



**GREAT BARRIER REEF**  
MARINE PARK AUTHORITY

**RESEARCH PUBLICATION No. 50**

# Recreational Usage Patterns of Shoalwater Bay and Adjacent Waters



**Gayle Jennings**

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# Recreational Usage Patterns of Shoalwater Bay and Adjacent Waters

The Great Barrier Reef Marine Park Authority  
Great Barrier Reef Marine Park  
Mackay  
Townsville

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## CONTENTS

<b>PREFACE</b> .....	vii
<b>SUMMARY</b> .....	1
Background .....	1
Methods .....	2
Findings and Discussion.....	2
Management Issues .....	3
<b>SHOALWATER BAY STUDY</b> .....	5
Introduction .....	5
Aim of the study.....	5
Background .....	5
Literature Review.....	7
Motivations .....	7
Participation rates and patterns.....	7
The Demographics of the Study Area .....	8
Conflict .....	9
Newspaper reports.....	10
<b>METHODOLOGY</b> .....	11
Quantitative Methodology: User surveys.....	11
Sampling information .....	12
Mail surveys.....	12
Club surveys .....	14
Self Selection Surveys .....	14
Commercial operator surveys .....	14
Ethical Considerations .....	15
Quantitative Methodology: Secondary data sources.....	15
Qualitative Methodology.....	15
Open ended survey questions.....	15
Modified Delphi Technique .....	15
Conclusion to Methodology Section .....	16
<b>FINDINGS</b> .....	17
Expert opinion .....	17
Secondary data source findings - Aerial surveillance .....	17
Mail Survey .....	22
Club surveys.....	32
Self Selection Survey .....	41
Commercial Operator Survey.....	50
<b>DISCUSSION</b> .....	60
<b>CONCLUSION</b> .....	67
<b>MANAGEMENT ISSUES</b> .....	68
<b>ACKNOWLEDGMENTS</b> .....	70
<b>BIBLIOGRAPHY</b> .....	72
<b>APPENDICES</b>	
Appendix 1: Shoalwater Bay Recreational Usage Survey .....	77
Appendix 2: Examples of Cover Letters .....	82
Appendix 3: Reminder card for mail survey .....	86
Appendix 4: List of Clubs Approached .....	87
Appendix 5: Club Survey Reminder Letter .....	88
Appendix 6: Locations used for Self Selection Surveys .....	89
Appendix 7: Survey Advertisements .....	90
Appendix 8: Specific locations accessed by mail survey respondents.....	92
Appendix 9: Departure points included in the 'Other' category of Table 15 .....	93
Appendix 10: 'Other' categories noted in survey .....	94
Appendix 11: Full transcriptions of reasons for using the study area for recreation .....	97

Appendix 12: Full transcriptions of comments relating to activities suitable in the study area .....	106
Appendix 13: Full transcriptions of general comments made by each survey group .....	126
Appendix 14: Specific locations accessed by club survey respondents .....	138
Appendix 15: Specific locations accessed by self selection survey respondents .....	139
Appendix 16: Specific locations accessed by commercial operators survey respondents ..	140
Appendix 17: Map of Shoalwater Bay Defence Area .....	141

## TABLES

Table 1: Summary of Proportionate Stratified Sampling Details .....	13
Table 2: Response rates for Mail, Club and Self Selection Surveys. ....	13
Table 3: Vessel Usage of Shoalwater Bay and Adjacent Waters, 1988 .....	18
Table 4: Vessel Usage of Shoalwater Bay and Adjacent Waters, 1989 .....	18
Table 5: Vessel Usage of Shoalwater Bay and Adjacent Waters, 1990 .....	19
Table 6: Vessel Usage of Shoalwater Bay and Adjacent Waters, 1991 .....	19
Table 7: Vessel Usage of Shoalwater Bay and Adjacent Waters, 1992 .....	19
Table 8: Vessel Usage of Shoalwater Bay and Adjacent Waters, 1993 .....	20
Table 9: Vessel Usage of Shoalwater Bay and Adjacent Waters, 1994 .....	20
Table 10: Vessel Usage of Shoalwater Bay and Adjacent Waters, 1995 .....	21
Table 11: Vessel Usage of Shoalwater Bay and Adjacent Waters, 1988 - 1995 .....	21
Table 12: Usage of Shoalwater Bay and adjacent waters by mail survey respondents during June 1995 to June 1996. ....	22
Table 13: Locations used for recreational purposes .....	22
Table 14: Mode of transport used by mail survey respondents to access recreational sites in the study area .....	23
Table 15: Departure and launching sites used by mail survey respondents .....	23
Table 16: Recreational activities pursued by mail survey respondents in the study area .....	24
Table 17: The main activity pursued by mail survey respondents within the study area .....	24
Table 18: Frequency of visitation to the study area by mail survey respondents .....	24
Table 19: Time periods of visitation by mail survey respondents of the survey area .....	25
Table 20: Month in which the last visit occurred for mail survey respondents who used the study area .....	25
Table 21: Types of passengers who accompany the mail survey respondents .....	25
Table 22: Reasons given by mail survey respondents for using Shoalwater Bay and adjacent waters .....	26
Table 23: Activities which mail survey respondents believed were suitable for Section A on Map 2 of the survey .....	26
Table 24: Activities which mail survey respondents believed were suitable for Section B on Map 2 of the survey .....	27
Table 25: Activities which mail survey respondents believed were suitable for Section C on Map 2 of the survey .....	28
Table 26: Activities which mail survey respondents believed were suitable for Section D on Map 2 of the survey .....	28
Table 27: Activities which mail survey respondents believed were suitable for Section E on Map 2 of the survey .....	29
Table 28: Comments regarding activities suitable in the study area .....	29
Table 29: Gender of mail survey respondents .....	30
Table 30: Ages of mail survey respondents .....	30
Table 31: Occupation of mail survey respondents .....	30
Table 32: Postcode addresses of mail survey respondents .....	31
Table 33: Length of residency at postcode address of mail survey respondents .....	31
Table 34: General comments made by mail survey respondents .....	32
Table 35: Usage of Shoalwater Bay and adjacent waters by club survey respondents during June 1995 to June 1996 .....	32
Table 36: Locations used for recreational purposes by club survey respondents .....	32

Table 37: Mode of transport used by club survey respondents to access recreational sites in the study area.....	33
Table 38: Departure and launching sites used by club survey respondents .....	33
Table 39: Recreational activities pursued by club survey respondents .....	33
Table 40: The main activity pursued by club survey respondents .....	34
Table 41: Frequency of visitation to the study area by club survey respondents.....	34
Table 42: Time periods for visitation by club survey respondents of the survey area.....	35
Table 43: Month in which the last visit occurred for club survey respondents who used the study area.....	35
Table 44: Types of passengers who accompany the club survey respondents.....	35
Table 45: Reasons given by club survey respondents for using Shoalwater Bay and adjacent waters for recreation.....	36
Table 46: Activities which club survey respondents believe are suitable for Section A on Map 2 of the survey .....	36
Table 47: Activities which club survey respondents believe are suitable for Section B on Map 2 of the survey .....	37
Table 48: Activities which club survey respondents believe are suitable for Section C on Map 2 of the survey .....	37
Table 49: Activities which club survey respondents believe are suitable for Section D on Map 2 of the survey .....	38
Table 50: Activities which club survey respondents believe are suitable for Section E on Map 2 of the survey .....	38
Table 51: Comments by club survey respondents regarding activities suitable in the study area.....	39
Table 52: Gender of club survey respondents .....	39
Table 53: Ages of club survey respondents .....	39
Table 54: Occupations of club survey respondents .....	40
Table 55: Postcode address of club survey respondents.....	40
Table 56: Length of residency at the postcode address of club survey respondents.....	40
Table 57: General comments made by club survey respondents.....	41
Table 58: Usage of Shoalwater Bay and adjacent waters by self selection survey respondents during June 1995 to June 1996.....	41
Table 59: Locations used for recreational purposes by self selection survey respondents ....	41
Table 60: Mode of transport used by self selection survey respondents to access recreational sites in the study area.....	42
Table 61: Departure and launching sites used by self selection survey respondents .....	42
Table 62: Recreational activities pursued by self selection survey respondents in the study area.....	43
Table 63: The main activity pursued by self selection survey respondents in the study area.....	43
Table 64: Frequency of visitation to the study area by self selection survey respondents.....	43
Table 65: Time periods of visitation by self selection survey respondents to the study area.....	44
Table 66: Month in which the last visit occurred for self selection survey respondents who used the study area.....	44
Table 67: Types of passengers who accompany the self selection survey respondents.....	44
Table 68: Reasons given by self selection survey respondents for using Shoalwater Bay and adjacent waters for recreation .....	45
Table 69: Activities which self selection survey respondents believe are suitable for Section A on Map 2 of the survey .....	45
Table 70: Activities which self selection survey respondents believe are suitable for Section B on Map 2 of the survey .....	46
Table 71: Activities which self selection survey respondents believe are suitable for Section C on Map 2 of the survey .....	46
Table 72: Activities which self selection survey respondents believe are suitable for Section D on Map 2 of the survey.....	47

Table 73: Activities which self selection survey respondents believe are suitable for Section E on Map 2 of the survey.....	48
Table 74: Comments by self selection survey respondents regarding activities suitable in the study area.....	48
Table 75: Gender of self selection survey respondents .....	49
Table 76: Ages of self selection survey respondents.....	49
Table 77: Occupations of self selection survey respondents.....	49
Table 78: Postcode address of self selection survey respondents .....	50
Table 79: Length of residency at the postcode address of self selection survey respondents .....	50
Table 80: General comments made by self selection survey respondents .....	50
Table 81: Usage of Shoalwater Bay and adjacent waters by commercial operator survey respondents during June 1995 to July 1996.....	51
Table 82: Locations used for recreational purposes by commercial operators .....	51
Table 83: Mode of transport used by commercial operator survey respondents to access recreational sites in the study area .....	51
Table 84: Departure and launching sites used by commercial operator survey respondents .....	51
Table 85: Recreational activities associated with commercial operator survey respondents in the study area.....	51
Table 86: The main activity associated with commercial operator survey respondents in the study area.....	52
Table 87: Frequency of visitation to the study area by commercial operator survey respondents .....	52
Table 88: Time periods of visitation by commercial operator survey respondents of the survey area.....	52
Table 89: Month in which the last visit occurred for commercial operator survey respondents who used the study area.....	53
Table 90: Types of passengers who accompany the commercial operator survey respondents .....	53
Table 91: Reasons given by commercial operator survey respondents for using Shoalwater Bay and adjacent waters for recreation .....	53
Table 92: Activities which commercial operator survey respondents believe are suitable for Section A on Map 2 of the survey .....	54
Table 93: Activities which commercial operator survey respondents believe are suitable for Section B on Map 2 of the survey .....	55
Table 94: Activities which commercial operator survey respondents believe are suitable for Section C on Map 2 of the survey .....	55
Table 95: Activities which commercial operator survey respondents believe are suitable for Section D on Map 2 of the survey .....	56
Table 96: Activities which commercial operator survey respondents believe are suitable for Section E on Map 2 of the survey .....	57
Table 97: Comments by commercial operator survey respondents regarding activities suitable in the study area .....	57
Table 98: Gender of commercial operator survey respondents.....	57
Table 99: Ages of commercial operator survey respondents .....	58
Table 100: Occupations of commercial operator survey respondents .....	58
Table 101: Postcode address of commercial operator survey respondents .....	58
Table 102: Length of residency at the postcode address of commercial operator survey respondents .....	58
Table 103: General comments made by commercial operator survey respondents .....	59

## **PREFACE**

This study was commissioned by the Great Barrier Reef Marine Park Authority to provide information on the recreational usage patterns of Shoalwater Bay and adjacent waters. This study focuses on usage patterns by residents of the coastal area between Mackay and Gladstone. Another study, also commissioned by the Great Barrier Reef Marine Park Authority, focuses on usage of the area by en-route recreational vessels, particularly cruising vessels.

A third study is proposed for 1998. This study would aim to determine the usage of Shoalwater Bay and adjacent waters by residents of inland Central Queensland.

## SUMMARY

### Background

The *Commonwealth Commission of Inquiry into Shoalwater Bay, Capricornia Coast, Queensland* (1994) provided information and recommendations for the future management of the terrestrial and marine areas of Shoalwater Bay. To supplement the terrestrially focussed information on recreational usage patterns presented in the Inquiry's report, the Great Barrier Reef Marine Park Authority (GBRMPA) commissioned this study to investigate marine-based recreational usage of the area.

The aim of the study as specified in the consultancy brief was:

- To determine the recreational marine usage of the Shoalwater Bay area.

The scope of the brief excluded the study of recreational usage of the area by indigenous users as well as the direct targeting of commercial fishers. The Shoalwater Bay area as defined for the purposes of this study were those waters located between the latitudes of 22° 08'S to 23° 00'S and longitudes of 150° 02'E to 151° 02'E.

To date, very few studies have focussed on the recreational usage patterns of the marine areas of Shoalwater Bay, in fact Gutteridge Haskins and Davey (1996) suggest none exist. Several studies of land usage patterns have been conducted as part of the *Commonwealth Commission of Inquiry: Shoalwater Bay, Capricornia Coast, Queensland*. Specifically, A G B McNair (1994) conducted a study of Central Queensland residents and residents residing elsewhere in Queensland regarding their attitudes towards various land use issues related to the Shoalwater Bay Military Training Area. In another study, Wood, Thompson, McIntyre and Killion (1994) developed a theoretical recreational and tourism opportunity spectrum for the Shoalwater Bay Military Training Area.

While literature on marine usage of Shoalwater Bay was limited, literature on general marine based recreation provided useful information for data analysis. Most of the literature pertained to recreational fishing, which was reported as a popular leisure time activity in national parks and wilderness areas (Borschmann, 1987: 42). Though the desire to catch a fish was the primary goal of recreational fishers, non-catch related motivations associated with the experience were also considered important (Dovers, 1994: 103). These non-catch related motivations included a desire to escape from the everyday environment, a need to experience freedom and a need for rest and relaxation within a natural 'wilderness' environment (PA Management Consultants, 1984a: 38). The social aspect of being with friends and family was also noted as a component of the experience (PA Management Consultants, 1984a: 38).

Participation rates in recreational fishing and boating have increased in western countries during the twentieth century (Dovers, 1994: 103 and Kenchington, 1993: 8). Within Australia, there are approximately 5.5 million recreational fishers (RecFish in Orr, 1997). An earlier estimate for 1990 made by the National Recreational Fisheries Working Group (Dovers, 1994: 104) proposed that there were 4.5 million people who participated in recreational fishing. This estimate approximated to 25 - 30 percent of the population. The National Recreational Fisheries Working Group also noted that seventy percent of recreational fishers were men.

A number of other writers (Gartside, 1986: 17; Kenchington, 1993: 8 and Dovers, 1994: 106) mentioned the conflict of interests associated with the use of marine based environments for recreational and commercial activities. Primarily, the continuous debate between recreational and commercial fishers regarding who is responsible for diminishing fishing stocks and the blaming of each other for the situation (Gartside, 1986: 17 and Dovers, 1994: 106).

The literature also noted the desire by recreationalists to experience a 'wilderness' setting while participating in outdoor activities coupled with a desire to '*preserv[e the] environmental quality*' (Jackson, 1986) of recreational settings.

## **Methods**

The study was conducted during June 1995 - July 1996 and used quantitative research methods which included the secondary analysis of existing aerial surveillance data sets, primary data collection through mail surveys of registered recreational boat owners and recreational club members, the use of self selection surveys with the general public, and mail surveys of commercial operators. A modified delphi technique was also used to establish a general consensus from experts regarding usage patterns.

There were some constraints, biases and limitations associated with the various data sets and any use of the findings must acknowledge those constraints, biases and limitations. These included inconsistencies in aerial surveillance data, a 33% response rate for the mail survey of registered recreational boat owners and a non-saturation sample of commercial operators. The lack of a 100% response rate for mail surveys is a common feature of such surveys, Babbie (1994) notes that between 10-50% is the common range for response.

## **Findings and Discussion**

An estimated range of 329 - 3 587 local recreationalists used the Shoalwater Bay and adjacent waters during June 1995 - July 1996. This range is based on mail, club and self selection survey respondents. The lower limit represents the number of users based on survey returns. The upper limit was estimated by determining the percentage of users by postcodes and then applying those percentages to the number of boat registrations for each postcode. The resultant number of registrations for each postcode were then summed. Based on the fact that most survey respondents noted that they were accompanied by other users, the lower limit range estimate might then be considered a rather conservative one. Expert opinion estimates of usage suggested some 1 858 vessels access the study area.

The total number of days Shoalwater Bay and the adjacent waters was visited between June 1995 and June 1996 was approximately 3 106 days for mail survey respondents, approximately 244 days for club survey respondents, approximately 352 days for self selection respondents. As none of the respondents in each of the three survey groups had completed a survey in any of the other survey groups, the cumulative number of usage days approximated 3 702 days. The six commercial operator respondents accessed the area for a total of 44 days.

In generalising the trends evident in the survey data sets, the local recreational users were drawn primarily from Yeppoon and Rockhampton, were men mostly aged 45 - 49 years of age, were employed as skilled workers or service industry employees or professionals, had lived in the study area between 1 - 10 years and accessed the study area directly via their own vessels or by vehicular transport. Those who accessed the area by vessels usually departed from Rosslyn Bay. The key areas of use were Port Clinton, Island Head Creek, Corio Bay, Five Rocks area and the northern section of Shoalwater Bay including Stanage Bay. Smaller vessels utilised the Shoalwater Bay area and open water vessels accessed the outer coastal areas. Sail powered vessels utilised the outer coastal areas in preference to Shoalwater Bay itself.

Shoalwater Bay and the adjacent waters were used by local recreationalists because of the quality of the fish stocks, the amenity of the area, the proximity of the study area to the users' residences as well as the provision of safe anchorages in various sections of the area. The primary activities conducted within the study area were recreational fishing, boating, sightseeing, camping and tourist activities with recreational fishing being the dominant recreational activity.

The local recreationalists visited the area on weekends, week days and holiday periods with holiday periods being preferred by sail driven vessels due to the time needed to access the area. The minimum usage of the area by recreationalists was once or twice a year with the mode being 3 - 4 visits per year. Some users expressed a monthly usage pattern. (Two respondents reported fishing daily during the study period.) Most users had visited the area in the last three months of

the study period and were generally accompanied by friends and family. The local recreationalists also considered non-recreational fishing extractive activities as inappropriate for Shoalwater Bay and the adjacent waters and were concerned with the protection of the recreational setting.

## **Management Issues**

### ***Issue One***

Any use of aerial surveillance findings for management purposes must acknowledge the biases inherent in the ways that data was collected, recorded and analysed. Those biases being different periods of data collection in different years, incomplete data sets, the potential double counting of users associated with commercial vessels and recreational vessels and their dinghies or tenders as well as the inclusion of vessels observed in-transit.

### ***Issue Two***

Any use of mail survey findings for management purposes must acknowledge the response rate was 33% and that the data was biased by a lack of non-use returns even though the proportionate sampling was maintained in the return rate.

### ***Issue Three***

Recognition of 'established' usage areas by recreationalists should be considered when planning the recreational and tourism opportunity spectrums for the study area. Those 'established' areas being Port Clinton, Island Head Creek, Corio Bay, the area between Five Rocks and Cape Manifold, the area between Cape Manifold and Cape Clinton and the northern section of Shoalwater Bay including Stange Bay.

### ***Issue Four***

The 'wilderness' qualities of the study area need to be maintained through the development of a recreational opportunity spectrum for Shoalwater Bay and the adjacent waters as 'wilderness' qualities were noted as one of the primary non-catch related motivations of recreational users.

### ***Issue Five***

Development of a recreational opportunity spectrum for the study area should include provision for the future needs of an ageing local population so as to ensure the quality of their recreational activities are maintained in their local marine-based recreational area. The recreational opportunity spectrum should also take into account the fact that the income level of the aged disadvantages their recreational opportunities and consequently their ability to recreate elsewhere, hence access to 'established' usage areas should again be considered and maintained.

### ***Issue Six***

The income level of most of the survey respondents placed them within the skilled worker or service industry category, amounts of discretionary income may also disadvantage their recreational opportunities including finding other suitable settings, consequently, continued access to 'established' usage areas should be considered by management.

### ***Issue Seven***

The study only surveyed recreational users and commercial operators of tourist activities, it did not study the commercial fishers nor the indigenous users' activities. To address this bias, any consideration of overall management of the area by GBRMPA and QDoE agencies must incorporate information and data gathered from these two user groups.

***Issue Eight***

Due to the conflict of interests which exist between recreational users and commercial fishers, long term monitoring of fish stocks within the study area might be commenced and/or maintained in order that catch/effort by both groups may be scientifically ascertained and publicly disseminated so comments and attitudes expressed by both user groups may be founded on fact rather than hearsay.

***Issue Nine***

Planners and managers need to acknowledge and include management practices which account for in-transit use of the area by both sail and motor driven vessels for short term recreation and because of the area's provision of safe anchorages.

# SHOALWATER BAY STUDY

## Introduction

The *Commonwealth Commission of Inquiry into Shoalwater Bay, Capricornia Coast, Queensland* (1994) provided information and recommendations for the future management of the terrestrial and marine areas of Shoalwater Bay area. To supplement the terrestrially focussed information on recreational usage patterns presented in the Inquiry's report, the Great Barrier Reef Marine Park Authority (GBRMPA) commissioned this study to investigate marine-based recreational usage of the area. Information from this study will be used by the Great Barrier Reef Marine Park Authority and Queensland Department of Environment (QDoE) planners and managers to prepare for the public participation phase which commenced in 1996 and also in the development of draft management plans for the area.

As well as providing information for the development of management documents and strategies, the study also contributes to long-term monitoring by establishing baseline data on recreational activities and users of the Shoalwater Bay area of the Great Barrier Reef Marine Park (GBRMP). Such monitoring is recommended by the National Ecotourism Strategy (1994: 24), which states that :

*'Social and environmental carrying capacities require careful monitoring if the resource and the experience are to be maintained. Such monitoring is currently made more difficult by the lack of existing baseline studies.'*

Monitoring is also in line with the *Great Barrier Reef Marine Park Strategic Plan's* strategy 4.9.1 [to] *'conduct research into the socio-economic characteristics and effects of .... recreation, ... fishing'*. (Great Barrier Reef Marine Park Authority, 1994: 28).

## Aim of the study

The aim of the study as specified in the consultancy brief was:

- To determine the recreational marine usage of the Shoalwater Bay area.

In order to achieve this aim, several sub-aims were developed.

## Sub-aims

- To quantify the usage of the area by recreational fishers;
- To quantify the usage of the area by cruising and recreational yachtspersons; and
- To quantify the usage of the area by other water-based recreational users.

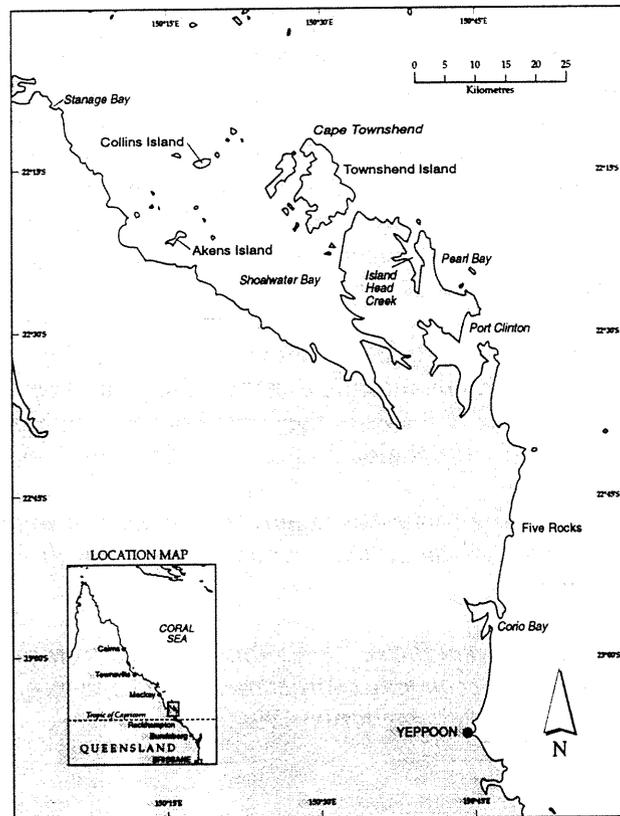
The scope of the brief excluded the study of recreational usage of the area by indigenous users. The GBRMPA advised that this was included in the brief of another study. The GBRMPA also excluded the direct targeting of commercial fishers from this study.

