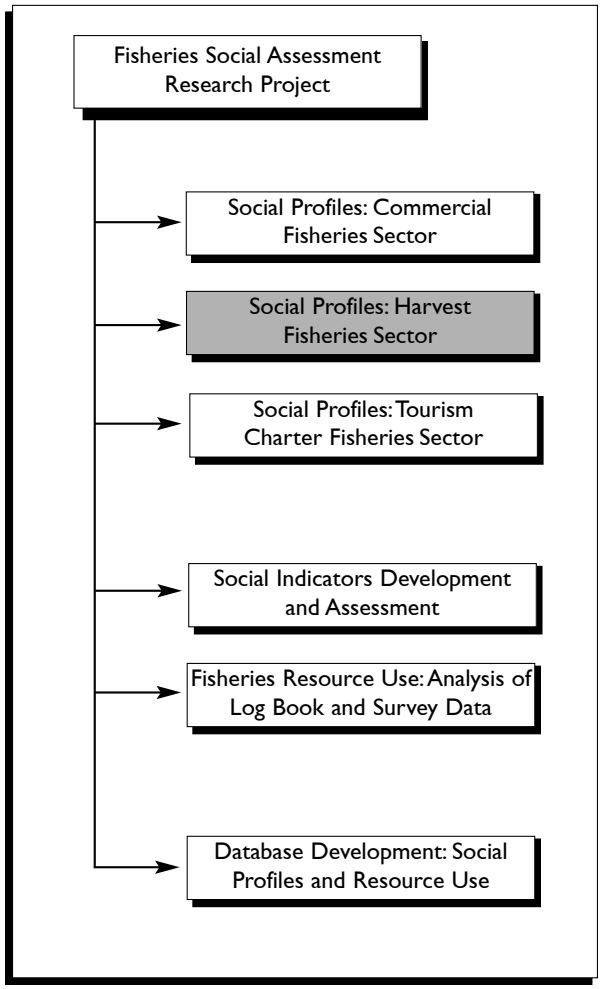

Figure 1.1 Social Assessment Research Projects

Chapter 5: A description of the social profiles of the harvest fishing industry on a statewide basis and a comparison of profiles across the identified TRCs.

Chapter 6 - 12: A description of the social and financial profiles of the harvest industry within each of the seven identified TRCs.

2. Social Assessment and TRC-Analysis

This chapter is a brief overview of social assessment in natural resource management. It describes the procedureused in social impact assessment and the use of Town Resource Cluster (TRC) Analysis as a framework for organising social assessment information in a resource management context.

Social Assessment

Social Assessment is an applied interdisciplinary field that emerged within the social sciences. Social impact assessment methods are tools used to predict the future effects of proposals on people, i.e. their way of life (how they live, work and interact with each other); their culture (norms and traditions); and their community (institutions and structures) (Armour, 1990).

To date, there is no generic method that can be used to identify and predict the social impacts associated with development proposals or changes in land and marine use or management. In addition, social impact assessment is a distinct process, in terms of its methodology and objectives to economic impact assessment. While there is considerable interaction between economic and social impacts, they are nevertheless distinct fields with different techniques, methods and objectives.

Although there is no generic method applicable to social impact assessment, the process has a number of procedural steps or stages which include:

1. Assessment
   1.1 Scoping
   1.2 Profiling
2. Prediction
3. Mitigation
4. Monitoring

The assessment component identifies the potential impacts of a proposal or project before the change has actually taken place. In other words, social assessment attempts to predict the likely impacts, at a community, individual and family level, that may result from some specific change. The assessment phase consists of two key activities: scoping and profiling.

Scoping identifies important issues that relate to the proposed change and determines the timing, depth and extent of analysis that may be required. This entails selecting variables necessary for social analysis; identifying possible and likely social impacts (both positive and negative); and identifying the geography or boundaries of any potential impacts. Scoping is one of the most important activities in the social assessment process because it focuses the assessment on issues of immediate relevance and importance to stakeholders and communities.

Profiling describes the social environment in order to provide a basis for assessing and understanding potential changes. Profiling may be used to develop a more detailed understanding of the demography of the area through the use of social indicators and the analysis of census data, or it may be used to describe the historical changes and processes that have occurred within the community. Profiling may also be used to identify contemporary issues within communities and to better understand the political and social structures that exist within a community or region.

After collecting detailed information about a particular community or region, the prediction component of social assessment uses existing information and social data to identify impacts that may result from the change. This can be achieved through different participatory mechanisms, such as discussions or interviews with community residents, community workshops and/or surveys, or through more quantitative social assessment techniques such as multi-criteria analysis or computer modelling. These impacts are evaluated to determine the probability of occurrence, the importance of impacts to those affected and the distribution of impact across groups and geographic areas.

As with any type of change, some individuals or groups within the community may benefit, while others may experience costs. If negative impacts are predicted, it is the role of the social impact assessment to determine how such impacts may be ameliorated or mitigated to produce the minimum degree of social disruption to those affected.

Monitoring is also a key component of the social assessment process. For any particular project or policy, a monitoring program should be developed to identify deviations from the proposed action, and to document any unanticipated impacts that may arise when a policy process or change is implemented. It is only through detailed monitoring that future predictions of impact can be enhanced.

One of the critical questions that confronts any social assessment process concerns the unit or units of analysis that are used in the assessment. Depending on the context and the objectives of the social assessment process, it may be appropriate to undertake the assessment at different institutional levels such as that of family, industry, stakeholder interest groups or through grouping specific types of resource users. Indeed, within a single social assessment process, the unit of analysis may vary depending on the specific research objectives that are to be addressed.

When undertaking a large scale regional social assessment process, one of the core questions that arises is that of defining community. In the context of a large regional social impact assessment, should community be defined in terms of a single town, hamlet or regional area? In a regional context, where changes may occur in the use of natural resources, a direct impact on one town may have consequent and flow-on impacts on other towns in the region. In this example, should

community be defined as a collection of inter-dependent towns within a region? If this is the case, then questions arise as to how we define the boundaries of community and distinguish one community, or collection of towns or communities from another? This issue is one of the more basic questions underlying social impact assessment. It again focuses on what the appropriate 'unit of analysis' is in the social impact assessment process.

This overview of the social impact assessment emphasises that there are multiple stages or processes within the assessmen. Therefore the current study is not a complete social impact assessment, but simply one component of it. It is part of the profiling phase of the social assessment process, where communities and their relationship to marine fishery resources are defined and described.

The information in this report is a first step if potential social impacts associated with changes in fisheries resource use and management are to be understood. Through the framework of TRC-Analysis, this report provides 'baseline' descriptive information about the commercial fishing industry in coastal communities and the relationship between these communities and areas of fisheries resource use.

The report may provide useful information in understanding who might be impacted by future changes in fisheries resource use or management and the regional and community locations of these impacts. However, this study does not constitute a complete social impact assessment. Given a specific change in fisheries resource use or management, additional social assessment research will be required and would be based not only on the quantitative assessments as presented in this report but often extensive qualitative and participatory research with those potential affected within communities. The current report provides information on which to base more extensive and focussed social impact assessment research and participatory programs where required.

Town Resource Cluster Analysis

TRC-Analysis is a methodological framework for examining the social impacts of changes in resource use or management in a regional planning context. The approach is based on several core conceptual and methodological principles, but may be modified to meet the needs of specific impact assessment and resource management contexts (Fenton, in press). TRC-Analysis is not an alternative to any specific and established social impact assessment techniques. It provides a framework in which existing assessment techniques maybe usefully included and embedded.

Objectives of TRC-Analysis

There are three core objectives of TRC-Analysis, which include (i) the identification of Town Resource Clusters (TRCs), (ii) an assessment of the relationship of TRCs to specific areas of natural resource, and (iii) a description of TRCs in relation to specific indices of vulnerability, resilience or sensitivity to change.

Resource Dependency

Resource dependency indicates a relationship between social and resource systems, to the extent that the maintenance of social systems are in some way reliant on one or more resource systems. Previous research undertaken in resource dependent communities (see for example Randall & Ironside, 1996 for a review of this research) adopted a similar definition of resource dependency. However, resource dependency is only one component of the relationship between social systems and broader environmental and resource systems.

In the marine environment, resource dependency may include extractive use of the resource (ie., fishing, hunting, mining) or non-extractive use of the resource (ie., specific leisure, tourism and recreational uses) (Figure 2.1). In addition, the relationship to social systems may be more broadly focussed on environmental rather than resource systems. Therefore, the relationship between social and environmental systems may be defined in terms of the associations people have with the marine environment, which may include symbolic and place meanings as well as specific environmental values.

The current research focuses on one component of the relationship between social and marine environmental systems. While the research focus is on the dependency of social systems on marine fisheries resources, the TRC-Analysis framework also enables broader environmental associations, meanings and values to be examined.

In understanding the relationship between social and resource systems within the context of resource dependency, there are three core issues that need to be examined. The first issue concerns the issue of defining the social system. In the context of TRC-Analysis as a regional planning framework this essentially becomes a question of defining community for the

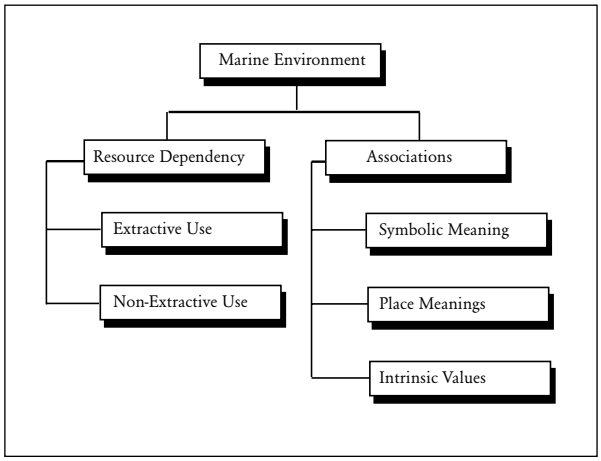

Figure 2.1 Resource Dependencies and Associations

purpose of identifying some level of resource dependency. The second question concerns how we define the resource and the geographic location of the resource. Finally, and given some operational definition of both community and resource, there is a need to describe the 'linkage' between the resource dependent community and the resource itself.

Resource Dependent Communities

TRC-Analysis aims to define meaningful spatial units on which to ground later social impact and assessment processes. Such locationally and geographically distinct social units are referred to as Town Resource Clusters (TRCs). Many natural resource management units used by natural resource management agencies are clearly defined on the basis of specific ecological and resource management characteristics, but there is no corresponding unit associated with the social environment. Without a locationally distinct unit which defines the social environment, any attempt to understand social and community processes, particularly in the context of

natural resource management will be fragmented and disparate (Murphy, 1991).

In defining resource dependent communities, there is an issue of what defines community. There is also an issue of defining communities which are at some level identified as resource dependent. In the first instance, conceptual and methodological issues associated with the definition of community continue to be problematic and depending on the research context, and often issues of data availability, community has been defined in various ways from town to county or Local Government Area to regions (Machlis & Force, 1988; Machlis, Force and Balice, 1990). More meaningful boundary definitions are required in relation to community. Definitions of community should be meaningful in relation to prevailing social structures, levels of community organisation and interdependence. They should not be defined purely on the basis of convenient administration boundaries or data availability.

Machlis & Force (1988) suggested that to better understand resource dependent communities, community may need to be considered as a hierarchical or nested concept. This approach is similar to that considered in central place theory (Fairbairn and May) where in a regional context, a network of central places or towns exist in relation to specific trade areas and the supply and consumption of goods and services. As Cramer, Kennedy, Krannich & Quigley (1993) have emphasised in the context of timber production and natural resource dependency, changes in resource availability often lead to "chain reactions...affecting not only loggers and mill workers, but businesses, social services and people not generally involved in timber production" (p. 477).

A recognition of the 'mutual interdependence' of communities and townships in a regional resource planning and management context is given in Mayfield's (1996) study on the relationship between small farms and the location from which farm goods and services were purchased. This research suggested significant micro-economic and financial interdependence among farming communities. Through better understanding the interdependencies amongst communities, clusters of mutually interdependent townships (Town Resource Clusters) can be identified, providing a more appropriate theoretical and conceptual rationale for defining community.

This approach defines community as what is commonly referred to as social catchments, which are interdependent towns and communities dispersed throughout a region. The towns, at the same time, can also be hierarchically arranged as is the case in central place theory. Based on previous research in several natural resource management contexts (Fenton, 2000, 1999a, 1999b, 1998) the interdependencies among towns were defined on the basis of (a) the location of business purchases, (b) the location of purchases of household goods and services and (c) the location from which social infrastructure services and facilities were used. This locational information was used as the basis for identifying clusters of towns and communities which are referred to as Town Resource Clusters (TRCs).

In the current study, the description of communities by the identifying Town Resource Clusters (TRCs) used locational information from survey data collected from interviews with commercial fishers. Therefore, the number of fishing businesses and location of their use of services and facilities, and purchase of goods and services, was used to define the TRCs. Although the TRCs were defined within the context of commercial fishing, these TRCs are probably relatively constant across industry groups and sectors within the community. Distance between townships plays a significant role in the use of services and the purchase of goods and it is unlikely that there would be significant variation across different industry and occupational groups.

The Resource

Much research has focused on the resource dependent community, and not on issues related to the resource itself. The resource is often defined in terms of a simple resource typology, to the effect that communities are dependent upon fishing, native timber harvesting, mining or agriculture. Concurrent consideration given to defining and describing resource systems on which communities depend is also needed. This requires considerable integration of conceptual and theoretical approaches between the social and natural sciences. Typical of such an integrative approach is research on social and ecological resilience (Adger, 2000) where consideration is given to defining resilience within social and resource systems, and to how changes in the resilience of either systems may impact alternate systems.

Questions also arise about defining the resource on which communities depend. This is particularly the case in resource contexts such as fishing, forestry and the use of water resources where the resource itself may be dispersed throughout a geographic area.

In the management of natural resources, geographic areas are often delineated. For instance, in the management of water resources, specific water catchments are often geographically defined. Forest resources are often defined on the basis of Forest Management Areas, timber supply zones or other resource-based units. Marine resources on the Great Barrier Reef are delineated by a zoning system which specifies the permitted use of reef resources. Similarly, several states manage their natural resources on the basis of spatially defined biogeographic regions which encompass the entire state.

There were no a priori regional classifications of marine coastal areas in Queensland to assist in defining the spatial extent of the resource. Therefore, the spatial extent of the marine resource used for commercial fishing was defined on the basis of the use of the resource by the commercial fishing businesses. Information drawn from interviews with commercial fishers on the location of resource use was recorded on a 15-minute grid overlay. Each 15 minute grid provided information about the number of commercial fishing businesses using the resource.

For Queensland as a whole, the analysis of information within the 15-minute grids provided information about the density of fisheries resource use within specific areas. However, it was also important to examine the spatial extent and density of fisheries resource use to each of the defined TRCs. Analysis of resource use among fishers from each TRC provided consistently meaningful spatial patterns of resource use associated with each one. In all cases and based on the count of fishing businesses using an area, resource areas of high, moderate and low use were identified. In the majority of cases, 15-minute grids with high use were spatially proximate and adjacent, as were grids associated with moderate use. Areas of high use associated with each TRC were referred to as primary resource catchments, while areas of moderate resource use were referred to as secondary resource catchments.

Resource Dependent Linkages

Another objective of TRC-Analysis is to establish a relationship between the use of natural resources and specific Town Resource Clusters (TRCs). This allows an understanding of what communities and townships are likely to be affected by changes in the management and use of natural resources and to determine the values that individuals and groups place on particular resource areas. As such, this establishes a core 'linkage' between the natural resource and the TRC, such that given a change in the status of the natural resource, the probable location of any potential social impacts and changes may be clearly identified.

Defining a TRC and understanding the spatial location of the primary and secondary resource catchments associated with the TRC provides a better understanding of how changes in the resource system may impact on associated social systems and conversely how changes in the social system may impact on resource systems.

Figure 2.2 shows the linkage between the natural resource and the TRC. On the one hand, changes in natural resource management may have identifiable impacts on specific TRCs, given the identified dependency of communities within the TRC on specific areas of natural resource (ie., primary and secondary catchments). Conversely, knowing the characteristics or profiles of communities within TRCs, and in particular their level of sensitivity to change and their resilience to change, can provide important information along with environmental and ecological criteria to assist in the management of areas of natural resource. The TRC represents the social unit in which potential social change may be identified and managed.

Identifying social units (TRCs) and concurrently understanding the relationship or level of dependency between the TRC and areas of natural resource enables managers to better consider the social impacts and consequences of changes to natural resource management.

Although dependency on fisheries resources is the focus for the current TRC-Analysis, there are nevertheless other significant social and community relationships with the marine environment as discussed earlier and as shown in Figure 2.1. The current study has only examined marine resource dependency of specific communities, and in particular dependency as defined through extractive resource use based on the commercial fishing industry. In understanding the broader linkages between communities and the marine resource other forms of marine resource dependency would need to be examined as well as the specific associations between individuals and groups in communities in relation to the marine environment.

Describing Town Resource Clusters

Defining a TRC and its associated primary and secondary resource catchments provides the framework to develop further social impact assessment procedures including community involvement programs and the use of additional quantitative social assessment techniques. For instance, community involvement programs can be more effectively directed at those communities where a known relationship exists between the area of resource use and the community.

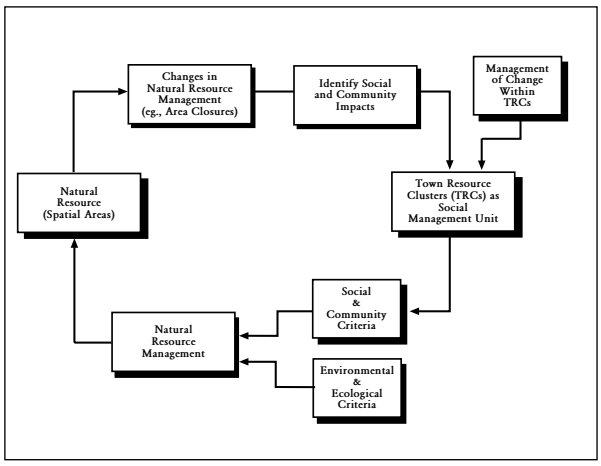

Figure 2.2 Social Assessment Research Projects

Ecosystems within the primary and secondary resource catchments can be described by ecological indicators, such as those of ecosystem health, resilience and biodiversity. Such descriptions are important in monitoring the condition of ecosystems and evaluating the impact of human activities.

TRCs and communities within TRCs can be described using a range of social indicators. Of particular importance in this context is the description of TRCs on the basis of indicators which provide information on resource dependency and social resilience or sensitivity to change. Although such social indicators are not developed, analyzed and presented in the current report they are nevertheless an important part of the current research program (Figure 1.1) and will be developed in a later research report.

The current study has collected considerable social and financial profile information about harvest businesses within TRCs. The profile information provides research information for a variety of uses. The information collected in developing of profiles can also be used later to develop social indicators of resource dependency, social resilience and sensitivity to change.

The current study adopts a TRC framework for undertaking social assessment of the harvest fishing industry in Queensland. This report is the first stage in this assessment which includes basic descriptive information to identify and describe TRCs. Within the TRC framework this report (a) identifies specific TRCs, (b) identifies primary and secondary resource catchments associated with TRCs and (c) provides basic profiles of fishing businesses and employees within the defined TRCs.

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3. Methodology

There is a paucity of social information about the commercial fishing industry and its employees in Queensland, and specifically the harvest industry. Therefore, primary data needed to be collected through surveys to develop basic social, demographic and descriptive profiles of fishing businesses and employees.

Questionnaire Design

The questionnaires used in this study were based on questionnaires used to assess changes in forest resource management in Victoria and Queensland (Fenton, 1998, 1999). Although questionnaires used in previous studies had been designed for self-completion, the questionnaire used in the current study was designed to be completed through telephone interviews. The questionnaire was administered to licenced harvest fishers in Queensland and sought information about the fishing business, and social and demographic characteristics of the business operator and their family.

Harvest Business Questionnaire

There were approximately fifty questions in the questionnaire. In the first section, harvesters were asked about their fishing business and fishing practices. This included questions on the location of their homeport, years of business operation, number of boats, size of boats, type of fishing activity, seasonal variations in fishing, number of employees, the value and location of sales and the town locations for business expenditure.

The second section of the questionnaire included questions about the location of resource use and the use of coastal ports when accessing different areas of resource use. When asking questions about the location of resource use, interviewers used detailed coastal maps to help identify areas of resource use, with resource use often being identified in relation to specific reefal areas or in relation to specific towns along the Queensland coast.

In the third section of the questionnaire, all harvesters were asked for information about their town of residence, years of residence, hours worked in the industry, usual months in which they worked in the fishing industry and the location of towns from which they purchased household goods and services. This section also included questions which provided information on the social and demographic profiles of employees and their families, including the age, gender, marital status, housing tenure and educational levels of family members.

Specific and detailed questions relating to the financial characteristics of the harvest business were not included in the current survey, because the Queensland Department of Primary Industries had conducted an economic survey of fishing businesses within Queensland during a comparable time period.

Questionnaire Pre-testing

Before conducting the interviews, the questionnaires were pre-tested with members of the harvest industry. A small number of harvest fishers were asked if they could assess the questionnaire in terms of the appropriateness of the questions and the terminology used in the questionnaire. The questionnaire was also reviewed by staff at the Great Barrier Reef Marine Park Authority.

Perhaps the most difficult question required harvesters to recall the location of their fishing activities over the previous 12 months. This information had to be recorded at sufficient detail through a telephone interview so that it could be transferred with reasonable accuracy to a 15-minute grid overlay. The pre-test indicated this was possible and that accuracy could be improved by ensuring that all interviewers had detailed coastal maps available to them when asking questions about the location of resource use.

Survey Sampling and Administration

The objective of the sampling procedures was to obtain a full census of all commercial fishing businesses in Queensland as identified in the database of licenced master fishers. The Queensland Fisheries Service provided a database of 194 names, addresses and telephone numbers of harvest fishers. Due to the 'dynamic' nature of contact databases, it was not possible to contact all fishers because many contact details, including addresses and telephone numbers, were either out of date or incorrect.

During the evenings, weekends and occasionally weekdays of August 1999 to April 2000, trained interviewers contacted fishers and made appointments for interviews at convenient times. The response for each fisher was recorded as either: surveyed, refused, unable to be contacted, or insufficient contact information. Considerable effort was made to locate each fisher identified on the database. The questionnaire took approximately 30-45 minutes to complete, depending on the extent to which individual fishers wished to discuss specific issues.

Fishers were informed of the research prior to being interviewed. All fishers received a letter by mail informing them of the study and inviting them to participate. The research was also advertised in the QCFO newsletter prior to commencing the interviews.

Questionnaire Response Rates

The characteristics of the fishing industry make it difficult to contact owner-operators, becauase many fishers live on boats, are away for extended periods, or when in port have no fixed address.

Table 3.1 shows the response rate and response characteristics for the survey of harvest businesses in Queensland. Interviews were undertaken and questionnaires completed from 101 harvest fishers. This represented a response rate of 96% of those who were able to be contacted. Table 3.1 also shows that 28.9% of fishers identified on the database were unable to be contacted for a number of reasons, including incorrect phone numbers, or that there was no answer when they were called for the interview.

Of the 194 licence holders, 44 (22.5%) were considered latent, i.e. reported that they were no longer in business or that they had retired. For the purpose of further analysis within this report, it is assumed that there were therefore 163 active harvest licences in Queensland.

Table 3.1. Response Rates: Harvest Businesses

Response	Frequency	Percent
Completed Questionnaires	**101**	**52.1**
Incorrect phone number	44	22.7
No answer to telephone	12	6.2
Total Unable to Contact	**56**	**28.9**
No longer in business or retired	31	16.0
Total Latent	**31**	**16.0**
Refusal	6	3.1
Total	**194**	**100.0**
Response Rate[1]		95.7
Industry Representation[2]		68.0

Note: [1]*The response rate is the number of completed questionnaires to the total number of businesses excluding those unable to be contacted or those not in or new to the industry.*

[2]*Industry representation is the number of completed questionnaires to the total number of businesses excluding those deceased and those no longer in business or retired.*

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4. Identification of Town Resource Clusters

Identification of TRCs

Town Resource Clusters (TRCs) represent clusters of mutually interdependent towns or communities which have a clear relationship to a specific geographic region or area of marine resource use.

The identification of TRCs was based on the homeports of fishing businesses, as reported in Part A of this research series (Fenton & Marshall 2001a), because it was considered that much of the business expenditure, the residential location of employees, the household expenditure patterns of employees and the use of social infrastructure services among employees would centre around the homeports of fishing businesses.

An examination of all homeports of fishing businesses as identified in the survey questionnaire of this research series (Fenton and Marshall 2001a), indicated that the majority of fishing businesses were located in major regional and sub-regional centres on the Queensland coast. In some instances suburbs within the regional centre were identified as the homeport. However, suburb locations were classified as part of an identified regional centre on the basis of the Australian Bureau of Statistics definition of urban centres and localities.

Table 4.1 identifies the major regional centres which harvesters used as homeports, which were used to define the TRCs. Where the homeport of a fishing business was not located within a major regional centre, the location of business expenditure and the residential town location of the business operator was used to classify the business within a TRC. Many of the TRCs consisted of a major regional centre in which the majority of fishing businesses were located and smaller towns and communities surrounding the regional centre in which other fishing businesses were also located.

As shown in Table 4.1, this procedure classified 100% of harvest businesses within a TRC.

Once the initial TRCs had been defined using information about the location of the homeports of fishing businesses, the residual location of harvest operators were also located within these TRCs. This was undertaken using a similar procedure used in locating the homeports of fishing businesses. Where the residual location was not a homeport within a TRC as previously identified, the town location of household expenditure and use of social infrastructure services was examined in locating the hometown within a TRC.