For the purposes of the study, the Shoalwater Bay area was defined as those waters located between the latitudes of 22° 08'S to 23° 00'S and longitudes of 150° 02'E to 151° 02'E. See Map 1: Study Area of Shoalwater Bay and Adjacent Waters.

## Background

Most of the marine area included in the study of Shoalwater Bay and adjacent waters is jointly managed by the GBRMPA and QDoE. However, some waters are not designated as part of the GBRMP, specifically, the waters located adjacent to the coastline for approximately 2.5 nautical miles off-shore starting just south of Yeppoon and running north to Delcomyn Bay above Port Clinton. It should be noted that the Shoalwater Bay marine and terrestrial areas are also utilised by the Commonwealth Department of Defence for training exercises. See Appendix 17 for area used by Defence. Usage of the area by Defence results in periodic closures of the area. These

closures may include all of the Defence area or specific parts of the Shoalwater Bay Training Area. These closures impact on usage patterns since access is denied during training exercises.



**Map 1:** Shoalwater Bay Study Area. Source: Map courtesy of the Great Barrier Reef Marine Park Authority, *GBRMPA Zoning Map BRA Q120*

Very few studies have been conducted which address the recreational usage patterns of the marine areas of the Shoalwater area, in fact Gutteridge Haskins and Davey (1996: 28) suggest none exist. Most studies of the Shoalwater Bay area have focussed on land usage patterns and issues. Two such studies were conducted as part of the *Commonwealth Commission of Inquiry: Shoalwater Bay, Capricornia Coast, Queensland*, one by A G B McNair (1994) and the other by Wood, Thompson, McIntyre and Killion (1994). A G B McNair conducted a study of Central Queensland residents, as well as residents residing elsewhere in Queensland regarding their attitudes towards various land use issues related to the Shoalwater Bay Military Training Area. The A G B McNair study found that residents within Central Queensland were the primary users of the area, in particular, residents from the Livingstone Shire area and Rockhampton. In regard to land usage of the Military Training Area, conservation issues rated much higher than issues related to potential future use and management for recreation and tourism. The other study conducted by Wood, Thompson, McIntyre and Killion (1994) focused on the development of a theoretical recreational and tourism opportunity spectrum for the Shoalwater Bay Military Training Area.

Some discussion of marine recreational fishing patterns of the Shoalwater Bay Area occurred in a later draft report commissioned by the Great Barrier Reef Marine Park Authority (GBRMPA) and edited by Fitzsimmons (1996). This draft report focused on *The Status of fisheries and fisheries resources in Shoalwater Bay*. Fitzsimmons (1996: 8.1) noted that for fishers owning registered private pleasure vessels in the Fitzroy statistical division<sup>1</sup>, the key fishing locations were the

<sup>1</sup> The Fitzroy statistical division as defined by the Australian Bureau of Statistics incorporates Yeppoon, Rockhampton and Gladstone.

Corio Bay, Cape Manifold and Port Clinton areas, as well as Nine Mile Beach and Stanage Bay areas. Based on data collected from a limited number of fishing diaries kept by mackerel fishers throughout October 1994 and 1995, the draft report estimated that between 1,000 - 10,000 boat days of fishing occur annually within the Shoalwater Bay area. Fitzsimmons (1996: 8.4) reported that charter boat operators also took recreational fishers into the Shoalwater Bay area, mainly between Cape Townshend and Corio Bay and that the estimated usage of that area was between "35 - 120 boat days per year" with most of this visitation occurring between April to November when weather conditions were more favourable (December to May being cyclone season). The *Byfield Coastal Area Draft Interim Management Plan* (1996: 25, 42) also noted that Corio Bay was used for "recreational fishing and crabbing" and "some nature-based recreation such as canoeing", with most usage occurring in Corio Bay and Water Park Creek.

### **Literature Review**

A review of literature relating to general recreational use of marine areas provided information regarding motivations for usage, patterns of usage including participation rates, and sources of conflict. Literature on recreational fishing provided the most extensive information and this literature has increased substantially over the last decade (Dovers, 1994: 103). A discussion of the literature review follows commencing with recreational fishing motivations, then participation rates and patterns and concludes with sources of conflict.

### **Motivations**

Recreational fishing is viewed as a popular leisure time activity in national parks and wilderness areas (Borschmann, 1987: 42). Dovers (1994: 103) highlighted that while the desire to catch a fish is the primary goal of recreational fishers, there are non-catch related motivations associated with the experience<sup>2</sup>. The importance of non-catch related motivations as part of the overall recreational fishing experience is also discussed by Fedler and Ditton, (1994) in their 1978 to 1991 review of American recreational fishers. Such non-catch related motivations are further reported by various researchers in the Australian context. PA Management Consultants (1984a: 38) found in an Australian national household study conducted during July 1984, that to "relax and unwind, to be outdoors" to enjoy the company of others, to experience the "thrill/contest of catching fish" and to obtain a source of food were the main reasons people reported for engaging in recreational fishing. During 1984, PA Management Consultants also conducted a study of members of recreational fishing clubs in Australia and found that for club members the main reasons for fishing were "to be outdoors, the thrill/contest of catching fish, to relax and unwind" (PA Management Consultants, 1984b: 39). The actual rating of the motivations varied between the various types of fishers: fly fishers, spear fishers, game fishers. Gartside (1986: 15) reported similar motivations ranging from a sense of 'escapism' from daily life and work, as well as 'enjoyment of the environment'. Again in the American context Johnson and Orbach (1986: 326) wrote of recreational marine fishing providing 'escape, freedom, relaxation and personal liberty' as well as the option to experience a 'frontier spirit'.

A social aspect of recreational fishing was also reported PA Management Consultants (1984a: 38) who stated that men favoured fishing with friends over fishing with their families, whilst women favoured fishing with their families then with their friends (PA Management Consultants, 1984a: 39).

### **Participation rates and patterns**

During the twentieth century, in western countries, the number of recreational fishers and boaters has increased (Dovers, 1994: 103 and Kenchington, 1993: 8). This can be attributed to a number of social changes particularly the establishment of a minimum basic wage and the length of the working day; increases in holiday period entitlements (and the associated payment of such holidays), increases in income levels, and increases in leisure time including forced leisure

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<sup>2</sup> The reader should be aware that there exists conflicting evidence regarding the role of non-catch related motivations within the recreational fishing experience as opposed to catch related motivations, see Graefe and Fedler (1986) for a discussion of this.

through early retirements (Parker and Paddick, 1990: 5 - 17). Overall, an increase in the standard of living in western countries has increased the leisure time and discretionary income available for pursuing recreational activities.

Within Australia, the most recent published figures on recreational fishers were provided by RecFish (Orr, 1997). RecFish surveys suggest that there are 5.5 million fishers in Australia, that is approximately, a third of the population engage in fishing. An earlier study by the National Recreational Fisheries Working Group (Dovers, 1994: 104), proposed that for 1990 there were 4.5 million people who participated in recreational fishing. That is, approximately between 25 - 30 percent of the population were recreational fishers and 70% of those recreational fishers were men.

Participation of women in recreational fishing was found to be on the increase according to a longitudinal American study between 1955 and 1980 (Snepenger and Ditton, 1985: 312). No such data were available for Australia.

The aforementioned PA Management household study (1984a) also stated that "*four percent of fishers were members of organised fishing clubs*" (PA Management Consultants, 1984a: iv). The small percentage of fishers who were involved in organised fishing clubs is also reflected in a South Australian household study on recreational fishing conducted in 1983 which stated that 1.8% of South Australian recreational fishers were members of such clubs (Philipson and Rohan, 1983: 2). The composite number of affiliated and non affiliated recreational fishers was not able to be determined for the Shoalwater Bay local drawing area<sup>3</sup> as representative figures for non - affiliated members were not able to be sourced nor calculated. Club information was problematic due to some clubs being unwilling to divulge any information in case it was misused by management agencies and/or because of double counting through reciprocal or subsidiary membership of other organisations. Estimation of local affiliated recreational fishers using other states' figures was not attempted because of geographical differences (Russell and Saenger, 1986 in Dovers, 1994: 103) and the passage of time between survey data collection. However, according to various Sunfish<sup>4</sup> sources, the approximate number of individual affiliated recreational fishers in the study area was 1 000. The number of registered recreational vessels in the drawing area was 10 214 (Department of Transport 1996).

### **The Demographics of the Study Area**

The demographic characteristics of Australia, Queensland and the study area indicate an increasingly ageing<sup>5</sup> population (Stehlik and Bulis, 1996 8 - 11). The Fitzroy and Livingstone<sup>6</sup> local government authorities noted "a 'significant growth rate with migration of the retired elderly' (Central Regional Health Authority 1993:4) into the coastal areas of the Fitzroy and Livingstone local government authorities" (Stehlik and Bulis, 1996: 11). It is therefore useful to consider the participation in fishing by retirees. A study by Peppers (1976: 445) noted that retirees participate in a variety of leisure activities which range from "active - social, active - isolate, sedentary - social and sedentary - isolate" activity types<sup>7</sup>. Recreational fishing and boating can be categorised within all four of the activity types. Peppers (1976: 445) also suggested that retirees will continue with the leisure and recreational activities which were engaged in prior to retirement. Peppers' study involved a sample of 206 mid western American male retirees, fishing was listed as seventh in the list of top ten recreational activities pursued by this group. A study of Western Australian recreational fishing patterns by McNair, Anderson Associates (1984: 19) also found that people in the age group 55 years and older did not go fishing as often as the other age groups (13 - 24, 25 -

<sup>3</sup> The drawing area as determined for the purposes of this study included coastal towns and cities along or east of the Pacific Highway commencing with Mackay in the north and Gladstone in the south.

<sup>4</sup> Sunfish is the Queensland Sport and Recreational Fishing Council.

<sup>5</sup> An aged person is considered to be 65 years and over (Stehlik and Bulis, 1996: 7).

<sup>6</sup> The Livingstone local government authority includes Yeppoon.

<sup>7</sup> The 'active - social' category involves physical effort undertaken in or with a group, 'active - isolate' also requires physical effort and activities are undertaken alone, 'sedentary - social' involves little physical effort within a group context, while 'sedentary - isolate' involves minimal effort and activities are conducted alone. (Peppers, 1976: 442)

39, 40 - 54), however, they did spend the greatest amount of days fishing compared to the other age groups. Given the number of retirees in the Shoalwater Bay study area, with both the time and disposable income to spend on recreational leisure pursuits and the suggestion that between a quarter and a third of the population of Australia participates in recreational fishing at least once a year (Gartside, 1986: 16 and Dovers, 1994: 104), the drawing area for the study has between 38 250 and 50 949 potential recreational fishers<sup>8</sup> who may use either the estuarine, coastal, near and distant offshore areas.

### **Conflict**

Some of the literature reviewed discussed management issues relating to marine based recreation and these tended to focus on user conflicts as well as conservation/preservation issues.

Jaakson (1989: 96) when writing about recreational boating noted that [f]reedom is a central tenet in recreation. The sharing of an area with other users, however, often detracts from the freedom that users may perceive to be important for their recreation satisfaction." A number of other writers (Gartside, 1986: 17; Kenchington, 1993: 8 and Dovers, 1994: 106) have also mentioned conflicts<sup>9</sup> of interests associated with use of marine based environments for recreational and commercial activities. Primarily, the continuous debate between recreational and commercial fishers regarding who is responsible for diminishing fish stocks. Commercial fishers blame the recreational fishers who blame the commercial fishers (Gartside, 1986: 17 and Dovers, 1994: 106). Given that the number and types of recreational fishers have been increasing along with their leisure time (Dovers, 1994: 103 and Kenchington, 1993: 8), their incomes (Kenchington, 1993: 102) as well as their technology, recreational fishers have been able to become more sophisticated in their fishing practices. They have also become farther ranging in their fishing activities<sup>10</sup> which subsequently brings them into greater direct competition with commercial operators for fish stocks and fishing grounds (Gartside, 1986: 17). Further, since improvements in both commercial and recreational fishing technologies may be expected to continue, conflicts between the various fisher groups may also be expected to continue unless research information can be produced and disseminated in order to ground the debate on factual evidence rather than on perceptions.

For example, Dovers (1994: 106) mentioned the reluctance of recreational fishers to consider the contribution their individual catches have on the overall recreational catch-effort. Overall, the perception of the impacts of recreational and commercial fishers on each others' catches is problematic. In some cases each targets different species and there has been a lack of data on the two types of fishers' proportions of the catch taken in shared target species (Dovers, 1994: 106). Further, Kenchington (1993: 8) stated that commercial fishers may move on when fish stocks decline while local recreational fishers continue to fish the same area. However, it is important to add that both groups are interested in the protection of the marine environment and fishing stocks (Gartside (1986: 17). Indeed, Sunfish: the Queensland Sport and Recreational Fishing Council has as its motto '*Fishing for the Future*' (Sunfish, 1996: 2).

Dovers (1994: 108) has also suggested that within recreational fishers there is the potential for conflict given the various types of recreational fishers: occasional fishers; affiliated committed fishers; unaffiliated fishers; domestic tourist/fishers and international tourist/fishers. Amongst these fishers, there is the potential for conflict through the mixing of the various fisher types at the one location. Further, Graefe and Fedler (1986) stated that satisfaction associated with recreational fishing experiences is affected by crowding and congestion. The mixing of various fisher types at locations can cause dissatisfaction through a sense of crowding especially when the location is considered a 'wilderness' one.

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<sup>8</sup> The Gladstone, Rockhampton and Mackay Statistical Districts contain a population of some 153 000 people (ABS, 1996).

<sup>9</sup> Conflict is defined as goal interference attributed to another's behaviour" (Jacob and Schreyer, 1980: 369).

<sup>10</sup> Merrick (1993: 45) noted that "recreational angling has traditionally been conducted in estuarine areas or immediate coastal areas". Dovers (1994: 108) expands those traditional fisheries' areas to include distant offshore. Dovers' (1994: 108) entire classification includes (1) inland - native species, (2) inland - exotic species, (3) beach, rock, estuary and jetty and wharf, (4) near offshore and (5) distant offshore.

The need to experience a 'wilderness' setting whilst recreational fishing is reported in various studies mentioned earlier in this chapter. This need was reiterated by Driml (1987: 135) who reported that "*a trend towards nature appreciation*" also existed ... *in reef recreation*". Such a trend was noted earlier by Jackson (1986: 1) who discussed a change from a 'consumer' to a 'conservator' society as well as a move towards the '*preservation of environmental quality*' (1986: 2) of recreational settings.

### ***Newspaper reports***

A review of some newspaper reports collected by Media Monitors for the GBRMPA in 1990 and 1995 highlighted the following concerns by recreational users of the study area: the need for zoning along Central Queensland estuaries and inlets; commercial fishers impact on local stocks of barramundi (November, 1995), the need for scientific proof to show that recreational fishers are impacting on fishing stocks and a negative attitude to bag limits (November, 1990), cuts to fisheries patrols (Gladstone Observer, December, 1990), and sand mining lease effects on marine ecosystems in Island Head Creek (Gladstone Observer, December, 1990). Newsprint sources also reported on the development of the Shoalwater Bay Strategic Planning process (Morning Bulletin - February, May, October, 1995).

Against this background of information, the methodology for this study was developed bearing in mind the requirements of the brief for quantitative and not qualitative information.

## METHODOLOGY

Through consultation with 'experts'<sup>11</sup>, several groups were identified as the primary users of the Shoalwater Bay area. These groups were recreational fishers, cruising and yachting folk and some local kayakers.

As the research brief specified quantification of recreational use of the Shoalwater Bay area, quantitative methods were predominantly used to determine the usage patterns of the above groups. The key methods used to gather the quantitative data were user surveys and secondary analysis of existing data bases and sources. Some qualitative methods were included in order to elaborate on usage patterns. The qualitative methods included open ended questions in the surveys and use of a modified version of the delphi technique (Moeller and Shafer, 1994: 475).

Preliminary discussions with the Great Barrier Reef Marine Park Authority (GBRMPA) and Rockhampton Department of Environment (QDoE) indicated that some secondary data bases and sources would not yield complete sets of secondary data sources. Furthermore, the timing of the data collection would confound the representation of in-transit cruising yachts to the area<sup>12</sup>. Consequently, up to five methods of data collection were developed for this study. This number allowed triangulation of analysed data from various perspectives. It should be noted however, that the use of triangulation was not applied in order to correct any bias nor to improve validity (Blaikie, 1991: 115). It was used primarily to achieve various perspectives regarding the recreational usage patterns of the Shoalwater Bay area.

A discussion of each of the methods of data collection follows.

### **Quantitative Methodology: User surveys**

Four types of user surveys were used: mail surveys; club surveys; self selection surveys and commercial operator surveys. Each of these surveys used the same structure and content [Refer to Appendix 1]. Each survey included a cover page, asked twenty questions and utilised maps to orient the respondent to the Shoalwater Bay study area. The questions ranged from forced choice questions which were measured at the nominal, interval and ordinal level to open ended questions. Questions relating to usage patterns and activities were measured primarily at the nominal level, several questions were posed as open ended in order to determine frequency of usage as well as the date of the last visit to the area. The respondents were also asked to locate their usage patterns on a map.

A second map was used to assist respondents in determining the types of activities which they believed were acceptable within various sections of the Shoalwater Bay area. The activities listed were taken from the 'Activities Guide' presented on the *Great Barrier Reef Marine Park Authority, Shoalwater Bay BRA Q120 Map*. The associated questions were measured at the ordinal level. The sections drawn on Map 2 were determined by the Planning Officer: Shoalwater Bay, the Project Officer: Shoalwater Bay and QDoE personnel. Each survey was accompanied by a cover letter printed on Central Queensland University letterhead [See Appendix 2].

The difference between each of the surveys relates to the implementation process. In the first type, the mail survey, local recreational users<sup>13</sup> were mailed a survey with a reply paid envelope included.

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<sup>11</sup> The 'experts' consulted were primarily selected by purposive sampling methods. Snowball sampling also occurred as 'experts' would nominate other 'experts' who had extensive local knowledge of the Shoalwater Bay and adjacent waters area. The 'experts' included recreational club executives and members, long term recreational users of the Shoalwater Bay and adjacent areas, as well as management agencies' representatives with first-hand knowledge of usage patterns developed over the years from work experience in the area.

<sup>12</sup> As the study was administered primarily during cyclone season, the number of cruising yachts in the Shoalwater Bay area would be reduced compared to the post-cyclone cruising season.

<sup>13</sup> Local users were considered to be those users located in coastal towns and cities along or east of the Pacific Highway commencing with Mackay in the north and Gladstone in the south.

The sample for this survey was framed from boat registration records held by the Queensland Department of Transport. The sampling frame was received in late March, 1996 and was up-to-date for the preceding six month period.

The second type of survey attempted to use a captive group survey technique with various recreational clubs. A captive group refers to a group of people belonging to an organisation/group who are targeted to respond to a survey at an organisation/group meeting following negotiation with the executive and/or members of the organisation/group (Veal, 1992, 117-118). Participants in this survey were asked if they had already participated in either a mail, a club or self-selection survey to avoid doubling up on data collected.

The third type of survey was the self selection survey. From discussions with 'experts', various locations were nominated as the sites for distribution of self selection surveys. After negotiation with managers/staff at the nominated sites and commercial businesses, surveys were left for the public to collect. The sites and businesses used were primarily bait and tackle shops, general stores and take-away shops, marinas and a coast guard office.

The fourth type of survey was the commercial operator survey. Again from discussions with 'experts' and GBRMPA and QDoE records, all possible known commercial operators of recreational marine activities were contacted by mail and asked to participate in the survey.

### ***Sampling information***

The following sampling procedures were applied for each type of survey.

#### **Mail surveys**

Mail surveys only targeted local users as 'experts' considered they were the primary users of the Shoalwater Bay area. During the study period, any non-local users of the area interested in participating in the study were able to do so through the completion of self-selection surveys (to be discussed later in this report)<sup>14</sup>. Boat registration records formed the basis of the sampling frame. The sampling frame was proportionately stratified based on experts' opinions regarding usage of the Shoalwater Bay area by recreationalists from the following drawing areas: Mackay; Sarina; St Lawrence; Marlborough; Yeppoon; Rockhampton and Gladstone. The largest drawing areas and subsequently the largest proportions were considered to be Yeppoon followed by Rockhampton. In the research proposal, the sampling frames were to be further stratified by vessel type, however, since a study of yachts and other non-local vessels was being undertaken elsewhere, the sampling frame for the mail survey was proportionately sampled by location only. However, it should be noted that the sampling frame did not exclude sail driven vessels, both motor and sail driven local vessels had an equal chance of being selected within the proportionately stratified sampling process.

As the mail survey used probability sampling, specifically proportionate stratified sampling, the proportions were determined by using the formula:

$$\text{Size} = \frac{pqZ^2}{E^2}$$

A confidence level of 95% was chosen for the study, making  $Z=1.96$  ( $Z^2=3.8146$ ). A deviation of no more than 5% from the true proportions was tolerated, making  $E=5$ .  $p$  was the percentage of recreational users from each of the nominated locations whom experts believed used the Shoalwater Bay and adjacent waters, whilst  $q=100-p$ . Table 1 below details experts' opinions values for 'p', as well as proportionate sample sizes and the adjusted sample sizes to make the overall sample size

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<sup>14</sup> A study of non-local transient users supplements this study of local users of the Shoalwater Bay and adjacent areas. The non-local users study was conducted from July 1996 through to June 1997. This study aimed to develop a better understanding of non-local usage patterns of the Shoalwater Bay and adjacent waters area through the use of 'on-site' surveys distributed by various boating officers whilst on patrol and through self-selection surveys sent to various marinas and non-local boating club avenues.

1200. The size was set at 1200 as this would provide a 95% confidence interval for a finding of 50% of  $\pm 3.0\%$  (Veal, 1992: 155).

After the proportions were determined for each of the locations, each location was further proportionally stratified by suburbs. The sampling fraction ( $k=N/n$ ) was used to determine the interval between each sample unit for each suburb. Starting points on the sampling frame were found by randomly selecting a number from *A Random Table of Five Digit Numbers* (Neuman 1994: 468 - 471). Should the population of any location be in the thousands, the last four digits of the randomly selected number were used, if the population was in the hundreds, the last three digits of the randomly selected number were used as the starting point and so on down to the tens. If the randomly selected number was beyond the scope of the population, another random selection was made. In the case when there were only two units for any one suburb, a coin was flipped to determine the unit to be used in the sample. Heads equated with the first unit listed and Tails with the second unit listed.

#### Response rate

Of the 1200 surveys sent out, 50 were returned as a result of incorrect addresses, 50 telephone calls were received from people indicating that they did not use the area and would not be returning their surveys. Attempts were made to have these people return their surveys with responses to questions 1, as well as questions 14-20, some telephonees indicated they would respond to those questions and return the surveys, however, the majority of telephonees chose to use the telephone call as the means of identifying non-use of the area. Details of the latter were recorded on survey sheets and included in the analysis.

**Table 1:** Summary of Proportionate Stratified Sampling Details

Location	Registered Boat owners	Experts' opinion: value of 'p'	Value of 'q'	Proportionate sample size	Sample size
Mackay	3690	10	90	138	149
Sarina	579	5	95	73	76
St Lawrence	17	ALL*	-	17*	20
Marlborough	19	ALL*	-	19*	19
Yeppoon	842	40	60	366	406
Rockhampton**	2462	35	65	347	382
Gladstone	2605	10		137	148
<b>Total</b>	<b>10214</b>	-	-	<b>1034</b>	<b>1200</b>

\*\* Rockhampton has three postcodes areas: 4700; 4701 and 4702. Due to the budget of this study limiting the overall sample size to 1200, only two of the three postcodes were used. The postcodes were decided by the lottery method, the postcodes 4700 and 4701 were used for this study.

\* As the population of registered boat owners in St Lawrence and Marlborough was small, all owners were included in the study.

To improve the response rate, a reminder card was sent approximately one week after the survey was posted. Survey recipients were advised in the initial cover letter accompanying the survey that a reminder card would be used. The reminder served as both a thank you and a reminder to those who had not yet returned the survey [See Appendix 3]. It should be noted that surveys and reminders for Rockhampton residents did not arrive a week apart as mail deliveries did not occur on two days of one week due to two public holidays resulting in some reminder cards arriving one or two days after receipt of the survey.