Table 4.1 Harvest Businesses in TRCs

TRC	Frequency	Percent
Port Douglas	2	2.0
Cairns	14	13.9
Innisfail	3	3.0
Lucinda	1	1.0
Townsville	5	5.0
Airlie Beach	1	1.0
Mackay	9	8.9
Yeppoon	3	3.0
Gladstone	4	4.0
Hervey Bay	5	5.0
Maryborough	1	1.0
Tin Can Bay	4	4.0
Mooloolaba	8	7.9
Brisbane	32	31.7
Southport	9	8.9
Total Harvesters	**101**	**100.0**

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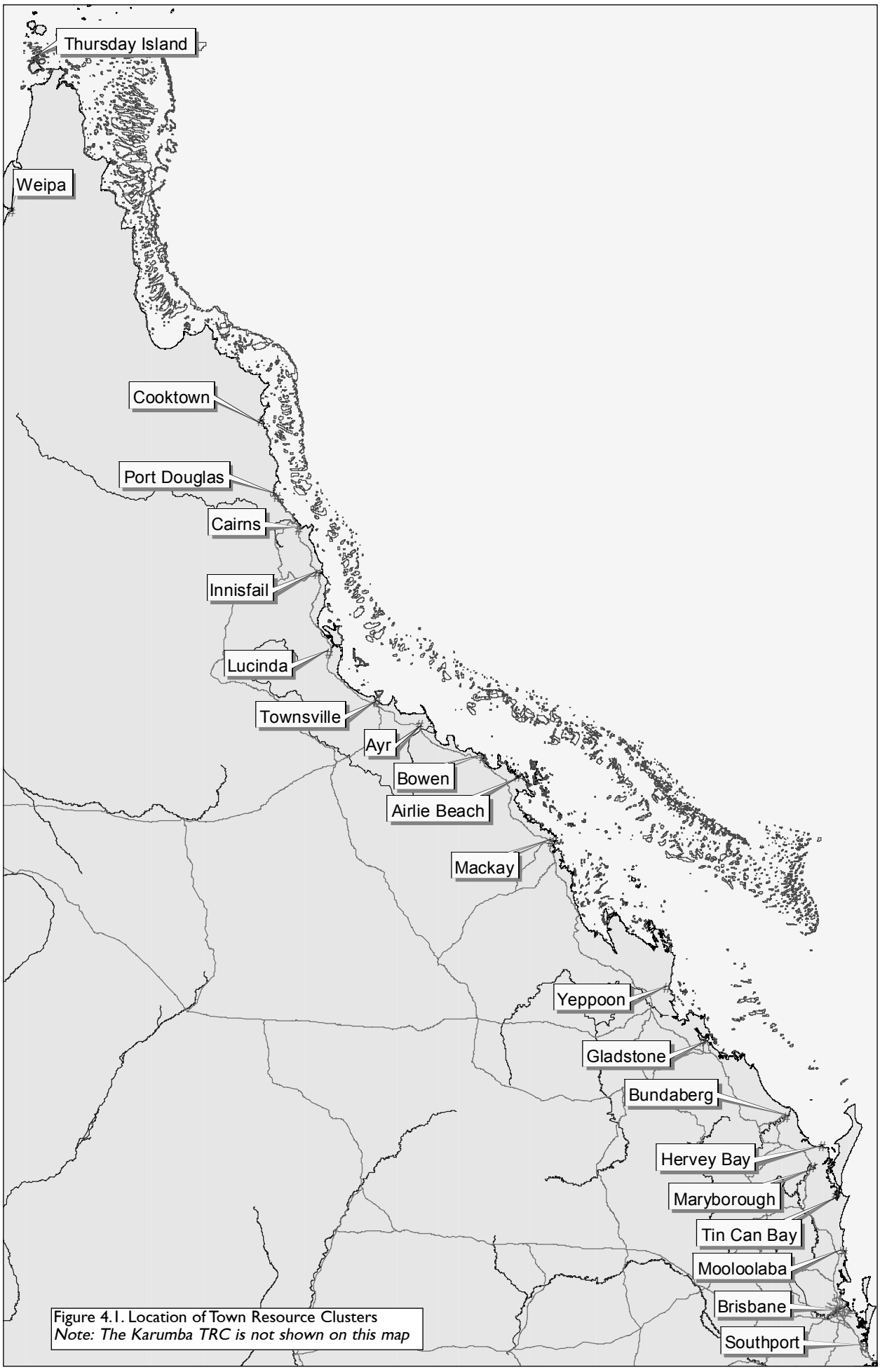


Figure 4.1. Location of Town Resource Clusters
Note: The Karumba TRC is not shown on this map

5 Queensland Harvest Industry and Owner-Operator Profiles

The following analyses are undertaken for all harvest businesses throughout Queensland. Where appropriate, comparisons across the 15 TRCs are also presented.

BUSINESS PROFILES

Number of Harvest Businesses

There were 194 individual license holders identified in the Queensland Fisheries Service Harvest Fishery Database (Table 3.1). On the basis of this survey research it was estimated that there was a 22.5% latency within the industry, which consisted of all fishers who were either deceased, had reported they were no longer in business or had retired. It is estimated that there were 163 active harvest license holders in Queensland over the past 12 months.

Table 5.1 and Figure 5.1 show the estimated count and percentage distribution of harvest businesses within 15 TRCs in Queensland. Most harvesters worked from the Brisbane TRC (31.7%). The Cairns (13.9%), Mackay (8.9%) and Mooloolaba (7.9%) TRCs were also major centres for harvest activity in Queensland. Table 5.1 also shows that there were more harvest businesses in the southern sections of Queensland than in the northern sections. Those TRCs that are directly adjacent to the Great Barrier Reef Marine Park (TRCs from Cooktown to Gladstone) accounted for 40.0% of harvest businesses in Queensland.

No harvest activity was recorded in the Ayr, Bowen or Bundaberg TRCs, or on Cape York (Karumba, Weipa, Thursday Island or Cooktown TRCs).

Table 5.1. Number of Harvest Businesses by TRC

TRCs	Estimated Count	Percent of all Businesses
Port Douglas	3	2.0
Cairns	21	13.9
Innisfail	5	3.0
Lucinda	2	1.0
Townsville	8	5.0
Airlie Beach	2	1.0
Mackay	14	8.9
Yeppoon	5	3.0
Gladstone	6	4.0
Hervey Bay	8	5.0
Maryborough	2	1.0
Tin Can Bay	6	4.0
Mooloolaba	12	7.9
Brisbane	49	31.7
Southport	14	8.9
Total	154	100.0

Note: The total estimated count is based on the sum of individual estimates from within each TRC.

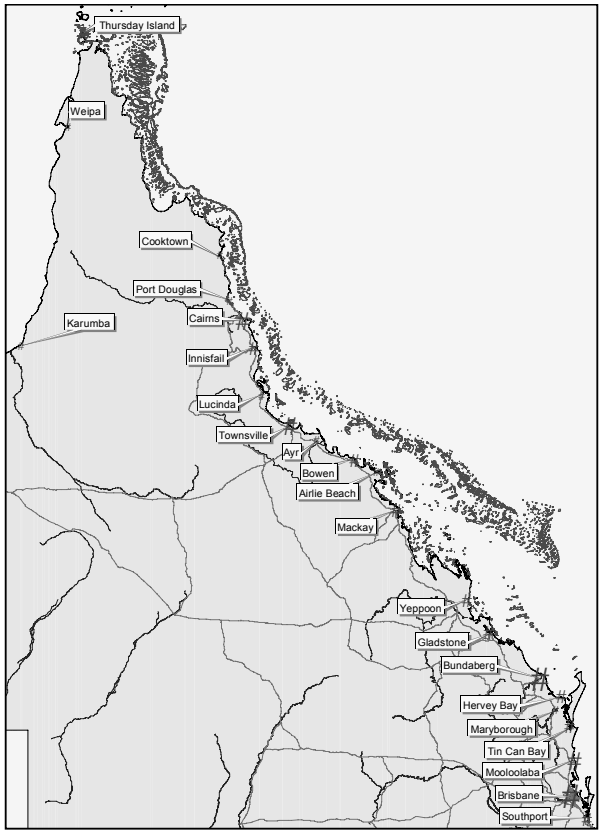


Figure 5.1 Percentage of Harvest Businesses within TRCs

Fishing Activity and Type

Table 5.2 shows the types of harvesting activity undertaken in Queensland over the previous year. Aquarium fish (27.5%), bloodworms (20.2%), coral (19.3%) and sandworms (10.1%) were the main products harvested.

Table 5.2 Queensland State: Type of Harvest Activity

Fishing Type	Sample Count	Sample Percent	Estimated Population Count
Aquarium fish	30	27.5	42
Bloodworms	22	20.2	31
Coral	21	19.3	30
Sandworms	11	10.1	16
Yabbies	9	8.3	13
Grit and coral sand	6	5.5	8
Trochus, seacucumber	5	4.6	7
Shells	5	4.6	7

Note: All rows are independent.

Table 5.3 shows the percentage of harvest businesses collecting aquarium products (fish, invertebrates, grits and sands), trochus, seacucumber, sandworms, bloodworms and yabbies across each TRC. Aquarium products were mostly collected from the Cairns (26.8%), Mackay (14.6%), and Brisbane (14.6%) TRCs.

Trochus and Seacucumber were harvested only north of Mackay, mostly from the Cairns (66.1%) and Mackay (19.5%) TRCs. Sandworms were collected only south of Mackay, especially from the Southport (48.7%), Mooloolaba (28.4%) and Brisbane (10.3%) TRCs. Bloodworms and yabbies were collected predominately from the Brisbane (66.7%) and Southport (20.0%) TRCs.

Table 5.3. Type of Fishing Activity Across TRCs

TRC	Aquarium Products (%)	Trochus/ Seacucumber	Sandworms (%)	Bloodwms/ Yabbies(%)
Port Douglas	2.4	3.9	0.0	0.0
Cairns	26.8	66.1	0.0	0.0
Innisfail	2.4	5.4	0.0	3.3
Lucinda	2.4	0.0	0.0	0.0
Townsville	4.9	5.1	0.0	0.0
Airlie Beach	0.0	0.0	0.0	0.0
Mackay	14.6	19.5	0.1	0.0
Yeppoon	4.9	0.0	4.5	0.0
Gladstone	9.8	0.0	0.0	3.3
Hervey Bay	2.4	0.0	0.0	3.3
Maryborough	0.0	0.0	7.7	0.0
Tin Can Bay	0.0	0.0	0.3	3.3
Mooloolaba	9.8	0.0	28.4	0.0
Brisbane	14.6	0.0	10.3	66.7
Southport	4.9	0.0	48.7	20.0
Total	100.0	100.0	100.0	100.0

Source CRC Reef (2000).

Table 5.4 shows the frequency of harvest activity in Queensland across all fisheries with the peak season between November to January. The peak season for harvesting aquarium fish, grit and sand was July to November. The peak for trochus and seacucumber was August to December. The peak months for collecting sandworms were January, April, July and December, and the peak months for collecting bloodworms & yabbies were December and January.

Table 5.4. Peak Harvesting Months During Past 12 Months

Month	QLD %	Aq. Fishery(%)	Trochus/ Seacuc.%	Sandwms %	Bloodwms/ yabbies(%)
January	37.6	21.2	40.0	54.5	45.5
February	18.8	18.2	40.0	9.1	22.7
March	15.3	21.2	0.0	9.1	18.2
April	21.2	15.2	0.0	36.4	22.7
May	12.9	18.2	0.0	18.2	4.5
June	18.8	27.3	0.0	27.3	9.1
July	28.2	30.3	40.0	36.4	13.6
August	31.8	42.4	60.0	27.3	18.2
September	28.2	27.3	60.0	27.3	22.7
October	30.6	39.4	80.0	27.3	18.2
November	34.1	42.4	80.0	18.2	27.3
December	48.2	24.2	60.0	63.6	68.2

Source: Reef CRC (2000)

Location of Resource Use

Figure 5.2 shows the location of resource use across all harvest operations in Queensland. The highest density of use was on the reefs closest to Cairns and Port Douglas, as well as coastal areas nearest Yeppoon and Moreton Island.

The harvesting of aquarium fish and coral occurred mostly on the reefs closest to Port Douglas, Cairns, Innisfail, Townsville and Bowen. The harvesting of grit and sands occurred mostly along the coast nearest Tin Can Bay, Mooloolaba and Southport. Bloodworms were harvested mostly along the beaches of Moreton Bay, and sandworms were harvested mostly around Southport, Mooloolaba and Tin Can Bay.

Harvest Industry Employment

There were an estimated 502 fulltime equivalent people employed in the harvesting industry in Queensland over the previous year (Table 5.5). Table 5.5 also shows that nearly 44% of people working in the industry were from the Cairns TRC. Brisbane (16.1%) and Mackay (10.6%) were also major centres for employment for employment in Queensland.

Table 5.6 shows that most harvesters were employed in a fulltime capacity (76.2%). There were an average of 2.6 fulltime equivalent employees per business, and 48.5% of businesses had fulltime owner-operators with no additional full-time staff.

Table 5.5 Number of Employees Across TRCs

TRC	Estimated Count	Percent of all Employees %
Port Douglas	14	2.7
Cairns	218	43.5
Innisfail	20	4.0
Lucinda	2	0.3
Townsville	20	4.0
Airlie Beach	2	0.3
Mackay	53	10.6
Yeppoon	8	1.5
Gladstone	15	3.0
Hervey Bay	17	3.3
Maryborough	2	0.3
Tin Can Bay	6	1.2
Mooloolaba	24	4.9
Brisbane	81	16.1
Southport	21	4.3
Total	502	100.0

Source CRC Reef (2000).

Business Ownership and Size

Table 5.7 shows that the number of years the current operator has owned the harvest business was an average of 12 years. The majority of businesses had been owned by the current operator between 6-10 years (36%), and 25% had been owned by the current operator for more than 15 years.

Table 5.8 shows that harvesting businesses in Queensland had been operating for an average of 12.4 years, and that most businesses had been operating between 6-10 years (39%).

Table 5.9 shows the number of years that businesses have been operating, and the number of years that they have been owned by the current harvester across TRCs. Many harvest businesses have been owned and operated for many years. Businesses in the Maryborough, Innisfail, Yeppoon, and Southport TRCs have been owned by the current operator for the longest period. In addition, businesses in the Mooloolaba, Yeppoon, and Innisfail TRCs have been in operation for the longest period.

Table 5.6 Number of Employees

Number of Employees	Full-Time Count	Full-Time Percent	Part-Time Count	Part-Time Percent	Casual Count	Casual Percent
0	24	23.8	70	71.4	74	75.5
1	49	48.5	17	16.8	15	14.9
2-3	18	18.4	9	8.9	5	5.0
4-5	5	5.0	1	1.0	2	2.0
6-10	0	0.0	0	0.0	1	1.0
10+	2	2.0	1	1.0	1	1.0
Total Businesses	98		98		98	
Total Employees	174		89		66	
Mean Number of Harvesters per Business		2.6				
Estimated Number Employed within the TRC		502				

Note: Part-time and casual employment is recorded as 0.5 when contributing to total employment.
Total number of employees includes the owner-operator and is the number of full-time equivalent employees.

Table 5.7 Queensland State: Number of Years of Current Ownership of the Harvest Business

Number of Years	Sample Count	Percent	Cumulative Percent
1-5	25	25.0	25.0
6-10	36	36.0	61.0
11-15	14	14.0	75.0
16-20	8	8.0	83.0
21-25	4	4.0	87.0
26-30	6	6.0	93.0
31+	7	7.0	100.0
Total	100	100.0	100.0
Mean Number of years owned or operated			12.0

Note: Standard error of 0.37 for number of years ownership
Only 100 businesses reported this information

Table 5.8 Queensland State: Number of Years of Operation of the Harvest Business

Number of Years	Sample Count	Percent	Cumulative Percent
1-5	22	22.0	22.0
6-10	39	39.0	61.0
11-15	17	17.0	78.0
16-20	7	7.0	85.0
21-25	3	3.0	88.0
26-30	6	6.0	94.0
31+	6	6.0	100.0
Total	100	100.0	100.0
Mean Number of years owned or operated			12.4

Note: Standard error of 0.37 for number of years ownership
Only 100 businesses reported this information

Table 5.10 shows that there was an average of 1.4 boats per harvest business in Queensland. The majority of businesses operated one boat (54%), and 4% operated with more than four boats. Some 15% of businesses did not operate with a boat.

Table 5.11 shows that the average length of boats used in the harvesting industry was 7.4m, and the average length of the largest boat owned was 7.6m. Most vessels were small, where 59.1% were between 2-6m.

Table 5.9 Mean Years of Current Ownership and Operation of Harvest Businesses by TRC

TRCs	Mean Years Owned	Mean Years Operated
Port Douglas	7.0	3.8
Cairns	10.4	12.4
Innisfail	22.3	18.3
Lucinda	0.4	1.5
Townsville	12.3	12.3
Airlie Beach	10.0	10.0
Mackay	10.0	10.0
Yeppoon	20.0	20.0
Gladstone	6.4	4.7
Hervey Bay	7.2	6.6
Maryborough	38.0	17.0
Tin Can Bay	11.1	9.1
Mooloolaba	14.8	23.1
Brisbane	11.5	11.5
Southport	15.1	15.2

Table 5.10 Number of Boats Operated by Businesses

Number of Boats	Sample Count	Percent
0	15	15.0
1	54	54.0
2	19	19.0
3	8	8.0
4+	4	4.0
Total Number of Businesses	100	100.0
Mean Number of Boats Operated		1.4

Note: Standard errors for number of boats operated = 0.1

Table 5.11 Length of Boats Operated by Harvest Businesses

Length of Boats	Sample Count	Percent
2-6	81	59.1
7-10	33	24.1
11-14	13	9.5
15-18	6	4.4
18-24	2	1.4
24+	2	1.4
Total Number of Boats	137	100.0
Mean Length of Boats (metres)		7.4
Mean Length of Largest Boat (metres)		7.6

Note: Standard errors for number of boats operated = 0.1

Table 5.12 shows that the TRCs with the greatest number of boats per business were Airlie Beach, Gladstone, Hervey Bay and Southport. The largest vessels, however, were in the Port Douglas, Hervey Bay and Townsville TRCs.

Table 5.12 Queensland State: Number and Length of Boats per Harvest Business by TRC

TRC	Mean Number of Boats	Mean Length of Boats	Mean Length Largest Boat
Port Douglas	1.0	12.5	12.5
Cairns	1.8	10.6	9.3
Innisfail	1.0	8.6	8.6
Lucinda	1.0	5.8	5.8
Townsville	1.0	11.4	11.4
Airlie Beach	2.0	4.6	5.2
Mackay	1.3	7.7	9.9
Yeppoon	1.7	6.0	6.7
Gladstone	2.0	4.1	6.0
Hervey Bay	1.6	8.9	11.9
Tin Can Bay	0.3	5.8	5.8
Mooloolaba	1.4	6.5	6.7
Brisbane	1.2	5.4	5.5
Southport	1.6	5.8	6.9

Source: Reef CRC (2000)

Value of Production

All harvest businesses were asked to identify the amounts of product harvested during the previous 12 months. From these amounts, the GVP for each business was calculated using the current wholesale price for each product (Table 5.13). Across the sample of 101 harvesting businesses, all but 15 provided this information to the interviewer. For these businesses, the GVP was calculated using the business income quoted. For two businesses, the business income did not correspond with the wholesale value of product value, and adjustments were made on the average price of aquarium fish for these businesses.

Table 5.14 shows the estimated annual GVP for each harvesting product collected in QUeensland over the previous year. Most businesses harvested aquarium fish (30), and the total GVP for aquarium fish was estimated at $8.8 million for Queensland. The mean GVP per aquarium fish business ($192,000) was substantially higher than the median GVP per business ($60,000), suggesting that there is a range of sizes in aquarium fish businesses.

Table 5.13 Wholesale Value of Product

Harvest Product	Price per Unit
Aquarium fish	$10 per fish,*
Coral	$5,000 per tonne
Bloodworms/tubeworms	70 cents each
Sandworms	50 cents each
Sea-cucumber	$8,000 per tonne
Trochus	$5,500 per tonne
Yabbies	5 cents each
Starsand, grit, coral sand	$500 per tonne
Shells	$30 each

*Note: Note: *supplied by John Kung, CRC Reef*

Harvesters of trochus and seacucumber had the highest mean and median GVP per business ($307,000 and $168,000 respectively). The total GVP for the trochus and seacucumber industry was estimated at $2.3 million.

Bloodworms were also a substantial harvesting industry in Queensland, estimated at $1.2 million. Coral was collected by several harvesters, although the mean GVP ($11,700) and median GVP ($2,000) were relatively low. Grit, sand, shells and yabbies were relatively minor products harvested in Queensland, totalling less than $300,000 for the year.

Table 5.15 displays the distribution of GVP for all harvesters in Queensland. Most businesses (70.4%) produced less than $50,000 during the twelve month period. The histogram indicates that the industry is highly skewed towards smaller businesses. Around 4.2% of businesses, however, produced more than $300,000. The mean ($97,000) was substantially higher than the median ($33,000) for the sample population.

Table 5.16 shows that the Cairns TRC produces 53.6% of the Queensland GVP, and that the Brisbane TRC (15.0%), Gladstone TRC (10.2%) and Mackay TRC (7.3%) are also major producers of harvest product in Queensland.

Table 5.14 Annual GVP for all Harvesting Products

Product	Sample Size	Mean GVP ($)	Meadian GVP ($)	SE Mean ($)	Estimated Sum ($,000)
Aquarium Fish	30	192,116	60,000	100,000	10,019
Trochus/Seacucumber	5	307,200	168,040	112,000	2,670
Bloodworms	22	35,360	15,400	15,500	1,352
Coral Harvesting	21	11,700	2,040	10,000	427
Sandworms	11	15,200	6,700	7,500	290
Grit/Sand	6	18,650	12,300	2,600	193
Shell	5	8,300	2,200	9,000	72
Yabbies	9	3,600	1,330	1,000	56
Total					$15,000

Note: 15 businesses were unable to provide this information
Source: Reef CRC

Table 5.15 Annual GVP and Mean GVP for All Queensland Harvest Businesses

Gross Value of Production ($,000)	Sample Count	Percent	Cumulative Percent
1 - 25	45	45.9	45.9
25 - 50	24	24.5	70.4
50 - 75	8	8.2	78.6
75 - 100	5	5.1	83.7
100 - 125	5	5.1	88.8
125 - 150	0	0.0	88.8
150 - 175	2	2.0	90.8
175 - 200	2	2.0	92.8
200 - 225	0	0.0	92.8
225 - 250	0	0.0	92.8
250 - 275	2	2.0	94.8
275 - 300	1	1.0	95.8
300,000+	4	4.2	100.0
Sample size		98	
Mean GVP		$97,000	
Median GVP		$33,000	
SE GVP		$30,000	
Estimated Total GVP for QLD		$14,563,450	

Source: Reef CRC (2000)

Table 5.16 Histogram of GVP for all Harvesting Activities in Queensland

TRC	Median GVP ($)	Annual GVP ($)	Percent QLD
Port Douglas	82,000	164,000	1.7
Cairns	76,250	5,120,900	53.6
Innisfail	25,000	137,000	1.4
Lucinda	3,000	3,000	0.0
Townsville	31,250	169,500	1.8
Airlie Beach	50,000	50,000	0.5
Mackay	50,000	699,000	7.3
Yeppoon	15,000	38,000	0.4
Gladstone	80,000	975,000	10.2
Hervey Bay	5,000	55,700	0.6
Maryborough	12,900	12,900	0.1
Tin Can Bay	27,500	180,400	1.9
Mooloolaba	43,750	309,900	3.2
Brisbane	19,900	1,433,100	15.0
Southport	7,500	201,100	2.1
SAMPLE TOTAL		9,549,500	100.0

OWNER-OPERATOR PROFILES

Table 5.17 provides basic demographic and social profilesod owner-operators throughout Queensland. Information shown in these profiles will be used in further studies to develop indices of sensitivity to change for both owner-operators and employees.

In the following chapters, only those TRCs with five or more businesses sampled within them are analysed.