**Table 2:** Response rates for Mail, Club and Self Selection Surveys

Survey	No. distributed	Returns	Completed	Response rate
Mail	1200	50	400	33.0%
Club	290	20	40	13.8%
Self-selection	350	-	39	11.0%
Commercial operators	11	-	6	54.6%

Neuman (1994: 239) noted that a response rate of between 10 - 50% is common for mail surveys. Babbie (1994: 182) stated that 50% response rates are considered adequate for analysis and reporting. While Frey (1989: 50-51) noted that 25-30% response rates may be achieved without a

reminder and up to 50% with two or more reminders. Given the random sampling method undertaken, application of the results as being representative of the registered boat owners is problematic. Since 100% of the sample did not return their surveys, the findings may be argued as not being representative. On the other hand, given that the sample was randomly selected and 400 surveys were completed and returned, a sample of 400 provides a 95% confidence interval for a finding of 50% of  $\pm 5.0\%$  (Veal, 1992: 155). The proportions of the 400 respondents to the survey reflect the proportionate sampling set for the survey (Refer to p. 37). Any use of the mail survey findings of this study must take into account the response rate.

While the mail survey used probability sampling, two types of non-probability sampling were also employed in this study as well as a saturation survey. These other sampling methods included:

- \* Purposive sampling, specifically captive group surveys for the club surveys;
- \* Accidental sampling for the self selection surveys; and
- \* A saturation survey of commercial operators.

### **Club surveys**

The surveys of clubs was based on purposive sampling. That is, the sample frame was not designed to be statistically representative, rather it was viewed by the 'experts' consulted as being able to provide relevant data for the study (Sarantakos, 1993: 138). The clubs nominated were believed to be representative of recreational users of the study area who were also club members. All clubs identified by the 'experts' were approached by mail to participate in the study. The approach to all four groups of samples was by letter in order to remove any bias associated with the survey. A second letter was sent to thank clubs for participation and also to increase response rates (Refer to Appendix 5).

The clubs approached were local sailing, sea kayaking and fishing clubs (See Appendix 4). The executives were asked if they might distribute the surveys at a club meeting. After discussions within the various clubs, those in agreement were asked to participate in the study by completing the survey and then to return it in the reply paid envelope.

### **Response rate**

Of the 290 surveys sent to clubs, 20 were returned as incorrectly addressed, and 40 were completed giving a response rate of 13.8%. Returned surveys were not factored out of the calculation of the response rate. Refer to Table 2.

### **Self Selection Surveys**

Accidental sampling through self selection surveys was conducted at locations where experts believed the survey would be completed by users who were not club affiliated or who did not attend club meetings. The list of locations used is presented in Appendix 6.

As with purposive sampling, accidental sampling is not designed to be statistically representative. Being a non-probability sampling technique, it provides access to informants whose information could not have been accessed in any other way because of the study's limited funds, personnel and time.

### **Response rate**

Of the 350 self-selection surveys distributed to various locations, 39 were returned providing a response rate of 11.0%. Refer to Table 2.

### **Commercial operator surveys**

A saturation sample was attempted with the commercial operators. Based on GBRMPA database records and expert opinion, all known local recreational commercial operators using the Shoalwater Bay area were sent a survey. The number of commercial operators known to use the area was eleven (11). A follow-up letter was posted to increase response rates.

Response rate

Of the eleven surveys posted, six were returned providing a response rate of 54.6%.

### ***Ethical Considerations***

The cover letters addressed ethical issues related to the study. Advertisements were also placed in local newspapers. (Morning Bulletin, Gladstone Observer) See Appendix 7.

### **Quantitative Methodology: Secondary data sources**

GBRMPA and QDoE collect data on vessels in the Shoalwater Bay through aerial surveillance. These data sets were accessed and provided secondary data for this study. The Army was also approached regarding access to any records it may have of vessel sightings in the area, whilst co-operative, a database for the recording of such data was only being established early in 1996 and was not operational at the time of this study. Local coastguards were also approached and indicated a willingness to provide information regarding vessel usage of Shoalwater and adjacent waters. However, data were unable to be collected within the time frame of the study. Consequently, this study only reports on secondary data collected from the aerial surveillance databases of GBRMPA and QDoE. Data were analysed using content analysis in order to identify themes (Crandall, 1994: 420).

### **Qualitative methodology**

Two types of qualitative data collection were used in this survey: open ended questions and a modified delphi technique. Open ended questions were included in each of the surveys and the modified delphi technique was used with experts to gather information and to gain feedback on the study's findings.

#### ***Open ended survey questions***

These questions allowed respondents to give their own views rather than being restricted to the survey instrument's selection of choices. The survey contained three questions which asked for comments by the respondents: Questions 11, 13 and 20 (refer to Appendix 1). A content analysis of the responses to these open ended questions was applied to determine themes, these themes were then tabulated and quantified for each survey type. Copies of the full text responses to these questions have been included in the Appendices 11, 12 and 13.

#### ***Modified Delphi Technique***

Initially it was hoped that a round of focus groups could be conducted at the conclusion of the study in order that 'local experts' might provide feedback on the findings obtained from the analysis of the surveys. However, given the difficulty experienced in contacting local experts initially and obtaining information and feedback within time frames set in the first stages of survey construction and sampling, it was decided that the application of a modified version of the delphi technique would be applied. One or two rounds of the technique had already been conducted during the initial stages of the study to gather information on usage patterns, the data were recorded from those rounds, a follow-up round was conducted after the analysis of all survey data. The delphi technique supported the findings of the survey research. Feedback from local experts, who were members from various peak user groups and local residents with a knowledge and familiarity of the study area, reiterated the same usage patterns. The technique was conducted by telephone and facsimile.

Primarily, the delphi technique involves several rounds of questioning experts in fields or areas related to the focus of a study. Usually, the questioning is directed at achieving consensus regarding future events. Between rounds, responses are collated and analysed. In summary:

*"The Delphi Technique is one well-known version of the consensus approach in which the opinions of experts are obtained iteratively in order of focus on most probable future conditions." (Ritchie in Ritchie and Goeldner, 1994: 19)*

In this study, the experts were asked to offer information on current usage patterns rather than future oriented events or issues.

### **Conclusion to Methodology Section**

By drawing on existing primary data sources (Department of Environment and GBRMPA data bases) and using these as secondary data sets for this study as well as collecting primary data through user surveys and a modified delphi technique, the study generated a broad base of data from which to determine usage patterns and trends in the Shoalwater Bay area. Moreover, in using a variety of methods, triangulation of the results was able to be applied in order to gain an overall perspective of the recreational usage patterns of Shoalwater Bay and its adjacent waters.

## FINDINGS

The recreational usage of Shoalwater Bay and adjacent waters was studied through mail, club, self selection and commercial operator surveys, GBRMPA and QDoE data sources as well as through 'expert' opinion.

### Expert opinion

The experts who were consulted indicated that the primary users of the area would be Yeppoon residents and then Rockhampton residents. Some experts indicated that people in the mining centres of the Capricorn region would also access the area for recreational use<sup>15</sup>. The key usage areas nominated by experts were Five Rocks, Corio Bay and Port Clinton and Stanage Bay environs. The primary modes of transport to these locations were by boat from Yeppoon to Corio Bay and Port Clinton as well as by vehicle to launching locations in several of the aforementioned areas. It was suggested that Stanage Bay was accessed primarily by vehicles 'trailer' boats, with the latter being launched within the Stanage Bay area. Experts mentioned that smaller boats would use the Shoalwater Bay area and Corio Bay areas via road access initially, whilst persons with larger ocean going vessels would access the areas between Yeppoon and Cape Townshend including Corio Bay, Port Clinton, and Island Head Creek primarily with their vessels departing from Rosslyn Bay.

Experts believed that smaller boats would use the area on weekends and holiday periods, and that larger boats would access Corio Bay on weekends. Local experts also noted that yachts would use the area primarily during holiday periods due to the distance which needed to be travelled which primarily excluded two day weekend visitation. Experts also mentioned that non-local vessels in transit north and south would also use the area particularly, Island Head Creek, Port Clinton and Corio Bay, as these provided safe anchorages. It was suggested that this usage was confined mostly to the months between May to October/November. These months being mainly outside of cyclone season. All experts stated that usage of the area was dependent on Defence operations. If the area was closed due to Defence operations, recreational activities would subsequently be suspended. Weather also affected usage patterns with unfavourable weather and subsequent sea conditions reducing usage rates.

### Secondary data source findings - Aerial surveillance

Both QDoE and GBRMPA aerial surveillance records were accessed. Data collected from those records suggested the following usage patterns for the period September 1988 to September 1995. Patterns only are suggested as some records were incomplete and bias was introduced when fishing vessels and yachts were present in the vicinity of launches and open vessels. Since both yachts, fishing vessels and trawlers have one, if not more dinghies or tenders (launches and open vessels) determination of user numbers was difficult. Subsequently, counting vessels may have involved doubling counting of some users. Further, vessels which were under way were also included in the count. This was done because it was impossible to determine the destination of such vessels, they could have been passing through or they could have been heading for any of the fishing spots within the study area or anchorage sites. As such by including these vessels, an indication of the potential number of users is able to be proposed. Care must be taken when using these figures as they are not a representative sample, merely an indication of trends<sup>16</sup>.

Tables 3-10 provide an overview of yearly recreational patterns (1988 to 1995) based on aerial surveillance data. The Shoalwater Bay and adjacent waters usage is reported using the same sections which were marked on the Shoalwater Bay Recreational Usage Survey, Map 2 (see Appendix 1). When reviewing the tables, it should be remembered that aerial surveillance of the

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<sup>15</sup> This latter group has been targeted in a study proposed for 1998.

<sup>16</sup> See also Honchin (1991) and Pettitt and Haynes (1994) for further comments regarding problems associated with the use of aerial surveillance data.

waters is randomly selected by day and area. This random selection differs between years, thus, the tables below do not provide a complete picture of the usage patterns for every day in each of the years studied. Further, the use of the area as a Defence Training Area necessitates the closing of various sections or the entire area to recreational and commercial use. This must also be remembered when reading the tables below.

**Table 3:** Vessel Usage of Shoalwater Bay and Adjacent Waters, 1988<sup>17</sup>

Year	Location	No.	Class of Activity	No.	'Vessel' Types	No.
1988	Section A & B	9	Recreational	5	Motorised	4
					Sail powered	1
	<b>Subtotal</b>	<b>9</b>	<b>Subtotal</b>	<b>9</b>	Commercial	4
					Fishing vessels	4
	Island Head Creek	25	Recreational	63	Motorised	19
	Port Clinton	21			Sail powered	42
	Section E	23			Vehicle	2
	Corio Bay	7			Camps	
	<b>Subtotal</b>	<b>76</b>	<b>Subtotal</b>	<b>76</b>	Fishing vessels	13
					<b>Subtotal</b>	<b>76</b>
<b>Total</b>	<b>85</b>	<b>Total</b>	<b>85</b>	<b>Total</b>	<b>85</b>	

Of the days in which surveillance data was available for 1988, it would appear that Section A and B (Shoalwater Bay, itself) were utilised more by motor powered vessels and that Island Head Creek, Port Clinton and Section E (from approximately Little Corio Bay to Cape Clinton) were equally used. These three sections also had a greater usage by sail powered vessels.

**Table 4:** Vessel Usage of Shoalwater Bay and Adjacent Waters, 1989

Year	Location	No.	Class of Activity	No.	'Vessel' Types	No.
1989	Section A & B	58	Recreational	45	Motorised	33
					Sail powered	6
	<b>Subtotal</b>	<b>58</b>	<b>Subtotal</b>	<b>58</b>	Vehicle	5
					Camps	1
	Island Head Creek	98	Recreational	170	Fishing vessels	13
					<b>Subtotal</b>	<b>58</b>
	Port Clinton	32			Motorised	53
	Section E	28			Sail powered	111
	Corio Bay	12			Vehicle	6
	<b>Subtotal</b>	<b>170</b>	<b>Subtotal</b>	<b>170</b>	Camps	
<b>Subtotal</b>					<b>170</b>	
<b>Total</b>	<b>228</b>	<b>Total</b>	<b>228</b>	<b>Total</b>	<b>228</b>	

??\* Data unable to be determined.

The pattern of usage displayed in Table 3 is mirrored in Table 4. Again motorised vessels were the predominant users of Shoalwater Bay, while sail powered vessels were the dominant users of the Corio Bay to Cape Townshend area. It is also worth noting that approximately one third of the recreational users used motorised vessels whilst two thirds used sail powered vessels.

<sup>17</sup> The locations used are those presented on Map 2 in the survey, see Appendix 1.

**Table 5: Vessel Usage of Shoalwater Bay and Adjacent Waters, 1990**

Year	Location	No.	Class of Activity	No.	'Vessel' Types	No.
1990	Section A & B	42	Recreational	30	Motorised	25
					Sail powered	3
	Subtotal	42	Commercial	12	Vehicle	2
					Camps	
	Island Head Creek	42	Recreational	128	Fishing vessels	12
					Subtotal	42
	Port Clinton	20			Motorised	63
	Section E	34			Sail powered	41
	Corio Bay	32			Vehicle	21
	Subtotal	128	Commercial	??*	Camps	3
Fishing vessels					??*	
<b>Total</b>	<b>170</b>	<b>Total</b>	<b>170</b>	<b>Total</b>	<b>170</b>	

??\* Data unable to be determined.

Motorised vessels again were the greater users of Shoalwater Bay on the days of surveillance activities. In the outer coastal area between Corio Bay to Cape Townshend, motorised vessels tended to be more numerous than the sail powered vessels. Vehicular use in this area was also notable. Location-wise, Island Head Creek was the most popular location of the outer coastal locations.

**Table 6: Vessel Usage of Shoalwater Bay and Adjacent Waters, 1991**

Year	Location	No.	Class of Activity	No.	'Vessel' Types	No.
1991	Section A & B	98	Recreational	90	Motorised	78
					Sail powered	3
	Subtotal	98	Commercial	8	Vehicle	6
					Camps	3
	Island Head Creek	*67	Recreational	196	Fishing vessels	8
					Subtotal	98
	Port Clinton	*43			Motorised	100
	Section E	*43			Sail powered	80
	Corio Bay	60			Vehicle	12
	Subtotal	*213	Commercial	*46	Camps	4
Fishing vessels					6	
<b>Total</b>	<b>*311</b>	<b>Total</b>	<b>*242</b>	<b>Total</b>	<b>*242</b>	
				Trawlers	40	
				Subtotal	*242	
				<b>Total</b>	<b>*340</b>	

\* indicates some data is missing

During the periods of surveillance in 1991, motorised vessels predominantly used Shoalwater Bay. There were some users who accessed the area by vehicle as well as users who established camps. In the outer coastal area, Island Head Creek and Corio Bay were very popular. The area between Little Corio Bay to Cape Clinton was as popular as Corio Bay. In the outer coastal area, motorised vessels (51%) outnumbered sail powered vessels (41%). Camping and vehicular access were also reported during the year.

**Table 7: Vessel Usage of Shoalwater Bay and Adjacent Waters, 1992**

Year	Location	No.	Class of Activity	No.	'Vessel' Types	No.
1992	Section A & B	82	Recreational	61	Motorised	44
					Sail powered	2
	Subtotal	82	Commercial	21	Vehicle	11
					Camps	4
	Island Head Creek	53	Recreational	146	Fishing vessels	21
					Subtotal	82
	Port Clinton	22			Motorised	70
	Section E	72			Sail powered	47
	Corio Bay	48			Vehicle	26
	Subtotal	*195	Commercial	*49	Camps	3
Fishing vessels					8	
<b>Total</b>	<b>*277</b>	<b>Total</b>	<b>*195</b>	<b>Total</b>	<b>196</b>	
				Trawlers	42	
				<b>Total</b>	<b>278</b>	

\* indicates some data is missing

Surveillance records for 1992 indicated a predominance of usage by motorised vessels in Shoalwater Bay. Again vehicular access and camps were reported. In the outer coastal area, motorised vessels (47%) exceeded the number of sailing vessels (32%). Island Head Creek and Corio Bay were popular locations for the periods of surveillance however, Section E was the most popular. The outer coastal section was also accessed by vehicles (17.8%)

**Table 8:** Vessel Usage of Shoalwater Bay and Adjacent Waters, 1993

Year	Location	No.	Class of Activity	No.	'Vessel' Types	No.	
1993	Section A & B	79	Recreational	61	Motorised	58	
					Sail powered	3	
						Vehicle	0
						Camps	0
						Fishing vessels	11
				Commercial	18	Trawlers	7
		<b>Subtotal</b>	<b>79</b>	<b>Subtotal</b>	<b>79</b>	<b>Subtotal</b>	<b>79</b>
		Island Head Creek	62	Recreational	214	Motorised	93
		Port Clinton	40			Sail powered	62
		Section E	113			Vehicle	52
		Corio Bay	50			Camps	7
						Fishing vessels	17
			Commercial	51	Trawlers	34	
	<b>Subtotal</b>	<b>265</b>	<b>Subtotal</b>	<b>265</b>	<b>Subtotal</b>	<b>265</b>	
	<b>Total</b>	<b>344</b>	<b>Total</b>	<b>344</b>	<b>Total</b>	<b>344</b>	

During the 1993 surveillance periods, 95% of recreational usage in Shoalwater Bay was associated with motorised vessels activities. Within the outer coastal area, 43.5% of recreational activity was related to motorised vessels, 29% to sailing vessels and 24.2% from vehicular access. Section E was the most popular location associated with 53% of recreational activity, with Island Head Creek (29%) and Corio Bay (23%) and Port Clinton (18.7%) being the least popular location during the surveillance periods.

During the surveillance periods conducted in 1994, motorised vessels were the primary means to recreate in Sections A and B, while motorised vessels accounted for 38.2% of recreational usage of the outer coastal area and sail driven vessels accounted for 29.6%. Vehicles (15%) also were utilised to access the outer coastal area for recreational activities. In the outer coastal area, Island Head Creek was the mode for location, followed by Section E and Corio Bay.

**Table 9:** Vessel Usage of Shoalwater Bay and Adjacent Waters, 1994

Year	Location	No.	Class of Activity	No.	'Vessel' Types	No.	
1994	Section A & B	46	Recreational	24	Motorised	21	
					Sail powered	3	
						Vehicle	0
						Camps	0
						Fishing vessels	21
				Commercial	22	Trawlers	1
		<b>Subtotal</b>	<b>46</b>	<b>Subtotal</b>	<b>46</b>	<b>Subtotal</b>	<b>46</b>
		Island Head Creek	64	Recreational	154	Motorised	71
		Port Clinton	33			Sail powered	55
		Section E	48			Vehicle	28
		Corio Bay	40			Camps	0
						Fishing vessels	21
			Commercial	32	Trawlers	11	
	<b>Subtotal</b>	<b>*185</b>	<b>Subtotal</b>	<b>186</b>	<b>Subtotal</b>	<b>186</b>	
	<b>Total</b>	<b>*231</b>	<b>Total</b>	<b>232</b>	<b>Total</b>	<b>232</b>	

\* indicates some data is missing

**Table 10: Vessel Usage of Shoalwater Bay and Adjacent Waters, 1995**

Year	Location	No.	Class of Activity	No.	'Vessel' Types	No.
1995	Section A & B	79	Recreational	60	Motorised	50
					Sail powered	8
	Subtotal	79	Commercial	19	Vehicle	2
					Camps	0
	Island Head Creek	47	Recreational	119	Fishing vessels	19
					Motorised	71
	Port Clinton	25			Sail powered	46
	Section E	32			Vehicle	0
	Corio Bay	25			Camps	2
	Subtotal	*129	Commercial	*10	Fishing vessels	4
Trawlers					6	
<b>Total</b>	<b>208</b>	<b>Total</b>	<b>208</b>	<b>Total</b>	<b>208</b>	

\* indicates some data is missing

During the 1995 surveillance periods, 83% of recreational activity in Shoalwater Bay was attributed to motorised vessels. Motorised vessels accounted for 59% of recreational activities in the outer coastal areas and sail powered vessels accounted for 39% of recreational activities. Island Head Creek was the predominant location selected for recreational activities in the outer coastal area (39.5%), with Section E (27%) again being a favoured location. Port Clinton and Corio Bay each accounted for 21% of the locations chosen for recreational pursuits.

**Table 11: Vessel Usage of Shoalwater Bay and Adjacent Waters, 1988 - 1995**

Year	Location	No.	Class of Activity	No.	'Vessel' Types	No.
1988 - 1995	Section A & B	493	Recreational	376	Motorised	313
					Sail powered	29
	Subtotal	493	Commercial	117	Vehicle	26
					Camps	8
	Island Head Creek	458	Recreational	1190	Fishing vessels	109
					Trawlers	8
	Port Clinton	236			Motorised	540
	Section E	393			Sail powered	484
	Corio Bay	274			Vehicle	147
	Subtotal	*1361	Commercial	201	Camps	19
Trawlers					133	
<b>Total</b>	<b>*1854</b>	<b>Total</b>	<b>*1884</b>	<b>Total</b>	<b>*1885</b>	

\* indicates some data is missing

Throughout the aerial surveillance periods conducted between September 1988 through to September 1995, the area which appears to have received the greatest visitation is the outer coastal area from Corio Bay to Cape Townshend. Weekends and holiday periods appeared to have been chosen as the time periods for usage of the areas studied. However, since the aerial surveillance in each year was not necessarily conducted at the same time on the same day in each year, comparisons between years was difficult. Surveillance may have been carried out during long weekends and holiday periods in one year and not in the next. Or during May to October/November (when yacht traffic increases) and not in the following year. Thus, the resultant tallies for each year varied. Moreover, Defence closures of the area differed between years and weather patterns changed and did not replicate themselves exactly each year. These vagaries further affected the interpretation of usage patterns and added to the difficulty of trying to compare between years. Consequently, comparisons of usage between years is not recommended.

However, several patterns appear to emerge when examining Tables 3-10 and the summary in Table 11. Those patterns are:

- Shoalwater Bay is predominantly used by motorised vessels;
- the outer coastal area between Corio Bay and Cape Townshend is visited by both motorised and sail driven vessels;
- usage of the outer coastal area by those vessels approaches parity;
- the outer coastal area is also accessed for recreational purposes by vehicular traffic, particularly, Section E.

## Mail Survey

The mail survey focussed on the recreational usage of the Shoalwater Bay and adjacent waters for a period of one year, which ranged from June 1995 to June 1996. The mail survey achieved 400 returns. The data was entered into and analysed using SPSS for Macintosh computers and the following tables were developed based on the data analysis completed by SPSS.

**Table 12:** Usage of Shoalwater Bay and adjacent waters by mail survey respondents during June 1995 to June 1996. (Frequencies and percentages summed in columns). N = 400

Response	Frequency	Percentage
Yes	256	64
No	142	35.5
Data missing	2	0.5
<b>Total</b>	<b>400</b>	<b>100</b>

Of the people who responded, 64% had used the Shoalwater Bay and adjacent waters area during the period June 1995 to June 1996, while 35.5% had not used the area.

**Table 13:** Locations used for recreational purposes. Percentages are row summed. N = 256 [400 surveys were returned, 256 respondents indicated they used the study area, 142 respondents did not use the area, 3 respondents did not provide data for this question.]

Location	Frequency	Percentage of the 256 users
Section A: Northern area of Shoalwater Bay	72	28.1
Section B: Southern area of Shoalwater Bay	14	5.5
Section C: Island Head Ck environs	104	40.6
Section D: Port Clinton environs	50	19.5
Section E: above Cape Manifold to Cape Clinton	104	40.6
Section E: above Five Rocks to Cape Manifold	101	39.5
Section E: Little Corio Bay to Five Rocks	70	27.3
Corio Bay	123	48.1
Yeppoon, Keppel, & Fitzroy River	78	30.5
Outside study area	33	12.9

Frequencies do not sum to 256 and percentages do not sum to 100% as respondents indicated several locations for their recreational use within the study area. Readers should note that the frequency and percentage presented for Yeppoon, Keppel Islands and Fitzroy River area are not representative of all users of the those areas, as respondents to the survey were focussed on the study area and not the aforementioned three locations. These were included by some users as additional sites which were locatable on Survey Map 1, see Appendix 1. Refer to Appendix 8 for specific locations accessed by mail survey respondents.

From Table 13, it can be seen that of the respondents who used the area, Corio Bay drew 48.1% of recreational users into the study area, while both Island Head Creek and environs and the waters between Cape Manifold and Cape Clinton contained in Section E on Map 1 (Appendix 1) attracted 40.6% and the waters between Five Rocks and Cape Manifold were used by 39.5% of the mail survey respondents.

**Table 14:** Mode of transport used by mail survey respondents to access recreational sites in the study area. (Row summed percentages). N = 256. [400 surveys were returned: 256 respondents indicated they used the study area; 142 respondents indicated that they did not use the area; and 3 respondents did not provide data for this question.]

Mode of Transport	Frequency	Percentage who used this mode	Percentage who do not note this mode	Total %
Own boat	213	83.2	16.8	100
Relative's boat	12	4.7	95.3	0
Friend's boat	50	19.5	80.5	100
Club boat	0	0.00	0.00	100
Charter boat	8	3.1	96.9	100
Hire boat	0	0.00	0.00	0
Car	114	44.5	55.5	100
Other	6	2.3	97.7	0
Data missing	3	1.2	98.8	100

Although respondents were asked to indicate the main form of transport used, several respondents marked up to four options. All responses are recorded in the above table.

The primary means of transport used by mail survey respondents was their own boat (83.2%), some respondents also noted that they used their vehicles (44.5%) to tow their boats to access sites within the study area. A further 19.5% mentioned that they also used a friend's boat to reach recreational sites in the Shoalwater Bay and adjacent waters area.

**Table 15:** Departure and launching sites used by mail survey respondents. (Row summed percentages). N = 256.[400 surveys were returned: 256 respondents indicated they used the study area; 142 respondents indicated that they did not use the area; and 12 respondents did not provide data for this question.]

Departure Point	Frequency	Percentage who used this departure point	Percentage who did not note using this departure point	Total
Bangalee	2	0.8	99.2	100
Corio Bay area	55	21.5	78.5	100
Fitzroy Motor Boat Club	1	0.4	99.6	100
Five Rocks	6	2.3	97.7	100
Farnborough Bch	6	2.3	97.7	100
Gladstone	6	2.3	97.7	100
Rockhampton	13	5.1	94.9	100
Roslyn Bay	152	59.4	40.6	100
Ros Creek	17	6.6	93.4	100
Stanage Bay	20	7.8	92.2	100
Sandy Bay	0	0	100	100
Mackay	0	0	100	100
Marlborough	1	0.4	99.6	100
Kelly's/ Cooberry	28	10.9	89.1	100
Hollins Bay	1	0.4	99.6	100
Other	26	10.2	89.8	100
Missing data	12	4.7	95.3	100

Respondents mentioned more than one location as a departure point. All locations have been included in the above table. The mode was Roslyn Bay (59.4%) while launching within the Corio Bay area was undertaken by 21.5% of the mail survey respondents. See Appendix 9 for 'Other' locations.

More than one activity was able to be indicated by mail survey respondents in Table 16. The mode for the recreational activities undertaken in the study area was recreational fishing (95.7%) with boating pursued by 47.7% of the users. Camping was another activity which involved 37.9% of the respondents while sightseeing was regarded by 29.3% of recreational users as another activity which was engaged in within the study area.

**Table 16:** Recreational activities pursued by mail survey respondents in the study area. (Row summed percentages) N = 256. [400 surveys were returned: 256 respondents indicated they used the study area; 142 respondents indicated that they did not use the area, 2 respondents did not provide data for this question.]

Activities	Frequency	Percentage who engaged in this activity	Percentage who did not mention this activity	Total
Boating	122	47.7	52.3	100
Recreational fishing	245	95.7	4.3	100
SCUBA diving	10	3.9	96.1	100
Kayaking	1	0.4	99.6	100
Tourist activity	12	4.7	95.3	100
Spearfishing	5	2.0	98.0	100
Snorkelling	26	10.2	89.8	100
Sightseeing	75	29.3	70.7	100
Camping	97	37.9	62.1	100
Other	29	11.3	88.7	100
Missing data	2	-	-	-

**Table 17:** The main activity pursued by mail survey respondents within the study area.(Row summed percentages). N = 256 [400 surveys were returned: 256 respondents indicated they used the study area; 142 respondents indicated that they did not use the area, 9 respondents did not provide data for this question.]

Activities	Frequency	Percentage who engaged in this activity	Percentage who did not engage in this activity	Total
Boating	16	6.3	93.7	100
Recreational fishing	185	74.9	25.1	100
SCUBA diving	0	0.00	100	100
Kayaking	0	0.00	100	
Tourist activity	0	0.00	100	100
Spearfishing	1	0.4	99.6	100
Snorkelling	1	0.4	99.6	100
Sightseeing	4	1.6	98.4	100
Camping	9	3.6	96.4	100
Other	31	12.6	87.4	100
Missing data	9	-	-	-
<b>Total</b>	<b>256</b>	<b>100.0</b>	<b>-</b>	<b>-</b>

The primary recreational activity engaged in within the study area was recreational fishing. See Appendix 10 for the 'Other' category.

**Table 18:** Frequency of visitation to the study area by mail survey respondents. (Frequencies and percentages summed in columns). N = 256 [400 surveys were returned: 256 respondents indicated they used the study area; 142 respondents indicated that they did not use the area, 10 respondents did not provide data for this question.]

Time frame	Frequency	Percentage
Daily	1	0.3
Weekly	8	3.1
Fortnightly	20	7.8
Monthly	40	15.6
11 times per year	0	0
9 - 10 times per year	1	0.3
7 - 8 times per year	1	0.3
5 - 6 times per year	46	17.9
3 - 4 times per year	54	21.1
1 - 2 times per year	30	11.7
Whenever I can	8	3.1
When weather permits	12	4.6
When defence allows	0	0
Not often	2	0.7
Other	25	9.8
Missing data	10	3.7
<b>Total</b>	<b>400</b>	<b>100</b>

The mail survey respondents who used the Shoalwater Bay and adjacent waters did so at least several times a year. The mode was 3 - 4 times per year (21.1%), followed by 5 - 6 visits per year (17.9%) while 15.6% of users visited monthly, and 11.7% visited once or twice a year.

**Table 19:** Time periods of visitation by mail survey respondents of the survey area. (Percentages summed by rows). N = 256 [400 surveys were returned: 256 respondents indicated they used the study area; 142 respondents indicated that they did not use the area, 9 respondent did not provide data for this question.]

Time	Frequency who go there	Frequency who did not note this item	Missing data	Percentage who go there	Percentage who did note this item	% of Missing Data
Week days	99	156	1	38.7	60.9	0.4
Weekends	158	97	1	61.7	37.9	0.4
Holidays	77	178	1	30.0	69.6	0.4
Long weekends	7	248	1	2.7	96.9	0.4
Public Holidays	6	249	1	2.3	97.3	0.4
Other	41	214	1	16.0	83.6	0.4

Respondents were asked to only indicate one time, several respondents indicated more than one item, consequently, this table records more than one response for each respondent who so noted. The mode for time of visitation was the weekends (61.7%) then weekdays for 38.7% of mail survey respondents.

**Table 20:** Month in which the last visit occurred for mail survey respondents who used the study area. (Frequencies and percentages are column summed.) N = 256 [400 surveys were returned: 256 respondents indicated they used the study area; 142 respondents indicated that they did not use the area, 18 respondents did not provide data for this question.]

Date	Frequency	Percentage	Date	Frequency	Percentage
May 1995	0	0	January 1996	8	3.1
June 1995	3	1.2	February 1996	11	4.3
July 1995	3	1.2	March 1996	20	7.8
August 1995	3	1.2	April 1996	52	20.3
September 1995	4	1.6	May 1996	65	25.3
October 1995	0	0.0	June 1996	52	20.3
November 1995	1	0.4	Outside May 1995 - 1996	4	1.6
December 1995	12	4.7	Missing data	18	7.0
<b>Total</b>	<b>26</b>	<b>10.3</b>		<b>230</b>	<b>89.7</b>

65.9% of the mail survey respondents who used the study area had visited it within the last three months of the study period, that is between April and June 1996.

**Table 21:** Types of passengers who accompany the mail survey respondents. (Percentages are row summed.) N = 256 [400 surveys were returned: 256 respondents indicated they used the study area; 142 respondents indicated that they did not use the area, 2 respondents did not provide data for this question.]

Passengers	Frequency with this passenger	Frequency who did note this passenger	Percentage with this passenger	Percentage who did note this passenger	Total %
Co-worker	24	232	9.4	90.6	100
Family	159	97	62.1	37.9	100
Club members	15	241	5.9	94.1	100
Friends	175	81	68.4	31.6	100
Tourist operator	1	255	0.4	99.6	100
Tourists	3	253	1.2	98.8	100
Relatives	53	203	20.7	79.3	100
Other	5	251	2.0	98.0	100

Respondents were asked to indicate the number of people in each of the categories who accompanied them, as some people did indicate numbers and others did not, the data sets were

incomplete, hence the type of passenger who accompanied the survey respondent only is indicated in the table. The mode response for the type of passenger who accompanied the mail survey respondent was friends (68.4%) with family accompanying 62.1% of the mail survey respondents in the study area. The 'Other' category included dog, crew and platoon members as well as several who did not specify the 'Other' category.

**Table 22:** Reasons given by mail survey respondents for using Shoalwater Bay & adjacent waters (Percentages are row summed) N = 256 [400 surveys were returned; 256 respondents indicated they used the study area; 142 respondents indicated that they did not use the area, 16 respondents did not provide data for this question.]

Reason	Frequency who noted this reason	Percentage who noted this reason	Percentage who did not note this reason	Total %
Amenity	89	34.8	65.2	100
Proximity	61	23.8	76.2	100
Family/friends	3	1.2	98.8	100
Fish stocks	136	53.1	46.9	100
Safe Anchorage	24	9.4	90.6	100
Lack of people	17	6.6	93.4	100
Suitable for Activities	32	12.5	87.5	100
To acquire food	3	1.2	98.8	100
Other	21	8.2	91.8	100
Missing data	16	-	-	-

More than one comment was made by respondents regarding their reasons for using Shoalwater Bay and the adjacent waters for recreation. All comments are noted in the table above. Refer to Appendix 11 for a full transcript of the reasons given for usage of the waters shown in Map 1 of the survey, (see Appendix 1). The comments listed in the 'Other' section are listed under a sub-header in Appendix 10.

**Table 23:** Activities which mail survey respondents believed were suitable for Section A on Map 2 of the survey (Percentages are row summed.) N =400 [400 surveys were returned, the number of respondents who did not provide data for each section of this question varied from 72 to 84, only the percentages of missing data are included in the table.]

Activities	Frequency Yes Response	Frequency No Response	Frequency DoNot Know	Percentage Yes Response	Percentage No Response	Percentage DoNot Know	Percentage Missing
a) Bait netting and gathering	260	61	6	65.0	15.3	1.5	18.2
b) Camping	275	38	6	68.8	9.5	1.5	20.2
c) Recreational collecting (eg shells)	188	126	8	47.0	31.5	2.0	19.5
d) Commercial collecting	46	266	9	11.5	66.5	2.2	19.8
e) Sightseeing	309	6	5	77.3	1.5	1.2	20.0
f) Crabbing and oyster gathering	271	44	6	67.8	11.0	1.5	19.7
g) Diving	264	49	6	66.0	12.3	1.5	20.2
h) Commercial line fishing	119	197	6	29.7	49.3	1.5	19.5
i) Recreational line fishing	313	9	5	78.3	2.3	1.2	18.2
j) Research activities	301	10	7	75.3	2.5	1.8	20.4
k) Boating activities	298	15	6	74.5	3.8	1.5	20.2
l) Tourist & education facilities/programs	273	42	6	68.3	10.5	1.5	19.7
m) Spearfishing	114	197	7	28.5	49.3	1.8	20.4
n) Commercial netting	54	267	7	13.5	66.8	1.7	18.0
o) Indigenous hunting, fishing, collecting	165	147	8	41.2	36.8	2.0	20.0
p) Photography	309	5	5	77.3	1.2	1.2	20.3
q) Snorkelling	294	17	5	73.5	4.3	1.2	21.0
r) Trawling	49	273	7	12.2	68.3	1.7	17.8

The primary reason for using the area was related to the quality of the fish stocks to be found in the study area (53.1%), followed by the amenity provided by the area (34.8%) (Table 22).

Amenity included scenic amenity, lack of people, the wilderness settings, peace and quiet and solitude. The proximity to mail survey respondents' residence was noted by 23.8% of the users.

Most activities listed in the activity guide presented on the *GBRMPA Shoalwater Bay BRA Q120 map* were considered appropriate by the mail survey respondents. The activities which were considered as inappropriate for the area were trawling (68.3% of respondents), commercial collecting (66.5% of respondents), commercial netting (66.8% of respondents). Also 49.3% of respondents considered both commercial line fishing and spearfishing as inappropriate in Section A. Indigenous fishing, hunting and collected received an almost divided response with 41.2% of respondents noting that it should be allowed and 36.8% considered that it should not be allowed in Section A.

**Table 24:** Activities which mail survey respondents believed were suitable for Section B on Map 2 of the survey (Percentages are row summed.) N =400 [400 surveys were returned, the number of respondents who did not provide data for each section of this question varied from 79 to 89, only the percentages of missing data are included in the table.]

Activities	Frequency Yes Response	Frequency No Response	Frequency of No Comment	Percentage Yes Response	Percentage No Response	Percentage of No Comments	Percentage Missing
a) Bait netting and gathering	230	78	7	57.5	19.5	1.8	21.2
b) Camping	236	70	7	59.0	17.5	1.8	21.7
c) Recreational collecting (eg shells)	166	141	8	41.5	35.3	2.0	21.2
d) Commercial collecting	40	269	9	10.0	67.3	2.3	20.4
e) Sightseeing	281	27	6	70.3	6.8	1.5	21.4
f) Crabbing and oyster gathering	239	66	7	59.8	16.5	1.8	21.9
g) Diving	239	67	7	59.8	16.8	1.8	21.6
h) Commercial line fishing	96	212	7	24.0	53.0	1.8	21.2
i) Recreational line fishing	276	36	6	69.0	9.0	1.5	20.5
j) Research activities	287	17	8	71.8	4.3	2.0	21.9
k) Boating activities	268	38	7	67.0	9.5	1.8	21.7
l) Tourist & education facilities/programs	242	62	7	60.5	15.5	1.8	22.2
m) Spearfishing	92	210	9	23.0	52.5	2.3	22.2
n) Commercial netting	41	271	8	10.2	67.8	2.0	20.0
o) Indigenous hunting, fishing, collecting	153	151	9	38.3	37.8	2.2	21.7
p) Photography	294	16	6	73.5	4.0	1.5	21.0
q) Snorkelling	272	34	6	68.0	8.5	1.5	22.0
r) Trawling	31	282	8	7.8	70.5	2.0	19.7

The activities which the mail survey respondents considered should not be allowed in Section B were trawling (70.5% of respondents), commercial collecting (67.3% of respondents), commercial netting (67.8% of respondents), commercial line fishing (53% of respondents), and spearfishing (52.5% of respondents). Respondents were divided between the appropriateness of indigenous hunting, fishing and collecting (37.8% of respondents) within the section.

**Table 25:** Activities which mail survey respondents believed were suitable for Section C on Map 2 of the survey (Percentages are row summed.) N =400 [400 surveys were returned, the number of respondents who did not provide data for each section of this question varied from 76 to 89, only the percentages of missing data are included in the table.]

Activities	Frequency Yes Response	Frequency No Response	Frequency of No Comment	Percentage Yes Response	Percentage No Response	Percentage of No Comments	Percentage Missing
a) Bait netting and gathering	230	77	7	57.5	19.3	1.8	21.4
b) Camping	239	65	7	59.7	16.3	1.8	22.2
c) Recreational collecting (eg shells)	170	139	8	42.4	34.8	2.0	20.8
d) Commercial collecting	41	266	9	10.2	66.5	2.3	21.0
e) Sightseeing	290	16	7	72.5	4.0	1.8	21.7
f) Crabbing and oyster gathering	241	64	8	60.3	16.0	2.0	21.7
g) Diving	257	46	8	64.3	11.5	2.0	22.2
h) Commercial line fishing	112	198	7	28.0	49.5	1.8	20.7
i) Recreational line fishing	288	21	7	72.0	5.3	1.8	20.9
j) Research activities	290	14	9	72.5	3.5	2.3	21.7
k) Boating activities	283	21	8	70.8	5.3	2.0	21.9
l) Tourist & education facilities/ programs	254	52	8	63.5	13.0	2.0	21.5
m) Spearfishing	120	183	9	30.0	45.8	2.2	22.0
n) Commercial netting	57	256	8	14.3	64.0	2.0	19.7
o) Indigenous hunting, fishing, collecting	158	148	10	39.5	37.9	2.5	21.0
p) Photography	299	7	7	74.7	1.8	1.8	21.7
q) Snorkelling	285	22	7	71.3	5.5	1.8	21.4
r) Trawling	58	258	8	14.5	64.5	2.0	19.0

In Table 25, commercial collecting (66.5%), trawling (64.5%), commercial netting (64%), commercial line fishing (49.5%), and spearfishing (45.8%) were considered as inappropriate while beliefs regarding the appropriateness of indigenous hunting were nearly divided (37.9% thought the activity was inappropriate and 39.5% believed the activity should be permitted in the section).

**Table 26:** Activities which mail survey respondents believed were suitable for Section D on Map 2 of the survey (Percentages are row summed.) N =400 [400 surveys were returned, the number of respondents who did not provide data for each section of this question varied from 72 to 91, only the percentages of missing data are included in the table.]

Activities	Frequency Yes Response	Frequency No Response	Frequency of No Comment	Percentage Yes Response	Percentage No Response	Percentage of No Comments	Percentage Missing
a) Bait netting and gathering	237	70	7	59.3	17.5	1.8	21.4
b) Camping	251	51	7	62.7	12.8	1.8	22.7
c) Recreational collecting (eg shells)	174	134	8	43.5	33.5	2.0	21.0
d) Commercial collecting	39	270	9	9.8	67.5	2.3	20.4
e) Sightseeing	292	13	7	73.0	3.3	1.8	21.9
f) Crabbing and oyster gathering	246	57	8	61.5	14.3	2.0	22.2
g) Diving	256	48	8	64.0	12.0	2.0	22.0
h) Commercial line fishing	96	213	7	24.0	53.3	1.8	20.9
i) Recreational line fishing	288	19	7	72.0	4.8	1.8	21.4
j) Research activities	289	14	9	72.3	3.5	2.3	21.9
k) Boating activities	286	16	8	71.5	4.0	2.0	22.5
l) Tourist & education facilities/programs	254	50	8	63.5	12.5	2.0	22.0
m) Spearfishing	101	202	9	25.3	50.5	2.2	22.0
n) Commercial netting	41	271	8	10.2	67.8	2.0	20.0
o) Indigenous hunting, fishing, collecting	156	148	10	39.0	37.0	2.5	21.5
p) Photography	302	4	7	75.5	1.0	1.8	21.7
q) Snorkelling	284	23	7	71.0	5.8	1.8	21.4
r) Trawling	37	277	7	9.2	69.3	1.8	19.7

As in the previous sections, trawling (69.3%), commercial netting (67.8%), commercial collecting (67.5%), commercial line fishing (53.3%) and spearfishing (50.5%) were considered inappropriate activities for Section D. Again there was division regarding indigenous activities being conducted in the Section area.

**Table 27:** Activities which mail survey respondents believed were suitable for Section E on Map 2 of the survey. N =400 [400 surveys were returned, the number of respondents who did not provide data for each section of this question varied from 60 to 75, only the percentages of missing data are included in the table.]

Activities	Frequency Yes Response	Frequency No Response	Frequency of No Comment	Percentage Yes Response	Percentage No Response	Percentage of No Comments	Percentage missing
a) Bait netting and gathering	266	60	4	66.5	15.0	1.0	17.5
b) Camping	295	26	4	73.8	6.5	1.0	18.7
c) Recreational collecting (eg shells)	205	120	6	51.3	30.0	1.5	17.2
d) Commercial collecting	50	273	7	12.5	68.2	1.8	17.5
e) Sightseeing	321	7	4	80.2	1.8	1.0	17.0
f) Crabbing and oyster gathering	277	44	5	69.3	11.0	1.2	18.5
g) Diving	271	49	6	67.8	12.2	1.5	18.5
h) Commercial line fishing	98	227	5	24.5	56.8	1.2	17.5
i) Recreational line fishing	320	10	4	80.0	2.5	1.0	16.5
j) Research activities	305	16	6	76.3	4.0	1.5	18.2
k) Boating activities	311	13	5	77.8	3.2	1.2	17.8
l) Tourist & education facilities/programs	280	41	5	70.0	10.3	1.2	18.5
m) Spearfishing	108	214	7	27.0	53.5	1.8	17.7
n) Commercial netting	39	293	6	9.7	73.3	1.5	15.5
o) Indigenous hunting, fishing, collecting	165	158	8	41.3	39.5	2.0	17.2
p) Photography	320	5	4	80.0	1.2	1.0	17.8
q) Snorkelling	303	21	4	75.8	5.2	1.0	18.0
r) Trawling	55	280	5	13.8	70.0	1.2	15.0

The trends evident in Tables 23-26 were reflected in mail survey respondents' attitudes regarding the various activities appropriate for Section E. Trawling (70%), commercial netting (73.3%), commercial collecting (68.2%), commercial line fishing (56.8%) and spearfishing (53.5%) were considered inappropriate, however, indigenous activities were marginally considered more appropriate in this section.

**Table 28:** Comments regarding activities suitable in the study area (Row summed frequencies and percentages). N=400

Comment	Frequency who made this comment	Percentage who made this comment	Percentage who did not make this comment	Total %
<b>Declining fish stocks</b>	14	5.5	94.5	100
<b>Keep out commercial fishing operations</b>	118	46.0	54.0	100
<b>Increase controls on commercial fishing</b>	4	1.6	98.4	100
<b>Traditional fishing</b>	6	2.3	97.7	100
<b>Public consultation</b>				
<b>Management Plan</b>	12	4.7	95.3	100
<b>Bag limits</b>	8	3.1	96.9	100
<b>Increase access</b>	9	3.5	96.5	100
<b>Suggestions for activity controls</b>	55	21.5	78.5	100
<b>Army operations</b>	17	6.6	93.4	100
<b>Do not know area</b>	14	5.5	94.5	100
<b>National Park issues</b>	14	5.5	94.5	100
<b>Other issues</b>	40	15.6	84.4	100
<b>No comment made</b>	186	-	-	-

Respondents were able to make more than one comment if they so wished. Refer to Appendix 12 for a full transcript of comments made in reference to each of the above categories, particularly the 'Other issues'.

The greatest amount of comments made by the mail survey respondents were related to the keeping out of commercial fishers from the study area (46.0% of respondents). A range of activity controls were also suggested by 21.5% of respondents, these are recorded in Appendix 12.

**Table 29:** Gender of mail survey respondents. (Frequencies and percentages are column summed.). N = 400

Gender	Frequency	Percentage
Woman	20	5.0
Man	358	89.5
Missing data	22	5.5
<b>Total</b>	<b>400</b>	<b>100</b>

The mode for the gender of mail survey respondents was men who made up 89.5% of the respondents and women constituted 5.0% of the respondents.

**Table 30:** Ages of mail survey respondents. (Frequencies and percentages are column summed.). N = 400

Age bracket	Frequency	Percentage
15 - 19	1	0.3
20 - 24	3	0.8
25 - 29	20	5.0
30 - 34	24	6.0
35 - 39	41	10.3
40 - 44	59	14.8
45 - 49	61	15.3
50 - 54	42	10.5
55 - 59	39	9.7
60 - 64	39	9.7
65 - 69	23	5.7
70 - 74	13	3.2
75 - 79	4	1.0
80 - 84	3	0.8
85 +	0	0.0
Missing data	28	6.9
<b>Total</b>	<b>400</b>	<b>100</b>

The age brackets 35 - 64 contained 70.3% of the mail survey respondents, with 40 - 49 year olds containing 30.1% of respondents. The 55 - 64 age bracket had 19.4 % of mail survey respondents.