Table 5.17 Queensland State: Owner-Operator Profiles

Profile	All QLD
Estimated Number of Active Harvesting Businesses	**163**
Mean age of fisher	46.9
Age range	21-72
Percent males	93.9
Mean years resident in town	19.5
Mean number of years in harvesting industry	16.4
Median hours per week in harvesting industry	29
Percent moved town to retain employment	14.4
Percent currently employed in other industry	37.8
Percent previously employed in other industry	87.6
Housing tenure (%)	
Rent	330.
Mortgage	24.7
Own home	42.3
Other (eg, live with parents, on boat)	0.0
Educational	
Year completed school (%)	
Primary school	13.7
Year 8	6.3
Year 9	10.5
Year 10	27.4
Year 11	9.5
Year 12	32.7
Percent completed trade or TAFE certificate	34.7
Percent completed industry or business course	11.9
Percent with business plan	29.6
Marital Status	
Percent married or relationship	64.3
Partner's Income*	
Full-time employment	39.1
Part-time employment	25.0
Casual employment	9.4
Not employed	26.6
Family Composition	
Mean family size	2.1
Estimated number of total family members	215
Dependency Ratios	
Age Dependency Ratio**	19.6
Elderly Dependency Ratio	2.3
Child Dependency Ratio	17.3
Family Member Industry Dependency Ratio***	14.7
Gross Individual Income (%)	
Less than $16,000	25.0
$16,000 - $26,000	19.3
$26,000 - $36,000	15.9
$36,000 - $52,000	23.9
$52,000 - $78,000	8.0
Over $78,000	8.0
Average Income ($)	$33,602

Note: ** Percentage based on those fishers with partners. Includes partner's income from all sources.*
*** The age dependency ratio is the number of children (below 15 years) and elderly persons (above 65 years) to every 100 persons in the population.*
**** The industry dependency ratio is the number of persons in the family who are over 15 years of age and working in the fishing industry (excluding the direct industry employee) as a proportion of all family members over 15 years of age.*

Figure 5.2 Location of all harvesting activities in Queensland

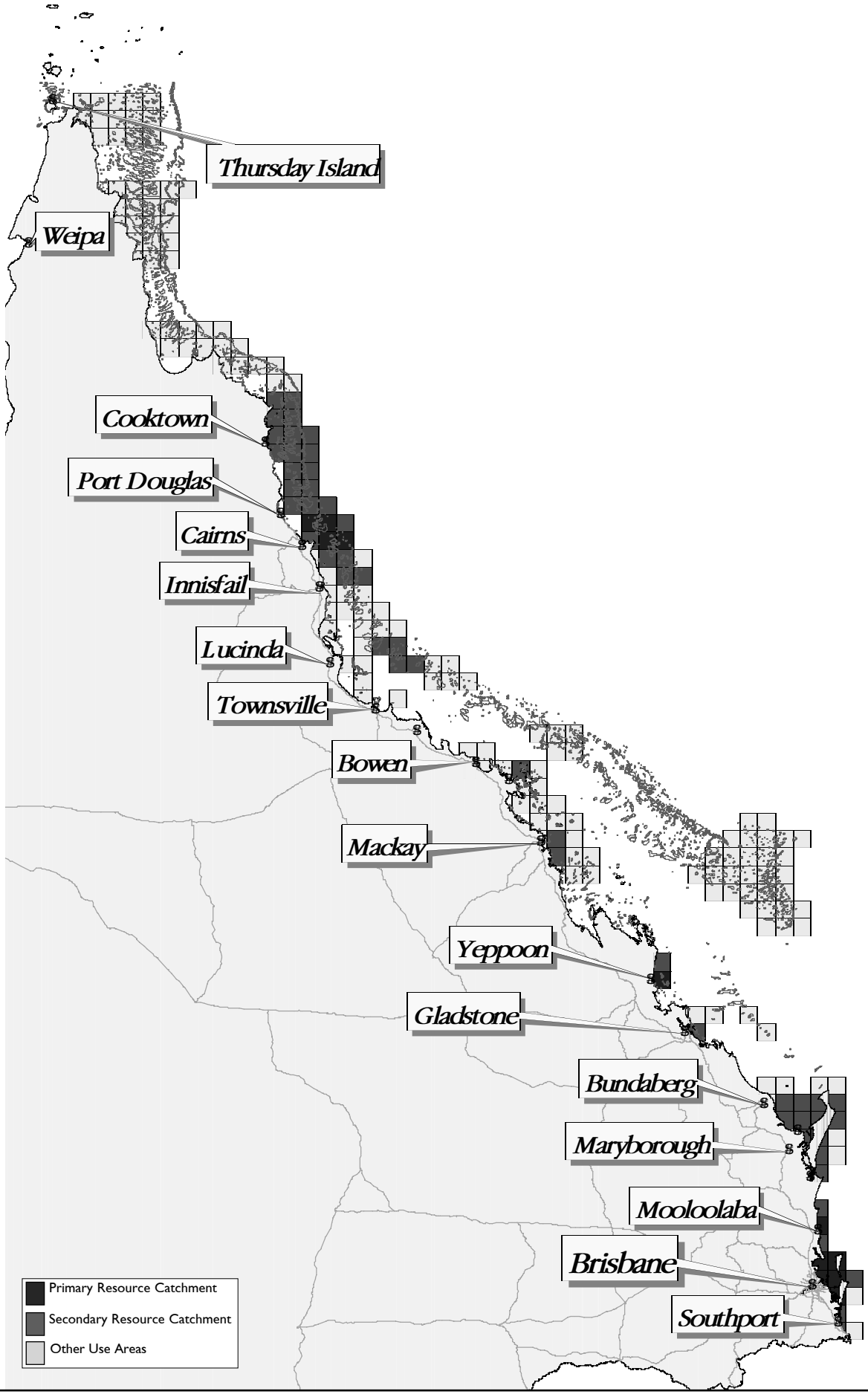
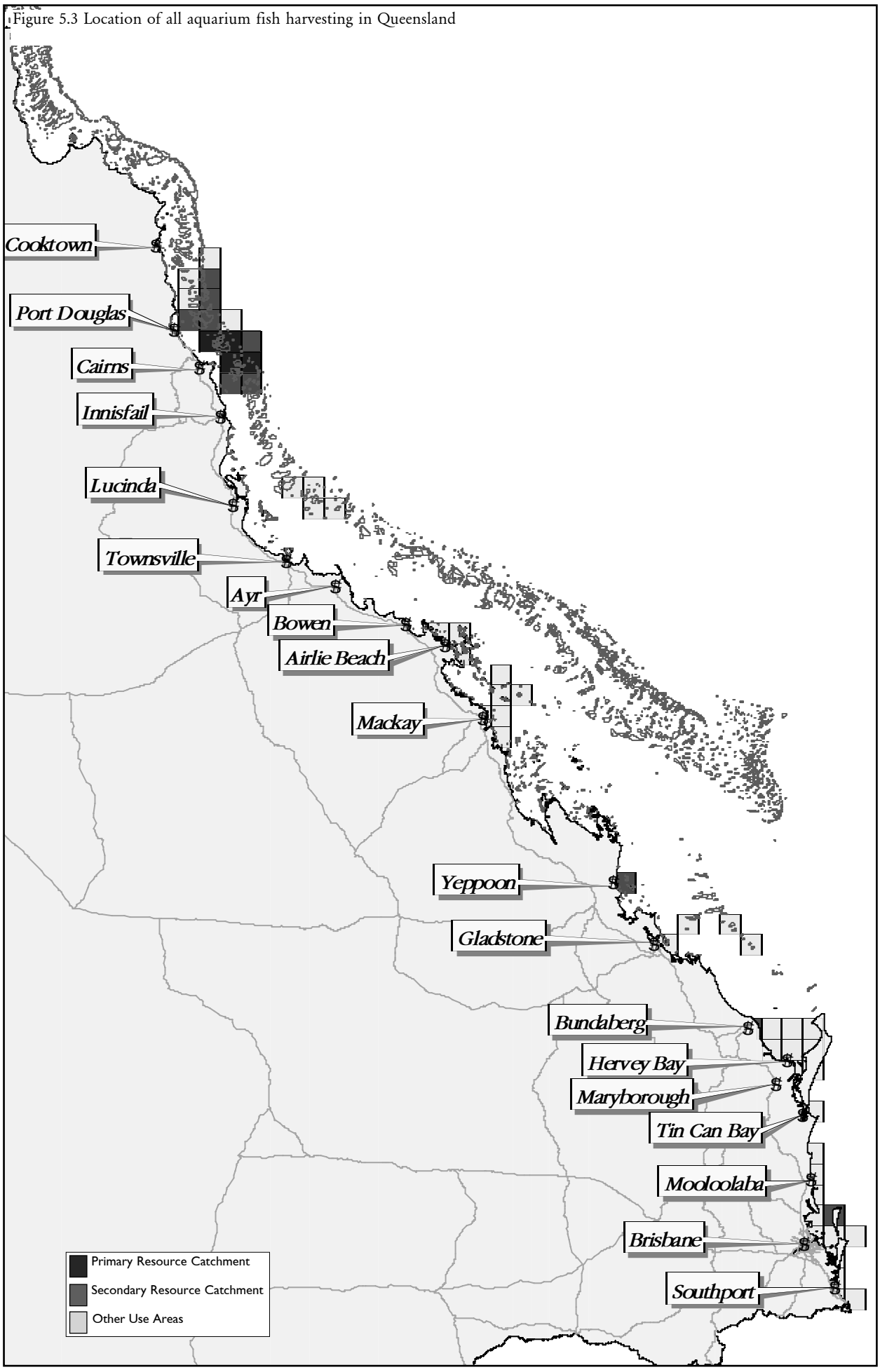


Figure 5.3 Location of all aquarium fish harvesting in Queensland



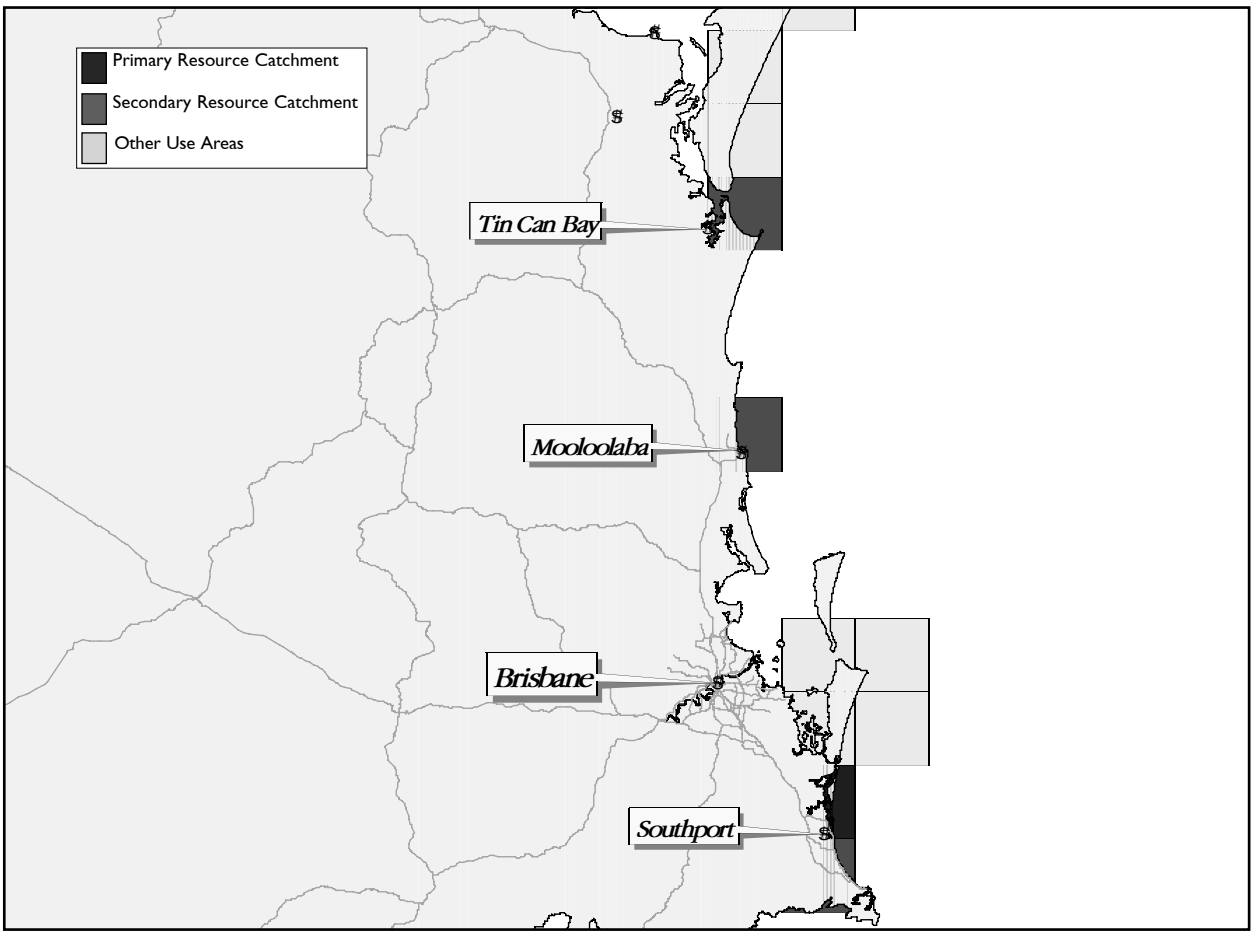


Figure 5.4 Location of all beachworm harvesting in Queensland

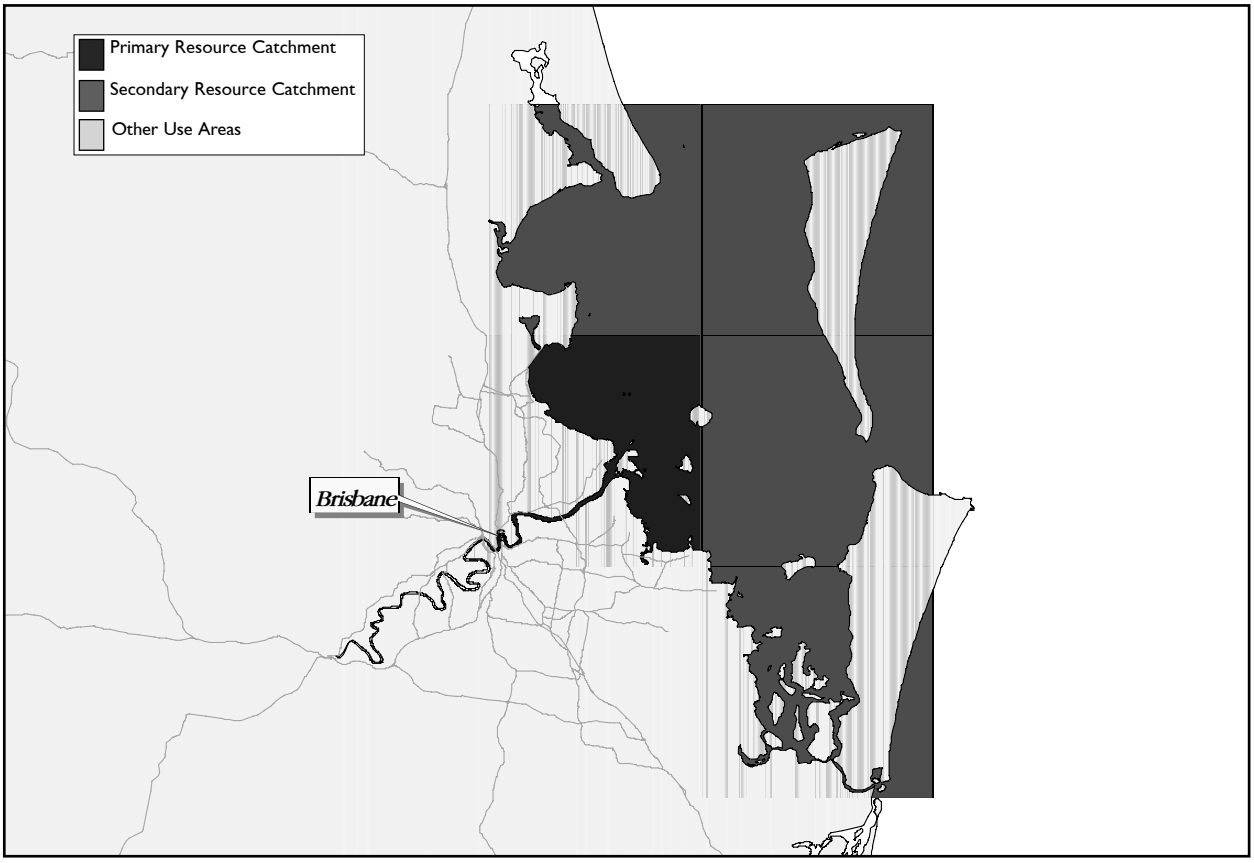


Figure 5.5 Location of all bloodworm and tubeworm harvesting in Queensland

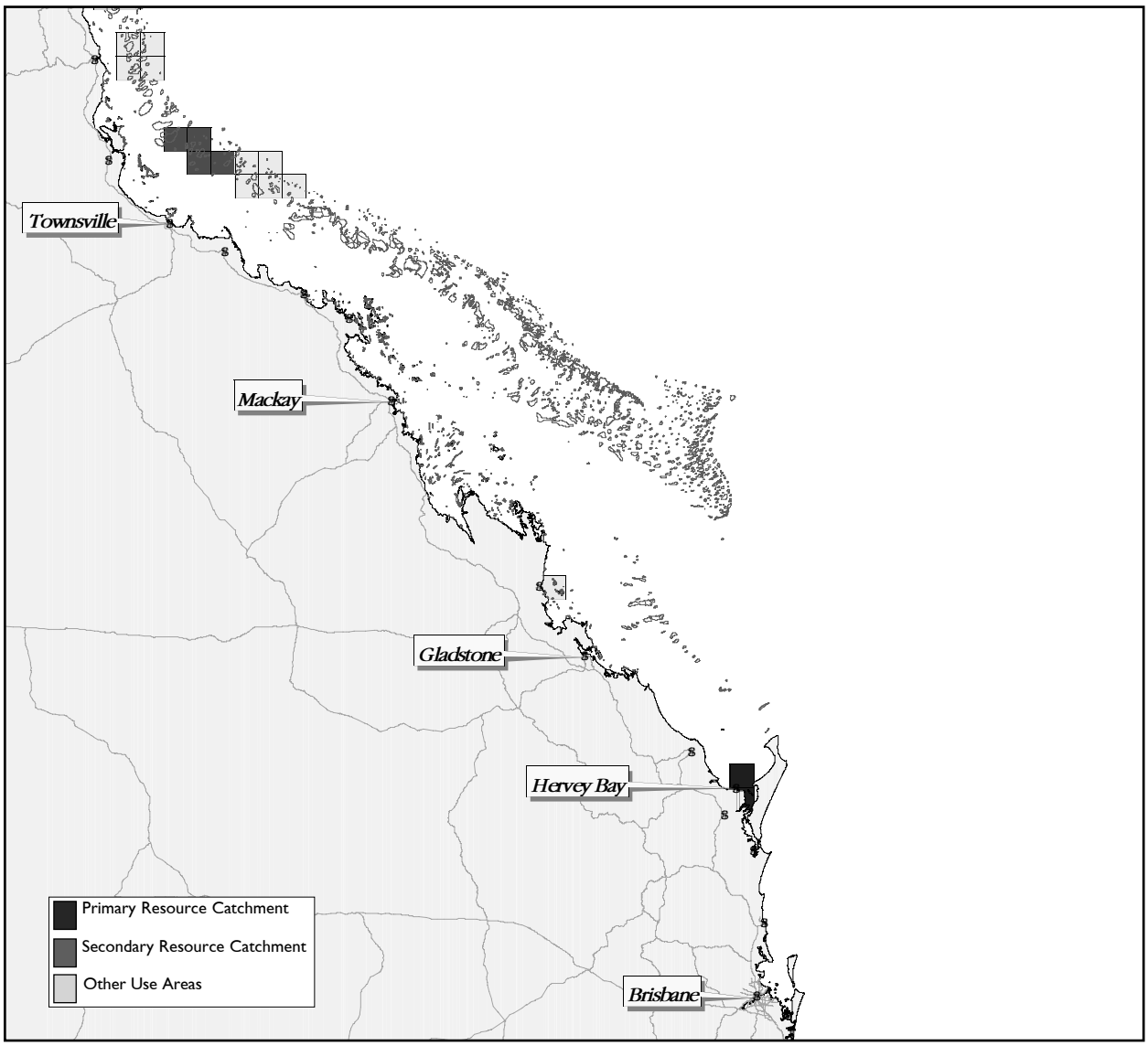


Figure 5.6 Location of all grit and sand harvesting in Queensland

6 CAIRNS TRC

The Cairns TRC consists of the main urban centre of Cairns and several smaller surrounding urban centres including those of the Northern Beaches, Gordonvale, Kuranda and Smithfield.

BUSINESS PROFILES

Location and Use of Ports

Table 6.1 shows the number of license holders within the Cairns TRC and the number of survey respondents who reported having homeports within the TRC. On the basis of the sample count it is estimated that there are 21 commercial harvesters within this TRC and a 95% certainty that the correct population count of harvesters within the TRC is between 15 and 31. Figure 6.1 shows the geographic location of the Cairns TRC.

Table 6.1 Location of Homeports

Town	Adj. Database Count	Sample Count	Estimated Count	Percent within TRC
Cairns UC	19	14	21	100
Cairns Nthn Beaches	3	0	0	0
Manunda	2	0	0	0
Edmonton	2	0	0	0
Bungalow	1	0	0	0
Gordonvale	1	0	0	0
Deeral	1	0	0	0
Kuranda	1	0	0	0
Mareeba	1	0	0	0
Total TRC	31	14	21	100
95% Confidence Interval for Estimated TRC Count				15-31
Percent of Total Active Licence Holders in QLD				13.6%

Note: *Cairns Urban Centre includes all suburbs of Cairns. Cairns Northern Beaches Urban Centre includes Clifton Beach, Palm Beach, Trinity Beach and Yorkey's Knob.*
Adjusted database count is based on the postal address as recorded in the licensing information, which may not be the homeport of the harvesting businesses. The adjusted database count reduces the count for latent license holders (22.5%)
The estimated count adjusts the sample count by the sampling fraction of 1.525
Source: *CRC Reef (2000).*

In addition to the use of Cairns as a homeport, two other harvesters used Cairns as a port when travelling to or from harvesting areas. These businesses had their homeports in Innisfail and Port Douglas.

Fishing Activity and Type

Table 6.2 shows the types of harvesting activities undertaken within the last year for the Cairns TRC. Activities have been categorised so that aquarium fish, coral, shells, grit and sand are grouped together (aquarium products), trochus and seacucumber are grouped together, and bloodworms, tubeworms and yabbies are grouped together. The aquarium group represents the primary harvesting activity (84.6%) for the Cairns TRC, followed by trochus and seacucumber (7.7%), and tourist collections such as crown-of-thorns (7.7%). Sandworms, bloodworms, tubeworms or yabbies were not collected from the Cairns TRC.

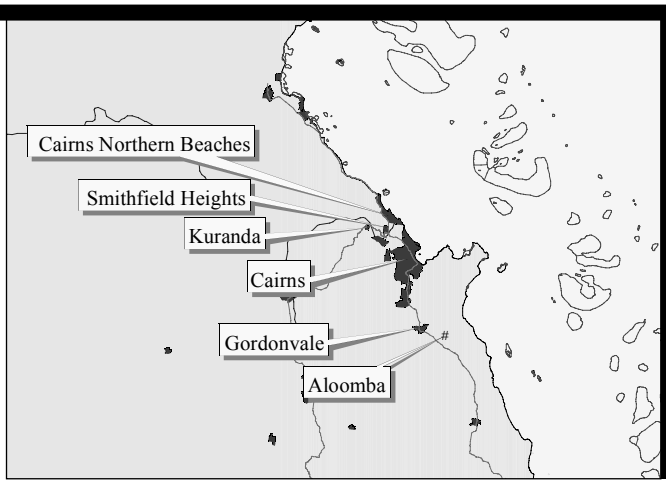


Figure 6.1 Location of the Cairns TRC

Table 6.2 Type of Harvest Activity (during last 12 months)

Fishing Type	Sample Count	Percent TRC
Aquarium fish, coral, shells, grit	11	84.6
Trochus and/or seacucumber	1	7.7
Tourist collections	1	7.7
Sandworms	0	0
Bloodworms, tubeworms, yabbies	0	0
Total Sample	13	100.0

Note: *This is a multiple response table where all rows are independent.*

Table 6.3 shows that the peak months for harvesting activity within the Cairns TRC were between August and November. This was shorter than the overall Queensland harvest season, which peaked between October and January.

Table 6.3 Peak Harvest Months During Previous 12 Months

Months	Sample Count	Percent within TRC	Percent of QLD Fishery
January	2	14.3	37.6
February	2	14.3	18.8
March	2	14.3	15.3
April	3	21.4	21.2
May	1	7.1	12.9
June	1	7.1	18.8
July	3	21.4	28.2
August	6	42.9	31.8
September	5	35.7	28.2
October	5	35.7	30.6
November	5	35.7	34.1
December	2	14.3	48.2

Table 6.4 provides a more detailed description of the seasonal variation in harvesting activities. Aquarium fish, grit and shell harvesting was most common in October and November, which was towards the end of the Queensland season.

Table 6.4 Seasonal Variations in Harvest Activity

Months	Sample Count	Percent within TRC	Percent QLD Fishery
Aquarium Fish, Coral, Shells, Grits and Sands			
January	2	25.0	21.2
February	2	25.0	18.2
March	2	25.0	21.2
April	3	37.5	15.2
May	1	12.5	18.2
June	1	12.5	27.3
July	1	12.5	30.3
August	3	37.5	42.4
September	3	37.5	27.3
October	4	50.0	39.4
November	5	62.5	42.4
December	2	25.0	24.2

Note: Trochus and Seacucumber information not provided since sample size is too low.

Location of Resource Use

Figure 6.2 shows the location of resource use by commercial harvesting operations in the Cairns TRC. From Figure 6.2 it can be seen that most harvesting occurred on the reefs nearest to Cairns.

Harvest Industry Employment

Table 6.5 identifies the number of harvesters within the Cairns TRC. The majority of businesses had one employee (the owner-operator), although two businesses had more than 10 full-time employees. There was little part-time or casual employment by these businesses, although one businesses employed more than 20 part-time employees.

As a result of this skew, the average number of employees per business was 10.2. The median number of full-time employees was 1.0, and the median number of part-time and casual employees was 0.0. In summary it is estimated that there were 218 full-time equivalent employees in the harvesting industry within the Cairns TRC over the last year.

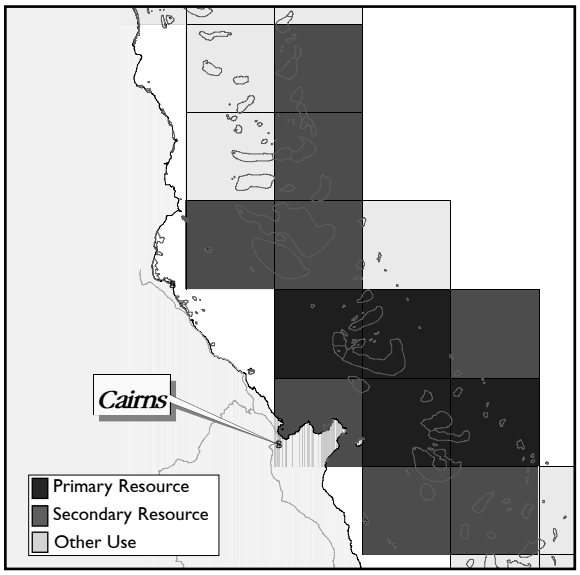


Figure6.2 Cairns TRC: Location of Resource Use

Business Ownership and Size

Table 6.6 shows the number of years the current owner-operator had owned the harvesting business. Nearly 65% of businesses had been owned for less than 10 years. Over 7% had been owned between 26-30 years. On average, businesses within the Cairns TRC had been owned for 10.4 years. The average Queensland harvesting business has been owned for nearly two years longer (12.0 years).

Table 6.6 Number of Years of Current Ownership of the Harvest Business

Number of Years	Sample Count	Percent within TRC	Cumulative Percent
1-5	4	28.5	28.5
6-10	5	35.5	64.3
11-15	3	21.3	85.7
16-20	1	7.1	92.9
21-25	0	0.0	92.9
26-30	1	7.1	100.0
31+	0	0.0	100.0
Total	14	100.0	100.0
Mean Number of Years owned or operated			10.4
Difference of TRC Mean to QLD Mean (12.0)			-1.6

Note: Standard errors for number of years ownership (sample = 1.4; QLD population = 0.9).

Table 6.7 shows that the average number of years harvesting businesses had been operating was 12.4 years, which was the same as the Queensland average (12.4 years).

Table 6.7 Number of Years Business has been Operating

Number of Years	Sample Count	Percent within TRC	Cumulative Percent
1-5	3	21.4	21.4
6-10	6	42.6	64.3
11-15	3	21.4	85.7
16-20	0	0.0	85.7
21-25	0	0.0	85.7
26-30	1	7.1	92.9
31+	1	7.1	100.0
Total	14	100.0	100.0
Mean Number of Years owned or operated			12.4
Difference of Mean to Population Mean (12.4)			0

Note: Standard errors for number of years operated (sample = 1.6; QLD population = 1.0)

Table 6.8 shows that the majority of harvesting businesses within the Cairns TRC operated one boat (64.3%). The average number of boats owned by harvest businesses in the Cairns TRC (1.8 boats) was higher than the Queensland average (1.4 boats).

Table 6.5 Number of Employees

Number of Employees	Full-Time Count	Full-Time Percent	Part-Time Count	Part-Time Percent	Casual Count	Casual Percent
Nil	1	7.1	9	64.3	11	78.6
1	7	50	2	14.3	2	14.3
2-3	2	14.2	1	7.1	1	7.1
4-5	2	14.2	1	7.1	0	0.0
6-10	0	0.0	0	0.0	0	0.0
10-20	1	7.1	0	0.0	0	0.0
20+	1	7.1	1	7.1	0	0.0
Total Businesses	14	100.0	14	100.0	14	100.0
Total Employees	81		58		4	
Mean Number of Employees per Business				10.2		
Median Number of Full-time Employees per Business				1.0		
Median Number of Part-time & Casual Employees per Business				0.0		
Estimated Number Employed within the TRC				218		

Note: Part-time and casual employment was recorded as 0.5 when contributing to total employment. Total number of employees includes the respondent.

Table 6.8 Number of Boats Operated by Harvest Businesses

Number of Boats	Sample Count	Percent within TRC
1	9	64.3
2	3	21.4
3	1	7.1
4+	1	7.1
Total Number of Businesses	14	100.0
Mean Number of Boats Operated		1.8
Difference of Mean to QLD Population Mean (1.4)		0.4

Note: Standard errors for number of boats operated (sample = 0.1; QLD population = 0.1)

Table 6.9 shows the frequency distribution for the length of boats within the Cairns TRC. The majority of vessels (32%) operated by businesses in the Cairns TRC were between 11 and 14 metres. A significant amount (24%), however, were between 2-6m. The mean length of boats (10.6m) was considerably greater than the mean length of all QLD vessels (7.4m).

Table 6.9 Length of Boats Operated by Harvest Businesses

Length of Boat (metres)	Sample Count	Percent within TRC
2-6	6	24.0
7-10	7	28.0
11-14	8	32.0
15-18	2	8.0
18-24	2	8.0
24+	0	0.0
Total Number of Boats	25	100.0
Mean Length of Boats Operated (metres)		10.6
Difference of Mean to QLD Population Mean (7.4)		+3.2
Mean Length of Largest Boat Operated (metres)		9.3
Difference of Mean to QLD Population Mean (7.6)		+1.7

Note: Standard errors for mean length of largest boast (sample = 1.4; QLD population=0.4). Mean length of largest boat is smaller than the mean length of boats because of the large number of multiple and large-sized vessels removed for the analysis of the mean length of largest boat.

Source: CRC Reef (2000).

Value of Production and Location of Sales

Table 6.10 shows the wholesale value of all products sold by harvesting businesses within the Cairns TRC for the twelve months prior to the survey. The profile for the Cairns TRC was markedly different to the overall profile for Queensland. In the Cairns TRC there was a significantly higher percentage of businesses (28.6%) with production values in excess of $200,000, compared to the Queensland profile (7.2%).

Harvest businesses in the Cairns TRC had a gross value of production of approximately $7.8 million. This was approximately 53.6% of the total value of production of the Queensland harvesting industry for the previous year.

Table 6.10 Wholesale Value of Product *(Annual value)*

Wholesale Value ($,000)	Sample Count	Sample Percent	Queensland Percent
Less than $25	3	21.4	45.9
$25-50	2	14.3	24.5
$50-75	2	14.3	8.2
$75-100	2	14.3	5.1
$100-125	0	0.0	5.1
$125-150	0	0.0	0.0
$150-175	1	7.1	2.0
$175-200	0	0.0	2.0
$200+	4	28.6	7.2
Total	14	100.0	100.0
Median GVP for TRC			$76,250
Estimated Total GVP for TRC			$7,804,000
Estimated Total GVP for QLD Population			$14,554,000
Percent of Total Queensland Production			53.6%

Note: Estimated TRC population total is based on the sample GVP total multiplied by the sampling fraction of 1.524
Queensland total GVP is based on sampled GVP from all TRCs multiplied by the sampling fraction of 1.524

Table 6.11 shows the value and the location of sales for the Cairns TRC for the sample of 14 businesses, and the total population within the Cairns TRC. Over 67% of harvest products were exported overseas, estimated at $5.2 million, although it is probable that some of the sales to overseas markets occurred firstly within Cairns. Melbourne and Sydney were the main customers of harvesting product from the Cairns TRC. The value of sales within Australia was estimated at $2.5 million.

Table 6.11 Sales to customers

Location of Sales	Sample Value of Sales ('000)	Percent of Sample	Estimated Sales ($'000)
Melbourne	500	25.8	758
Sydney	328	17.0	500
Cairns	305	15.7	463
Adelaide	300	15.5	45
Perth	217	11.2	329
Brisbane	152	7.8	230
Mount Isa	129	6.6	195
Gold Coast	7	0.3	10
Total Sales (in Aust.)	1,669	32.6	2,529
Total Sales (O'seas)	3,451	67.4	5,260
Total Sales	$5,120	100.0	$7,804

Note: The sample value of sales is based on GVP as reported by businesses in the survey

Business Expenditure

Table 6.12 shows that approximately $4 million was spent by businesses in the Cairns TRC on business goods and services (excluding salaries and wages) over the previous year. The majority of this expenditure occurred in Cairns ($3.7 million) and Gladstone ($0.3 million).

Table 6.12 Town Location of Business Expenditure
(All costs, excluding salaries and wages).

Location of Expenditure	Sample Value of Expenditure ('000)	Percent of Sample	Value of all Expenditure ('000)
Cairns	2,427	91.0	3,700
Gladstone	190	7.1	289
Brisbane	18	0.7	28
Other towns (<0.5%)	34	1.2	49
Total Business Expenditure	$2,668	100.0	$4,066

Note: Business expenditure includes all non-labour expenditure (ie. fuel, equipment, repairs etc)
Coefficients from the QLD input-output table for 1992-1993 indicate that expenditure on local intermediate purchases and imports, accounted for 52.1% of total revenue. The amount of business expenditure occurring within specific locations is based on 52.1% of the estimated GVP for the business.

OWNER-OPERATOR PROFILES

Town of Residence

Table 6.13 shows that all harvesters within the Cairns TRC resided within Cairns (100%).

Table 6.13 Town of Residence

Town of Residence	Sample Count	Percent of Sample
Cairns	14	100.0
Total	14	100.0

Months Employed in the Harvest Industry

Table 6.14 indicates that the majority of owner-operators within the Cairns TRC were employed in the harvesting industry throughout the previous year (minimum of 85.7% during any one month), and especially April, May and December. The majority of harvesters in Queensland were generally more likely to be employed in the months of November, December, and February.

Table 6.14 Months Employed in the Harvest Industry During the Past 12 Months

Months	Owner Operators	All QLD
January	85.7	85.4
February	85.7	91.3
March	85.7	84.4
April	92.9	82.3
May	92.9	85.4
June	85.7	82.3
July	85.7	86.5
August	85.7	87.5
September	85.7	89.6
October	85.7	87.5
November	85.7	90.6
December	92.9	90.6

Location of Household Expenditure

Table 6.15 shows the location of household expenditure derived from employment in the harvesting industry. It was estimated that $0.55 million was spent on household commodities and services. As might be expected, Cairns attracted over 97% ($0.54 million) of all annual employee household expenditure, with only minor seepage to Port Douglas (1.2%) and other minor towns (1.1%).

Table 6.15 Town Location of Household Expenditure
(all commodities and services)

Location of Household Expenditure	Sample Value of Expenditure ($'000)	Percent of Sample	Estimated Expenditure ($'000)
Cairns	352	97.7	536
Port Douglas	4	1.2	6
Other minor towns	4	1.1	6
Total Expenditure	$360	100.0	$548

Note: The sample total personal income for the Cairns TRC was $467,000. The Household Expenditure Survey for Queensland: 1993-1994 (ABS, 1996?) indicates that for households in non-metropolitan areas 79% of gross weekly income was related to commodity and service purchases. Furthermore, of the total expenditure on commodities and services purchased by households, Queensland Input-Output tables indicate that 77% of expenditure occurs within Queensland, with the balance contributing to taxes and imports from outside Queensland. The sample value of expenditure was therefore calculated to be $359,600. Estimated value of expenditure was calculated by multiplying the sample value of expenditure by 1.525

School and Employment Locations of Family Members

The town locations in which family members attended school and were employed are shown in Table 6.16. As might be expected, the Cairns urban centre (92.6%) was the primary town location for school and employment.

Table 6.16 School and Employment Locations of Family Members

Location of Employment or School	Sample Count	Percent of Sample
Cairns	39	92.6
Perth	2	4.9
Gympie	1	2.4
Total Family Members	42	100.0

Note: Counts and percentages based on all family members.

Owner-Operator Social and Demographic Profiles

Table 6.17 provides owner-operator profile information for the Cairns TRC. For comparative purposes, information is also provided for all harvesters throughout Queensland. Harvesters within the Cairns TRC tended to be younger, worked more hours per week, had a higher level of formal and business education, were less likely to be married, had more family members involved in the business, and earned considerably more than harvesters throughout Queensland.

Table 6.17 Owner-Operator Profiles for the Cairns TRC

Profile	Owner-Operators	All QLD Employees
Estimated Number of Harvesters	21	154
Mean age of fisher	44.6	46.9
Age range	27-57	21-72
Percent males	92.3	93.9
Mean years resident in town	11.4	19.5
Mean number of years in harvesting industry	13.7	16.4
Median hours per week in harvesting industry	55.0	29.0
Percent moved town to retain employment	15.4	14.4
Percent currently employed in other industry	30.8	37.8
Percent previously employed in other industry	75.0	87.6
Housing tenure (%)		
Rent	30.8	33
Mortgage	30.8	24.7
Own home	38.5	42.3
Other (eg, live with parents, on boat)	0.0	0.0
Educational		
Year completed school (%)		
Primary school	15.4	13.7
Year 8	0.0	6.3
Year 9	0.0	10.5
Year 10	23.1	27.4
Year 11	0.0	9.5
Year 12	61.5	32.7
Percent completed trade or TAFE certificate	53.8	34.7
Percent completed industry or business course	21.4	11.9
Percent with business plan	46.2	29.6
Marital Status		
Percent married or relationship	38.5	64.3
Partner's Income*		
Full-time employment	40.0	39.1
Part-time employment	20.0	25.0
Casual employment	0.0	9.4
Not employed	40.0	26.6
Family Composition		
Mean family size	2.1	2.1
Estimated number of total family members	41	215
Dependency Ratios		
Age Dependency Ratio**	20.2	19.6
Elderly Dependency Ratio	0.0	2.3
Child Dependency Ratio	20.2	17.3
Family Member Industry Dependency Ratio***	23.8	14.7
Gross Individual Income (%)		
Less than $16,000	18.2	25
$16,000 - $26,000	9.1	19.3
$26,000 - $36,000	18.2	15.9
$36,000 - $52,000	27.3	23.9
$52,000 - $78,000	9.1	8.0
Over $78,000	18.2	8.0
Average Income ($)	$42,454	$33,602

Note: ** Percentage based on those fishers with partners. Includes partners income from all sources.*
***The age dependency ratio is the number of children (below 15 years) and elderly persons (above 65 years) to every 100 persons in the population.*
**** The industry dependency ratio is the number of persons in the family who are over 15 years of age and working in the harvest industry (excluding the direct industry employee) as a proportion of all family members over 15 years of age.*

7 TOWNSVILLE TRC

The Townsville TRC consists of the main urban centre of Townsville, Magnetic Island and Charters Towers.

BUSINESS PROFILES

Location and Use of Ports

Table 7.1 shows the number of license holders within the Townsville TRC and the number of survey respondents who reported having homeports within the Townsville TRC. On the basis of the sample count, it is estimated that there are 8 commercial harvesters within this TRC and that there is a 95% likelihood that the correct population count of commercial harvesters within the Townsville TRC is between 3 and 13. Figure 7.1 shows the geographic location of this TRC.

Table 7.1 Location of Homeports

Town	Adj. Database Count	Sample Count	Estimated Count	Percent within TRC
Townsville	5	5	8	100.0
Total TRC	5	5	8	100.0
95% Confidence Interval for Estimated TRC Count				3-13
% of Total Active License Holders in QLD				5.2%

Note: *Townsville Urban Centre includes all suburbs within the Townsville UC and the suburbs of Pallarenda, Alligator Creek, Magnetic Island, Alice River and the Bohle Plains.*
Adjusted database count is based on the postal address as recorded in the licensing information, which may not be the homeport of the harvesting businesses. The adjusted database count reduces the count for latent license holders (22.5%)
The estimated count adjusts the sample count by the sampling fraction of 1.525

One other harvesting business used the port of Townsville when travelling to or from harvesting areas. This havester had their homeport in Cairns.

Harvesting Activity and Type

Table 7.2 shows the type of activities undertaken by harvesting businesses from the Townsville TRC over the previous year. The collection of aquarium fish, coral, shells and/or grit was the primary activity (83.3%). A smaller percentage of businesses from the Townsville TRC harvested trochus and/or seacucumber (16.7%). Sandworms, bloodworms, tubeworms, yabbies or tourist collections were not harvested by businesses in this TRC.

Table 7.2 Type of Harvesting Activity

Harvest Type	Sample Count	Percent in TRC
Aquarium fish, coral, shells, grit	5	83.3
Trochus and/or seacucumber	1	16.7
Tourist collections	0	0.0
Sandworms	0	0.0
Bloodworms, tubeworms, yabbies	0	0.0
Total Sample	6	100.0

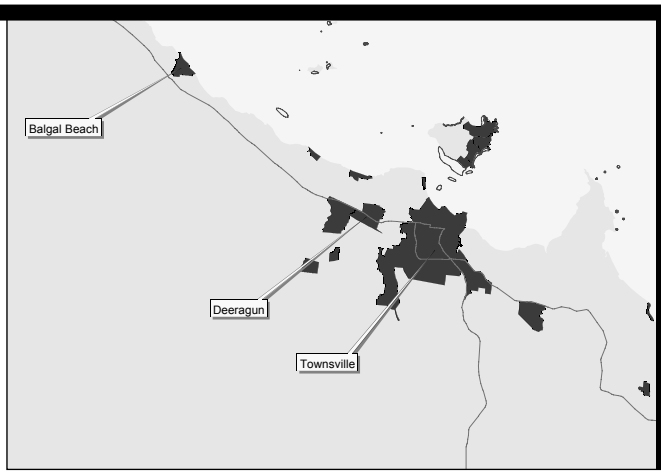


Figure 7.1 Location of the Townsville TRC

Table 7.3 shows that the peak season for harvesting within the Townsville TRC was October. This was earlier and shorter than the overall Queensland peak season, which was between October and January.

Table 7.3 Peak Harvesting Months During Past 12 Months

Months	Sample Count	Percent within TRC	Percent of QLD Fishery
January	0	0.0	37.6
February	0	0.0	18.8
March	0	0.0	15.3
April	0	0.0	21.2
May	0	0.0	12.9
June	0	0.0	18.8
July	1	20.0	28.2
August	1	20.0	31.8
September	1	20.0	28.2
October	2	40.0	30.6
November	1	20.0	34.1
December	1	20.0	48.2

A detailed description of the seasonal variation in harvesting for the Townsville TRC is not provided here since the sample sizes were too small for this infomration.

Location of Resource Use

Figure 7.2 shows the location of resource use by commercial harvesting operations in the Townsville TRC. The location of resource use is predominantly around the reefs closest to Townsville. The catchment is relatively small.

Harvesting Industry Businesses

Table 7.4 identifies the number of harvesters that operated within the Townsville TRC over the previous year. The majority of businesses had one part-time and/or casual employees (inc. the owner-operator). Twenty percent of businesses had between 6-10 casual employees, which brought the average number of fulltime equivalent harvesters per business to 1.6. Only 40% of businesses had a fulltime operator. In total it is estimated that there were 21 harvesters operating within the Townsville TRC.

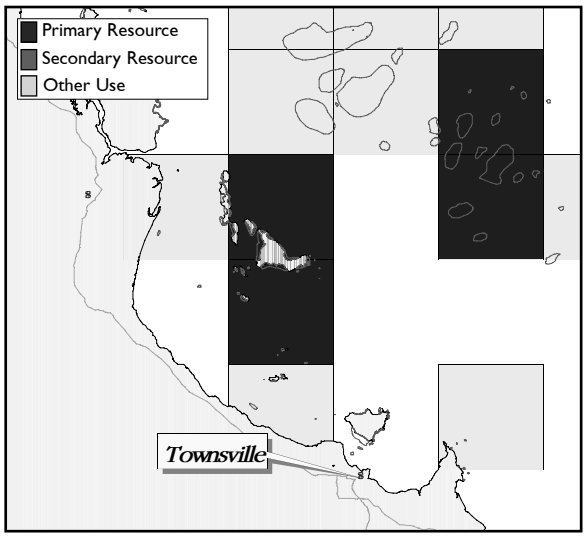


Figure 7.2 Townsville TRC: Location of Resource Use

Business Ownership and Size

Table 7.5 shows the number of years the current owner has operated the harvesting business. Businesses within the Townsville TRC have been owned for an average of 12.2 years, which is similar to the Queensland average (12.0 years). All businesses had been owned for at least 6 years..

Table 7.5 Number of Years of Current Ownership of the Harvesting Business

Number of Years	Sample Count	Percent within TRC	Cumulative Percent
1-5	0	0.0	0.0
6-10	2	50.0	50.0
11-15	1	25.0	75.0
16-20	1	25.0	100.0
21-25	0	0.0	0.0
26-30	0	0.0	0.0
31+	0	0.0	0.0
Total	4	100.0	100.0
Mean Number of Years owned			12.2
Difference of TRC Mean to QLD Mean (12.0)			+0.2

Note: Standard errors for number of years ownership (sample = 1.4; QLD population = 0.9).

Table 7.6 shows the number of years harvesting business have been operating (regardless of ownership) in the current town. The average business had been established for 12.2 years, which is similar to the Queensland average (12.4 years). There was no difference between the mean number of years that the business has been operating, and the number of years that harvesters have been in business, indicating that the majority of businesses within the Townsville TRC have been set-up by the current harvesters.

Table 7.6 Number of Years Business has been Operating

Number of Years	Sample Count	Percent within TRC	Cumulative Percent
1-5	0	0.0	0.0
6-10	2	50.0	50.0
11-15	1	25.0	75.0
15-21	1	25.0	100.0
21-25	0	0.0	0.0
26-30	0	0.0	0.0
31+	0	0.0	0.0
Total	4	100.0	100.0
Mean Number of Years owned or operated			12.2
Difference of Mean to Population Mean (12.4)			-0.2

Note: Standard errors for number of years operated (sample = 1.6; QLD population = 0.46)
Source: Reef CRC (2000)

Table 7.7 shows that all harvesting businesses within this TRC operated with one boat (100%). This was less than the Queensland average of 1.4 boats.

Table 7.7 Number of Boats Operated by Harvesting Businesses

Number of Boats	Sample Count	Percent within TRC
1	4	100.0
2	0	0.0
3	0	0.0
4+	0	0.0
Total Number of Businesses	4	100.0
Mean Number of Boats Operated		1.0
Difference of Mean to QLD Mean (1.4)		-0.4

Note: Standard errors for number of boats operated (sample = 0.0; QLD population = 0.05)

Table 7.8 displays the length of boats operated by businesses within the Townsville TRC. There were no vessels measuring less than 6m. Boats varied in length between 7 metres and 24 metres. The average boat from this TRC (11.4m), and also the average lasgest length (11.4m) were larger than the QLD average (7.2m and 7.6m respectively).

Table 7.4 Number of Employees

Number of Harvest Employees	Full-Time Count	Full-Time Percent	Part-Time Count	Part-Time Percent	Casual Count	Casual Percent
Nil	3	60.0	2	40.0	1	20.0
1	2	40.0	3	60.0	3	60.0
2-3	0	0.0	0	0.0	0	0.0
4-5	0	0.0	0	0.0	0	0.0
6-10	0	0.0	0	0.0	1	20.0
10-20	0	0.0	0	0.0	0	0.0
20+	0	0.0	0	0.0	0	0.0
Total Businesses	5	100.0	5	100.0	5	100.0
Total Harvesters	2		3		9	
Mean Number of Harvesters per Business			1.6			
Estimated Number Employed within the TRC			21			

Note: Part-time and casual employment is recorded as 0.5 when contributing to total employment.. Total number of harvesters includes the respondent. Estimates of total employment based on an estimated 8 harvesting businesses (Table 7.1)
Source: CRC Reef (2000

Table 7.8 Length of Boats Operated by Harvesting Businesses

Length of Boat (metres)	Sample Count	Percent TRC
2-6	0	0.0
7-10	1	25.0
11-14	1	25.0
15-18	1	25.0
18-24	1	25.0
24+	0	0.0
Total Number of Boats	4	100.0
Mean Length of Boats Operated (metres)		11.4
Difference of Mean to QLD Mean (7.2)		+4.2
Mean Length of Largest Boat Operated (metres)		11.4
Difference of Mean to QLD Mean (7.6)		+3.8

Note: Standard errors for number of boats operated (sample = 2.6; QLD population = 0.5). Standard errors for mean length of largest boats (sample = 0.5; QLD population=0.4)

Value of Production and Location of Sales

Table 7.9 shows the wholesale value of all products sold by harvesting businesses within the Townsville TRC for the 12 months prior to the survey. Fifty percent of businesses earned less than $25,000. Townsville harvest businesses were predominately smaller businesses than the Queensland average, since no business earned more than $100,000.

Harvest businesses in the Townsville TRC had an estimated gross value of production of approximately $0.25 million, which is approximately 1.8% of the total value of production of the Queensland commercial harvesting industry.

Table 7.9 Wholesale Value of Product (Annual value)

Wholesale Value ($,000)	Sample Count	Sample Percent	Queensland Percent
Less than $25	2	50.0	45.9
$25-50	1	25.0	24.5
$50-75	0	0.0	8.2
$75-100	1	25.0	5.1
$100-125	0	0.0	5.1
$125-150	0	0.0	0.0
$150-175	0	0.0	2.0
$175-200	0	0.0	2.0
$200+	0	0.0	7.2
Total	4	100.0	100.0
Median GVP for TRC			$31,250
Estimated Total GVP for TRC			$258,300
Estimated Total GVP for QLD Population			$14,554,000
Percent of Total Queensland Production			1.8%

Note: Estimated TRC population total is based on the sample GVP total multiplied by the sampling fraction of 1.524. Queensland total GVP based on sampled GVP from all TRCs multiplied by the sampling fraction of 1.524

Table 7.10 shows the value and location of sales of harvesting products from the Townsville TRC. The total estimated value of sales from within the Townsville TRC was $258,000. All products were sold within Australia, and were generally sold within Townsville (30%), Cairns (25%), Sydney (21%), Mackay (10%) and Melbourne (7.5%).

Table 7.10 Sales to Customers

Location of Sales	Sample Value of Sales ($'000)	Percent of Sales	Estimated Sales ($'000)
Townsville	51	30.0	79
Cairns	43	25.0	65
Sydney	35	21.0	55
Mackay	17	10.0	25
Melbourne	13	7.5	19
Toowoomba	8	5.0	12
Adelaide	2	1.2	3
Total Sales (in Aust.)	169	100.0	258
Total Sales (O'seas)	0	0.0	0
Total Sales	$169	100.0	$258

Note: The sample value of sales is based on GVP as reported by businesses in the survey. The estimated value of business sales (Table 7.12) is proportionally distributed to all locations on the basis of sample percentages.

Business Expenditure

Table 7.11 indicates that approximately $135,000 was spent on business goods and services (excluding salaries and wages) over the previous year by businesses within the Townsville TRC. The majority of this expenditure occurred in Townsville (84%) and Lucinda (10%).

Table 7.11 Town Location of Business Expenditure (All costs, excluding salaries and wages)

Location of Expenditure	Sample Value of Expenditure ($'000)	Percent of Sample	Est. Value of Expenditure ($'000)
Townsville	75	84.4	114
Lucinda	9	10.0	13
Innisfail	2	2.0	3
Cooktown	1	1.4	2
Ingham	1	1.4	2
Brisbane	1	0.8	1
Total Expenditure	88		135

Note: Business expenditure includes all non labour expenditure (ie. fuel, equipment, repairs etc)
Coefficients from the QLD input-output table for 1992-1993 indicate that expenditure on local intermediate purchases and imports, accounted for 52.1% of total revenue. The amount of business expenditure occurring within specific locations is based on 52.1% of the estimated GVP for the business.

HARVESTER PROFILES

Town of Residence

Table 7.13 indicates that all harvesters within the Townsville TRC resided within Townsville.

Table 7.13 Town of Residence

Town of Residence	Sample Count	Percent of Sample
Townsville	5	100.0
Total	5	100.0

Months Employed in the Harvesting Industry

Table 7.13 shows that the majority of owner-operators were predominately employed in the harvesting industry between July and December, especially September. Only 20% of harvesters were employed during April.