**Table 31:** Occupation of mail survey respondents (Frequencies and percentages are column summed.) N = 400

Occupation Category	Frequency	Percentage
Professional	42	10.5
Employer/Managers	25	6.2
Self-employed	20	5.0
Skilled worker	150	37.5
Non manual	10	2.5
Service	63	15.8
Armed Forces	2	0.5
Unskilled	22	5.5
Retired/Pensioner	24	6.0
Unemployed	4	1.0
Missing data	38	9.5
<b>Total</b>	<b>400</b>	<b>100</b>

The occupational categories were adopted from Veal (1992).

The mode for the occupations of mail survey respondents was located in the skilled worker bracket (37.5%) while 15.8% of respondents engaged in the service industries and 10.5% in professional occupations.

**Table 32:** Postcode addresses of mail survey respondents (Frequencies and percentages are column summed.) N = 400

Town	Postcode	Frequency	Percentage	Sampling %
Gladstone	4680	46	11.5	10.0
Rockhampton	4700	40	10.0	} 35.0
Rockhampton	4701	78	19.5	
Rockhampton	4702	13	3.3	
Yeppoon	4703	142	35.4	40.0
Marlborough	4705	5	1.3	All vessel owners*
St Lawrence	4707	5	1.3	All vessel owners*
Sarina	4737	19	4.7	5.0
Mackay	4740	21	5.2	10.0
Missing data	-	31	7.8	-
<b>Total</b>	<b>-</b>	<b>400</b>	<b>100</b>	<b>-</b>

\*Marlborough had 19 registered vessels and St Lawrence had 20 registered vessels.

The mode for postcode addresses was Yeppoon (35.4%) with Rockhampton postcodes combined accounting for 32.8% of mail survey respondents. The proportional stratified sampling frame percentages are noted in the sampling percentages column to enable comparisons between the sample and response percentages.

**Table 33:** Length of residency at postcode address of mail survey respondents (Frequencies and percentages are column summed.) N = 400

Length of residency	Frequency	Percentage
< 1 year	2	0.5
1 - 5 years	83	20.7
6 - 10 years	55	13.7
11 - 15 years	33	8.2
16 - 20 years	43	10.8
21 - 25 years	32	8.0
26 - 30 years	42	10.5
31 - 35 years	14	3.5
36 - 40 years	22	5.5
41 - 45 years	17	4.3
46 - 50 years	11	2.8
> 50 years	16	4.0
Data missing	30	7.5
<b>Total</b>	<b>400</b>	<b>100</b>

The mode for the length of residency for mail survey respondents was 1 - 5 years (20.7%), other respondents had resided at their postcode address for 6 - 10 years (13.7%), 16 - 20 years (10.8%) and 26 - 30 years (10.5%).

**Table 34:** General comments made by mail survey respondents. N = 153

Comment	Frequency	Percentage who commented on this item	Percentage who did not comment on this item	Total %
Commercial fishing	41	26.8	73.2	100
Thank you	13	8.5	91.5	100
Survey comments	12	7.8	92.2	100
Management plan issue	11	7.2	92.8	100
Consultation		0.0		100
Access issues	11	7.2	92.8	100
Dugongs	5	3.3	96.7	100
No more rules	3	2.0	98.0	100
Preservation issues	24	15.6	84.4	100
Do not know the area	14	9.2	91.8	100
Management strategies	15	9.8	91.2	100
National Park issues	6	4.0	96.0	100
Other issues	29	19.0	81.0	100
No comments	247	-	-	-

Of the 152 mail survey respondents who added general comments to their survey forms, 26.8% commented upon commercial fishing operations and 15.6% made comments regarding preservation/conservation issues associated with the study area. Refer to Appendix 13 for full transcripts of each of these categories including the 'Other' section.

### Club surveys

To also determine the recreational marine usage of the Shoalwater Bay area a study of recreational clubs located within the study area was also conducted. While 290 surveys were distributed, only 40 were completed. Thus the findings in this section are not representative of all clubs, instead the results are specific to those club members who completed the survey. The list of clubs approached is listed in Appendix 4.

**Table 35:** Usage of Shoalwater Bay and adjacent waters by club survey respondents during June 1995 to June 1996. (Frequencies and percentages summed in columns) N = 40

Response	Frequency	Percentage
Yes	38	95.0
No	2	5.0
<b>Total</b>	<b>40</b>	<b>100</b>

Of the 40 club survey respondents, 95% used the study area and 5% did not use the area.

**Table 36:** Locations used for recreational purposes by club survey respondents. N = 38 [40 people returned surveys, 38 indicated that they used the area and 2 indicated that they were not users of the area.]

Location	Frequency	Percentage of the 38 users
Section A: Northern area of Shoalwater Bay	7	18.4
Section B: Southern area of Shoalwater Bay	0	0.0
Section C: Island Head Ck environs	21	55.3
Section D: Port Clinton environs	23	60.5
Section E: above Cape Manifold to Cape Clinton	14	36.8
Section E: above Five Rocks to Cape Manifold	11	28.9
Section E: Little Corio Bay to Five Rocks	14	36.8
Corio Bay	27	71.1
Yeppoon, Keppel, & Fitzroy River	10	26.3
Outside study area	5	13.2

Respondents were able to indicate more than one location, therefore, the frequencies do not total 38 nor do the percentages equal 100.

The most popular location for recreation in the study area as indicated by the club respondents was Corio Bay (71.1%). Port Clinton and its immediate environs were rated second with 60.5% of club respondents noting it as a location selected for recreational pursuits.

**Table 37:** Mode of transport used by club survey respondents to access recreational sites in the study area. (Row summed percentages) N = 38 [40 people returned surveys, 38 indicated that they used the area and 2 indicated that they were not users of the area.]

Mode of Transport	Frequency	Percentage who used this mode	Percentage who did not note this mode	Total %
Own boat	30	78.9	21.1	100
Relative's boat	0	0.0	0.0	100
Friend's boat	8	21.1	78.9	100
Club boat	12	31.6	68.4	100
Charter boat	9	23.7	76.3	100
Hire boat	0	0.0	0.0	100
Car	14	36.8	63.2	100

Although respondents were asked to indicate the main form of transport used, several respondents marked up to four options. All responses are recorded in the table. The mode form of transport was own boat (78.9%). Other forms of transport which were identified were a friend's boat (21.1%), a club boat (31.6%) and a charter boat (23.7%). Vehicular transport also accounted for 36.8% of respondents' means of transport.

**Table 38:** Departure and launching sites used by club survey respondents. (Row summed percentages) N = 38 [40 people returned surveys, 38 indicated that they used the area and 2 indicated that they were not users of the area.]

Departure Point	Frequency	Percentage who used this departure point	Percentage who did not note this departure point	Total
Corio Bay area	7	18.4	81.6	100
Rockhampton	14	36.8	63.2	100
Roslyn Bay	31	81.6	18.4	100
Ross Creek	1	2.6	97.4	100
Kelly's/ Cooberry	0	0.0	100.0	100
Five Rocks	0	0.0	100.0	100
Other	4	10.5	89.5	100

Respondents mentioned more than one location as a departure point. All locations have been included in the above table. The 'Other' section departure points are listed in Appendix 9.

The main departure point for club survey respondents was Roslyn Bay (81.6% of respondents), Rockhampton accounted for 36.8% of club survey respondents.

**Table 39:** Recreational activities pursued by club survey respondents. (Row summed percentages) N = 38 [40 people returned surveys, 38 indicated that they used the area and 2 indicated that they were not users of the area.]

Activities	Frequency	Percentage who engaged in this activity	Percentage who did not note engaging in this activity	Total
Boating	14	36.8	63.2	100
Recreational fishing	37	97.0	3.0	100
SCUBA diving	1	2.6	97.4	100
Kayaking	0	0.0	100.0	100
Tourist activity	2	5.3	94.7	100
Spearfishing	0	0.0	100.0	100
Snorkelling	1	2.6	97.4	100
Sightseeing	8	21.0	79.0	100
Camping	7	18.4	81.6	100
Other	5	13.1	86.9	100

More than one activity was able to be indicated. See Appendix 10 for 'Other' activities. The main activities engaged in by club survey respondents were recreational fishing (97% of respondents), boating (36.8% of respondents) and sightseeing (21% of respondents).

**Table 40:** The main activity pursued by club survey respondents (Row summed percentages). N = 38 [40 people returned surveys, 38 indicated that they used the area and 2 indicated that they were not users of the area.]

Activities	Frequency	Percentage who engaged in this activity	Percentage who did not note this activity	Total
Boating	2	5.2	94.8	100
Recreational fishing	21	55.3	44.7	100
SCUBA diving	0	0.0	100.0	100
Kayaking	0	0.0	100.0	
Tourist activity	0	0.0	100.0	100
Spearfishing	0	0.0	100.0	100
Snorkelling	0	0.0	100.0	100
Sightseeing	1	2.6	97.4	100
Camping	0	0.0	100.0	100
Other	1	2.6	97.4	100

The mode for main activity was recreational fishing (55.3%).

**Table 41:** Frequency of visitation to the study area by club survey respondents. (Frequencies and percentages summed in columns). N = 38 [40 people returned surveys, 38 indicated that they used the area and 2 indicated that they were not users of the area.]

Time frame	Frequency	Percentage
Daily	0	0.0
Weekly	2	5.3
Fortnightly	5	13.2
Monthly	4	10.5
11 times per year	0	0.0
9 - 10 times per year	1	2.6
7 - 8 times per year	0	0.0
5 - 6 times per year	4	10.5
3-4 times per year	14	36.9
1-2 times per year	2	5.3
Whenever I can	1	2.6
When weather permits	4	10.5
When defence allows	0	0.0
Not often	0	0.0
Other	0	0.0
Missing data	1	2.6
<b>Total</b>	<b>38</b>	<b>100</b>

The mode response for frequency of visitation to the study area was 3 - 4 times per year (36.9% of respondents). Fortnightly (13.2% of respondents), monthly (10.5% of respondents), 5 - 6 times per year (10.5% of respondents) and when weather permits (10.5% of respondents) were also noted as options for visitation.

**Table 42:** Time periods for visitation by club survey respondents of the survey area. (Percentages summed by rows) N = 38 [40 people returned surveys, 38 indicated that they used the area and 2 indicated that they were not users of the area.]

Time	Frequency who go there on ...	Frequency who did not note this time	Missing data	Percentage who go there on ...	Percentage who did not note this time	% of Missing Data
Week days	8	19	11	21.0	50.0	29.0
Weekends	21	6	11	55.0	16.0	29.0
Holidays	10	17	11	26.0	45.0	29.0
Long weekends	0	27	11	0.0	71.0	29.0
Public Holidays	0	27	11	0.0	71.0	29.0
Other	4	23	11	10.5	60.5	29.0

Respondents were asked to only indicate one time, several respondents indicated more than one item, this table records more than one response for each respondent who did so. The mode was weekend visitation (55%) while holidays (26%) and weekdays (21%) were the other favoured times for visiting the study area by club survey respondents.

**Table 43:** Month in which the last visit occurred for club survey respondents who used the study area (Frequencies and percentages are column summed.) N = 38 [40 people returned surveys, 38 indicated that they used the area and 2 indicated that they were not users of the area.]

Date	Frequency	Percentage
May 1995	0	0
June 1995	0	0
July 1995	0	0
August 1995	0	0
September 1995	1	2.6
October 1995	0	0
November 1995	0	0
December 1995	0	0
January 1996	0	0
February 1996	0	0
March 1996	0	0
April 1996	3	7.9
May 1996	9	23.7
June 1996	0	0
Outside May 1995-1996	13	34.2
Missing data	12	31.6
<b>Total</b>	<b>38</b>	<b>100</b>

In the study period, club survey respondents most recently accessed the study area during May 1996 (23.7%).

**Table 44:** Types of passengers who accompany the club survey respondents (Percentages are row summed.) N = 38 [40 people returned surveys, 38 indicated that they used the area and 2 indicated that they were not users of the area.]

Passengers	Frequency with this passenger	Frequency who did not note this passenger	Missing data	Percentage with this passenger	Percentage who did not note this passenger	Missing data %	Total %
Co-worker	0	27	11	0.0	71.0	29.0	100
Family	14	13	11	36.8	34.2	29.0	100
Club members	22	16	0	57.9	42.1	0.0	100
Friends	18	9	11	47.3	23.7	29.0	100
Tourist operator	0	27	11	0.0	71.0	29.0	100
Tourists	1	26	11	2.6	68.4	29.0	100
Relatives	1	26	11	2.6	68.4	29.0	100
Other	1	26	11	2.6	68.4	29.0	100

Respondents were asked to indicate the number of people in each of the categories who accompanied them, as some people did and others did not the data sets were incomplete. Hence the type of passenger who accompanied the survey respondent only is indicated in the table. The mode for type of passenger was club members (57.9% of respondents), with friends accounting for 47.3% of the type of passenger taken and family for 36.8%.

**Table 45:** Reasons given by club survey respondents for using Shoalwater Bay and adjacent waters for recreation (Percentages are row summed) N = 38 [40 people returned surveys, 38 indicated that they used the area and 2 indicated that they were not users of the area.]

Reason	Frequency Yes Response	Percentage who noted this reason	Percentage who did not note this reason	Total %
Amenity	12	31.6	68.4	100
Proximity	2	5.3	94.7	100
Family/friends	0	0.0	100.0	100
Fish stocks	15	39.5	60.5	100
Safe Anchorage	4	10.5	89.5	100
Lack of people	1	2.6	97.4	100
Appropriate for Activities	6	15.8	84.2	100
Source of food	0	0.0	100.0	100
Other	2	5.3	94.7	100
Missing data	12	-	-	-

More than one comment was made by respondents. All comments are noted in the table above. The 'Percentage who did not note this reason' includes no response. Refer to Appendix 11 for a full transcript of the reasons given for usage of the waters shown in Map 1.

The main reason for using the study area according to club survey respondents was related to the quality of fish stocks (39.5%) and the amenity of the area (31.6%).

**Table 46:** Activities which club survey respondents believe are suitable for Section A on Map 2 of the survey (Percentages are row summed. N=40 [40 people returned surveys, 38 indicated that they used the area and 2 indicated that they were not users of the area.]

Activities	Frequency Yes Response	Frequency No Response	Frequency Missing Data	Percentage Yes Response	Percentage No Response	Percentage missing
a) Bait netting and gathering	19	6	15	47.5	15.0	37.5
b) Camping	20	4	16	50.0	10.0	40.0
c) Recreational collecting (eg shells)	15	9	16	37.5	22.5	40.0
d) Commercial collecting	6	19	15	15.0	47.5	37.5
e) Sightseeing	23	1	16	57.5	2.5	40.0
f) Crabbing and oyster gathering	21	3	16	52.5	7.5	40.0
g) Diving	23	1	16	57.5	2.5	40.0
h) Commercial line fishing	14	11	15	35.0	27.5	37.5
i) Recreational line fishing	23	0	17	57.5	0.0	42.5
j) Research activities	24	1	15	60.0	2.5	37.5
k) Boating activities	24	1	15	60.0	2.5	37.5
l) Tourist & education facilities/ programs	19	6	15	47.5	15.0	37.5
m) Spearfishing	9	16	15	22.5	40.0	37.5
n) Commercial netting	8	19	13	20.0	47.5	32.5
o) Indigenous hunting, fishing, collecting	11	14	15	27.5	35.0	37.5
p) Photography	25	0	15	62.5	0.0	37.5
q) Snorkelling	23	2	15	57.5	5.0	37.5
r) Trawling	7	20	13	17.5	50.0	32.5

According to the club survey respondents, the following activities were considered inappropriate for Section A: trawling (50%), commercial netting (47.5%), commercial collecting (47.5%),

spearfishing (40%) and indigenous hunting, fishing and collecting (35%). The number of missing data needs to be considered when evaluating these data.

**Table 47:** Activities which club survey respondents believe are suitable for Section B on Map 2 of the survey. (Percentages are row summed.) N=40 [40 people returned surveys, 38 indicated that they used the area and 2 indicated that they were not users of the area.]

Activities	Frequency Yes Response	Frequency No Response	Frequency Missing Data	Percentage Yes Response	Percentage No Response	Percentage missing
a) Bait netting and gathering	20	5	15	50.0	12.5	37.5
b) Camping	16	7	17	40.0	17.5	42.5
c) Recreational collecting (eg shells)	14	9	17	35.0	22.5	42.5
d) Commercial collecting	5	20	15	12.5	50.0	37.5
e) Sightseeing	21	2	17	52.5	5.0	42.5
f) Crabbing and oyster gathering	20	3	17	50.0	7.5	42.5
g) Diving	22	1	17	55.0	2.5	42.5
h) Commercial line fishing	15	10	15	37.5	25.0	37.5
i) Recreational line fishing	23	0	17	57.5	0.0	42.5
j) Research activities	24	1	15	60.0	2.5	37.5
k) Boating activities	24	1	15	60.0	2.5	37.5
l) Tourist & education facilities/programs	19	6	15	47.5	15.0	37.5
m) Spearfishing	7	17	16	17.5	42.5	40.0
n) Commercial netting	7	19	14	17.5	47.5	35.0
o) Indigenous hunting, fishing, collecting	10	15	15	25.0	37.5	37.5
p) Photography	25	0	15	62.5	0.0	37.5
q) Snorkelling	22	2	16	55.0	5.0	40.0
r) Trawling	5	21	14	12.5	52.5	35.0

In Section B, the following activities were considered by club survey respondents as ones which should not be allowed: trawling (52.5%), commercial collecting (50%) and commercial netting (47.5%). As in Table 46, the number of missing data needs to be considered when evaluating the findings in this table.

**Table 48:** Activities which club survey respondents believe are suitable for Section C on Map 2 of the survey. (Percentages are row summed.) N=40 [40 people returned surveys, 38 indicated that they used the area and 2 indicated that they were not users of the area.]

Activities	Frequency Yes Response	Frequency No Response	Frequency Missing Data	Percentage Yes Response	Percentage No Response	Percentage missing
a) Bait netting and gathering	18	7	15	45.0	17.5	37.5
b) Camping	17	6	17	42.5	15.0	42.5
c) Recreational collecting (eg shells)	12	11	17	30.0	27.5	42.5
d) Commercial collecting	5	20	15	12.5	50.0	37.5
e) Sightseeing	23	1	16	57.5	2.5	40.0
f) Crabbing and oyster gathering	21	3	16	52.5	7.5	40.0
g) Diving	23	1	16	57.5	2.5	40.0
h) Commercial line fishing	14	11	15	35.0	27.5	37.5
i) Recreational line fishing	23	0	17	57.5	0.0	42.5
j) Research activities	24	1	15	60.0	2.5	37.5
k) Boating activities	24	1	15	60.0	2.5	37.5
l) Tourist & education facilities/programs	20	5	15	50.0	12.5	37.5
m) Spearfishing	8	17	15	20.0	42.5	37.5
n) Commercial netting	4	23	13	10.0	57.5	32.5
o) Indigenous hunting, fishing, collecting	8	17	15	20.0	42.5	37.5
p) Photography	25	0	15	62.5	0.0	37.5
q) Snorkelling	22	3	15	55.0	7.5	37.5
r) Trawling	6	21	13	15.0	52.5	32.5

Activities which club survey respondents believed should not be allowed in Section C of the study area were commercial netting (57.5%), trawling (52.5%) and commercial collecting (50%). Missing data accounts, as a minimum, for 37.5% of responses. This needs to be taken into account when using the findings in this table.

**Table 49:** Activities which club survey respondents believe are suitable for Section D on Map 2 of the survey. (Percentages are row summed.) N=40 [40 people returned surveys, 38 indicated that they used the area and 2 indicated that they were not users of the area.]

Activities	Frequency Yes Response	Frequency No Response	Frequency of Missing Data	Percentage Yes Response	Percentage No Response	Percentage missing
a) Bait netting and gathering	22	3	15	55.0	7.5	37.5
b) Camping	18	6	16	45.0	15.0	40.0
c) Recreational collecting (eg shells)	13	10	17	32.5	25.0	42.5
d) Commercial collecting	5	20	15	12.5	50.0	37.5
e) Sightseeing	24	1	15	60.0	2.5	37.5
f) Crabbing and oyster gathering	23	2	15	57.5	5.0	37.5
g) Diving	22	3	15	55.0	7.5	37.5
h) Commercial line fishing	10	15	15	25.0	37.5	37.5
i) Recreational line fishing	25	0	15	62.5	0	37.5
j) Research activities	24	1	15	60.0	2.5	37.5
k) Boating activities	24	1	15	60.0	2.5	37.5
l) Tourist & education facilities/ programs	20	5	15	50.0	12.5	37.5
m) Spearfishing	6	19	15	15.0	47.5	37.5
n) Commercial netting	3	23	14	7.5	57.5	35.0
o) Indigenous hunting, fishing, collecting	11	14	15	27.5	35.0	37.5
p) Photography	25	0	15	62.5	0.0	37.5
q) Snorkelling	23	2	15	57.5	5.0	37.5
r) Trawling	5	22	13	12.5	55.0	32.5

In Section D of the study area, most commercial activities were considered by club survey respondents as inappropriate for the area, spearfishing was also noted as being inappropriate. The minimum percentage of missing data was 32.5%.

**Table 50:** Activities which club survey respondents believe are suitable for Section E on Map 2 of the survey. (Percentages are row summed.) N=40 [40 people returned surveys, 38 indicated that they used the area and 2 indicated that they were not users of the area.]

Activities	Frequency Yes Response	Frequency No Response	Frequency Missing Data	Percentage Yes Response	Percentage No Response	Percentage missing
a) Bait netting and gathering	23	3	14	57.5	7.5	35.0
b) Camping	22	3	15	55.0	7.5	37.5
c) Recreational collecting (eg shells)	15	10	15	37.5	25.0	37.5
d) Commercial collecting	7	20	13	17.5	50.0	32.5
e) Sightseeing	25	0	15	62.5	0.0	37.5
f) Crabbing and oyster gathering	22	3	15	55.0	7.5	37.5
g) Diving	23	2	15	57.5	5.0	37.5
h) Commercial line fishing	11	16	13	27.5	40.0	32.5
i) Recreational line fishing	26	0	14	65.0	0.0	35.0
j) Research activities	24	1	15	60.0	2.5	37.5
k) Boating activities	24	2	14	60.0	5.0	35.0
l) Tourist & education facilities/ programs	20	6	14	50.0	15.0	35.0
m) Spearfishing	4	21	15	10.0	52.5	37.5
n) Commercial netting	4	24	12	10.0	60.0	30.0
o) Indigenous hunting, fishing, collecting	12	13	15	30.0	32.5	37.5
p) Photography	25	0	15	62.5	0.0	37.5
q) Snorkelling	23	2	15	57.5	5.0	37.5
r) Trawling	6	22	12	15.0	55.0	30.0

Commercial activities, especially commercial netting (60%) and trawling (55%) were noted as inappropriate for this section by club survey respondents. As in Tables 46-49 opinions regarding indigenous use were divided. The percentage of missing data must be taken into account when using this data.

**Table 51:** Comments by club survey respondents regarding activities suitable in the study area. (Percentages are column summed.) N=40 [40 people returned surveys, 38 indicated that they used the area and 2 indicated that they were not users of the area.]

Comment	Frequency Yes	Percentage Yes	Percentage who did not note this comment	Total %
Declining fish stocks	1	2.5	97.5	100
Keep out commercial fishing operations	9	22.5	77.5	100
More controls on commercial operations	1	2.5	97.5	100
Suggestions for activity controls	5	12.5	87.5	100
National Park issues	1	2.5	97.5	100
Other	3	7.5	92.5	100
No comment made	25	62.5	37.5	100

More than one comment was given and all comments are included in the table. Refer to Appendix 12 for a full transcription of comments made in reference to each of the above categories.

The mode comment was related to keeping out commercial fishing operations (22.5%).

**Table 52:** Gender of club survey respondents. (Frequencies and percentages are column summed.) N=40 [40 people returned surveys, 38 indicated that they used the area and 2 indicated that they were not users of the area.]

Gender	Frequency	Percentage
Woman	1	2.5
Man	37	92.5
Missing data	2	5.0
<b>Total</b>	<b>40</b>	<b>100</b>

The mode was men (92.5%).

**Table 53:** Ages of club survey respondents. (Frequencies and percentages are column summed.) N=40 [40 people returned surveys, 38 indicated that they used the area and 2 indicated that they were not users of the area.]

Age bracket	Frequency	Percentage
15 - 19	3	7.5
20 - 24	0	0.0
25 - 29	1	2.5
30 - 34	2	5.0
35 - 39	3	7.5
40 - 44	5	12.5
45 - 49	6	15.0
50 - 54	1	2.5
55 - 59	2	5.0
60 - 64	3	7.5
65 - 69	2	5.0
70 - 74	0	0.0
75 - 79	0	0.0
80 - 84	0	0.0
85 +	0	0.0
Missing data	12	30.0
<b>Total</b>	<b>40</b>	<b>100</b>

The mode response was 45 - 49 years of age, while 27.5% of club survey respondents fell into the 40 - 49 year old age bracket. The missing data (30%) needs to be considered when using findings from this table.

**Table 54:** Occupations of club survey respondents. (Frequencies and percentages are column summed.) N=40 [40 people returned surveys, 38 indicated that they used the area and 2 indicated that they were not users of the area.]

Occupation Category	Frequency	Percentage
Professional	1	2.5
Employer/Managers	4	10.0
Self-employed	1	2.5
Skilled worker	10	25.0
Non manual	4	10.0
Service	4	10.0
Armed Forces	1	2.5
Unskilled	1	2.5
Retired/Pensioner	2	5.0
Missing data	12	30.0
<b>Total</b>	<b>40</b>	<b>100</b>

These occupational categories were adopted from Veal (1992).

The mode of occupation category was skilled worker (25%), employers/managers, non manual labour and service industry workers each accounted for 10% of survey respondents' occupational categories.

**Table 55:** Postcode address of club survey respondents (Frequencies and percentages are column summed.) N=40 [40 people returned surveys, 38 indicated that they used the area and 2 indicated that they were not users of the area.]

Town	Postcode	Frequency	Percentage
Gladstone	4680		
Rockhampton	4700	3	7.5
Rockhampton	4701	26	65.0
Rockhampton	4702	2	5.0
Yeppoon	4703	5	12.5
Marlborough	4705	0	0.0
St Lawrence	4707	0	0.0
Sarina	4737	0	0.0
Mackay	4740	0	0.0
Missing data	-	4	10.0
<b>Total</b>		<b>40</b>	<b>100</b>

Rockhampton was the mode for postcode of residency, all Rockhampton postcodes accounted for 77.5% of club respondents' place of residence.

**Table 56:** Length of residency at the postcode address of club survey respondents. (Frequencies and percentages are column summed.) N=40 [40 people returned surveys, 38 indicated that they used the area and 2 indicated that they were not users of the area.]

Length of residency	Frequency	Percentage
< 1 year	0	0.0
1 - 5 years	4	10.0
6 - 10 years	6	15.0
11 - 15 years	4	10.0
16 - 20 years	3	7.5
21 - 25 years	3	7.5
26 - 30 years	2	5.0
31 - 35 years	1	2.5
36 - 40 years	1	2.5
41 - 45 years	1	2.5
46 - 50 years	1	2.5
> 50 years	2	5.0
Data missing	12	30.0
<b>Total</b>	<b>40</b>	<b>100</b>

Residency between 6 - 10 years was the mode (15%), while residency of 1 - 5 years and 11 - 15 years each accounted for 10% of the club survey respondents' length of residency.

**Table 57:** General comments made by club survey respondents. N=40 [40 people returned surveys, 38 indicated that they used the area and 2 indicated that they were not users of the area.]

Comment	Frequency	Percentage who commented on this item	Percentage who did not comment on this item	Total %
Commercial fishing	2	5.0	95.0	100
Thank you	1	2.5	97.5	100
Access issues	1	2.5	97.5	100
Preservation issues	2	5.0	95.0	100
Dugongs	2	5.0	95.0	100
Management strategies	1	2.5	97.5	100
Other	3	7.5	92.5	100
No comments	32	-	-	-

More than one comment was made by some respondents, all comments are included in the table. Comments regarding commercial fishing, preservation issues and dugongs each attributed 5% of club survey respondents' comments.

### Self Selection Survey

The self selection survey was left at various locations within the study area so that people not affiliated with clubs, or whom did not own a registered vessel would be able to participate in the study on recreational use of Shoalwater Bay and adjacent waters. See Appendix 6 for locations used. Thirty nine surveys were completed out of 350 surveys.

**Table 58:** Usage of Shoalwater Bay and adjacent waters by self selection survey respondents during June 1995 to June 1996. (Frequencies and percentages summed in columns). N = 39

Response	Frequency	Percentage
Yes	35	89.7
No	4	10.3
<b>Total</b>	<b>39</b>	<b>100</b>

Of the 39 respondents, 35 (89.7%) used Shoalwater Bay and the adjacent waters during June 1995 to June 1996.

**Table 59:** Locations used for recreational purposes by self selection survey respondents. (Frequencies and percentages summed in columns). N = 27 [Of the 39 respondents, 27 provided information regarding the locations used in the study area, missing data from 12 respondents.]

Location	Frequency	Percentage of the 27 users
Section A: Northern area of Shoalwater Bay	19	70.4
Section B: Southern area of Shoalwater Bay	18	66.6
Section C: Island Head Ck environs	26	96.3
Section D: Port Clinton environs	17	63.0
Section E: above Cape Manifold to Cape Clinton	5	18.5
Section E: above Five Rocks to Cape Manifold	9	33.3
Section E: Little Corio Bay to Five Rocks	4	14.8
Corio Bay	8	29.6
Yeppoon, Keppel, & Fitzroy River	11	40.7
Outside study area	10	37.0

Respondents were able to locate more than one location for recreational usage, hence frequencies and percentages do not sum to 27 or 100 respectively. See Appendix 1 for Map 2 which outlines the Sections mentioned in the table above.

The mode for self selection survey respondents regarding recreational locations in the study area was Island Head Creek (96.3%), while the northern section of Shoalwater Bay (Section A) accounted for 70.4 % and the southern section of Shoalwater Bay (Section B) for 66.6% and Port Clinton 63%.

**Table 60:** Mode of transport used by self selection survey respondents to access recreational sites in the study area. (Row summed percentages) N = 35 [Of the 39 respondents to the self selection survey, 4 indicated that they did not use the area.]

Mode of Transport	Frequency	Percentage who used this mode	Percentage who do not note this mode	Total %
Own boat	29	83	17	100
Relative's boat	4	11	89	100
Friend's boat	7	20	80	100
Club boat	-	-	-	-
Charter boat	-	-	-	-
Hire boat	-	-	-	-
Car	9	26	74	100
Other	2	6	94	100

Although respondents were asked to indicate the main form of transport used, several respondents marked up to four options. All responses are recorded in the table. Refer to Appendix 10 for a list of the 'Other' forms of transport used to access the study area.

The mode for accessing the study area was self selection respondents' own boats (83%).

**Table 61:** Departure and launching sites used by self selection survey respondents. (Row summed percentages) N = 35 [Of the 39 respondents to the self selection survey, 4 indicated that they did not use the area.]

Departure Point	Frequency	Percentage who used this departure point	Percentage who did not note this departure point	Total %
Bangalee	0	0	100	100
Corio Bay area	3	9	91	100
Fitzroy Motor Boat Club	0	0	100	100
Five Rocks	0	0	100	100
Farnborough Beach	0	0	100	100
Gladstone	1	3	97	100
Rockhampton	2	6	94	100
Rosslyn Bay	18	51	49	100
Ross Creek	1	3	97	100
Stanage Bay	11	31	69	100
Sandy Bay	0	0	100	100
Mackay	0	0	100	100
Marlborough	0	0	100	100
Kelly's/ Cooberry	2	6	94	100
Hollins Bay	0	0	100	100
Other	4	11	89	100
Missing data	1	-	-	-

Respondents mentioned more than one location as a departure point. All locations have been included in the above table. Refer to Appendix 9 for a list of the 'Other' departure points.

The two most popular departure points were Rosslyn Bay and Stanage Bay. Rosslyn Bay was the mode (51%) and Stanage Bay accounted for 31% of the self selection survey respondents' choice for a departure point to access the study area.

**Table 62:** Recreational activities pursued by self selection survey respondents in the study area. (Row summed percentages) N = 35 [Of the 39 respondents to the self selection survey, 4 indicated that they did not use the area.]

Activities	Frequency	Percentage who engaged in this activity	Percentage who did not note this activity	Total
Boating	22	63	37	100
Recreational fishing	33	94	6	100
SCUBA diving	2	6	94	100
Kayaking	0	0	100	100
Tourist activity	1	3	97	100
Spearfishing	1	3	97	100
Snorkelling	7	20	80	100
Sightseeing	18	51	49	100
Camping	11	31	69	100
Other	6	17	83	100

More than one activity was able to be indicated. Refer to Appendix 10 for a list of the 'Other' comments. The mode was recreational fishing (94%) and boating was another popular activity (63%) followed by sightseeing (51%).

**Table 63:** The main activity pursued by self selection survey respondents in the study area. (Row summed percentages) N = 35 [Of the 39 respondents to the self selection survey, 4 indicated that they did not use the area.]

Activities	Frequency	Percentage who engaged in this activity	Percentage who did not note this activity	Total
Boating	6	17	83	100
Recreational fishing	18	51	49	100
SCUBA diving	0	0	100	100
Kayaking	0	0	100	100
Tourist activity	0	0	100	100
Spearfishing	0	0	100	100
Snorkelling	0	0	100	100
Sightseeing	0	0	100	100
Camping	0	0	100	100
Other	9	26	73	100
Missing data	2	-	-	-

Refer to Appendix 10 for a list of the 'Other' comments noted in Table 63. The main activity participated in by the majority of self selection survey respondents was recreational fishing.

**Table 64:** Frequency of visitation to the study area by self selection survey respondents. (Frequencies and percentages summed in columns). N = 35 [Of the 39 respondents to the self selection survey, 4 indicated that they did not use the area.]

Time frame	Frequency	Percentage
Daily	0	0
Weekly	5	14
Fortnightly	0	0
Monthly	8	23
11 times per year	0	0
9-10 times per year	1	3
7 - 8 times per year	0	0
5 - 6 times per year	4	11
3 - 4 times per year	5	14
1- 2 times per year	4	11
Whenever I can	2	6
When weather permits	1	3
When defence allows	0	0
Not often	0	0
Other	2	6
Missing data	3	9
<b>Total</b>	<b>35</b>	<b>100</b>

The mode for visitation to the study area was monthly (23%), others visited the study area weekly (14%), or 3 - 4 times per year (14%), or 5 - 6 times per year (11%) or 1 - 2 times per year (11%).

**Table 65:** Time periods of visitation by self selection survey respondents to the study area. (Percentages summed by rows). N = 35 [Of the 39 respondents to the self selection survey, 4 indicated that they did not use the area.]

Time	Frequency who go there on ...	Frequency who did not note this time	Percentage who go there on ...	Percentage who did not note this time	Total %
Week days	17	18	48.6	51.4	100
Weekends	19	16	54.3	45.7	100
Holidays	15	20	42.9	57.1	100
Long weekends	1	34	2.9	97.1	100
Public Holidays	0	35	0	100	100
Other	5	35	14.3	85.7	100

Respondents were asked to only indicate one time, several respondents indicated more than one item, thus Table 65 records more than one response for those respondents who did so. The mode was weekends (54.3%), although weekdays (48.6%) and holidays (42.9%) were also popular times for accessing the study area.

**Table 66:** Month in which the last visit occurred for self selection survey respondents who used the study area. (Frequencies and percentages are column summed.) N = 35 [Of the 39 respondents to the self selection survey, 4 indicated that they did not use the area.]

Date	Frequency	Percentage
May 1995	0	0
June 1995	0	0
July 1995	0	0
August 1995	0	0
September 1995	0	0
October 1995	0	0
November 1995	0	0
December 1995	2	5.7
January 1996	0	0
February 1996	1	2.9
March 1996	0	0
April 1996	5	14.3
May 1996	4	11.4
June 1996	0	0
Outside May 1995-1996	23	65.7
<b>Total</b>	<b>35</b>	<b>100</b>

The mode for month was outside the period of May 1995 to 1996 (65.7%). 25.7% of self selection survey respondents indicated that they had used the study area during April and May.

**Table 67:** Types of passengers who accompany the self selection survey respondents. (Percentages are row summed.) N = 35 [Of the 39 respondents to the self selection survey, 4 indicated that they did not use the area.]

Passengers	Frequency with this passenger	Frequency who did not note this passenger	Percentage with this passenger	Percentage who did not note this passenger	Total %
Co-worker	11	24	31.4	68.6	100
Family	24	11	68.6	31.4	100
Club members	2	33	5.7	94.3	100
Friends	18	17	51.4	48.6	100
Tourist operator	0	35	0	100	100
Tourists	0	35	0	100	100
Relatives	6	29	17.1	82.9	100

Respondents were asked to indicate the number of people in each of the categories who accompanied them, as some people did and others did not, the data sets were incomplete. Hence the type of passenger who accompanied the survey respondent only is indicated in Table 67.

The mode was family (68.6%), while friends accompanied 51.4% of self selection survey respondents.

**Table 68:** Reasons given by self selection survey respondents for using Shoalwater Bay and adjacent waters for recreation. (Percentages are row summed) N = 35 [Of the 39 respondents to the self selection survey, 4 indicated that they did not use the area.]

Reason	Frequency Yes Response	Percentage who noted this reason	Percentage who did not note this reason	Total %
Amenity	11	31	69	100
Proximity	7	20	80	100
Family/ Friends	0	0	100	100
Fish stocks	18	51	49	100
Safe Anchorage	7	20	80	100
Lack of people	0	0	100	100
Appropriate for Activities	3	9	91	100
Source of food	0	0	100	100
Other	4	11	79	100
Missing data	2	-	-	-

More than one comment was made by respondents. All comments are noted in the table above.

The main reason reported by self selection survey respondents for using the study area was because of the quality of fish stocks (51%). After fish stocks, amenity reasons (31%), the proximity of the area to self selection respondents' residences (20%) and the safe anchorages available in the area were also reasons which contributed to the self selection survey respondents' use of the area. Refer to Appendix 11 for a full transcript of the reasons given for usage of the waters shown in Map 1.

**Table 69:** Activities which self selection survey respondents believe are suitable for Section A on Map 2 of the survey. (Percentages are row summed.) N = 39

Activities	Frequency Yes Response	Frequency No Response	Frequency of No Comment	Percentage Yes Response	Percentage No Response	Percentage of No Comments	Total %
a) Bait netting and gathering	28	3	8	71.8	7.7	20.5	100
b) Camping	25	9	5	64.1	23.1	12.8	100
c) Recreational collecting (eg shells)	21	12	6	53.8	30.8	15.4	100
d) Commercial collecting	11	24	4	28.2	61.5	10.3	100
e) Sightseeing	34	2	3	87.2	5.1	7.7	100
f) Crabbing and oyster gathering	28	5	6	71.8	12.8	15.4	100
g) Diving	31	3	5	79.5	7.7	12.8	100
h) Commercial line fishing	16	18	5	41.0	46.2	12.8	100
i) Recreational line fishing	31	4	4	79.5	10.25	10.25	100
j) Research activities	34	1	4	87.2	2.6	10.3	100
k) Boating activities	34	0	5	87.2	0	12.8	100
l) Tourist & education facilities/programs	30	4	5	76.9	10.3	2.6	100
m) Spearfishing	14	22	3	35.9	56.4	7.7	100
n) Commercial netting	12	23	4	30.8	59.0	10.3	100
o) Indigenous hunting, fishing, collecting	21	14	4	53.8	35.9	10.3	100
p) Photography	35	0	4	89.7	0	10.3	100
q) Snorkelling	32	2	5	82.1	5.1	12.8	100
r) Trawling	9	27	3	23.1	69.2	7.7	100

Trawling (69.2%) was the mode for activities which should not be allowed in Section A, while commercial collecting (61.5%) also rated high on the list of activities for prohibition. Commercial netting (59%) and spearfishing (56.4%) both were noted as activities which should be disallowed in Section A.

**Table 70:** Activities which self selection survey respondents believe are suitable for Section B on Map 2 of the survey. (Percentages are row summed.) N = 39

Activities	Frequency Yes Response	Frequency No Response	Frequency of No Comment	Percentage Yes Response	Percentage No Response	Percentage of No Comments	Total %
a) Bait netting and gathering	24	6	9	61.5	15.4	23.1	100
b) Camping	21	13	5	53.8	33.3	12.8	100
c) Sightseeing	18	15	6	46.2	38.5	15.4	100
d) Commercial collecting	8	27	4	20.5	69.2	10.3	100
e) Sightseeing	30	5	4	76.9	12.8	10.3	100
f) Crabbing and oyster gathering	23	11	5	59.0	28.2	12.8	100
g) Diving	28	6	5	71.8	15.4	12.8	100
h) Commercial line fishing	14	21	4	35.9	53.8	10.3	100
i) Recreational line fishing	31	5	3	79.5	12.8	7.7	100
j) Research activities	34	2	3	87.2	5.1	7.7	100
k) Boating activities	32	3	4	82.1	7.7	10.3	100
l) Tourist & education facilities/programs	27	7	5	69.2	18.0	12.8	100
m) Spearfishing	13	23	3	33.3	59.0	7.7	100
n) Commercial netting	12	24	3	30.8	61.5	7.7	100
o) Indigenous hunting, fishing, collecting	18	18	3	46.2	46.2	7.7	100
p) Photography	31	3	5	79.5	7.7	12.8	100
q) Snorkelling	29	4	6	74.4	10.3	15.4	100
r) Trawling	6	29	4	15.4	74.4	10.3	100

**Table 71:** Activities which self selection survey respondents believe are suitable for Section C on Map 2 of the survey. (Percentages are row summed.) N = 39

Activities	Frequency Yes Response	Frequency No Response	Frequency of No Comment	Percentage Yes Response	Percentage No Response	Percentage of No Comments	Total %
a) Bait netting and gathering	26	4	9	66.6	10.3	23.1	100
b) Camping	21	13	5	53.8	33.3	12.8	100
c) Recreational collecting (eg shells)	20	13	6	51.3	33.3	15.4	100
d) Commercial collecting	8	27	4	20.5	69.2	10.3	100
e) Sightseeing	32	3	4	82.1	7.7	10.3	100
f) Crabbing and oyster gathering	23	10	6	59.0	25.6	15.4	100
g) Diving	31	3	5	79.5	7.7	12.8	100
h) Commercial line fishing	15	19	5	38.5	48.7	12.8	100
i) Recreational line fishing	31	4	4	79.5	10.25	10.25	100
j) Research activities	33	2	4	84.6	5.1	10.3	100
k) Boating activities	33	1	5	84.6	2.6	12.8	100
l) Tourist & education facilities/programs	29	5	5	74.4	12.8	12.8	100
m) Spearfishing	16	19	4	41.0	48.7	10.3	100
n) Commercial netting	11	24	4	28.2	61.5	10.3	100
o) Indigenous hunting, fishing, collecting	18	17	4	46.2	43.6	10.3	100
p) Photography	33	1	5	84.6	2.6	12.8	100
q) Snorkelling	31	2	6	79.5	5.1	15.4	100
r) Trawling	6	28	5	15.4	71.8	12.8	100

Trawling operations (74.4%) and commercial collecting (69.2%) were the key activities which self selection survey respondents considered as inappropriate for section B (Table 70). Other commercial activities and spearfishing were also considered by a majority as needing prohibition in section B. Indigenous activities received a divided opinion of 46.2% for and 46.2% against the conduct of such activities in the area.

In Section C, according to self selection survey respondents, trawling (71.8%), and commercial collecting (69.2%) are inappropriate (Table 71). Other commercial operations were also considered inappropriate for the area.

**Table 72:** Activities which self selection survey respondents believe are suitable for Section D on Map 2 of the survey. (Percentages are row summed.) N = 39

Activities	Frequency Yes Response	Frequency No Response	Frequency of No Comment	Percentage Yes Response	Percentage No Response	Percentage of No Comments	Total %
a) Bait netting and gathering	29	2	8	74.4	5.1	20.5	100
b) Camping	22	12	5	56.4	30.8	12.8	100
c) Recreational collecting (eg shells)	18	15	6	46.2	38.5	15.4	100
d) Commercial collecting	7	28	4	17.9	71.8	10.3	100
e) Sightseeing	32	3	4	82.1	7.7	10.3	100
f) Crabbing and oyster gathering	28	5	6	71.8	12.8	15.4	100
g) Diving	29	5	5	74.4	12.8	12.8	100
h) Commercial line fishing	14	20	5	35.9	51.3	12.8	100
i) Recreational line fishing	33	2	4	84.6	5.1	10.3	100
j) Research activities	34	1	4	87.2	2.6	10.3	100
k) Boating activities	34	0	5	87.2	0.0	12.8	100
l) Tourist & education facilities/programs	30	4	5	76.9	10.3	12.8	100
m) Spearfishing	13	22	4	33.3	56.4	10.3	100
n) Commercial netting	9	26	4	23.1	66.7	10.3	100
o) Indigenous hunting, fishing, collecting	20	15	4	51.3	38.5	10.3	100
p) Photography	34	0	5	87.2	0	12.8	100
q) Snorkelling	30	3	6	76.9	7.7	15.4	100
r) Trawling	4	30	5	10.3	76.9	12.8	100

In Table 72, self selection survey respondents indicated that trawling (76.9%) and commercial collecting (71.8%) should not be allowed.

**Table 73:** Activities which self selection survey respondents believe are suitable for Section E on Map 2 of the survey. (Percentages are row summed.) N = 39

Activities	Frequency Yes Response	Frequency No Response	Frequency of No Comment	Percentage Yes Response	Percentage No Response	Percentage of No Comments	Total %
a) Bait netting and gathering	29	2	8	74.4	5.1	20.5	100
b) Camping	29	6	4	74.4	15.4	10.3	100
c) Recreational collecting (eg shells)	22	11	6	56.4	28.2	15.4	100
d) Commercial collecting	11	24	4	28.2	61.5	10.3	100
e) Sightseeing	34	1	4	87.2	2.6	10.3	100
f) Crabbing and oyster gathering	29	4	6	74.4	10.2	15.4	100
g) Diving	30	4	5	76.9	10.3	12.8	100
h) Commercial line fishing	17	17	5	43.6	43.6	12.8	100
i) Recreational line fishing	34	1	4	87.2	2.6	10.3	100
j) Research activities	34	1	4	87.2	2.6	10.2	100
k) Boating activities	34	0	5	87.2	0	12.8	100
l) Tourist & education facilities/programs	31	3	5	79.5	7.7	12.8	100
m) Spearfishing	15	20	4	38.5	51.3	10.3	100
n) Commercial netting	11	24	4	28.2	61.5	10.3	100
o) Indigenous hunting, fishing, collecting	21	14	4	53.8	35.9	10.3	100
p) Photography	34	0	5	87.2	0	12.8	100
q) Snorkelling	30	3	6	76.9	7.7	15.4	100
r) Trawling	8	27	4	20.5	69.2	10.3	100

Trawling (69.2% of respondents), commercial collecting (61.5% of respondents) and commercial netting (61.5% of respondents) were considered by self selection survey respondents as being inappropriate for section E.

**Table 74:** Comments by self selection survey respondents regarding activities suitable in the study area. (Percentages are column summed.) N = 39

Comment	Frequency Yes who made this comment	Percentage Yes who made this comment	Percentage who did not make this comment	Total %
<b>Declining fish stocks</b>	1	3	97	100
<b>Keep out commercial fishing operations</b>	9	23	77	100
<b>Increase controls on commercial fishing</b>	0	0	100	100
<b>Traditional fishing</b>	0	0	100	100
<b>Public consultation</b>	1	3	97	100
<b>Management Plan</b>	3	8	92	100
<b>Bag limits</b>	0	0	100	100
<b>Increase access</b>	3	8	92	100
<b>Suggestions for activity controls</b>	6	15	85	100
<b>Army operations</b>	1	3	97	100
<b>Do not know area</b>	0	0	0	100
<b>National Park issues</b>	0	0	0	100
<b>Other issues</b>	1	3	97	100
<b>No comment made</b>	20	-	-	-

Refer to Appendix 12 for a full transcript of comments made in reference to each of the above categories.

Those respondents who did comment on 69-73 commented on the need to keep out commercial operations within the study area (23%) as well as some respondents suggesting ways to control activities (15%).

**Table 75:** Gender of self selection survey respondents. (Frequencies and percentages are column summed.) N = 39

Gender	Frequency	Percentage
Woman	7	17.9
Man	32	82.1
<b>Total</b>	<b>39</b>	<b>100</b>

The mode was men with 82.1%. Women constituted 17.9% of self selection survey respondents.