Table 7.13 Months Employed in the Harvesting Industry During Past 12 Months

Months	Owner/ Operators	All QLD Harvesters
January	60.0	85.4
February	60.0	91.3
March	80.0	84.4
April	20.0	82.3
May	60.0	85.4
June	60.0	82.3
July	80.0	86.5
August	80.0	87.5
September	100.0	89.6
October	80.0	87.5
November	80.0	90.6
December	80.0	90.6

Location of Household Expenditure

Table 7.14 shows the location of household expenditure in the Townsville TRC. All annual household expenditure over the last year was spent in Townsville ($0.16 million).

Table 7.14 Town Location of Household Expenditure (All commodities and services)

Location	Sample Value of Expenditure ($'000)	Percent of Sample	Estimated Expenditure ($'000)
Townsville	104	100.0	159
Total Expenditure	104	100.0	159

Note: The sample total personal income for the Townsville TRC was $135,000 (60% of respondents did not volunteer this information, thus the average income ($27,000) was multiplied by the sample number, 5). The Household Expenditure Survey for Queensland: 1993-1994 (ABS, 1996) indicates that for households in non-metropolitan areas 79% of gross weekly income was related to commodity and service purchases. Furthermore, of the total expenditure on commodities and services purchased by households, Queensland Input-Output tables indicate that 77% of expenditure occurs within Queensland, with the balance contributing to taxes and imports from outside Queensland. The sample value of expenditure was therefore calculated to be $104,000. Estimated value of expenditure was calculated by multiplying the sample value of expenditure by 1.525

School and Employment Locations of Family Members

Table 7.15 shows that all family members within the Townsville TRC attended school or were employed within Townsville.

Table 7.15 School and Employment Locations of Family Members

Location	Sample Count	Percent of Sample
Townsville	20	100.0
Total Family Members	20	100.0

Note: Counts and percentages based on all family members.

Owner-Operator Social and Demographic Profiles

Table 7.16 provides a social profile of harvesters from within the Townsville TRC. For comparative purposes information is also provided for all harvesters throughout Queensland. Harvesters from the Townsville TRC were slightly older (between 41-55years), more likely to be female, had lived in the same town for longer, worked less hours per week, were more likely to own their own home, had a higher formal education, were more likely to be married, had a higher number of dependents, and earned less than the average Queensland harvester.

Table 7.16. Owner-Operator Profiles for the Townsville TRC

Profile	Owner/ Operators	All QLD Employees
Estimated Number of Active Harvesters	8	154
Mean age of fisher	49.8	46.9
Age range	41-55	21-72
Percent males	80.0	93.9
Mean years resident in town	25.3	19.5
Mean number of years in harvesting industry	13.0	16.4
Median hours per week in harvesting industry	12.0	29.0
Percent moved town to retain employment	0.0	14.4
Percent currently employed in other industry	40.0	37.8
Percent previously employed in other industry	100.0	87.6
Housing tenure (%)		
Rent	20.0	33.0
Mortgage	20.0	24.7
Own home	60.0	42.3
Other (eg, live with parents, on boat)	0.0	0.0
Educational		
Year completed school (%)		
Primary school	0.0	13.7
Year 8	0.0	6.3
Year 9	0.0	10.5
Year 10	40.0	27.4
Year 11	0.0	9.5
Year 12	60.0	32.7
Percent completed trade or TAFE certificate	40.0	34.7
Percent completed industry or business course	20.0	11.9
Percent with business plan	40.0	29.6
Marital Status		
Percent married or relationship	80.0	64.3
Partner' Income*		
Full-time employment	25.0	39.1
Part-time employment	25.0	25.0
Casual employment	25.0	9.4
Not employed	25.0	26.6
Family Composition		
Mean family size	3.0	2.1
Estimated number of total family members	15.0	215
Dependency Ratios		
Age Dependency Ratio**	30.0	19.6
Elderly Dependency Ratio	0.0	2.3.0
Child Dependency Ratio	30.0	17.3
Family Member Industry Dependency Ratio***	10.0	14.7
Gross Individual Income (%)		
Less than $16,000	50.0	250.
$16,000 - $26,000	0.0	19.3
$26,000 - $36,000	50.0	15.9
$36,000 - $52,000	0.0	23.9
$52,000 - $78,000	0.0	8.0
Over $78,000	0.0	8.0
Average Income ($)	**$27,000**	**$33,602**

Note: ** Percentage based on those fishers with partners. Includes partners income from all sources.*
*** The age dependency ratio is the number of children (below 15 years) and elderly persons (above 65 years) to every 100 persons in the population.*
**** The industry dependency ratio is the number of persons in the family who are over 15 years of age and working in the harvest industry (excluding the direct industry employee) as a proportion of all family members over 15 years of age.*

8 MACKAY TRC

The Mackay TRC consists of the main urban centre of Mackay and smaller towns to the north including Cale, towns to the west including Finchhatten and towns to the south including St Lawrence.

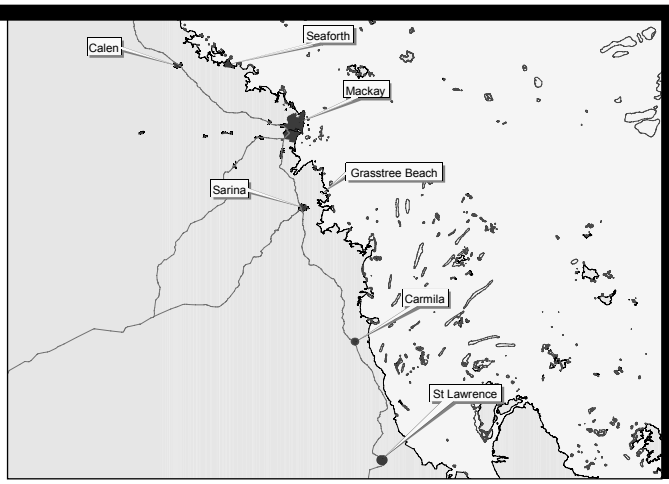


Figure 8.1 Location of the Mackay TRC

BUSINESS PROFILES

Location and Use of Ports

Table 8.1 shows the number of license holders within the Mackay TRC and the number of survey respondents who reported having homeports within the TRC. On the basis of the sample count, it is estimated that there are 14 commercial harvesters within this TRC and there is a 95% confidence level that the correct population count is between 8 and 22. Figure 1 shows the geographic location of this TRC.

Table 8.1 Location of Homeports

Town	Adj. Database Count	Sample Count	Estimated Count	Percent within TRC
Mackay UC	6	5	7	53.0
Sarina	2	2	3	20.0
Carmila	1	1	2	13.0
Alexandra	0	1	2	13.0
Total TRC	9	9	14	100.0
95% Confidence Interval for Estimated TRC Count				8-22
Percent of Total Active License Holders in QLD				8.9%

Note: Mackay Urban Centre (UC) includes Slade Point, North Mackay, Mackay, West Mackay, East Mackay, South Mackay, Blacks Beach, Eimeo, Shoal Point, Beaconsfield, Glenella, Farleigh, Walkerston, Bucasia, Andergrove and Pioneer River
Sarina includes Sarina Beach
Adjusted database count is based on the postal address as recorded in the licensing information, which may not be the homeport of the harvesting businesses. The adjusted database count reduces the count for latent license holders (22.5%)
The estimated count adjusts the sample count by the sampling fraction of 1.525

No other harvesters in Queensland used Mackay as a port.

Harvesting Activity and Type

Table 8.2 shows the type of harvesting activity undertaken by harvesting businesses within the Mackay TRC over the previous year. The collection of aquarium fish, shells, grit, and/or coral (78%) was the primary activity, followed by trochus and seacucumber (11%) and sandworms (11%). Harvesters from this TRC did not collect bloodworms, tubeworms or yabbies.

Table 8.2 Type of Harvesting Activity

Harvest Type	Sample Count	Percent within TRC
Aquarium fish, coral, shells, grit	7	77.8
Trochus and seacucumber	1	11.1
Sand worms	1	11.1
Bloodworms, yabbies & tubew'rms	0	0.0
Tourist collections	0	0.0
Total Sample	9	100.0

Note: This is a multiple response table where all rows are independent.

Table 8.3 shows that the peak months in this TRC were November, as well as June to August. The peak season for the overall Queensland fishery was between November and January.

Table 8.3 Peak Harvesting Months During Past 12 Months

Months	Sample Count	Percent within TRC	Percent of QLD Fishery
January	2	25.0	37.6
February	1	12.5	18.8
March	1	12.5	15.3
April	2	25.0	21.2
May	0	0.0	12.9
June	3	37.5	18.8
July	3	37.5	28.2
August	3	37.5	31.8
September	1	12.5	28.2
October	2	25.0	30.6
November	4	50.0	34.1
December	2	25.0	48.2

Table 8.4 provides a more detailed description of the seasonal variation in harvesting activities by businesses in the Mackay TRC. Aquarium harvesting was most common between June and August, which was slightly earlier than the average Queensland season. Trochus and seacucumber were harvested only in October, November, and January, which coincided with, but was shorter than, the average Queensland peak season. Sandworms were collected between October and March. The peak months for the average Queensland sandworm season were December and January.

Location of Resource Use

Figure 8.2 shows the location of resource use by harvesting operations in the Mackay TRC. The location of resource use was predominantly in the Whitsunday Islands, as well as the outer reefs north and southeast of the islands.

Harvesting Industry Businesses

Table 8.5 identifies the number of harvesters within the Mackay TRC for the previous year. The majority of businesses had one full-time employee (the owner-operator) (62.5%). There was little part-time (37.5%) or casually (25 %) employment, however 12.5% of businesses had over ten casual employees. The average number of fulltime equivalent employees was 2.5 per business. In total it is estimated that there were 54 harvesters in the Mackay TRC over the previous year.

Table 8.4 Seasonal Variations in Harvesting Activity

Months	Sample Count	Percent within TRC	Percent of Fishery
Aquarium fish, grit and shells			
January	1	16.7	21.2
February	1	16.7	18.2
March	1	16.7	21.2
April	0	0.0	15.2
May	2	33.3	18.2
June	3	50.0	27.3
July	3	50.0	30.3
August	3	50.0	42.4
September	1	16.7	27.3
October	1	16.7	39.4
November	2	33.3	42.4
December	1	16.7	24.2

Note: Trochus, seacucumber and sandworm information is not included since the sample sizes were too small

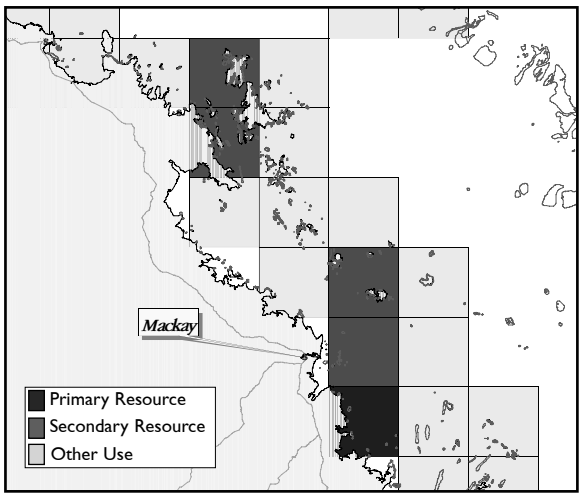


Figure 8.2 Mackay TRC: Location of Resource Use

Business Ownership and Size

Table 8.6 shows the number of years the current owner-operator has had the harvesting business. Most businesses had been owned between 6-10 years (55.5%) and 78% of businesses were owned for less than 10 years. On average, businesses within the Mackay TRC have been owned for 10 years, which is 2 years less than the average Queensland harvesting business (12 years).

Table 8.6 Number of Years of Current Ownership of the Harvesting Business

Number of Years	Sample Count	Percent within TRC	Cumulative Percent
1-5	2	22.2	22.2
6-10	5	55.5	77.7
11-15	1	11.1	88.8
16-20	0	0.0	88.8
21-25	1	11.1	100.0
26-30	0	0.0	0.0
31+	0	0.0	0.0
Total	9	100.0	100.0
Mean Number of Years owned			10.0
Difference of TRC Mean to QLD Mean (12.0)			-2.0

Note: Standard errors for number of years ownership (sample = 2.1; QLD population = 0.9).

Table 8.7 shows the number of years of operation of the harvest business, regardless of the owner. Businesses in the Mackay TRC have been operating for the same number of years as current ownership (10 years), which is 2.4 years less than the average Queensland harvesting business (12.4 years).

Table 8.7 Number of Years Business has been Operating

Number of Years	Sample Count	Percent within TRC	Cumulative Percent
1-5	2	22.2	22.2
6-10	5	55.5	77.7
11-15	1	11.1	88.8
16-20	0	0.0	88.8
21-25	1	11.1	100.0
26-30	0	0.0	0.0
31+	0	0.0	0.0
Total	9	100.0	
Mean Number of Years owned or operated			10.0
Difference of Mean to Population Mean (12.4)			-2.4

Note: Standard errors for number of years operated (sample = 2.1; QLD population = 0.4)

Table 8.8 shows that the majority of harvest businesses within the Mackay TRC operated with one boat (56%), and that over 22% of businesses did not use a boat. The average number of boats used in the Mackay TRC was 1.3, similar to the Queensland average (1.4).

Table 8.5 Number of Harvesters

Number of Harvesters	Full-Time Count	Full-Time Percent	Part-Time Count	Part-Time Percent	Casual Count	Casual Percent
Nil	3	37.5	5	62.5	5	62.5
1	5	62.5	3	37.5	2	25.0
2-3	0	0.0	0	0.0	0	0.0
4-5	0	0.0	0	0.0	0	0.0
6-10	0	0.0	0	0.0	0	0.0
10+	0	0.0	0	0.0	1	12.5
Total Businesses	8	100.0	8	100.0	8	100.0
Total Harvesters	5		3		27	
Mean Number of FUlltime Harvesters per Business			2.5			
Estimated Number Employed within the TRC			54			

Note: Part-time and casual employment is recorded as 0.5 when contributing to total employment.
Total number of harvesters includes the respondent.
Estimates of total employment based on an estimated 15 harvesting businesses (Table 8.1)

Table 8.8 Number of Boats Operated by Harvesting Businesses

Number of Boats	Sample Count	Percent TRC
0	2	22.2
1	5	55.6
2	1	11.1
3	0	0.0
4+	1	11.1
Total Number of Businesses	9	100.0
Mean Number of Boats Operated		1.3
Difference of Mean to QLD Population Mean (1.4)		-0.1

Note: Standard errors for number of boats operated (sample = 0.5; QLD population = 0.1)

Table 8.9 shows the length of boats operated by businesses within the Mackay TRC. The majority of boats (58.3%) were small, varying in length between 2 and 6 metres. Nearly 25% were between 7-10 metres. The mean length of boats (7.7m), however, was larger than the Queensland average (7.4m), as was the mean length of the largest vessel owned (9.9m) compared with the Queensland average (7.6m).

Table 8.9 Length of Boats Operated by Businesses

Length of Boat (metres)	Sample Count	Percent TRC
2-6	7	58.3
7-10	3	24.9
11-14	1	8.3
15-18	0	0.0
18-24	1	8.3
24+	0	0.0
Total Number of Boats	12	100.0
Mean Length of Boats Operated (metres)		7.7
Difference of Mean to QLD Population Mean (7.4)		+0.3
Mean Length of Largest Boat Operated (metres)		9.9
Difference of Mean to QLD Population Mean (7.6)		+2.3

Note: Standard errors for mean length of boats (sample = 1.6 QLD population=0.1)
Standard errors for mean length of largest boats (sample = 2.5; QLD population=0.4)

Value of Production and Location of Sales

Table 8.10 shows the wholesale value of all products sold by harvesting businesses within the Mackay TRC for the 12 months prior to the survey. A majority of businesses (44.4%) produced less than $50,000.

Harvest businesses in the Mackay TRC had an estimated gross value of production of approximately $1.1 million, which was approximately 7.3% of the total value of production of the Queensland commercial harvesting industry.

Table 8.10 Wholesale Value of Product (Annual value)

Wholesale Value ($,000)	Sample Count	Sample Percent	Queensland Percent
Less than $25	3	33.3	45.9
$25-50	1	11.1	24.5
$50-75	3	33.3	8.2
$75-100	0	0.0	5.1
$100-125	0	0.0	5.1
$125-150	0	0.0	0.0
$150-175	0	0.0	2.0
$175-200	1	11.1	2.0
$200+	1	11.1	7.2
Total	9	100.0	100.0
Median GVP for TRC			$50,000
Estimated Total GVP for TRC			$1,065,000
Estimated Total GVP for QLD Population			$14,554,000
Percent of Total Queensland Production			7.3%

Note: Estimated TRC population total is based on the sample GVP total multiplied by the sampling fraction of 1.524
Queensland total GVP based on sampled GVP from all TRCs multiplied by the sampling fraction of 1.524

Table 8.11 shows the value and location of sales for businesses within the Mackay TRC. The estimated value of harvest products sold within Australia was $710,000. Some 33% of products were exported overseas, estimated at $355,000. Most of the product sold in Australia was sold to Brisbane (54%) and Mackay (22.2%).

Table 8.11 Sales to Customers

Location of Sales	Sample Value of Sales ($'000)	Mean Percent	Estimated Value ($'000)
Brisbane	254	54.4	386
Mackay	104	22.2	158
Melbourne	52	11.1	79
Cairns	31	6.7	48
Sydney	26	5.5	39
Total Sales (in Aust.)	467	66.7	710
Total Sales (Overseas)	233	33.3	355
Total Sales	700	100.0	1,065

Note: The sample value of sales is based on GVP as reported by businesses in the survey.
The estimated value of business sales is proportionally distributed to all locations on the basis of sample percentages.
Source: CRC Reef (2000)

Business Expenditure

Table 8.12 shows that an estimated $555,000 was spent on business goods and services (excluding salaries and wages) by harvesters in the Mackay TRC over the previous year. The majority of this expenditure (73.4%) occurred in Mackay (estimated at $407,000), with some being spent in Brisbane (11.8%) and Hervey Bay (8.3%).

Table 8.12 Town Location of Business Expenditure (All costs, excluding salaries and wages)

Location of Expenditure	Sample Value of Expenditure ($'000)	Percent of Sample	Estimated Vaue ($'000)
Mackay	269	73.4	407
Brisbane	43	11.8	65
Hervey Bay	30	8.3	46
Maryborough	6	1.6	9
Bowen	3	1.0	6
Other towns (<1%)	14	3.1	22
Total Expenditure	365	100.0	555

Note: *Business expenditure includes all non labour expenditure (ie. fuel, equipment, repairs etc)*
Coefficients from the QLD input-output table for 1992-1993 indicate that expenditure on local intermediate purchases and imports, accounted for 52.1% of total revenue. The amount of business expenditure occurring within specific locations is based on 52.1% of the estimated GVP for the business.

Source: *CRC Reef (2000)*

HARVESTER PROFILES

Town of Residence

Table 8.13 shows the towns of residence for harvesters from the Mackay TRC. Harvesters in this TRC resided primarily within the town of Mackay (55.6%). Other harvesters lived in Armstrong Beach (11.1%), Carmila (11.1%), Sarina (11.1%) and Hervey Bay (11.1%).

Table 8.13 Town of Residence

Town of Residence	Sample Count	Percent of Sample
Mackay	5	55.6
Armstrong Beach	1	11.1
Carmila	1	11.1
Sarina	1	11.1
Hervey Bay	1	11.1
Total	9	100.0

Months Employed in the Harvesting Industry

Table 8.14 shows the months in which harvesters were employed over the previous year. The majority of owner-operators within the Mackay TRC worked especially during November. The minimum percentage of harvesters working during other months of the year (66.7%) was lower than the Queensland average (82.3%).

Table 8.14 Months Employed in the Harvesting Industry During the Past 12 Months

Months	Owner/ Operators	All QLD
January	77.8	85.4
February	66.7	91.3
March	66.7	84.4
April	66.7	82.3
May	77.8	85.4
June	77.8	82.3
July	77.8	86.5
August	66.7	87.5
September	77.8	89.6
October	77.8	87.5
November	88.9	90.6
December	77.8	90.6

Location of Household Expenditure

Table 8.15 shows the estimated value and location of household expenditure by harvesters in the Mackay TRC. An estimated $269,000 was spent on household items. Over 81% of expenditure occurred in Mackay. Around 10% was also spent in Hervey Bay, 5.7% in Sarina, and 2.6% in Maryborough.

Table 8.15 Town Location of Household Expenditure (all commodities and services)

Location of Household Expenditure	Sample Value of Expenditure ($'000)	Percent of Sample	Est.Value of Expenditure ($'000)
Mackay	144	81.2	219
Hervey Bay	18	10.5	28
Sarina	10	5.7	15
Maryborough	4	2.6	7
Total Expenditure	$176	100.0	$269

Note: *The sample total personal income for the Mackay TRC was $229,500 (average income multiplied by a sample size of 9). The Household Expenditure Survey for Queensland: 1993-1994 (ABS, 1996) indicates that for households in non-metropolitan areas 79% of gross weekly income was related to commodity and service purchases. Furthermore, of the total expenditure on commodities and services purchased by households, Queensland Input-Output tables indicate that 77% of expenditure occurs within Queensland, with the balance contributing to taxes and imports from outside Queensland. The sample value of expenditure was therefore calculated to be $176,500. Estimated value of expenditure was calculated by multiplying the sample value of expenditure by 1.525*

School and Employment Locations of Family Members

The town locations in which family members attended school or were employed are shown in Table 8.16. The main locations were Mackay (27.8%) and Brisbane (16.7%). Several family members also attended school or work in Armstrong Beach (11.1%), Hervey Bay (11.1%), Sarina (11.1%), Townsville (11.1%), Carmila (5.6%) and Sydney (5.6%).

Table 8.16 School and Employment Locations of Family Members

Location	Sample Count	Percent of Sample
Mackay	5	27.8
Brisbane	3	16.7
Armstrong Beach	2	11.1
Hervey Bay	2	11.1
Sarina	2	11.1
Townsville	2	11.1
Carmila	1	5.6
Sydney	1	5.6
Total Family Members	18	100.0

Note: *Counts and percentages based on all family members.*

Owner-Operator Social and Demographic Profiles

Table 8.17 provides profile information of harvesters within the Mackay TRC. Harvesters were generally similar to the average Queensland harvesters. Harvesters in the Mackay TRC, however, had not been in the industry for as long, worked fewer hours per week, were more likely to work in another industry, had worked in another industry, had fewer dependents, and earned less than the average Queensland harvester.

Table 8.17. Owner-Operator Profiles for the Mackay TRC

Profile	Owner/ Operators	All QLD Employees
Estimated Number of Harvesters	14	163
Mean age of fisher	47.1	46.9
Age range	27-65	21-72
Percent males	88.9	93.9
Mean years resident in town	19.0	19.5
Mean number of years in harvesting industry	12.1	16.4
Median hours per week in harvesting industry	20.0	29.0
Percent moved town to retain employment	0.0	14.4
Percent currently employed in other industry	44.4	37.8
Percent previously employed in other industry	100	87.6
Housing tenure (%)		
Rent	22.2	33.0
Mortgage	11.1	24.7
Own home	66.7	42.3
Other (eg, live with parents, on boat)	0.0	0.0
Educational		
Year completed school (%)		
Primary school	11.1	13.7
Year 8	11.1	6.3
Year 9	11.1	10.5
Year 10	33.3	27.4
Year 11	11.1	9.5
Year 12	22.2	32.7
Percent completed trade or TAFE certificate	33.3	24.7
Percent completed industry or business course	0.0	11.9
Percent with business plan	44.4	29.6
Marital Status		
Percent married or relationship	66.7	64.3
Partner' Income*		
Full-time employment	33.3	39.1
Part-time employment	50.0	25.0
Casual employment	0.0	9.4
Not employed	16.7	26.6
Family Composition		
Mean family size	1.4	2.1
Estimated number of total family members	13.0	215
Dependency Ratios		
Age Dependency Ratio**	4.8	19.6
Elderly Dependency Ratio	4.8	2.3
Child Dependency Ratio	0.0	17.3
Family Member Industry Dependency Ratio***	14.3	14.7
Gross Individual Income (%)		
Less than $16,000	37.5	25.0
$16,000 - $26,000	12.5	19.3
$26,000 - $36,000	37.5	15.9
$36,000 - $52,000	0.0	23.9
$52,000 - $78,000	12.5	8.0
Over $78,000	0.0	8.0
Average Income ($)	$25,500	$33,600

Note: ** Percentage based on those fishers with partners. Includes partners income from all sources.*
***The age dependency ratio is the number of children (below 15 years) and elderly persons (above 65 years) to every 100 persons in the population.*
**** The industry dependency ratio is the number of persons in the family who are over 15 years of age and working in the harvest industry (excluding the direct industry employee) as a proportion of all family members over 15 years of age.*

9 HERVEY BAY TRC

The Hervey Bay TRC consists of the main urban centre of Hervey Bay.

BUSINESS PROFILES

Location and Use of Ports

Table 9.1 shows the number of license holders within the Hervey Bay TRC and the number of survey respondents who reported having homeports within the TRC. On the basis of the sample count it is estimated that there were eight commercial harvesters within this TRC. It is 95% likely that the correct population count of commercial harvesters within the TRC is between 3 and 13. Figure 9.1 shows the geographic location of this TRC.

Table 9.1 Location of Homeports

Town	Adj. Database Count	Sample Count	Estimated Count	Percent within TRC
Hervey Bay	11	4	6	75.0
Howard	2	1	2	25.0
Fraser Island	1	0	0	0.0
Rainbow Beach	2	0	0	0.0
Torbanlea	1	0	0	0.0
Total TRC	17	5	8	100.0
95% Confidence Interval for Estimated TRC Count				3-13
Percent of Total Active Licence Holders in QLD				5.2%

Note: *Hervey Bay UC includes Point Vernon, Scarness, Urangan. Adjusted database count is based on the postal address as recorded in the licencing information, which may not be the homeport of the harvesting businesses. The adjusted database count reduces the count for latent licence holders (22.5%) The estimated count adjusts the sample count by the sampling fraction of 1.525*

.Source: *CRC Reef (2000).*

Other harvesters in Queensland did not use the port of Hervey Bay when travelling to or from harvesting areas.

Harvesting Activity and Type

Table 9.2 shows the type of harvesting activities undertaken over the last year by harvesting businesses within the Hervey Bay TRC. The collection of aquarium products (fish, coral, shells and grit) (50%) was the primary harvesting activity, followed by bloodworm, tubeworm, and yabbie harvesting (33%). Some harvesting of a tourist nature was also undertaken, which is omitted from further analysis.

Table 9.2 Type of Harvesting Activity (During the last 12 months)

Harvest Type	Sample Count	Percent TRC
Aquarium fish, coral, shells, grit	3	50.0
Bloodworms, yabbies, tube worms	2	33.3
Trochus &/or seacucumber	0	0.0
Sand worms	0	0.0
Tourist collections	1	16.7
Total Sample	6	100.0

Note: *This is a multiple response table where all rows are independent.*

Source: *CRC Reef (2000).*

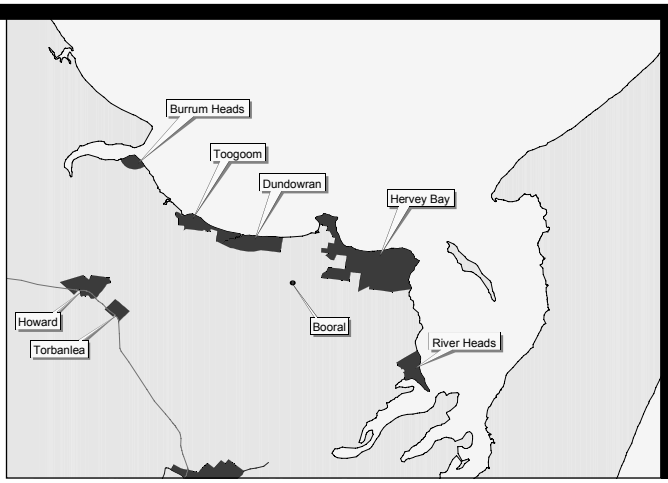


Figure 9.1 Location of the Hervey Bay TRC

Table 9.3 shows the peak month for harvesting activity within the Hervey Bay TRC to be January. This is a shorter season than the overall Queensland harvest fishery, which has its peak season between October and January.

Table 9.3 Peak Harvesting Months During Previous 12 Months

Months	Sample Count	Percent within TRC	Percent of QLD Fishery
January	2	40.0	37.6
February	1	20.0	18.8
March	0	0.0	15.3
April	1	20.0	21.2
May	1	20.0	12.9
June	1	20.0	18.8
July	1	20.0	28.2
August	1	20.0	31.8
September	1	20.0	28.2
October	1	20.0	30.6
November	1	20.0	34.1
December	1	20.0	48.2

Source: *CRC Reef (2000).*

No detailed description of the seasonal variation in harvesting is provided due to the low sample size for this TRC.

Location of Resource Use

Figure 9.2 shows the location of resource use by commercial harvesting operations in the Hervey Bay TRC. The location of resource use was mostly along the coastline of Hervey Bay, including Fraser Island.

Harvesting Industry Employment

Table 9.4 identifies the number of harvesters within the Hervey Bay TRC. The majority of businesses had one (80%), two or three (20%) full-time harvesters (including the owner or operator). There appeared to be little part-time (20%) or casual (20%) employment by businesses in this TRC. The average number of harvesters per business was 1.8. In total it is estimated that there were 14 harvesters.

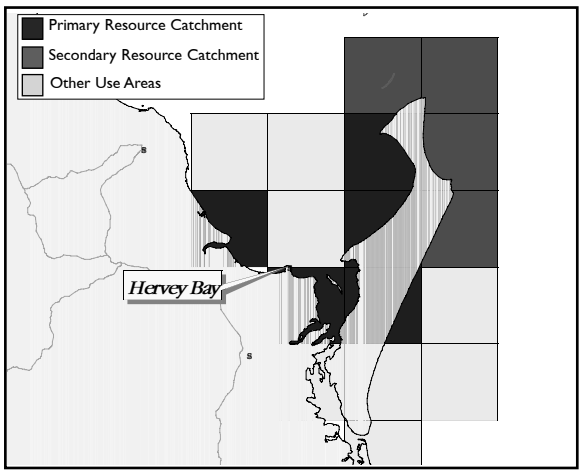


Figure 9.2 Hervey Bay TRC: Location of Resource Use

Business Ownership and Size

Table 9.5 shows the number of years the current owner-operator has owned the harvesting business. Eighty percent of businesses were owned by the current owner for less than 10 years. On average, businesses within the Hervey Bay TRC had been owned for an average of 7.2 years, substantially less than the Queensland average of 17.0 years.

Table 9.5 Number of Years of Current Ownership of the Harvesting Business

Number of Years	Sample Count	Percent within TRC	Cumulative Percent
1-5	2	40.0	40.0
6-10	2	40.0	80.0
11-15	1	20.0	100.0
16-20	0	0.0	0.0
21-25	0	0.0	0.0
26-30	0	0.0	0.0
31+	0	0.0	0.0
Total	5	100.0	100
Mean Number of Years owned or operated			7.2
Difference of TRC Mean to QLD Mean (12.0)			-4.8

Note: Standard errors for number of years ownership (sample = 2.1; QLD population = 0.9).

Table 9.6 displays the number of years the harvest business has been operating, regardless of ownership. The average number of years was 10.0 years, which is 2.4 years less than the average Queensland harvesting business (12.4 years).

Table 9.6 Number of Years Business has been Operating

Number of Years	Sample Count	Percent within TRC	Cumulative Percent
1-5	3	60.0	60.0
6-10	1	20.0	80.0
11-15	1	20.0	100.0
16-20	0	0.0	0.0
21-25	0	0.0	0.0
26-30	0	0.0	0.0
31+	0	0.0	0.0
Total	9	100.0	100
Mean Number of Years owned or operated			10.0
Difference of Mean to Population Mean (12.4)			-2.4

Note: Standard errors for number of years operated (sample = 2.1; QLD population = 1.0)

Table 9.7 shows the number of boats operated by harvesting businesses within the Harvey Bay TRC. Twenty percent of businesses did not have a boat, and the majority of businesses operated two boats (40%). The average number of boats used by businesses in this TRC was 1.6, similar to the Queensland average (1.4).

Table 9.7 Number of Boats Operated by Harvesting Businesses

Number of Boats	Sample Count	Percent within TRC
0	1	20.0
1	1	20.0
2	2	40.0
3	1	20.0
4+	0	0.0
Total Number of Businesses	5	100.0
Mean Number of Boats Operated		1.6
Difference of Mean to QLD Mean (1.4)		+0.2

Note: Standard errors for number of boats operated (sample = 0.1)

Table 9.8 displays the lengths of boats operated by harvesting businesses in the Hervey Bay TRC. The majority of boats (55.6%) are small and varied in length between 2-6 metres. One vessel (11.1%) was larger than 24 metres, which skewed the mean length to be larger than the Queensland average (7.4m). The mean length of the largest vessel in the Hervey Bay TRC (11.9m) was also much larger than the largest Queensland average (7.6m).

Table 9.4 Number of Employees

Number of Employees	Full-Time Count	Full-Time Percent	Part-Time Count	Part-Time Percent	Casual Count	Casual Percent
Nil	0	0.0	4	80.0	4	80.0
1	4	80.0	0	0.0	0	0.0
2-3	1	20.0	1	20.0	1	20.0
4-5	0	0.0	0	0.0	0	0.0
6-10	0	0.0	0	0.0	0	0.0
10+	0	0.0	0	0.0	0	0.0
Total Businesses	5	100.0	5	100.0	5	100.0
Total Harvesters	7		2		2	
Mean Number of Harvesters per Business		1.8				
Estimated Number Employed within the TRC		17				

Note: Part-time and casual employment is recorded as 0.5 when contributing to total employment.
Total number of harvesters includes the respondent.
Estimates of total employment based on an estimated 8 harvesting businesses (Table 9.1)

Table 9.8 Length of Boats Operated by Harvesting Businesses

Length of Boat (metres)	Sample Count	Percent TRC
2-6	5	55.6
7-10	3	33.3
11-14	0	0.0
15-18	0	0.0
18-24	0	0.0
24+	1	11.1
Total Number of Boats	9	100.0
Mean Length of Boats Operated (metres)		8.9
Difference of Mean to QLD Mean (7.4)		+1.5
Mean Length of Largest Boat Operated (metres)		11.9
Difference of Mean to QLD Mean (7.6)		+4.3

Note: Standard errors for mean length of boats (sample = 2.7 QLD population=0.4) Standard errors for mean length of largest boats (sample = 4.6; QLD population=0.4)

Value of Production and Location of Sales

Table 9.9 displays the wholesale value of all products sold by harvesting businesses within the Hervey Bay TRC for the 12 months prior to the survey. The profile for the Hervey Bay TRC shows that all sampled businesses had production values below $50,000. Businesses in this TRC were smaller than the Queensland average.

Harvest businesses in the Hervey Bay TRC had an estimated gross value of production of $0.1 million, which is approximately 0.6% of the total value of production of the Queensland commercial harvesting industry.

Table 9.9 Wholesale Value of Product (Annual value)

Wholesale Value ($,000)	Sample Count	Sample Percent	Queensland Percent
Less than $25	2	66.6	45.9
$25-50	1	33.3	24.5
$50-75	0	0.0	8.2
$75-100	0	0.0	5.1
$100-125	0	0.0	5.1
$125-150	0	0.0	0.0
$150-175	0	0.0	2.0
$175-200	0	0.0	2.0
$200+	0	0.0	7.2
Total	3	100.0	100.0
Median GVP for TRC			$18,566
Estimated Total GVP for TRC			$85,000
Estimated Total GVP for QLD Population			$14,554,000
Percent of Total Queensland Production			0.6%

Note: Estimated TRC population total is based on the sample GVP total multiplied by the sampling fraction of 1.524
Queensland total GVP based on sampled GVP from all TRCs multiplied by the sampling fraction of 1.524

Table 9.10 shows the value and location of sales for the Hervey Bay TRC. The value of sales within Australia was estimated at $68,000. Some 20% of products were exported overseas, estimated at less than $20,000 ($17,800). Sydney (25%), Brisbane (19%), Hervey Bay (15%), Bribie Island (12.5%), and the Gold Coast (12.5%) were the biggest customers of harvesting products from the Hervey Bay TRC.

Table 9.10 Sales to Customers

Sales	Sample Value of Sample ($'000)	Percent Sales	Estimated Value ($'000)
Sydney	12	25.0	18
Brisbane	8	18.7	14
Hervey Bay	6	15.0	10
Bribie Island	6	12.5	8
Gold Coast	5	12.5	8
Melbourne	3	6.3	4
Maroochydore	2	5.0	3
Noosa	2	5.0	3
Total Sales (within Aust)	44	80.0	68
Total Sales (Overseas)	11	20.0	17
Total Sales	56	100.0	85

Note: The sample value of sales is based on GVP as reported by businesses in the survey.
The estimated value of business sales (Table 2.12) is proportionally distributed to all locations on the basis of sample percentages.

Business Expenditure

Table 9.11 shows the location of business expenditure (excluding salaries and wages) for the Hervey Bay TRC over the previous year. An estimated $44,300 was spent by businesses on business goods and services. The majority of this expenditure occurred in Hervey Bay (90.9%).

Table 9.11 Town Location of Business Expenditure

Location of Expenditure	Sample Value of Expenditure ($'000)	Percent of Sample	Estimate Value ($'000)
Hervey Bay	26	90.9	40
Bundaberg	1	4.2	2
Brisbane	1	4.2	2
Other towns	>0	0.7	>0
Total Expenditure	29	100.0	44

Note: Business expenditure includes all non labour expenditure (ie. fuel, equipment, repairs etc)
Coefficients from the QLD input-output table for 1992-1993 indicate that expenditure on local intermediate purchases and imports, accounted for 52.1% of total revenue. The amount of business expenditure occurring within specific locations is based on 52.1% of the estimated GVP for the business.

HARVESTER PROFILES

Town of Residence

Table 9.12 indicates that harvesters in the Hervey Bay TRC resided primarily within Hervey Bay (60%). Some harvesters lived on Bribie Island (20%) and in Howard (20%).

Table 9.12 Town of Residence

Town of Residence	Sample Count	Percent of Sample
Hervey Bay	3	60.0
Bribie Island	1	20.0
Howard	1	20.0
Total	5	100.0

Months Employed in the Harvesting Industry

Table 9.13 shows that during the past 12 months all harvest owner-operators within the Hervey Bay TRC were employed in January. Most months were relatively busy for Hervey Bay harvesters.

Table 9.13 Months Employed in the Harvesting Industry During Past 12 Months

Months	Owner Operators	All QLD Harvesters
January	100.0	85.4
February	80.0	91.3
March	60.0	84.4
April	60.0	82.3
May	60.0	85.4
June	80.0	82.3
July	80.0	86.5
August	80.0	87.5
September	60.0	89.6
October	60.0	87.5
November	60.0	90.6
December	80.0	90.6

Location of Household Expenditure

Table 9.14 shows the location of household expenditure for harvesters in the Hervey Bay TRC. The estimated value of expenditure on household items was $84,500. Hervey Bay received nearly 75%, and Bribie Island received nearly 15%. The remaining 10% was spent in several other Queensland towns.

Table 9.14 Town Location of Household Expenditure (all commodities and services)

Location of Expenditure	Sample Value of of Expenditure ($'000)	Percent Expenditure	Estimated Value Expenditure ($'000)
Hervey Bay	41	74.4	63
Bribie Island	8	14.4	12
Brisbane	1	2.4	2
Burrum Heads	1	2.4	2
Howard	1	1.6	1
Redcliffe	1	1.6	1
Other towns (<1.0%)	2	3.2	3
Total Expenditure	55	100.0	84

Note: The sample total personal income for the Hervey TRC was $72,000. The Household Expenditure Survey for Queensland: 1993-1994 (ABS, 1996) indicates that for households in non-metropolitan areas 79% of gross weekly income was related to commodity and service purchases. Furthermore, of the total expenditure on commodities and services purchased by households, Queensland Input-Output tables indicate that 77% of expenditure occurs within Queensland, with the balance contributing to taxes and imports from outside Queensland. The sample value of expenditure was therefore calculated to be $55,440. Estimated value of expenditure was calculated by multiplying the sample value of expenditure by 1.525

School and Employment Locations of Family Members

The locations in which family members attended school or were employed are shown in Table 9.15 Family members within this TRC were predominately employed or attended school in Hervey Bay (33.3%) and Bribie Island (33.3%). Some family members also attended school or were employed in Urangan (22.2%) and Howard (11.1%).

Table 9.15 School and Employment Locations of Family Members

Location	Sample Count	Percent of Sample
Hervey Bay	3	33.3
Bribie Island	3	33.3
Urangan	2	22.2
Howard	1	11.1
Total Family Members	9	100.0

Note: Counts and percentages based on all family members.

Owner-Operator Social and Demographic Profiles

Table 9.16 provides profile information of harvesters from the Hervey Bay TRC. For comparative purposes information is also provided for all harvesters throughout Queensland. Hervey Bay harvesters were relatively younger, all male, newer residents to their towns and harvesting, more likely to be renting and not own their own home, had less formal education, had a business plan, had spouses that were not employed, and earned considerably less than the average Queensland harvester.

Table 9.16. Owner-Operator Profiles

Profile	Owner/ Operators	All QLD Harvesters
Estimated Number of Harvesters	8	163
Mean age of fishers	39.0	46.9
Age range	28-53	21-72
Percent males	100.0	93.9
Mean years resident in town	7.8	19.5
Mean number of years in harvesting industry	10.2	16.4
Median hours per week in harvesting industry	30.0	29.0
Percent moved town to retain employment	20.0	14.4
Percent currently employed in other industry	40.0	37.8
Percent previously employed in other industry	100.0	87.6
Housing tenure (%)		
Rent	80.0	33.0
Mortgage	20.0	24.7
Own home	0.0	42.3
Other (eg, live with parents, on boat)	0.0	0.0
Educational		
Year completed school (%)		
Primary school	0.0	13.7
Year 8	0.0	6.3
Year 9	40.0	10.5
Year 10	60.0	27.4
Year 11	0.0	9.5
Year 12	0.0	32.7
Percent completed trade or TAFE certificate	40.0	34.7
Percent completed industry or business course	0.0	11.9
Percent with business plan	60.0	29.6
Marital Status		
Percent married or relationship	60.0	64.3
Partner' Income*		
Full-time employment	33.3	39.1
Part-time employment	0.0	25.0
Casual employment	0.0	9.4
Not employed	66.7	26.6
Family Composition		
Mean family size	1.4	2.1
Estimated number of total family members	7	215
Dependency Ratios		
Age Dependency Ratio**	8.3	19.6
Elderly Dependency Ratio	0.0	2.3.0
Child Dependency Ratio	8.3	17.3
Family Member Industry Dependency Ratio***	8.3	14.7
Gross Individual Income (%)		
Less than $16,000	60.0	25.0
$16,000 - $26,000	40.0	19.3
$26,000 - $36,000	0.0	15.9
$36,000 - $52,000	0.0	23.9
$52,000 - $78,000	0.0	8.0
Over $78,000	0.0	8.0
Average Income ($)	$14,400	33,600

Note: ** Percentage based on those fishers with partners. Includes partners income from all sources.*
*** The age dependency ratio is the number of children (below 15 years) and elderly persons (above 65 years) to every 100 persons in the population.*
**** The industry dependency ratio is the number of persons in the family who are over 15 years of age and working in the fishing industry (excluding the direct industry employee) as a proportion of all family members over 15 years of age.*

10 MOOLOOLABA TRC

The Mooloolaba TRC consists of the main urban centres of Mooloolaba, Maroochydore, Tewantin, Noosa, Nambour, Caloundra and Kawana Waters.

BUSINESS PROFILES

Location and Use of Ports

Table 10.1 shows the number of license holders within the Mooloolaba TRC and the number of survey respondents who reported having homeports within this TRC. On the basis of the sample count, it is estimated that there were 12 commercial harvesters and that we can be 95% confident that the correct population count of commercial harvesters within the TRC is between 7 and 21. Figure 10.1 shows the geographic location of this TRC.

Table 10.1 Location of Homeports

Town	Adj. Database Count	Sample Count	Estimated Count	Percent TRC
Maroochydore/ Mooloolaba UC	4	3	5	41.2
Tewantin-Noosa UC	4	2	3	25.0
Caloundra UC	0	1	2	16.7
Coolum Beach UC	3	1	2	16.7
Kawana Waters UC	1	0	0	0.0
Eumundi	1	0	0	0.0
Glasshouse Mountains	1	0	0	0.0
Mudjimba	1	0	0	0.0
Cooroy	1	0	0	0.0
Other towns	3	0	0	0.0
Total TRC	18	7	12	100.0
95% CI for Estimated TRC Count				7-21
Percent of Total Active License Holders in QLD				7.8%

Note: Tewantin-Noosa UC includes Tewantin, Noosa Heads, Noosaville and Noosa. Maroochydore-Mooloolaba UC includes Mooloolaba, Maroochydore, Mountain Creek and Alexandra Headland. Kawana Waters UC includes Buddina, Minyama, Warana, Wurtulla, Bokarina, Bokarina Beach and Kawana Waters. Caloundra UC includes Caloundra, Currimundi, Aroona, Moffat Beach and Golden Beach.
Adjusted database count is based on the postal address as recorded in the licencing information, which may not be the homeport of the harvesting businesses. The estimated count adjusts the sample count by the sampling fraction of 1.525

Other harvesters in Queensland did not visit the port of Mooloolaba on their way to or way back from their harvesting locations.

Harvesting Activity and Type

Table 10.2 shows the type of harvesting activity undertaken within the last year by harvesting businesses within the Mooloolaba TRC. The collection of aquarium fish, coral, shells and/or grit (66.7%) was the primary harvesting activity, followed by sand worms (33%). Bloodworms, tubeworms and yabbies, trochus and seacucumber were not collected by harvesters within this TRC.

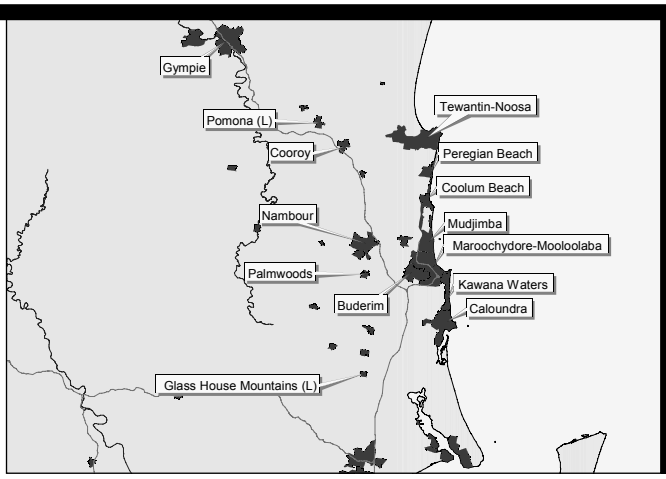


Figure 10.1 Location of the Mooloolaba TRC

Table 10.2 Type of Harvesting Activity

Harvest Type	Sample Count	Percent Count
Aquarium fish, coral, shells, grit	4	66.7
Sandworms	2	33.3
Trochus and/or seacucumber	0	0.0
Bloodworms, yabbies, tube worms	0	0.0
Total Sample	6	100.0

Source: CRC Reef (2000).

Table 10.3 shows the peak months for harvesting activity within the Mooloolaba TRC. December and January were the main months, which is a shorter peak season than the Queensland season, from October to January.

Table 10.3 Peak Harvesting Months During Past 12 Months

Months	Sample Count	Percent within TRC	Percent of QLD Fishery
January	2	28.6	37.6
February	0	0.0	18.8
March	1	14.3	15.3
April	1	14.3	21.2
May	1	14.3	12.9
June	0	0.0	18.8
July	1	14.3	28.2
August	0	0.0	31.8
September	0	0.0	28.2
October	1	14.3	30.6
November	1	14.3	34.1
December	3	42.9	48.2

No detailed description of the seasonal variation for each product harvested is provided for this TRC due to the low sample size.

Figure 10.2 shows the location of resource use by commercial harvesting operations in the Mooloolaba TRC. The location of resource use is the coastal area directly adjacent to Mooloolaba.

Harvesting Industry Employment

Table 10.4 identifies the number of harvesters in the Mooloolaba TRC. The majority of businesses had between one (57.1%) and three (28.6%) full-time harvesters (including the owner-operator). There appeared to be little part-time (28.6%) or casual (14.3%) employment by these businesses. The average number of fulltime equivalent harvesters per business was 1.7. In total it is estimated that there were 21 harvesters in the Mooloolaba TRC.

Business Ownership and Size

Table 10.5 shows the number of years the current owner-operator has owned the harvesting business. On average, businesses within this TRC had been owned for 15.1 years. These businesses had been owned for longer than the average Queensland business (12.0 years). Some 57.1% of businesses were currently owned for less than 10 years, however.

Table 10.5 Number of Years of Current Ownership of the Harvesting Business

Number of Years	Sample Count	Percent within TRC	Cumulative Percent
1-5	0	0.0	0.0
6-10	4	57.1	57.1
11-15	1	14.3	71.4
16-20	1	14.3	85.7
21-25	0	0.0	0.0
26-30	0	0.0	0.0
31+	1	14.3	100.0
Total	7	100.0	100.0
Mean Number of Years owned or operated			15.1
Difference of TRC Mean to QLD Population Mean (12.0)			+3.1

Note: Standard errors for number of years ownership (sample = 2.1; QLD population = 0.9).

Table 10.6 shows the number of years the business has been operating, regardless of ownership. The average number of years was 19.3 years, which was significantly greater than that for all Queensland harvesting businesses (12.4 years). One business had been in operation for over 31 years.

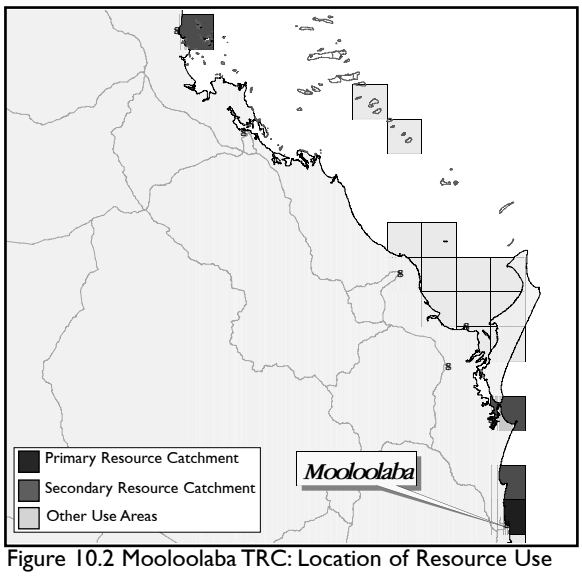


Figure 10.2 Mooloolaba TRC: Location of Resource Use

Table 10.6 Number of Years Business has been Operating

Number of Years	Sample Count	Percent within TRC	Cumulative Percent
1-5	0	0.0	0.0
6-10	3	42.9	42.9
11-15	1	14.3	57.1
16-20	1	14.3	71.4
21-25	0	0.0	0.0
26-30	0	0.0	0.0
31+	2	28.6	100.0
Total	7	100.0	100.0
Mean Number of Years owned or operated			19.3
Difference of Mean to Population Mean (12.4)			+6.9

Note: Standard errors for number of years operated (sample = 2.1; QLD population = 1.0)

Table 10.7 shows that the majority of harvesting businesses within the Mooloolaba TRC operated one boat (57%). Over 14% of harvesters did not use a boat, and 14.3% used over 4 boats. The average number of boats used was 1.4, which is the same as the Queensland average (1.4 boats).