**Table 76:** Ages of self selection survey respondents. (Frequencies and percentages are column summed.) N = 39

Age bracket	Frequency	Percentage
15 - 19	0	0
20 - 24	1	2.6
25 - 29	2	5.1
30 - 34	2	5.1
35 - 39	7	17.9
40 - 44	4	10.3
45 - 49	6	15.4
50 - 54	6	15.4
55 - 59	4	10.3
60 - 64	2	5.1
65 - 69	3	7.7
70 - 74	1	2.6
75 - 79	1	2.6
80 - 84		
85 +		
<b>Total</b>	<b>39</b>	<b>100</b>

The mode age bracket was 35 - 39 years of age (17.9%), with 45 - 54 year olds comprising 30.8% of respondents. The majority of respondents were contained within the 35 - 59 year old age bracket.

**Table 77:** Occupations of self selection survey respondents. (Frequencies and percentages are column summed.) N = 39

Occupation Category	Frequency	Percentage
Professional	5	12.8
Employer/Managers	4	10.3
Self-employed	4	10.3
Skilled worker	5	12.8
Non manual	1	2.6
Service	13	33.3
Armed Forces	1	2.6
Unskilled		
Retired/Pensioner	5	12.8
Missing data	1	2.6
<b>Total</b>	<b>39</b>	<b>100</b>

These occupational categories were adopted from Veal (1992).

The mode occupational category for self selection survey respondents was the service industries (33.3%). Professionals (12.8% of respondents) and skilled workers (12.8%) were the next largest occupational group.

**Table 78:** Postcode address of self selection survey respondents. (Frequencies and percentages are column summed.) N = 39

Town	Postcode	Frequency	Percentage
Gladstone	4680	2	5.1
Rockhampton	4700	4	10.3
Rockhampton	4701	7	17.9
Rockhampton	4702	6	15.4
Yeppoon	4703	12	30.8
Marlborough	4705	0	0.0
St Lawrence	4707	1	2.6
Sarina	4737	2	5.1
Mackay	4740	1	2.6
Missing data		4	10.3
<b>Total</b>		<b>39</b>	<b>100</b>

Most respondents resided in Rockhampton (43.6%) with the next largest group residing in Yeppoon (30.8%). Apart from Marlborough, all postcodes targeted participated in the self selection survey.

**Table 79:** Length of residency at the postcode address of self selection survey respondents. (Frequencies and percentages are column summed.) N = 39

Length of residency	Frequency	Percentage
< 1 year	1	2.6
1 - 5 years	10	25.6
6 - 10 years	8	20.5
11 - 15 years	4	10.3
16 - 20 years	5	12.8
21 - 25 years	2	5.1
26 - 30 years	2	5.1
31 - 35 years	0	0.0
36 - 40 years	3	7.7
41 - 45 years	1	2.6
46 - 50 years	2	5.1
> 50 years	1	2.6
<b>Total</b>	<b>39</b>	<b>100</b>

The mode for length of residency was 1 - 5 years (25.6%) with 6 - 10 years of residency being the next group with 20.5% of respondents.

**Table 80:** General comments made by self selection survey respondents. (Percentages are row summed.) N = 39

Comment	Frequency	Percentage who commented on this item	Percentage who did not comment on this item	Total %
Commercial fishing	2	5	95	100
Management plan issue	2	5	95	100
Access issues	6	15	85	100
Preservation issues	4	10	90	100
Other	8	21	79	100
No comments	23	59	41	100

The self selection survey respondents made comments regarding preservation issues (10%) plus various comments on different issues which were recorded as 'Other'. See Appendix 13 for the 'Other' comments plus the full transcriptions of general comments made by respondents.

### Commercial Operator Survey

Commercial operators were also targeted for surveying in this study as 'expert' opinion noted that commercial operators were using various parts of the study area. Eleven operators were posted

surveys and six operators responded. The following findings are only relevant to those six operators and can not be considered representative of the entire eleven operators.

**Table 81:** Usage of Shoalwater Bay and adjacent waters by commercial operator survey respondents during June 1995 to July 1996. (Frequencies and percentages summed in columns) N = 6

Response	Frequency	Percentage
Yes	6	100
No	0	0
<b>Total</b>	<b>6</b>	<b>100</b>

Of the six commercial operators who responded, all used the study area.

**Table 82:** Locations used for recreational purposes by commercial operators. (Frequencies and percentages summed in columns) N = 6

Location	Frequency
Section A: Northern area of Shoalwater Bay	0
Section B: Southern area of Shoalwater Bay	1
Section C: Island Head Ck environs	11
Section D: Port Clinton environs	4
Section E: above Cape Manifold to Cape Clinton	0
Section E: above Five Rocks to Cape Manifold	2
Section E: Little Corio Bay to Five Rocks	0
Corio Bay	0

Respondents were able to record more than one location of usage on the map used in the survey, thus frequencies exceed the sum of 6. The Island Head Creek area had eleven usage possibilities. The main areas of use by the commercial operators were Island Head Creek and Port Clinton and environs.

**Table 83:** Mode of transport used by commercial operator survey respondents to access recreational sites in the study area. (Column summed percentages) N = 6

Mode of Transport	Frequency	Total %
Own charter boat	6	100
<b>Total</b>	<b>6</b>	<b>100</b>

**Table 84:** Departure and launching sites used by commercial operator survey respondents. (Column summed percentages) N = 6

Departure Point	Frequency	Percentage who used this departure point
Gladstone	2	33.3
Roslyn Bay	4	66.7
<b>Total</b>	<b>6</b>	<b>100</b>

Four commercial operators departed from Roslyn Bay and two departed from Gladstone to access the study area.

**Table 85:** Recreational activities associated with commercial operator survey respondents in the study area. (Row summed percentages) N = 6

Activities	Frequency	Percentage who engaged in this activity	Percentage who did not note this activity	Total
Boating	3	50.0	50.0	100
Recreational fishing	6	100	0	100
SCUBA diving	1	16.6	83.4	100
Tourist activity	4	66.7	33.3	100
Snorkelling	1	16.6	83.4	100
Sightseeing	4	66.7	33.3	100

More than one activity was able to be indicated. Recreational fishing was noted by all six respondents as a recreational activity undertaken in the study area. Tourist activities and sightseeing were noted by 4 of the respondents as being part of their recreational activities, and 3 operators noted boating as being a component of the recreational experience.

**Table 86:** The main activity associated with commercial operator survey respondents in the study area. (Column summed percentages) N = 6

Activities	Frequency	Total
Boating	0	0.0
Recreational fishing	4	66.7
Tourist activity	1	16.7
Snorkelling	0	0.0
Sightseeing	1	16.7

Four of the operators noted recreational fishing as the primary activity, while two other operators noted tourist activities and sightseeing respectively as the main activity undertaken during the trip.

**Table 87:** Frequency of visitation to the study area by commercial operator survey respondents. (Frequencies and percentages summed in columns) N = 6

Time frame	Frequency	Percentage
Monthly	1	16.7
11 times per year	0	0.0
9-10 times per year	2	33.3
7 - 8 times per year	0	0.0
5 - 6 times per year	1	16.7
3 - 4 times per year	1	16.7
1- 2 times per year	1	16.7
<b>Total</b>	<b>6</b>	<b>100</b>

Commercial operators varied in their frequency of usage of the area, all operators visited the area at least once a year.

**Table 88:** Time periods of visitation by commercial operator survey respondents of the survey area. (Percentages summed by rows) N = 6

Time	Frequency who go there ...	Frequency who did not note this time	Percentage who go there ...	Percentage who did not note this time	Total %
Week days	3	3	50.0	50.0	100
Weekends	3	3	50.0	50.0	100
Holidays	3	3	50.0	50.0	100
Long weekends	1	5	16.7	83.3	100
Other	3	3	50.0	50.0	100

Respondents were asked to only indicate one time, several respondents indicated more than one item. This table records more than one response for each respondent who did so. The 'Other' category is reported in Appendix 10.

Commercial operators recorded a variety of time periods when the study area was accessed.

**Table 89:** Month in which the last visit occurred for commercial operator survey respondents who used the study area. (Frequencies and percentages are column summed.) N = 6

Date	Frequency	Percentage
October 1995	1	16.7
June 1996	2	33.3
July 1996	2	33.3
August 1996	1	16.7
Outside June 1995 - August 1996	0	0.0
<b>Total</b>	<b>6</b>	<b>100.0</b>

Five commercial operators had used the study area between June & August 1996.

**Table 90:** Types of passengers who accompany the commercial operator survey respondents. (Percentages are row summed.) N = 6

Passengers	Frequency with this passenger	Frequency who did not list this passenger	Percentage with this passenger	Percentage who did not list this passenger	Total %
Co-worker	1	5	16.7	83.3	100
Club members	1	5	16.7	83.3	100
Friends	1	5	16.7	83.3	100
Tourists	5	1	83.3	16.7	100
	1	5	16.7	83.3	

Respondents were asked to indicate the number of people in each of the categories who accompanied them. Some people indicated numbers while others did not, thus data sets were incomplete. Hence the type of passenger who accompanied the survey respondent only is indicated in the table.

The mode for passenger type was the tourist category.

**Table 91:** Reasons given by commercial operator survey respondents for using Shoal water Bay and adjacent waters for recreation. (Percentages are row summed) N = 6

Reason	Frequency of comment	Percentage who noted this reason	Percentage who did not note this reason	Total %
Amenity	3	50.0	50.0	100
Fish stocks	1	16.7	83.3	100
Safe Anchorage	4	66.7	33.3	100
Lack of people	1	16.7	83.3	100
Appropriate for Activities	4	66.7	33.3	100
Other	1	16.7	83.3	100

More than one comment was made by respondents. All comments are noted in the table above. The 'Other' category referred to a comment that the area was well managed by the army.

Commercial operators who responded to the survey used the area because of its appropriateness for recreational activities as well as its safe anchorages. Refer to Appendix 11 for a full transcripts of the reasons given for usage of the waters shown in Map 1 of the survey (see Appendix 1).

**Table 92:** Activities which commercial operator survey respondents believe are suitable for Section A on Map 2 of the survey. (Percentages are row summed.) N = 6

Activities	Frequency Yes Response	Frequency No Response	Frequency of No Comment	Percentage Yes Response	Percentage No Response	Percentage of No Comments	Total %
a) Bait netting and gathering	4	2	0	66.7	33.3	0.0	100
b) Camping	3	3	0	50.0	50.0	0.0	100
c) Recreational collecting (eg shells)	5	1	0	83.3	16.7	0.0	100
d) Commercial collecting	1	5	0	16.7	83.3	0.0	100
e) Sightseeing	6	0	0	100.0	0.0	0.0	100
f) Crabbing and oyster gathering	5	1	0	83.3	16.7	0.0	100
g) Diving	4	1	1	66.7	16.7	16.7	100
h) Commercial line fishing	2	4	0	33.3	66.7	0.0	100
i) Recreational line fishing	6	0	0	100.0	0.0	0.0	100
j) Research activities	6	0	0	100.0	0.0	0.0	100
k) Boating activities	6	0	0	100.0	0.0	0.0	100
l) Tourist & education facilities/programs	6	0	0	100.0	0.0	0.0	100
m) Spearfishing	3	3	0	50.0	50.0	0.0	100
n) Commercial netting	6	0	0	100.0	0.0	0.0	100
o) Indigenous hunting, fishing, collecting	3	3	0	50.0	50.0	0.0	100
p) Photography	5	1	0	83.3	16.7	0.0	100
q) Snorkelling	5	1	0	83.3	16.7	0.0	100
r) Trawling	1	5	0	16.7	83.3	0.0	100

Trawling and commercial collecting were considered by 5 commercial operator survey respondents as being inappropriate for section A, followed by commercial line fishing (4 respondents). Attitudes towards the appropriateness of camping, indigenous activities and spearfishing were divided.

**Table 93:** Activities which commercial operator survey respondents believe are suitable for Section B on Map 2 of the survey. (Percentages are row summed.)N = 6

Activities	Frequency Yes Response	Frequency No Response	Frequency of No Comment	Percentage Yes Response	Percentage No Response	Percentage of No Comments	Total %
a) Bait netting and gathering	4	2	0	66.7	33.3	0.0	100
b) Camping	3	3	0	50.0	50.0	0.0	100
c) Sightseeing	5	1	0	83.3	16.7	0.0	100
d) Commercial collecting	1	5	0	16.7	83.3	0.0	100
e) Sightseeing	6	0	0	100.0	0.0	0.0	100
f) Crabbing and oyster gathering	6	0	0	100.0	0.0	0.0	100
g) Diving	4	1	1	66.7	16.7	16.7	100
h) Commercial line fishing	2	4	0	33.3	66.7	0.0	100
i) Recreational line fishing	6	0	0	100.0	0.0	0.0	100
j) Research activities	6	0	0	100.0	0.0	0.0	100
k) Boating activities	6	0	0	100.0	0.0	0.0	100
l) Tourist & education facilities/programs	6	0	0	100.0	0.0	0.0	100
m) Spearfishing	3	3	0	50.0	50.0	0.0	100
n) Commercial netting	6	0	0	100.0	0.0	0.0	100
o) Indigenous hunting, fishing, collecting	3	3	0	50.0	50.0	0.0	100
p) Photography	6	0	0	100.0	0.0	0.0	100
q) Snorkelling	5	1	0	83.3	16.7	0.0	100
r) Trawling	1	5	0	16.7	83.3	0.0	100

According to five of the six commercial operators who responded to the survey, trawling and commercial collecting should not be allowed in section B. Commercial line fishing was considered inappropriate for the area by four operators, and opinions about the appropriateness of camping, spearfishing and indigenous activities were divided.

**Table 94:** Activities which commercial operator survey respondents believe are suitable for Section C on Map 2 of the survey. (Percentages are row summed.) N = 6

Activities	Frequency Yes Response	Frequency No Response	Frequency of No Comment	Percentage Yes Response	Percentage No Response	Percentage of No Comments	Total %
a) Bait netting and gathering	4	2	0	66.7	33.3	0.0	100
b) Camping	3	3	0	50.0	50.0	0.0	100
c) Recreational collecting (eg shells)	5	1	0	83.3	16.7	0.0	100
d) Commercial collecting	1	5	0	16.7	83.3	0.0	100
e) Sightseeing	6	0	0	100.0	0.0	0.0	100
f) Crabbing and oyster gathering	6	0	0	100.0	0.0	0.0	100
g) Diving	4	1	1	66.7	16.7	16.7	100
h) Commercial line fishing	2	4	0	33.3	66.7	0.0	100
i) Recreational line fishing	6	0	0	100.0	0.0	0.0	100
j) Research activities	6	0	0	100.0	0.0	0.0	100
k) Boating activities	6	0	0	100.0	0.0	0.0	100
l) Tourist & education facilities/programs	6	0	0	100.0	0.0	0.0	100
m) Spearfishing	3	3	0	50.0	50.0	0.0	100
n) Commercial netting	6	0	0	100.0	0.0	0.0	100
o) Indigenous hunting, fishing, collecting	3	3	0	50.0	50.0	0.0	100
p) Photography	6	0	0	100.0	0.0	0.0	100
q) Snorkelling	5	1	0	83.3	16.7	0.0	100
r) Trawling	1	5	0	16.7	83.3	0.0	100

As in Table 93, 5 of the six commercial operators who responded to the survey noted that trawling and commercial collecting should not be allowed in section C. Commercial line fishing was also considered inappropriate for the area by 4 operators, and opinions about the appropriateness of camping, spearfishing and indigenous activities were divided.

**Table 95:** Activities which commercial operator survey respondents believe are suitable for Section D on Map 2 of the survey. (Percentages are row summed.) N = 6

Activities	Frequency Yes Response	Frequency No Response	Frequency of No Comment	Percentage Yes Response	Percentage No Response	Percentage of No Comments	Total %
a) Bait netting and gathering	4	2	0	66.7	33.3	0.0	100
b) Camping	3	3	0	50.0	50.0	0.0	100
c) Recreational collecting (eg shells)	5	1	0	83.3	16.7	0.0	100
d) Commercial collecting	1	5	0	16.7	83.3	0.0	100
e) Sightseeing	6	0	0	100.0	0.0	0.0	100
f) Crabbing and oyster gathering	6	0	0	100.0	0.0	0.0	100
g) Diving	4	1	1	66.7	16.7	16.7	100
h) Commercial line fishing	2	4	0	33.3	66.7	0.0	100
i) Recreational line fishing	6	0	0	100.0	0.0	0.0	100
j) Research activities	6	0	0	100.0	0.0	0.0	100
k) Boating activities	6	0	0	100.0	0.0	0.0	100
l) Tourist & education facilities/programs	6	0	0	100.0	0.0	0.0	100
m) Spearfishing	3	3	0	50.0	50.0	0.0	100
n) Commercial netting	6	0	0	100.0	0.0	0.0	100
o) Indigenous hunting, fishing, collecting	3	3	0	50.0	50.0	0.0	100
p) Photography	6	0	0	100.0	0.0	0.0	100
q) Snorkelling	5	1	0	83.3	16.7	0.0	100
r) Trawling	2	4	0	33.3	66.7	0.0	100

Activities which the commercial operator survey respondents believed were inappropriate for section D were again as in Tables 92-94, commercial collecting (4 respondents), trawling (4 respondents), commercial line fishing (4 respondents) with the appropriateness of camping, spearfishing and indigenous activities being divided.

**Table 96:** Activities which commercial operator survey respondents believe are suitable for Section E on Map 2 of the survey. (Percentages are row summed.) N = 6

Activities	Frequency Yes Response	Frequency No Response	Frequency of No Comment	Percentage Yes Response	Percentage No Response	Percentage of No Comments	Total %
a) Bait netting and gathering	4	2	0	66.7	33.3	0.0	100
b) Camping	4	2	0	66.7	33.3	0.0	100
c) Recreational collecting (eg shells)	5	1	0	83.3	16.7	0.0	100
d) Commercial collecting	2	4	0	33.3	66.7	0.0	100
e) Sightseeing	6	0	0	100.0	0.0	0.0	100
f) Crabbing and oyster gathering	5	1	0	83.3	16.7	0.0	100
g) Diving	4	1	1	66.7	16.7	16.7	100
h) Commercial line fishing	2	4	0	33.3	66.7	0.0	100
i) Recreational line fishing	6	0	0	100.0	0.0	0.0	100
j) Research activities	6	0	0	100.0	0.0	0.0	100
k) Boating activities	6	0	0	100.0	0.0	0.0	100
l) Tourist & education facilities/programs	6	0	0	100.0	0.0	0.0	100
m) Spearfishing	3	3	0	50.0	50.0	0.0	100
n) Commercial netting	1	5	0	16.7	83.3	0.0	100
o) Indigenous hunting, fishing, collecting	3	3	0	50.0	50.0	0.0	100
p) Photography	6	0	0	100.0	0.0	0.0	100
q) Snorkelling	5	1	0	83.3	16.7	0.0	100
r) Trawling	2	4	0	33.3	66.7	0.0	100

*Unpublished  
Map 2 of the  
P.O. Box 1019  
Tennantville, MS*

In section E, commercial netting was believed inappropriate by 5 of the six commercial operators who used the study area while 4 of the commercial operators considered that commercial collecting, commercial line fishing, trawling were inappropriate for the section. Again, the appropriateness of spearfishing and indigenous activities was divided.

**Table 97:** Comments by commercial operator survey respondents regarding activities suitable in the study area. (Percentages are column summed.) N = 6

Comment	Frequency Yes	Percentage Yes	Percentage No comment	Total %
Keep out commercial fishing operations	2	33.3	66.7	100
Management Plan	1	16.7	83.3	100
No comment made	4	--	66.7	100

Refer to Appendix 12 for a full transcript of comments made in reference to each of the above categories.

Two commercial operators commented on the need to keep out commercial fishing operations whilst one of those two commercial operators also wrote about management plan issues.

**Table 98:** Gender of commercial operator survey respondents. (Frequencies and percentages are column summed.) N = 6

Gender	Frequency	Percentage
Woman	0	0
Man	6	100
Total	6	100

The mode was men, all six commercial operators were men.

**Table 99:** Ages of commercial operator survey respondents. (Frequencies and percentages are column summed.) N = 6

Age bracket	Frequency	Percentage
35 - 39	1	16.7
40 - 44	0	0.0
45 - 49	4	66.7
50 - 54	1	16.7
<b>Total</b>	<b>6</b>	<b>100</b>

Four of the commercial operators were in the 45 - 49 year old age bracket and 1 was in the 35 - 39 year old age bracket with the other in the 50 - 54 age bracket.

**Table 100:** Occupations of commercial operator survey respondents. (Frequencies and percentages are column summed.) N = 6

Occupation Category	Frequency	Percentage
Professional	0	0.0
Employer/Managers	0	0.0
Self-employed	6	100
Skilled worker	0	0.0
Non manual	0	0.0
Service	0	0.0
Armed Forces	0	0.0
Unskilled	0	0.0
Retired/Pensioner	0	0.0
<b>Total</b>	<b>6</b>	<b>100</b>

These occupational categories were adopted from Veal (1992).

All commercial operators were self employed managing their individual charter operations.

**Table 101:** Postcode address of commercial operator survey respondents. (Frequencies and percentages are column summed.) N = 6

Town	Postcode	Frequency	Percentage
Gladstone	4680	2	33.3
Rockhampton	4700	1	16.7
Rockhampton	4701	1	16.7
Rockhampton	4702	0	0.0
Yeppoon	4703	2	33.3
<b>Total</b>	<b>-</b>	<b>6</b>	<b>100</b>

The commercial operators who responded to the survey resided in Gladstone (2 respondents), Rockhampton (2 respondents) and Yeppoon (2 respondents).

**Table 102:** Length of residency at the postcode address of commercial operator survey respondents. (Frequencies and percentages are column summed.) N = 6

Length of residency	Frequency	Percentage
6 - 10 years	1	16.7
11 - 15 years	2	33.3
16 - 20 years	2	33.3
21 - 25 years	0	0.0
26 - 30 years	0	0.0
31 - 35 years	0	0.0
36 - 40 years	0	0.0
41 - 45 years	0	0.0
46 - 50 years	1	16.7
<b>Total</b>	<b>6</b>	<b>100</b>

Commercial operator survey respondents had resided at their postcode addresses for 11 - 15 years (2 operators), 16 - 20 years (2 operators), 6 - 10 years (1 operator) and 46 - 50 years (1 operator).

**Table 103:** General comments made by commercial operator survey respondents. (Frequencies and percentages are row summed.) N = 6

<b>Comment</b>	<b>Frequency</b>	<b>Percentage who commented on this item</b>	<b>Percentage who did not comment on this item</b>	<b>Total %</b>
<b>No more rules</b>	1	16.7	83.3	<b>100</b>
<b>No comments</b>	5	83.3	16.7	<b>100</b>

The one commercial operator survey respondent who made a comment, noted that there should be no more rules. See Appendix 13 for a full transcript of this comment.

## DISCUSSION

Usage of Shoalwater Bay and adjacent waters is primarily determined by Defence operations<sup>18</sup>, favourable weather conditions and sea states, and the amount of leisure time available to users. The main users of the area were Yeppoon and Rockhampton residents as evidenced by expert opinion and survey responses. Vessels in-transit either north or south of the study area also visited and used the area.

The exact number of users of the Shoalwater Bay area was difficult to quantify as each of the methods of data collection produced differing totals and each method had various constraints and/or biases associated with data collection and analysis. Specifically, those constraints and biases were:

- expert opinions were asked to provide estimates of the percentage of users from the various towns within the drawing area for the sampling process not exact figures for management purposes;
- aerial surveillance involved incomplete data sets and different patterns of data collection each year and little identification of boat registration<sup>19</sup>, consequently, a boat owner may be counted several times throughout any one year;
- mail survey respondents were asked to recall usage over a year which involves memory bias and also non-users did not always return surveys thus inflating the number of users of the area;
- both club and self selection surveys used non-probability sampling; and
- the commercial operator study did not achieve a saturation sample.

It is recommended that these biases need to be taken into account when interpreting and using the data for management purposes. That being said, quantification of usage was attempted based on the patterns of usage expressed in each of the methods of data collection in order to provide an estimated range regarding local user numbers.

On the basis of expert opinion estimates for percentages of users from major towns in the study area (see Table 1), it may be suggested that there were approximately 369 boats from Mackay, 29 boats from Sarina, 337 boats from Yeppoon, 862 from Rockhampton and 261 boats from Gladstone who were users of the area, making a total of 1 858 boat owner users of the study area. However, it should be remembered that the experts were only providing estimates to apportion percentages for the stratified sampling not to predict user numbers. Any use of these figures for decision making must take into account this fact.