Table 10.4 Number of Employees

Number of Employees	Full-Time Count	Full-Time Percent	Part-Time Count	Part-Time Percent	Casual Count	Casual Percent
0	1	14.3	5	71.4	6	85.7
1	4	57.1	1	14.3	1	14.3
2-3	2	28.6	1	14.3	0	0.0
4-5	0	0.0	0	0.0	0	0.0
6-10	0	0.0	0	0.0	0	0.0
10+						
Total Businesses	7	100.0	7	100.0	7	100.0
Total Harvesters	10		3		1	
Mean Number of Harvesters per Business		1.7				
Estimated Number Employed within the TRC		21				

Note: Part-time and casual employment is recorded as 0.5 when contributing to total employment. Total number of harvesters includes the respondent.

Table 10.7 Number of Boats Operated by Harvesting Businesses

Number of Boats	Sample Count	Percent TRC
0	1	14.3
1	4	57.1
2	1	14.3
3	0	0.0
4+	1	14.3
Total Number of Businesses	7	100
Mean Number of Boats Operated		1.4
Difference of Mean to QLD Population Mean (1.4)		0

Note: Standard errors for number of boats operated (sample = 0.1)

Table 10.8 displays the lengths of boats used by harvesters in the Mooloolaba TRC. The majority of boats (60%) were small, and varied in length between 2-6 metres. Only one vessel was greater than 11m in length. The average length (6.5m) and the average length of the largest vessel (6.7m) were less than the Queensland averages (7.4m and 7.6m respectively).

Table 10.8 Length of Boats Operated by Harvesting Businesses

Length of Boat (metres)	Sample Count	Percent within TRC
2-6	6	60.0
7-10	3	30.0
11-14	1	10.0
15-18	0	0.0
18-24	0	0.0
24+	0	0.0
Total Number of Boats	10	100.0
Mean Length of Boats Operated (metres)		6.5
Difference of Mean to QLD Population Mean (7.4)		-0.9
Mean Length of Largest Boat Operated (metres)		6.7
Difference of Mean to QLD Population Mean (7.6)		-0.9

Note: Standard errors for mean length of boats (sample = 0.8 QLD population=0.4.)
Standard errors for mean length of largest boats (sample = 0.9; QLD population=0.4)

Value of Production and Location of Sales

Table 10.9 shows the wholesale value of all products sold by harvesting businesses in the Mooloolaba TRC for the 12 months prior to the survey. The profile shows that the wholesale value for each sampled business was less than $75,000. This is markedly different to the overall profile for Queensland, in which 21.4% of businesses harvested more than $75,000.

Harvest businesses in the Mooloolaba TRC had an estimated gross value of production of $0.5 million, which is approximately 3.2% of the total value of production of the Queensland commercial harvesting industry.

Table 10.9 Wholesale Value of Product (Annual value)

Wholesale Value ($,000)	Sample Count	Sample Percent	Queensland Percent
Less than $25	3	42.6	45.9
$25-50	1	14.3	24.5
$50-75	2	28.6	8.2
$75-100	0	0.0	5.1
$100-125	0	0.0	5.1
$125-150	0	0.0	0.0
$150-175	0	0.0	2.0
$175-200	0	0.0	2.0
$200+	0	0.0	7.2
Total	7	100.0	100.0
Median GVP for TRC			$37,136
Estimated Total GVP for TRC			$472,000
Estimated Total GVP for QLD Population			$14,554,000
Percent of Total Queensland Production			3.2%

Note: Estimated TRC population total is based on an estimate of 12 businesses within the TRC, with a median GVP of $37,136. Queensland total GVP based on sampled GVP from all TRCs multiplied by the sampling fraction of 1.52

Table 10.10 shows the value and location of sales from the Mooloolaba TRC. Forty-three percent of products were exported overseas, estimated at $170,500. Most of the product sold in Australia was sold in Maroochydore (27.8%), Mooloolaba (22.2%) and Sydney (10.4%). The amount of product sold in Australia was estimated at $269,000.

Table 10.10 Sales to Customers

Location of Sales	Sample Value of Sales ($,000)	Mean Percent of Sample	Estimated of all Sales ($,000)
Maroochydore	50	27.8	76
Mooloolaba	30	17.4	48
Sydney	18	10.4	28
Brisbane	15	8.7	23
Gold Coast	15	8.7	23
Melbourne	12	7.0	19
Kawana	11	6.1	16
Coolum	11	6.1	16
Caloundra	8	4.4	12
Hervey Bay	3	1.7	4
Tewantin	3	1.7	4
Total Sales (in Aust.)	176	57.0	269
Total Sales (Overseas)	133	43.0	203
Total Sales	310	100.0	472

Note: The sample value of sales is based on GVP as reported by businesses in the survey.

Business Expenditure

Table 10.11 shows that approximately $246,000 was spent by businesses on goods and services (excluding salaries and wages) within the Mooloolaba TRC. The expenditure was widely distributed within Queensland, especially to Maroochydore (18.9%), Coolum (16.5%), Tewantin (10.5%), Bundaberg (10.4%) and Brisbane (9.1%). Interestingly, only 6.7% was spent within Mooloolaba

Table 10.11 Town Location of Business Expenditure
(All costs, excluding salaries and wages)

Location of Expenditure	Sample Value of Expenditure ($,000)	Percent of Sample	Estimated Expenditure ($,000)
Maroochydore	30	18.9	46
Coolum	26	16.5	40
Tewantin	17	10.5	26
Bundaberg	17	10.4	26
Brisbane	15	9.1	22
Nambour	13	8.0	20
Mooloolaba	11	6.7	16
Other towns (12) (<5%)	32	19.9	49
Total Expenditure	161,500	100.0	246

Note: Business expenditure includes all non labour expenditure (ie. fuel, equipment, repairs etc)
Coefficients from the QLD input-output table for 1992-1993 indicate that expenditure on local intermediate purchases and imports, accounted for 52.1% of total revenue. The amount of business expenditure occurring within specific locations is based on 52.1% of the estimated GVP for the business.

HARVESTER PROFILES

Town of Residence

Table 10.12 indicates that harvesters in the Mooloolaba TRC resided primarily within the towns of Tewantin (33%) and Coolum (33%).

Table 10.12 Town of Residence

Town of Residence	Sample Count	Percent of Sample
Tewantin	2	33.3
Coolum	2	33.3
Dickey Beach	1	16.7
Noosa	1	16.7
Total	6	100.0

Months Employed in the Harvesting Industry

Table 10.13 shows that fewer harvesters were employed in each month than in the rest of Queensland. July and August were the busiest months for harvesters in the Mooloolaba TRC.

Table 10.13 Months Employed in the Harvesting Industry

Months	Owner/ Operators	All QLD Harvesters
January	71.4	85.4
February	71.4	91.3
March	71.4	84.4
April	71.4	82.3
May	71.4	85.4
June	71.4	82.3
July	85.7	86.5
August	85.7	87.5
September	71.4	89.6
October	71.4	87.5
November	71.4	90.6
December	71.4	90.6

Location of Household Expenditure

Table 10.14 shows the location of household expenditure derived from the harvesting industry in the Moololaba TRC. It is estimated that $283,000 was spent on household items. Mooloolaba, interestingly, was not a focal point for the purchase of household items. Tewantin received nearly 33% (estimated at $92,000) of the household expenditure, and Noosa and Maroochydore received 13% and 11%, respectively. Twelve other towns received the remaining 43.7% of expenditure on household items.

Table 10.14 Town Location of Household Expenditure
(all commodities and services)

Location of Expenditure	Sample Value of Expenditure ($,000)	Percent Expenditure	Estimated Expenditure ($,000)
Tewantin	60	32.6	92
Noosa	23	12.6	35
Maroochydore	20	11.1	31
Coolum	16	8.9	25
Caloundra	14	7.7	22
Coolum Beach	14	7.7	22
Other towns (9) (<5%)	36	19.4	55
Total Expenditure	$185	100.0	$283

Note: The sample total personal income for the Mooloolaba TRC was $241,144. The Household Expenditure Survey for Queensland: 1993-1994 (ABS, 1996) indicates that for households in non-metropolitan areas 79% of gross income related to commodity and service purchases. Furthermore, of the total expenditure on commodities and services purchased by households, Queensland Input-Output tables indicate that 77% of expenditure occurs within Queensland, with the balance contributing to taxes and imports from outside Queensland. The sample value of expenditure was therefore calculated to be $185,700. Estimated value of expenditure was calculated by multiplying the sample value of expenditure by 1.525

School and Employment Locations of Family Members

The town locations in which family members attended school or were employed are shown in Table 10.15. Most family members were employed or attended school in Coolum (47 %), Tewantin (14.3%), or Noosa (9.5%). There were a total of 21 family members from the Mooloolaba TRC.

Table 10.15 School and Employment Locations of Family Members

Location	Sample Count	Percent Sample
Coollum	10	47.6
Tewantin	3	14.3
Noosa	2	9.5
Brisbane	1	4.8
Burpengary	1	4.8
Currimundi	1	4.8
Maroochydore	1	4.8
Mooloolaba	1	4.8
Total Family Members	20	100.0

Note: Counts and percentages based on all family members.

Owner-Operator Social and Demographic Profiles

Table 10.16 provides profile information of harvesters from the Mooloolaba TRC. For comparative purposes information is also provided for all harvesters throughout Queensland. Harvesters from the Mooloolaba TRC were relatively older, newer to their resident town, longer in the industry, had moved towns more often for employment, were less likely to be in other employment or have worked elsewhere, were more likely to own their own home, were more likely to have completed their schooling, had larger families, and earned slightly less than the Queensland average.

Table 10.16 Owner-Operator Profiles for the Mooloolaba TRC

Profile	Owner/ Operators	All QLD Employees
Estimated Number of Active Harvesters	12	163
Mean age of fisher	51.5	46.9
Age range	38-67	21-72
Percent males	100.0	93.9
Mean years resident in town	12.3	19.5
Mean number of years in harvesting industry	22.2	16.4
Median hours per week in harvesting industry	31.5	29.0
Percent moved town to retain employment	33.3	14.4
Percent currently employed in other industry	16.7	37.8
Percent previously employed in other industry	66.7	87.6
Housing tenure (%)		
Rent	16.7	33.0
Mortgage	33.3	24.7
Own home	50.0	42.3
Other (eg, live with parents, on boat)	0.0	0.0
Educational		
Year completed school (%)		
Primary school	16.7	13.7
Year 8	0.0	6.3
Year 9	0.0	10.5
Year 10	33.7	27.4
Year 11	0.0	9.5
Year 12	50.4	32.7
Percent completed trade or TAFE certificate	33.3	34.7
Percent completed industry or business course	0.0	11.9
Percent with business plan	0.0	29.6
Marital Status		
Percent married or relationship	66.7	64.3
Partner' Income*		
Full-time employment	50.0	39.1
Part-time employment	0.0	25.0
Casual employment	0.0	9.4
Not employed	50.0	26.6
Family Composition		
Mean family size	2.6	2.1
Estimated number of total family members	18	215
Dependency Ratios		
Age Dependency Ratio	25.0	19.6
Elderly Dependency Ratio	4.2.0	2.3
Child Dependency Ratio	20.8	17.3
Family Member Industry Dependency Ratio	8.3	14.7
Gross Individual Income (%)		
Less than $16,000	16.7	25.0
$16,000 - $26,000	66.7	19.3
$26,000 - $36,000	0.0	15.9
$36,000 - $52,000	0.0	23.9
$52,000 - $78,000	0.0	8.0
Over $78,000	16.7	8.0
Average Income ($)	$30,000	33,602

Note: ** Percentage based on those fishers with partners. Includes partner's income from all sources.*
***The age dependency ratio is the number of children (below 15 years) and elderly persons (above 65 years) to every 100 persons in the population.*
****The industry dependency ratio is the number of persons in the family who are over 15 years of age and working in the fishing industry (excluding the direct industry employee) as a proportion of all family members over 15 years of age.*

11 BRISBANE TRC

The Brisbane TRC consists of the main urban centre of Brisbane, including Caboolture in the north and the Russel-Macleay Island Urban Centres in the South. The Brisbane TRC also includes North Stradbroke Island including the localities of Point Lookout and Amity Point. Essentially, the Brisbane TRC consists of all towns and communities adjacent to Moreton Bay and while it may have been more reasonable to include distinct TRCs within the Brisbane TRC, the distribution sample locations did not permit this.

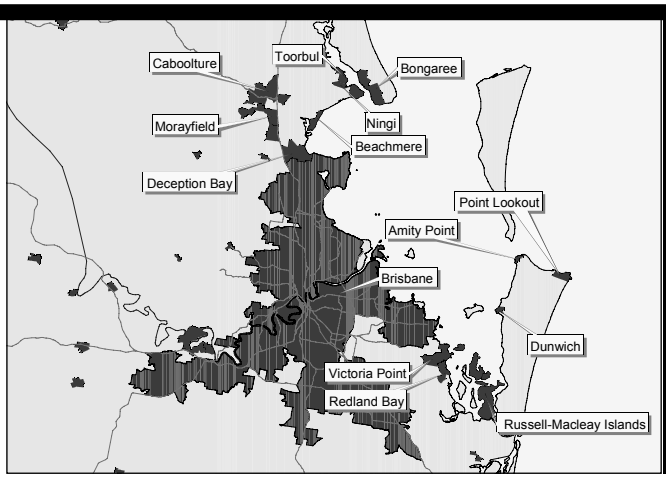


Figure 11.1 Location of the Brisbane TRC

BUSINESS PROFILES

Location and Use of Ports

Table 11.1 shows the number of license holders within the Brisbane TRC and the number of survey respondents who reported having homeports within the TRC. On the basis of the sample count, it is estimated that there are 49 commercial harvesters within this TRC and a 95% confidence level that the correct population count of commercial harvesters within the TRC is between 41 and 61. Figure 11.1 shows the geographic location of this TRC.

Table 11.1 Location of Homeports

Town	Adj. Database Count	Sample Count	Estimated Count	Percent within TRC
Brisbane UC	34	28	41	84.3
Amity Point	0	1	2	3.9
Burpengary	1	1	2	3.9
Point Lookout	0	1	2	3.9
Deception Bay	2	1	2	3.9
Caboolture	1	0	0	0.0
Stradbroke Island	1	0	0	0.0
Bongaree	1	0	0	0.0
Dunwich	1	0	0	0.0
Total TRC	41	32	49	100.0
95% CI for Estimated TRC Count				41-61
Percent of Total Active License Holders in QLD				33.1%

Note: Brisbane UC includes Beenleigh, Brisbane, Bulimba, Carina, Cleveland, Eagleby, Redcliffe, Sandgate, Scarborough, Wynnum, Moreton Bay. Bongaree UC includes Bribie Island.
Deception Bay UC includes Deception Bay. Dunwich Locality includes Dunwich.
Adjusted database count is based on the postal address as recorded in the licensing information, which may not be the homeport of the harvesting businesses. The adjusted database count reduces the count for latent license holders (22.5%)
The estimated count adjusts the sample count by the sampling fraction of 1.525.

Harvesters from other TRCs did not use Brisbane as a port whilst travelling to or from their harvest locations.

Harvesting Activity and Type

Table 11.2 shows the type of harvesting activity undertaken within the last year by harvesting businesses within the Brisbane TRC. The predominant harvesting activity was the collection of bloodworms, tubeworms, and/or yabbies (71%). Harvesters within this TRC also collected aquarium products (19.4%) and sandworms (9.6%). No trochus or seacucumber were collected.

Table 11.2 Type of Harvesting Activity

Harvest Type	Sample Count	Percent TRC
Bloodworms, tubeworms, yabbies	22	71.0
Aquarium fish, coral, shells, grit	6	19.4
Sandworms	3	9.6
Trochus and/or seacucumber	0	0.0
Total Sample	31	100.0

Note: This is a multiple response table where all rows are independent.

Table 11.3 shows the peak months for harvesting to be December to January, which is shorter than the Queensland peak season of October to January.

Table 11.3 Peak Harvesting Months During Past 12 Months

Months	Sample Count	Percent within TRC	Percent of QLD Fishery
January	11	34.4	37.6
February	3	9.4	18.8
March	3	9.4	15.3
April	5	15.6	21.2
May	0	0.0	12.9
June	4	12.5	18.8
July	6	18.8	28.2
August	5	15.6	31.8
September	7	21.9	28.2
October	3	9.4	30.6
November	5	15.6	34.1
December	16	50.0	48.2

Table 11.4 provides a more detailed description of the seasonal variation in harvesting activities by product. Aquarium harvesting was most common between June and August, which was earlier than the average Queensland season. Sandworm harvesting occurred mostly in July, September and December, although the average Queensland season was mostly December and January. Bloodworm harvesting for the Brisbane TRC occurred especially between September to April, which was a longer season than the average Queensland season of December and January.

Table 11.4 Seasonal Variations in Harvesting Activity

Months	Sample Count	Percent TRC	Percent of QLD
Aquarium fish, coral, grit and shells			
January	0	0	21.2
February	0	0	18.2
March	0	0	21.2
April	0	0	15.2
May	0	0	18.2
June	2	33.3	27.3
July	2	33.3	30.3
August	2	33.3	42.4
September	1	16.7	27.3
October	1	16.7	39.4
November	1	16.7	42.4
December	0	0	24.2
Sandworms			
January	1	33.3	54.5
February	0	0	9.1
March	0	0	9.1
April	1	33.3	36.4
May	0	0	18.2
June	1	33.3	27.3
July	2	66.6	36.4
August	1	33.3	27.3
September	2	66.6	27.3
October	0	0	27.3
November	0	0	18.2
December	2	66.6	63.6
Bloodworms, tubeworms, yabbies			
January	9	45	50.0
February	3	15	23.3
March	3	15	16.7
April	4	20	23.3
May	0	0	6.7
June	1	5	10.0
July	2	10	16.7
August	2	10	16.7
September	4	20	23.3
October	2	10	20.0
November	4	20	26.7
December	13	65	66.7

Location of Resource Use

Figure 11.2 shows the location of resource use by commercial harvesting operations in the Brisbane TRC. The location of resource use was mostly Moreton Bay, especially adjacent to Brisbane.

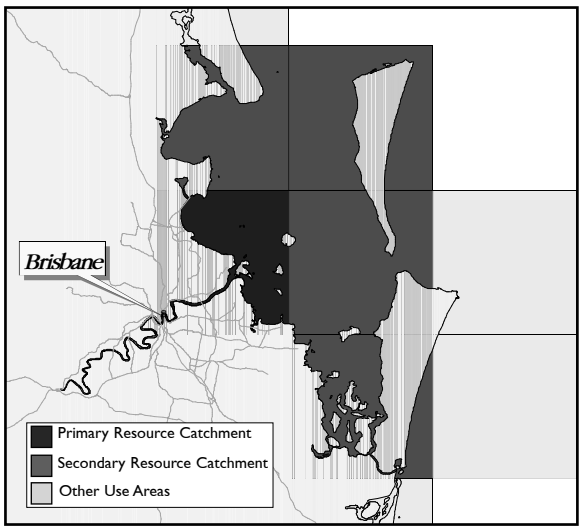


Figure 11.2 Brisbane TRC: Location of Resource USe

Harvesting Industry Employment

Table 11.5 identifies the number of harvesters within the Brisbane TRC. The majority of businesses had one full-time harvester (48.4%). Most businesses did not have part-time or casual employees. Nearly 10% of businesses had 4-5 full-time employees, however. The average number of fulltime equivalent harvesters per business was 1.0. In total it is estimated that there were 53 harvesters in the Brisbane TRC.

Business Ownership and Size

Table 11.6 shows that businesses within the Brisbane TRC have been owned for an average of 11.5 years, with 56% of businesses being owned by the current owner for less than 10 years.

Table 11.7 shows the number of years the business has been operating regardless of ownership. The average number of years was 11.5 years, which was similar to that for all Queensland harvesting businesses (12.4 years).

Table 11.5 Number of Employees

Number of Employees	Full-Time Count	Full-Time Percent	Part-Time Count	Part-Time Percent	Casual Count	Casual Percent
0	11	35.5	24	77.4	23	74.2
1	15	48.4	4	12.9	6	19.4
2-3	2	6.4	3	9.4	2	6.4
4-5	3	9.7	0	0.0	0	0.0
6-10	0	0.0	0	0.0	0	0.0
10+						
Total Businesses	31	100.0	31	100.0	31	100.0
Total Employees	32		10		11	
Mean Number of Harvesters per Business		1.0				
Estimated Number Employed within the TRC		53				

Note: Part-time and casual employment is recorded as 0.5 when contributing to total employment.
Total number of employees includes the owner-operator and is the number of full-time equivalent employees.
Estimates of total employment based on an estimated 218 fishing businesses (Table 25.1)

Table 11.6 Number of Years of Current Ownership

Number of Years	Sample Count	Percent within TRC	Cumulative Percent
1-5	7	21.9	21.9
6-10	11	34.1	56.3
11-15	7	21.7	78.1
16-20	3	9.3	87.5
21-25	1	3.1	90.6
26-30	2	6.2	96.9
31+	1	3.1	100.0
Total	32	100.0	
Mean Number of Years owned or operated			11.5
Difference of TRC Mean to QLD Population Mean (12.0)			-0.5

Note: Standard errors for number of years ownership (sample = 1.4; QLD population = 0.9).

Table 11.7 Number of Years Business has been Operating

Number of Years	Sample Count	Percent within TRC	Cumulative Percent
1-5	7	21.9	21.9
6-10	11	34.1	56.3
11-15	7	21.7	78.1
16-20	3	9.3	87.5
21-25	1	3.1	90.6
26-30	2	6.2	96.9
31+	1	3.1	100.0
Total	32	100.0	100.0
Mean Number of Years owned or operated			11.5
Difference of Mean to Population Mean (12.4)			-0.9

Note: Standard errors for number of years operated (sample = 1.4; QLD population = 1.0)

Table 11.8 shows that the majority of harvesting businesses within this TRC operated with one boat (53.1%). Around 19% of businesses did not use a boat at all for their activities. The mean number of boats in the Brisbane TRC (1.2 boats) was less than the Queensland population mean (1.7 boats).

Table 11.8 Number of Boats Operated by Harvesting Business

Number of Boats	Sample Count	Percent within TRC
0	6	18.8
1	17	53.1
2	5	15.6
3	3	9.4
4+	1	3.1
Total Number of Businesses	32	100.0
Mean Number of Boats Operated		1.2
Difference of Mean to QLD Population Mean (1.7)		-0.5

Note: Standard errors for number of boats operated (sample = 0.2; QLD population = 0.1)

Table 11.9 shows the length of boats used by harvesting businesses in the Brisbane TRC. The majority of boats (79.5%) were small and varied in length between 2 and 6 metres. The mean length of boats and the mean of the largest boat owned (5.4m and 5.5m respectively) were substantially less than the mean Queensland lengths (7.4m and 7.6m) respectively.

Table 11.9 Length of Boats Operated by Harvesting Businesses

Length of Boat (metres)	Sample Count	Percent TRC
2-6	31	79.5
7-10	6	4.8
11-14	2	1.6
15-18	0	0.0
18-24	0	0.0
24+	0	0.0
Total Number of Boats	39	100.0
Mean Length of Boats Operated (metres)		5.4
Difference of Mean to QLD Population Mean (7.4)		-2.0
Mean Length of Largest Boat Operated (metres)		5.5
Difference of Mean to QLD Population Mean (7.6)		-2.1

Note: Standard errors for mean length of boats (sample = 0.5; QLD population=0.4)
Standard errors for mean length of largest boats (sample = 0.5; QLD population=0.4)

Value of Production and Location of Sales

Table 11.10 shows the wholesale value of all products sold by harvesting businesses within the Brisbane TRC for the 12 months prior to the survey. Some 81.3% of Brisbane TRC businesses earned less than $50,000 and some 9.3% of harvesters in the Brisbane TRC had production values greater than $150,000.

Harvest businesses in the Brisbane TRC had an estimated gross value of production of approximately $1.0 million, which was approximately 9.8% of the total value of production of the Queensland commercial harvesting industry.

Table 11.10 Wholesale Value of Product (Annual value)

Wholesale Value ($,000)	Sample Count	Sample Percent	Queensland Percent
Less than $25	17	53.1	45.9
$25-50	9	28.2	24.5
$50-75	2	6.2	8.2
$75-100	0	0.0	5.1
$100-125	1	3.1	5.1
$125-150	0	0.0	0.0
$150-175	1	3.1	2.0
$175-200	1	3.1	2.0
$200+	1	3.1	7.2
Total	32	100.0	100.0
Median GVP for TRC			$19,902
Estimated Total GVP for TRC			$1,015,000
Estimated Total GVP for QLD Population			$14,554,000
Percent of Total Queensland Production			9.8%

Note: Estimated TRC population total is based on the sample GVP total multiplied by the sampling fraction of 1.524
Queensland total GVP based on sampled GVP from all TRCs multiplied by the sampling fraction of 1.524

Table 11.11 shows the value and location of harvest sales for the Brisbane TRC. The total amount of product sold in Australia was estimated at $920,000. Most of the product sold in Australia was sold to Brisbane (60.1%). Less than 10% of products were directly exported overseas, equating to an estimated $95,000.

Table 11.11 Sales to Customers

Location	Sample Value of Sales ($,000)	Percent of Sample	Estimate Value ($,000)
Brisbane	781	60.1	553
Sydney	179	13.8	127
Maroochydore	156	12.0	110
Bribie Island	39	3.0	27
Beenleigh	31	2.4	22
Redcliffe	31	2.4	22
Point Lookout	30	2.3	21
Other towns (<1%)	52	4.0	37
Total Sales (in Aust.)	1,300	90.6	920
Total Sales (Overseas)	133	9.4	95
Total Sales	1,433	100.0	$1,015

Note: *The sample value of sales is based on GVP as reported by businesses in the survey.*
The estimated value of business sales is proportionally distributed to all locations on the basis of sample percentages.
Source: *CRC Reef (2000).*

Business Expenditure

Table 11.12 shows that an estimated $0.53 million was spent on business goods and services (excluding salaries and wages) by businesses in the Brisbane TRC over the previous year. The majority of this expenditure occurred in Brisbane ($0.28 million). Nearly 35% of business expenditure was distributed to 35 other towns.

Table 11.12 Location of Business Expenditure (All costs, excluding salaries and wages)

Location of Expenditure	Sample Value of Expenditure ($,000)	Percent of Sample	Estimated Expenditure ($,000)
Brisbane	399	53.4	282
Redcliffe	87	11.7	62
Towns (35) <5%	260	34.9	184
Total Expenditure	747	100.0	529

Note: *Business expenditure includes all non labour expenditure (ie. fuel, equipment, repairs etc)*
Coefficients from the QLD input-output table for 1992-1993 indicate that expenditure on local intermediate purchases and imports, accounted for 52.1% of total revenue. The amount of business expenditure occurring within specific locations is based on 52.1% of the estimated GVP for the business.

HARVESTER PROFILES

Town of Residence

Table 11.13 indicates that harvesters within the Brisbane TRC resided primarily within Brisbane (77.5%).

Table 11.13 Town of Residence

Town of Residence	Sample Count	Percent of Sample
Brisbane	25	77.5
Amity Point	1	3.1
Beaudesert	1	3.1
Burpengary	1	3.1
Clontarf	1	3.1
Deception Bay	1	3.1
Kallangur	1	3.1
Murrarie	1	3.1
Total	32	100.0

Months Employed in the Harvesting Industry

Table 11.14 shows that the majority of harvesters within the Brisbane TRC were employed during most months of the year, and especially towards the end of the year, between September and December.

Table 11.14 Months Employed in the Harvesting Industry During Past 12 Months

Months	Owner/ Operators	All QLD Harvesters
January	81.3	85.4
February	81.3	91.3
March	87.5	84.4
April	87.5	82.3
May	87.5	85.4
June	81.3	82.3
July	84.4	86.5
August	90.6	87.5
September	96.9	89.6
October	87.5	87.5
November	93.8	90.6
December	87.5	90.6

Location of Household Expenditure

Table 11.15 shows the location of household expenditure in the harvesting industry. There were 38 towns that received some of the expenditure on household items. Most expenditure was in Brisbane (53.4%), and in Redcliffe (11.7%). The estimated total household expenditure spent by families in the Brisbane TRC was $1.4 million.

Table 11.15 Town Location of Household Expenditure (All commodities and services)

Location of Expenditure	Sample Value of of Expenditure ($,000)	Percent Expenditure	Estimated Expenditure ($,000)
Brisbane	482	53.4	734
Redcliffe	105	11.7	161
Wynnum	40	4.4	60
Beaudesert	28	3.1	43
Kallangur	28	3.1	43
Redland	23	2.6	36
Clontarf	23	2.6	36
Burpengary	22	2.5	34
Deception Bay	22	2.5	34
Cannon Hill	19	2.1	29
Other towns (28) (<2%)	108	12.0	165
Total Expenditure	$902	100.0	1,375

Note: *The sample total personal income for the Brisbane TRC was $1,171,200 (average income multiplied by a sample size of 9). The Household Expenditure Survey for Queensland: 1993-1994 (ABS, 1996) indicates that for households in non-metropolitan areas 79% of gross weekly income was related to commodity and service purchases. Furthermore, of the total expenditure on commodities and services purchased by households, Queensland Input-Output tables indicate that 77% of expenditure occurs within Queensland, with the balance contributing to taxes and imports from outside Queensland. The sample value of expenditure was therefore calculated to be $902,000. Estimated value of expenditure was calculated by multiplying the sample value of expenditure by 1.525*

School and Employment Locations of Family Members

The town locations in which family members attended school or were employed are shown in Table 11.16. Most family members attended school or were employed in Brisbane (81.6%).

Table 11.16 School and Employment Locations of Family Members

Location of Employment or School	Sample Count	Percent of Sample
Brisbane	70	81.6
Amity Point	2	2.4
Beaudesert	3	3.6
Burpengary	1	1.2
Deception Bay	4	4.8
Kallangur	2	2.4
Total Family Members	82	100.0

Note: Counts and percentages based on all family members.

Owner-Operator Social and Demographic Profiles

Table 11.17 provides profile information of harvesters from the Brisbane TRC. For comparative purposes information is also provided for all harvesters throughout Queensland. Harvesters in the Brisbane TRC had lived longer in their town, worked significantly less hours per week, were less likely to own their own home, had less formal education, used business plans less, had partners less likely to have fulltime employment, had smaller families but higher dependency rates, and earned slightly more than the average Queensland harvester.

Table 11.17. Owner-Operator Profiles

Profile	Owner/ Operator	ALL QLD Harvesters
Esti mated Number of Active Harvesters	49	163
Mean age of fisher	44.7	46.9
Age range	25-67	21.72
Percent males	100	93.9
Mean years resident in town	26.5	19.5
Mean number of years in harvesting industry	17.2	16.4
Median hours per week in harvesting industry	15	29
Percent moved town to retain employment	12.5	14.4
Percent currently employed in other industry	31.3	37.8
Percent previously employed in other industry	87.5	87.6
Housing tenure (%)		
Rent	40.6	33
Mortgage	28.1	24.7
Own home	31.3	42.3
Other (eg, live with parents, on boat)	0	0
Educational		
Year completed school (%)		
Primary school	15.6	13.7
Year 8	12.5	6.3
Year 9	9.4	10.5
Year 10	31.3	27.4
Year 11	9.4	9.5
Year 12	21.9	32.7
Percent completed trade or TAFE certificate	18.8	34.7
Percent completed industry or business course	18.8	11.9
Percent with business plan	12.5	29.6
Marital Status		
Percent married or relationship	65.6	64.3
Partner's Income*		
Full-time employment	22.7	39.1
Part-time employment	31.8	25.0
Casual employment	22.7	9.4
Not employed	22.7	26.6
Family Composition		
Mean family size	1.9	2.1
Estimated number of total family members	62	215
Dependency Ratios		
Age Dependency Ratio**	27.0	19.6
Elderly Dependency Ratio	1.1	2.3
Child Dependency Ratio	25.8	17.3
Family Member Industry Dependency Ratio***	12.4	14.7
Gross Individual Income (%)		
Less than $16,000	16.7	25.0
$16,000 - $26,000	23.3	19.3
$26,000 - $36,000	16.7	15.9
$36,000 - $52,000	23.3	23.9
$52,000 - $78,000	10.0	8.0
Over $78,000	10.0	8.0
Average Income ($)	$36,600	33,602

*Note: *Percentage based on those harvesters with partners. Includes partner's income from all sources.*
*** The age dependency ratio is the number of children (below 15 years) and elderly persons (above 65 years) to every 100 persons in the population*
****The industry dependency ratio is the number of persons in the family who are over 15 years of age and working in the harvesting industry (excluding the direct industry employee) as a proportion of all family members over 15 years of age.*
Source: CRC Reef (2000).

12 SOUTHPORT TRC

The Southport TRC consists of the main urban centre of the Gold Coast, including Paradise Point and Southport in the north and Coolangatta in the South.

BUSINESS PROFILES

Location and Use of Ports

Table 12.1 shows the number of license holders within the Southport TRC and the number of survey respondents who reported having homeports within the TRC. On the basis of the sample count, it is estimated that there were 14 commercial harvesters within the Southport TRC. These was a 95% confidence level that the correct population count of commercial harvesters within the TRC was between 7 and 21. Figure 12.1 shows the geographic location of this TRC.

Table 12.1 Location of Homeports

Town	Adj. Database Count	Sample Count	Estimated Count	Percent within TRC
Southport	3	2	3	21.4
Gold Coast UC	10	4	5	35.7
Jacobs Well	2	1	2	14.3
Biggera Waters	1	1	2	14.3
Tylerville	0	1	2	14.3
Twin Waters	1	0	0	0.0
Total TRC	17	9	14	100.0
95% Confidence Interval for Estimated TRC Count				7-21
Percent of Total Active Licence Holders in QLD				9.1%

Note: Gold Coast UC (Balance) excludes Southport but includes Arundel, Runaway Bay, Biggera Waters, Labrador, Currumbin, Ashmore, Coombabah, Gold Coast, Tugun, Paradise Point, Coolangatta, Bellevue Park, Hollywell, Broadbeach Waters, Chirn Park, Bundall, Worongary.
Adjusted database count is based on the postal address as recorded in the licencing information, which may not be the homeport of the harvesting businesses. The adjusted database count reduces the count for latent licence holders (22.5%). The estimated count adjusts the sample count by the sampling fraction of 1.525

No other harvesters used Southport as a port when travelling to or from harvesting areas.

Fishing Activity and Type

As shown in Table 12.2, the collection of bloodworms, yabbies and tubeworms (60%) were the primary harvesting activities from the Southport TRC. There was some collection of aquarium fish, coral and/or shells (20%) and sandworms (20%). No trochus or seacucumber were collected.

Table 12.2 Type of Harvesting Activity

Harvest Type	Sample Count	Percent within TRC
Bloodworms, tubeworms and/or yabbies	6	60.0
Aquarium fish, coral, shells and/or grit	2	20.0
Sandworms	2	20.0
Trochus and/or seacucumber	0	0.0
Total Sample	10	100.0

Note: This is a multiple response table where all rows are independent.

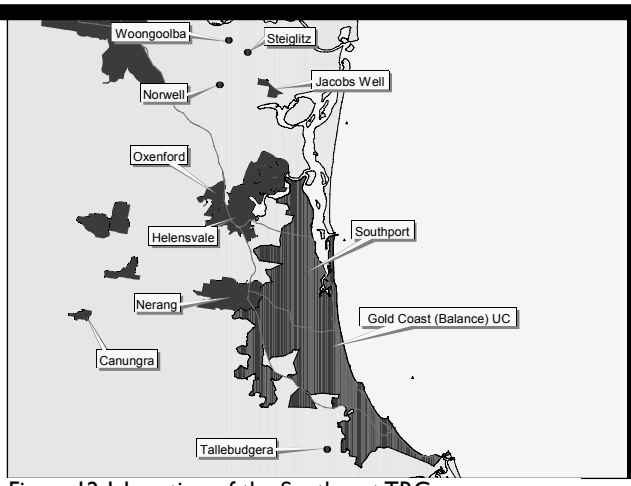


Figure 12.1 Location of the Southport TRC

Table 12.3 shows the peak months for harvesting activity within the Southport TRC to be October to January, which is the same as the overall Queensland peak season, between October and January.

Table 12.3 Peak Harvesting Months During Past 12 Months

Months	Sample Count	Percent within TRC	Percent of QLD Fishery
January	5	55.6	37.6
February	2	22.2	18.8
March	1	11.1	15.3
April	3	33.3	21.2
May	1	11.1	12.9
June	2	22.2	18.8
July	3	33.3	28.2
August	1	11.1	31.8
September	1	11.1	28.2
October	4	44.4	30.6
November	4	44.4	34.1
December	7	77.7	48.2

Table 12.4 provides a more detailed description of the seasonal variation in harvesting activities by product. Bloodworm, yabbies and tubeworms were especially harvested in December and January.

Location of Resource Use

Figure 12.2 shows the location of resource use by commercial harvesting operations in the Southport TRC. The location of resource use is directly adjacent to Southport, and further north into Moreton Bay.

Harvesting Industry Employment

Table 12.5 identifies the number of employees of commercial harvesting businesses within the Southport TRC. The majority of businesses had one full-time employee (55.6%), although 33% had between 2-3 fulltime employees. There was little part-time (22.2%) or casual employment (0.0%) by these businesses. The average number of harvesters per business was 1.4. In total it is estimated that there were 21 harvesters in the Southport TRC.

Table 12.4 Seasonal Variations in Harvesting Activity

Months	Sample Count	Percent within TRC	Percent of Fishery
Bloodworms, tubeworms and yabbies			
January	4	66.7	50.0
February	2	33.3	23.3
March	1	16.7	16.7
April	2	33.3	23.3
May	1	16.7	6.7
June	1	16.7	10.0
July	2	33.3	16.7
August	0	0.0	16.7
September	0	0.0	23.3
October	2	33.3	20.0
November	2	33.3	26.7
December	5	83.3	66.7

Business Ownership and Size

Table 12.6 shows the number of years the current owner or operator has owned the harvesting business. Businesses within this TRC have been owned for an average of 15.1 years, with 67% of businesses being owned by the current owner for less than 10 years.

Table 12.6 Number of Years of Current Ownership of the Harvesting Business

Number of Years	Sample Count	Percent within TRC	Cumulative Percent
1-5	3	33.3	33.3
6-10	3	33.3	66.7
11-15	0	0.0	66.7
16-20	0	0.0	66.7
21-25	0	0.0	66.7
26-30	1	11.1	77.8
31+	2	22.1	100.0
Total	9	100.0	100.0
Mean Number of Years owned or operated			15.1
Difference of TRC Mean to QLD Population Mean (12.0)			+3.1

Note: Standard errors for number of years ownership (sample = 4.8; QLD population = 0.9).

Table 12.7 shows the average number of years the business has been operating, regardless of ownership. The average number of years is 15.2 years, which is greater than the Queensland average (12.4 years).

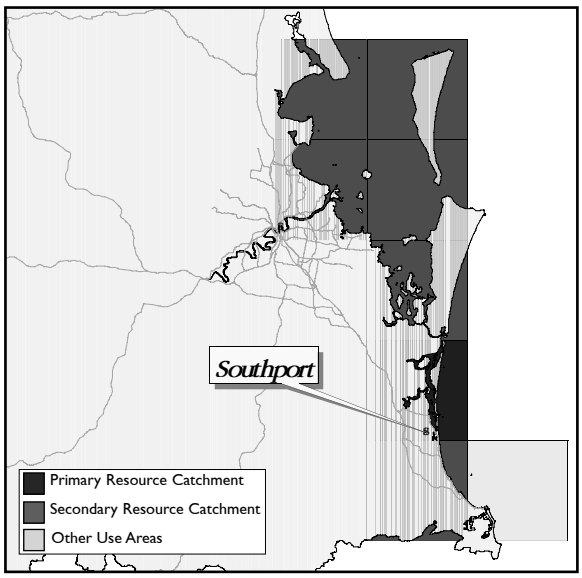


Figure 12.2 Southport TRC: Location of Resource Use

Table 12.7 Number of Years Business has been Operating

Number of Years	Sample Count	Percent within TRC	Cumulative Percent
1-5	3	33.3	33.3
6-10	2	22.2	55.6
11-15	1	11.1	66.7
16-20	0	0.0	66.7
21-25	1	11.1	77.8
26-30	0	0.0	77.8
31+	2	22.2	100
Total	9	100.0	100
Mean Number of Years owned or operated			15.2
Difference of Mean to Population Mean (12.4)			+2.8

Note: Standard errors for number of years operated (sample =4.7; QLD population = 1.0)

Table 12.8 shows that the majority of harvesting businesses within this TRC operated one boat (44.4%). The mean number of boats used (1.6) was similar to the Queensland average (1.4).

Table 12.5 Number of Employees

Number of Employees	Full-Time Count	Full-Time Percent	Part-Time Count	Part-Time Percent	Casual Count	Casual Percent
Nil	1	11.1	7	77.8	9	100.0
1	5	55.6	1	11.1	0	0.0
2-3	3	33.3	1	11.1	0	0.0
4-5	0	0.0	0	0.0	0	0.0
6-10	0	0.0	0	0.0	0	0.0
10-20	0	0.0	0	0.0	0	0.0
20+	0	0.0	0	0.0	0	0.0
Total Businesses	9	100.0	9	100.0	9	100.0
Total Harvesters	11		3		0	
Mean Number of Harvesters per Business		1.4				
Estimated Number Employed within the TRC		21				

Note: Part-time and casual employment is recorded as 0.5 when contributing to total employment.
Total number of employees includes the owner-operator and is the number of full-time equivalent employees.

Table 12.8 Number of Boats Operated by Harvesting Businesses

Number of Boats	Sample Count	Percent TRC
0	1	11.1
1	4	44.4
2	2	22.2
3	2	22.2
4+	0	0.0
Total Number of Businesses	9	100.0
Mean Number of Boats Operated		1.6
Difference of Mean to QLD Population Mean (1.4)		+0.2

Note: Standard errors for number of boats operated (sample = 0.3; QLD population = 0.1)

Table 12.9 shows the length of boats operated by harvesting businesses in the Southport TRC. The majority of boats (85.7%) were small and varied in length between two and six metres.

Table 12.9 Length of Boats Operated by Harvesting Businesses

Length of Boat (metres)	Sample Count	Percent TRC
2-6	12	85.7
7-10	0	0.0
11-14	1	7.1
15-18	1	7.1
18-24	0	0.0
24+	0	0.0
Total Number of Boats	14	100.0
Mean Length of Boats Operated (metres)		5.8
Difference of Mean to QLD Population Mean (7.4)		1.6
Mean Length of Largest Boat Operated (metres)		6.9
Difference of Mean to QLD Population Mean (7.4)		0.5

Note: Standard errors for mean length of largest boats (sample = 1.1; QLD population=0.4)
Standard errors for mean length of largest boats (sample = 1.9; QLD population=0.4)

Value of Production and Location of Sales

Table 12.10 shows the wholesale value of all products sold by harvesting businesses within the Southport TRC for the 12 months prior to the survey. The profile for the Southport TRC shows that all production values were less than $100,000 per annum, which indicate that businesses in this TRC are smaller than the Queensland average.

Harvest businesses in the Southport TRC had an estimated gross value of production of approximately $1.1 million, which was 2.1% of the total value of production of the Queensland commercial harvesting industry.

Table 12.10 Wholesale Value of Product (Annual value)

Wholesale Value ($,000)	Sample Count	Sample Percent	Queensland Percent
Less than $25	6	66.6	45.9
$25-50	1	11.1	24.5
$50-75	1	11.1	8.2
$75-100	1	11.1	5.1
$100-125	0	0.0	5.1
$125-150	0	0.0	0.0
$150-175	0	0.0	2.0
$175-200	0	0.0	2.0
$200+	0	0.0	7.2
Total	9	100.0	100.0
Median GVP for TRC			$7,500
Estimated Total GVP for TRC			$307,000
Estimated Total GVP for QLD Population			$14,554,000
Percent of Total Queensland Production			2.1%

Note: Estimated TRC population total is based on the sample GVP total multiplied by the sampling fraction of 1.524
Queensland total GVP based on sampled GVP from all TRCs multiplied by the sampling fraction of 1.524

Table 12.11 shows the value and location of sales for the Southport TRC. Eleven percent of products were exported overseas, equating to an estimated $34,000. The amount of product sold in Australia was estimated at $273,000. Most of the product sold in Australia was sold to the Gold Coast (42.9%) and within Southport (22.9%).

Table 12.11 Sales to Customers

Location of Sales	Sample Value of Sales ($,000)	Mean Percent of Sample	Estimated of all Sales ($,000)
Gold Coast	77	42.9	118
Southport	41	22.9	62
Brisbane	30	16.6	45
Townsville	16	9.1	25
Sydney	10	5.7	15
Maroochydore	5	2.9	8
Total Sales (in Aust)	179	89.0	$273
Total Sales (Overseas)	22	11.0	$34
Total Sales	201	100.0	$307

Note: The sample value of sales is based on GVP as reported by businesses in the survey.

Business Expenditure

Table 12.12 shows that approximately $160,000 was spent by businesses in this TRC over the previous year on business goods and services (excluding salaries and wages). The majority of this expenditure occurred on the Gold Coast (27%), Southport (23.4%), Townsville (11.7%) and in NSW (10.4%).

Table 12.12 Town Location of Business Expenditure (All costs, excluding salaries and wages)

Location of Expenditure	Sample Value of Expenditure ($,000)	Percent of Sample	Estimated Expenditure ($,000)
Gold Coast	28	27.0	43
Southport	24	23.4	37
Townsville	12	11.7	19
NSW	11	10.4	17
Jacobs Well	9	8.5	14
Beenleigh	9	8.4	13
Biggera Waters	5	5.2	8
Brisbane	4	3.6	6
Other towns (3)(<1%)	2	1.8	3
Total Expenditure	105	100.0	160

Note: Business expenditure includes all non labour expenditure (ie. fuel, equipment, repairs etc)
Coefficients from the QLD input-output table for 1992-1993 indicate that expenditure on local intermediate purchases and imports, accounted for 52.1% of total revenue. The amount of business expenditure occurring within specific locations is based on 52.1% of the estimated GVP for the business.

HARVESTER PROFILES

Town of Residence

Table 12.13 indicates that harvesters resided mostly on the Goldcoast (22.2%), Jacobs Well (22.2%) and Southport (22.2%), as well as outside the Southport TRC.

Table 12.13 Town of Residence

Town of Residence	Sample Count	Percent of Sample
Goldcoast	2	22.2
Jacobs Well	2	22.2
Southport	2	22.2
Biggera Waters	1	11.1
Tweed Heads	1	11.1
Townsville	1	11.1
Total	9	100.0

Months Employed in the Harvesting Industry

Table 12.14 shows that during the past 12 months the majority of harvesters within this TRC were employed in the harvesting industry between October and January, which was a similar pattern to the average Queensland pattern.

Table 12.14 Months Employed in the Harvesting Industry During Past 12 Months

Months	Owner/ Operators	All QLD Harvesters
January	88.9	85.4
February	77.8	91.3
March	77.8	84.4
April	77.8	82.3
May	77.8	85.4
June	77.8	82.3
July	77.8	86.5
August	77.8	87.5
September	77.8	89.6
October	88.9	87.5
November	100.0	90.6
December	100.0	90.6

Location of Household Expenditure

Table 12.15 shows the location of household expenditure from employment in the harvesting industry. An estimated $364,000 was spent on household items from the Southport TRC. Some 27.2% was spent in Southport, 25.7% was spent at the Gold Coast, and the remaining 47.1% was spent in nine other towns in both Queensland and New South Wales.

Table 12.15 Town Location of Household Expenditure (all commodities and services)

Location of Expenditure	Sample Value of of Expenditure ($,000)	Percent Expenditure	Estimated Expenditure ($,000)
Southport	65	27.2	99
Gold Coast	61	25.7	93
Townsville	26	11.1	40
NSW	24	9.9	36
Jacobs Well	19	8.1	29
Beenleigh	19	8.0	29
Biggera Waters	12	4.9	18
Brisbane	8	3.4	12
Other towns (3) (<1%)	4	1.7	6
Total Expenditure	239	100.0	364

Note: The sample total personal income for the Southport TRC was $310,000. The Household Expenditure Survey for Queensland: 1993-1994 (ABS, 1996) indicates that for households in non-metropolitan areas 79% of gross weekly income was related to commodity and service purchases. Furthermore, of the total expenditure on commodities and services purchased by households, Queensland Input-Output tables indicate that 77% of expenditure occurs within Queensland, with the balance contributing to taxes and imports from outside Queensland. The sample value of expenditure was therefore calculated to be $238,700. Estimated value of expenditure was calculated by multiplying the sample value of expenditure by 1.525

School and Employment Locations of Family Members

The town locations in which family members attended school or were employed are shown in Table 12.16. The Goldcoast (36.7%) was the primary location for school and employment of family members, although a significant number of family members attended school or work in Southport (16.7%), NSW (13.3%), and Townsville (10%).

Table 12.16 School and Employment Locations of Family Members

Location of Employment or School	Sample Count	Percent of Sample
Gold Coast	11	36.7
Southport	5	16.7
NSW	4	13.3
Townsville	3	10.0
Jacobs Well	2	6.7
Woongoolba	2	6.7
Silverspur	1	3.3
Biggera Waters	1	3.3
Browns Plains	1	3.3
Total Family Members	30	100.0

Note: Counts and percentages based on all family members.

Owner-Operator Social and Demographic Profiles

Table 12.17 provides profile information of harvesters in the Southport TRC. For comparative purposes information is also provided for all harvesters throughout Queensland. Harvesters in the Southport TRC generally lived in their towns longer, had been in the industry longer, worked less hours per week, had moved to retain their employment, were more likely to be working in another industry, owned their own home, used a business plan, had a larger family, and a lower dependency ratio than the average Queensland harvester.

Table 12.17 Owner-Operator Profiles for the Southport TRC

Profile	Owner/ Operators	All QLD Employees
Estimated Number of Active Harvesters	14	163
Mean age of fisher	44.3	46.9
Age range	21-56	21-72
Percent males	100	93.9
Mean years resident in town	24.2	19.5
Mean number of years in harvesting industry	19.6	16.4
Median hours per week in harvesting industry	16.0	29.0
Percent moved town to retain employment	22.2	14.4
Percent currently employed in other industry	44.4	37.8
Percent previously employed in other industry	88.9	87.6
Housing tenure (%)		
Rent	37.5	33.0
Mortgage	0.0	24.7
Own home	62.5	42.3
Other (eg, live with parents, on boat)	0.0	0.0
Educational		
Year completed school (%)		
Primary school	12.5	13.7
Year 8	0.0	6.3
Year 9	25	10.5
Year 10	12.5	27.4
Year 11	12.5	9.5
Year 12	37.5	32.7
Percent completed trade or TAFE certificate	33.3	34.7
Percent completed industry or business course	0.0	11.9
Percent with business plan	55.6	29.6
Marital Status		
Percent married or relationship	66.7	64.3
Partner' Income*		
Full-time employment	50.0	39.1
Part-time employment	16.7	25
Casual employment	0.0	9.4
Not employed	33.3	26.6
Family Composition		
Mean family size	2.6	2.1
Estimated number of total family members	23	215
Dependency Ratios		
Age Dependency Ratio**	12.9	19.6
Elderly Dependency Ratio	0.0	2.3
Child Dependency Ratio	12.9	17.3
Family Member Industry Dependency Ratio***	12.9	14.7
Gross Individual Income (%)		
Less than $16,000	33.3	25.0
$16,000 - $26,000	0.0	19.3
$26,000 - $36,000	0.0	15.9
$36,000 - $52,000	55.6	23.9
$52,000 - $78,000	11.1	8.0
Over $78,000	0.0	8.0
Average Income ($)	34,444	33,602

Note: ** Percentage based on those fishers with partners.. Includes partners income from all sources.*
*** The age dependency ratio is the number of children (below 15 years) and elderly persons (above 65 years) to every 100 persons in the population.*
**** The industry dependency ratio is the number of persons in the family who are over 15 years of age and working in the fishing industry (excluding the direct industry employee) as a proportion of all family members over 15 years of age.*

Source: Reef CRC (2000)