According to aerial surveillance data, between the period of September 1988 to September 1995, there was a minimum number of 1 854 recreational user sightings. This number when averaged across seven years, suggested that there were 264 user sightings per year. This number however, is least reliable given that data collection patterns differed each year, recording of observations varied depending on the observer<sup>20</sup> and that repeat visitation by a user was unable to be discerned within the data sets<sup>21</sup>.

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<sup>18</sup> During 1995, various sections within the Shoalwater Bay Defence area (see Appendix 17) were closed for army operations for a composite total of 178 days. Some sections which were closed were small and therefore did not affect the usage of other sections. Within the southern section of Shoalwater Bay (Survey Map 2, Section B, see Appendix 1) the area was closed for approximately 122 days while the area around Triangular Island was closed for an additional 49 days. The outer coastal areas (Sections C, D, E, Survey Map 2, see Appendix 1) were closed for a total of 58 days. The entire defence area was closed for 18 days. Data regarding closures were obtained from Army Base Administrative Support Centre (Rockhampton).

<sup>19</sup> This was primarily a result of the registration numbers not being visible to surveillance observers.

<sup>20</sup> Readers are referred to page 21 of this report in respect to the validity associated with the use of aerial surveillance to determine usage patterns.

<sup>21</sup> This is not related to the inefficiency of observers, rather to the fact that the size of vessel registration numbers on some vessels was unable to be determined at the height of the surveillance flights or may have been obscured or missing.

The mail survey which was based on a probability sample indicated that 64% of users sampled used the Shoalwater Bay area. Transferring this percentage to the population of registered boat owners in the towns of Mackay, Sarina, St Lawrence, Marlborough, Yeppoon, Rockhampton and Gladstone represented a potential for 6 537 registered boat owners to use the area (see Table 1). The validity of this number must be questioned when some registered boat owners who were sent surveys did not return 'non - use' responses, thereby inflating the percentage of users of the area. Further, given that Yeppoon and Rockhampton residents are the primary users, total registered boat ownership at March 1996 for both locations was 3 304, this means that more than 3 233 registered vessels must be drawn from the other locations, which given expert opinion and survey evidence is not valid. Further analysis of the mail survey data by cross tabulating usage by postcode address indicated that the various percentages of users of Shoalwater Bay and adjacent waters for each of the locations mentioned above was Mackay (9.5%), Sarina (15.8%), St Lawrence (60%), Marlborough (92.3%), Yeppoon (92.3%), Rockhampton (75.4%) and Gladstone (17.4%). These percentages do not accord with expert opinion and reflect the bias of mainly user respondents. However, applying these usage percentages to the number of registered boats at each location implied that there were 3 587 registered local boat owners who could be users of the Shoalwater Bay and adjacent waters.

Club usage was hard to determine as various clubs indicated that they did not wish to provide information regarding usage in case it was misused by managers. Thus the 38 club members who responded regarding usage of the area may not be considered as a representative number of all club users. Self selection survey respondents reported a high usage pattern of the study area, however, their numbers were unable to be extrapolated to determine the number of non-affiliated or non-boat owners who also used the Shoalwater Bay and adjacent waters area as the sampling procedure applied was a non-probability one. Of the eleven commercial operators who were sent surveys, six indicated that they used Shoalwater Bay and the adjacent waters for some of their activities. Their usage patterns again can not be inferred to the remaining five commercial operators who did not respond.

Thus, for the purposes of management, given the inherent constraints and biases associated with each of the sets of data, the range of 329 - 3 587 local recreationalists might be used as an estimate given the various data sources and their inherent biases. This range is based on mail, club and self selection survey respondents who were users of the area and mail survey respondents' usage by postcode. Based on the fact that most survey respondents noted that they were accompanied by other users, the lower limit range estimate might then be considered a rather conservative one. Expert opinion estimates suggested some 1 858 vessels access the study area.

While the actual number of users was difficult to establish other usage patterns were more self evident, such as the number of days of usage. In regard to the mail survey respondents, the total number of days Shoalwater Bay and the adjacent waters was visited during June 1995 and June 1996 was approximately 3 106 days (see Table 18). Total club survey respondents' usage was approximately 244 days (see Table 41), while total self selection respondents' usage for the same period was approximately 352 days (see Table 64). As none of the respondents in each of the three survey groups had completed a survey in any of the other survey groups, the cumulative number of usage days approximated 3 702. The six commercial operator respondents accessed the area for a total of 44 days. The approximate days of usage fell within the ranges reported by Fitzsimmons (1996: 8.1 and 8.4) who suggested that based on recreational mackerel fisher diaries, the study area was fished between 1 000 and 10 000 boat days and commercial operators visited the area between "35 - 120 boat days per year".

Other patterns of usage were similarly less problematic than the quantification of users. To continue with these patterns, the means by which the study area was accessed was reported as:

- vehicular access and vessel access [expert opinion];
- vessel access and vehicular access [aerial surveillance];
- own vessel (83.2%) and vehicular access (44.5%) [mail survey respondents];

- own vessel (78.9%), club boat (31.6%), a charter boat (23.7%) [club survey respondents];
- own vessel (83%) and vehicular access (26%) [self selection survey respondents];
- all commercial operator respondents used their own charter boat for operations.

Thus, the two main methods of accessing the study area were by own vessel and by vehicular access. The latter was also used to tow vessels to appropriate launching points.

The main departure points for users were:

- Rosslyn Bay (59.5%) and Corio Bay (21.5%) [mail survey respondents];
- Rosslyn Bay (81.6%), Rockhampton (36.8%) and Corio Bay area (18%) [club survey respondents];
- Rosslyn Bay (51%) and Stanage Bay (31%) [Self selection survey respondents];
- Rosslyn Bay (4 operators) and Gladstone (2 operators) [commercial operator survey respondents].

In reviewing all of the appropriate data sets, Rosslyn Bay was the main departure point for survey users to reach the study area.

In the order of popularity reported within each of the various means of data collection, the key areas of use were:

- Five Rocks area, Corio Bay, Port Clinton and Stanage Bay area and Island Head Creek [expert opinion];
- Section A of Shoalwater Bay (northern section of the bay), Island Head Creek, Section E, then Corio Bay and Port Clinton [aerial surveillance];
- Corio Bay, then Island Head Creek area and between Cape Manifold and Cape Clinton, with the area between Five Rocks and Cape Manifold being the lesser used areas of the three sets of locations [mail survey data];
- Corio Bay then Port Clinton and its immediate environs [club survey data];
- Island Head Creek, the northern section of Shoalwater Bay (Section A on Survey Map 2), the southern section of Shoalwater Bay (Section B on Survey Map 2), then Port Clinton [self selection survey data];
- Island Head Creek and Port Clinton [commercial operator survey data].

Given the number of times locations were referenced in the various data sets, Port Clinton followed by Island Head Creek were the main locations sought as recreational areas, then Corio Bay and Five Rocks, and the northern section of Shoalwater Bay including Stanage Bay. However, such a ranking has an inherent bias as not all data sets were collected in the same manner, nor were sample sizes the same. That being said, the six data sets provide evidence of a trend, that being that the afore nominated areas are the ones chosen as key recreational sites within the study area. This trend is similar to that reported by Fitzsimmons (1996: 8.1) who noted that the key recreational fishing locations were Corio Bay, Cape Manifold, and Port Clinton areas as well as Nine Mile Beach and Stanage Bay.

The reasons why those areas were chosen were:

- the quality of fish stocks (53.1%), amenity of the area (34.8%) and proximity to place of residence (23.8%) [mail survey respondents];
- the quality of fish stocks (39.5%) and amenity of the area (31.6%) [club survey respondents];
- the quality of the fish stocks (51%), amenity of the area (31%), proximity to place of residence (20%) and provision of safe anchorages (20%) [self selection survey respondents];
- provision of a safe anchorage (66.7%), appropriate for activities (66.7%) and amenity of the area (50%) [commercial operator survey respondents].

Thus, to summarise the main reasons for the use of Shoalwater Bay and adjacent waters were the quality of the fish stocks, the amenity of the area, the area's proximity to the user's place of residence and the provision of safe anchorages. The first two reasons or motivations supported

those reported by Dovers (1994: 103) who stated that the primary goal of recreational fishers was to catch a fish followed by non-catch related motivations. The non-catch related motivations reported in this study reflected the literature: to relax in the outdoors, to enjoy the environment, to get away from every day life and work (PA Management Consultants, 1984a: 38; PA Management Consultants, 1984b: 39; Gartside, 1986: 15; and Johnson and Orbach, 1986: 326).

The recreational activities engaged in within the study area were:

- recreational fishing (95.7%), boating (47.7%), camping (37.9%) and sightseeing (29.3%) [mail survey respondents];
- recreational fishing (97%) and boating (36.8%), sightseeing (21%) and camping (18%) [club survey respondents];
- recreational fishing (94%), boating (63%), sightseeing (51%), camping (31%) [self Selection survey respondents];
- recreational fishing (100%), tourist activities (66.7%), sightseeing (66.7%) and boating (50%) [commercial operator survey respondents].

The key recreational activities engaged in within the study area included recreational fishing, boating, sightseeing, camping and tourist activities.

The main recreational activity conducted in the area was recreational fishing:

- recreational fishing (74.9%) [mail survey respondents];
- recreational fishing (55.3%) [club survey respondents];
- recreational fishing (51%) [self selection survey respondents];
- recreational fishing (66.7%) [commercial operator survey respondents].

The periods of use of Shoalwater Bay and adjacent waters were reported as:

- weekends and holiday periods [expert opinion];
- weekends and holiday periods [aerial surveillance];
- weekends (61.7%), week days (38.7%) and holidays (30%) [mail survey];
- weekends (55%), holidays (26%) and week days (21%) [club survey respondents];
- weekends (54.3%), week days (43.6%) and holidays (42.9%) [self selection survey respondents];
- week days (50%), weekends (50%) and holidays (50%) [commercial operator survey respondents].

The chief period of usage reported was on weekends with week days and holidays appearing on parity as usage periods.

The mode response for frequency of use reported by various users groups was:

- 3 - 4 times per year [mail survey respondents];
- 3 - 4 time per year [club survey respondents];
- monthly [self selection survey respondents];
- 9 - 10 times per year [commercial operator survey respondents].

The minimum frequency of visitation for all groups was 1 - 2 times per year.

The last time that most respondents in the various user groups had accessed the study area was:

- April - June 1996 (65.9%) [mail survey respondents];
- April - June 1996 (31.6%) [club survey respondents];
- April - June 1996 (25.7%) [self selection survey respondents];
- June - July 1996 (83.3%) [commercial operator survey respondents].

Consequently, within the last three months of the study period the study area had been accessed by most user group types.

Some users have passengers accompany them on their trips to Shoalwater Bay and adjacent waters, those passengers may be categorised thus:

- friends (68.4%), family (62.1%) and relatives (20.7%) [mail survey respondents];
- club members (57.9%), family (36.8%) and friends (47.3%) [club survey respondents];
- family (68.6%), friends (51.4%) and co-workers (31.4%) [self selection survey respondents];
- tourists (83.3%) [commercial operator survey respondents].

Friends and family were reported as the two main categories of passengers who accompanied the user on her or his recreational trip in Shoalwater Bay and adjacent waters. This pattern reflected one of the non-catch related motivations of recreational fishing which was reported by PA Management Consultants (1984a: 38 - 39), that was to enjoy the company of others as well as the trend that men preferred the company of friends over family. This latter point was especially true of the mail and the club survey respondents - for as noted below the mode for gender in all surveys was men.

The socio-demographics of the recreational users, commencing with gender were:

- women (5.0%) and men (89.5%) [mail survey respondents];
- women (2.5%) and men (92.5%) [club survey respondents];
- women (17.9%) and men (82.1%) [self selection survey respondents];
- men (100%) [commercial operator survey respondents].

Men were the main users of the study area as reported by the survey data sets. The predominance of men mirrored the pattern which Dovers (1994: 104) reported at the national level, that men constituted 70% of recreational fishers.

The ages of the four user groups were:

- the 35 - 64 year old age bracket contained 70.3% of mail survey respondents with 40 - 49 year olds (30.1%) and 55 - 64 (19.4%) each containing approximately equal proportions of mail survey respondents [mail survey respondents];
- the 40 - 49 year age bracket contained 27.5 % of club survey respondents with proportions approaching parity in the 40 - 44 and 45 - 49 age brackets [club survey respondents];
- the majority of self selection respondents were located in the 35 - 59 year age bracket, with 45 - 49 and 50 - 54 year old age brackets each containing 15.4% of self selection respondents;
- the mode for commercial operator survey respondents was 45 - 49 year olds.

The mode response was 45 - 49 years of age for mail, club and commercial operator survey respondents, while the 35 - 39 year old bracket was the mode for self selection survey respondents. If the 45 - 49 year bracket remain residents in the study area, and consideration is given to the trend towards an increasingly ageing population within the study area (Stehlik and Bulis, 1996; 8 - 11) the future recreational needs of such groups will need to be accommodated within the recreational opportunity spectrum (see Stankey and Wood, 1982) developed for the study area. Especially given the fact that retirees will continue to participate in leisure activities which were established prior to retirement (Peppers, 1976: 445). When this fact is coupled with the fact that local recreationalists used the study area because of its proximity to respondents' residences, management must consider the future recreational needs and opportunities available for an ageing population - some of whom are marine recreational users who may become increasingly disadvantaged income-wise (Stehlik and Bulis, 1996: 14 - 15).

The occupations of the users groups were:

- skilled workers (37.5%), service industries (15.8%) and professional persons (10.5%) [mail survey respondents];
- skilled workers (25%), employers/managers and non manual labour and service industry workers each accounting for 10% of club survey respondents;
- service industries (33.3%), professionals (12.8%) and skilled workers (12.8%) [self selection survey respondents];

- self employed (100%) commercial operators.

Within the Mackay, Fitzroy and Central West Statistical Divisions<sup>22</sup>, employment in service industries accounted for 76.7% of total employment by industry as reported in May 1995 (Ryan, 1996). A further, 13.1% were in manufacturing and 13.1 % in agriculture and 3.1% in mining. The Queensland state percentages for employed persons by occupation according to the Census 1991 were managers and administrators (12.1%), professionals (10.6%), para-professionals (6.4%), tradespersons (13.8%), clerks (14.5%), service workers (14.7%), plant and machine operators and drivers (7.4%), labourers and related workers (13.8%) (Australian Bureau of Statistics, 1997). Skilled workers and service industry workers were the main occupational categories noted by survey respondents as well as the professional category. These categories reflect some of the regional and state occupational patterns.

The salary level of skilled workers and service industry workers may impact on the amount of discretionary income they have available. There needs to be adequate recreational opportunities provided within range of their normal place of residence which accommodate their expressed recreational demand<sup>23</sup>, specifically the demand to be able to recreate in a 'wilderness type' setting.

The postcode addresses of the user groups were:

- Yeppoon (35.4%) and Rockhampton (32.2%) [mail survey respondents];
- Rockhampton (77.5%) of club survey respondents;
- Rockhampton (43.6%) and Yeppoon (30.8%) [self selection survey respondents];
- Gladstone (33.3%), Rockhampton (33.3%) and Yeppoon (33.3%) [commercial operator survey respondents].

Therefore, Yeppoon and Rockhampton residents were deemed to be the primary user groups located within the study area.

The length of residencies in the postcode area were:

- the mode for mail survey respondents was 1 - 5 years (20.7%) followed by 6 - 10 years (13.7%), 16 -20 years (10.8%) and 26 - 30 years (10.5%) [mail survey respondents];
- the mode was 6 - 10 years (15%), with 1 - 5 years and 11 - 15 years each accounting for 10% of club survey respondents length of residency at the nominated postcode;
- the mode was 6 - 10 years (25.6%) with 1 - 5 years of residency accounting for 20.5% of self selection survey respondents;
- the mode for the commercial operators was 11 - 15 years and 16 - 30 years.

The range of 1 - 10 years of residency was repeated in most survey data sets.

Part of the survey included a section which sought to gather information for management regarding recreational users' attitudes to the various activities noted on the zoning maps. The study area was divided into five sections: Sections A, B, C, D, and E (see Survey Map 2, Appendix 1). In regard to Section A, the northern area of Shoalwater Bay, all user groups surveyed (registered boat owners, club members, self selection users and commercial operator survey respondents) registered a negative attitude towards commercial collecting, trawling, spearfishing and three groups noted negative attitudes to commercial netting (mail, club and self selection) while two groups noted commercial line fishing as being inappropriate (mail and commercial operator survey respondents).

In Section B, the southern area of Shoalwater Bay, trawling, commercial collecting and spearfishing were considered as inappropriate by all survey users groups, three groups suggested that commercial netting was inappropriate (mail, club and self selection) and three groups

<sup>22</sup> These statistical divisions incorporate most of the drawing areas for the Shoalwater Bay and adjacent waters area.

<sup>23</sup> Expressed recreational demand is demand which 'currently exists', sometimes referred to as current participation (Lipscombe, 1986: 3).

considered commercial line fishing was also inappropriate for Section B (mail, self selection and commercial operator survey respondents). Attitudes to indigenous activities were divided in three of the survey groups (mail, self selection and commercial operator surveys).

Activities which all user groups noted negative attitudes towards in Section C, Island Head Creek and environs, were commercial collecting and trawling. Three groups thought the following activities were not suitable in Section C, commercial line fishing (mail, self selection and commercial operator survey respondents) and commercial netting, (mail, club and self selection surveys). Attitudes to indigenous activities approximated division (mail, self selection and commercial operator surveys) while attitudes to spearfishing varied.

In Section D, Port Clinton and environs, commercial collecting and trawling were noted by all survey user groups as activities which should not be allowed within the section, while commercial netting (mail, club and self selection surveys), commercial line fishing (mail, self selection and commercial operator surveys), spearfishing (mail, club and self selection surveys) and commercial operator survey respondents were divided regarding spearfishing and camping. In relation to indigenous activities, commercial operator survey respondents were divided and mail survey respondents were close to division.

Activities which were considered inappropriate for Section E, Little Corio Bay to Cape Clinton, were commercial collecting, commercial netting and trawling for all user groups surveyed. Commercial line fishing received negative attitudes from mail survey respondents, club and commercial operator survey respondents, while opinions from self selection survey respondents were divided. The appropriateness of indigenous activities was again either close to being divided or divided (mail, club and commercial operators). Whilst mail survey respondents, club survey and self selection survey respondents believed that spearfishing should not be permitted in Section E, commercial operator respondents were divided in their opinions.

It is apparent that recreational users and commercial operators considered most commercial operations were inappropriate for the Sections A to E (see Survey Map 2, Appendix 1). This is further emphasised by the comments made by the user groups in regard to their choices of suitable and unsuitable activities for each of the Sections. Most comments were related to keeping the commercial fishers out followed by suggestions for activity controls in Shoalwater Bay and adjacent waters. Full transcriptions of these comments may be found in Appendix 12. It should also be noted that other extractive activities such as spearfishing and indigenous activities received either negative attitudes or mixed attitudes relating to the conduct of those activities in the study area. The negative attitude to other extractive activities apart from recreational fishing highlighted the point made by Jaakson (1989: 96) that having to share an area had the ability to detract from users' satisfaction. It also reiterated the points made by Gartside (1986: 17); Kenchington (1993: 8); and Dovers (1994: 106) regarding a conflict of interests between commercial and recreational activities and the continuous debate over whom is responsible for diminishing fish stocks.

General comments were made by some respondents in each of the four user groups who were surveyed. These comments related to commercial fishing operations (mail and club survey respondents), preservation issues (mail, club and self selection survey respondents), and comments concerning dugongs (club survey respondents) as well as the need for no more rules (commercial operator survey respondent). All comments made may be found in Appendix 13. The comments regarding commercial fishing operations and preservation issues reiterated newspaper report concerns and Gartside's point that recreational fishers expressed a desire to protect the marine environment and fishing stocks (1986: 17)<sup>24</sup>.

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<sup>24</sup> Gartside (1986: 17) also stated commercial fishers shared a similar desire.

## CONCLUSION

The aim of this study was to determine the recreational marine usage of the Shoalwater Bay and the adjacent waters. The study used quantitative research methods which included the secondary analysis of existing data sets, mail surveys of registered recreational boat owners and recreational club members, the use of self selection surveys with the general public, and mail surveys of commercial operators as well as the use of expert opinion through the use of a modified delphi technique. These methods collected a variety of data sets. There were some constraints, biases and limitations associated with the various data sets and any use of the findings in this report must acknowledge those constraints, biases and limitations.

In generalising the trends evident in the data sets, the local recreational users during June 1995 to July 1996 were drawn primarily from Yeppoon and Rockhampton, were men mostly aged 45 - 49 years of age, were employed as skilled workers or service industry employees or professionals and had lived in the study area in the main between 1 - 10 years and accessed the study area directly via their own vessels or by their own vehicular transport. Those who accessed the area by vessels usually departed from Rosslyn Bay. The key areas of use were Port Clinton, Island Head Creek, Corio Bay, Five Rocks area and the northern section of Shoalwater Bay including Stange Bay. Smaller vessels utilised the Shoalwater Bay area and open water vessels accessed the outer coastal areas. Sail powered vessels used the outer coastal areas in preference to Shoalwater Bay itself.

Shoalwater Bay and the adjacent waters were used by local recreationalists because of the quality of the fish stocks, the amenity of the area, the proximity of the study area to the users' residences as well as the provision of safe anchorages in various sections of the study area. The primary activities conducted within the study area were recreational fishing, boating, sightseeing, camping and tourist activities with recreational fishing being the dominant recreational activity.

The local recreationalists visited the area on weekends, week days and holiday periods with holiday periods being preferred by sail driven vessels due to the time needed to access the area. The minimum usage of the area by recreationalists was once or twice a year with the mode being 3 - 4 visits per year, and some users expressing a monthly usage pattern. (Two respondents reported fishing daily in the study period.) Most users had visited the area in the last three months of the study period and were generally accompanied by friends and family. The local recreationalists also considered non-recreational fishing extractive activities as inappropriate for Shoalwater Bay and the adjacent waters. Recreationalists also expressed concern about the need to protect the recreational setting of Shoalwater Bay and adjacent waters.

## **MANAGEMENT ISSUES**

### **Issue One**

Any use of aerial surveillance findings for management purposes must acknowledge the biases inherent in the ways that data was collected, recorded and analysed. Those biases being different periods of data collection in different years, incomplete data sets, the potential double counting of users associated with commercial vessels and recreational vessels and their dinghies or tenders as well as the inclusion of vessels observed in-transit.

### **Issue Two**

Any use of mail survey findings for management purposes must acknowledge the response rate was 33% and that the data was biased by a lack of non-use returns even though the proportionate sampling was maintained in the return rate.

### **Issue Three**

Recognition of 'established' usage areas by recreationalists should be considered when planning the recreational and tourism opportunity spectrums for the study area. Those 'established' areas being Port Clinton, Island Head Creek, Corio Bay, the area between Five Rocks and Cape Manifold, the area between Cape Manifold and Cape Clinton and the northern section of Shoalwater Bay including Stanage Bay.

### **Issue Four**

The 'wilderness' qualities of the study area need to be maintained through the development of a recreational opportunity spectrum for Shoalwater Bay and the adjacent waters as 'wilderness' qualities were noted as one of the primary non-catch related motivations of recreational users.

### **Issue Five**

Development of a recreational opportunity spectrum for the study area should include provision for the future needs of an ageing local population so as to ensure the quality of their recreational activities are maintained in their local marine-based recreational area. The recreational opportunity spectrum should also take into account the fact that the income level of the aged disadvantages their recreational opportunities and consequently their ability to recreate elsewhere, hence access to 'established' usage areas should again be considered and maintained.

### **Issue Six**

The income level of most of the survey respondents placed them within the skilled worker or service industry category, amounts of discretionary income may also disadvantage their recreational opportunities including finding other suitable settings, consequently, continued access to 'established' usage areas should be considered by management.

### **Issue Seven**

The study only surveyed recreational users and commercial operators of tourist activities, it did not study the commercial fishers nor the indigenous users' activities. To address this bias, any consideration of overall management of the area by GBRMPA and QDoE agencies must incorporate information and data gathered from these two user groups.

**Issue Eight**

Due to the conflict of interests which exist between recreational users and commercial fishers, long term monitoring of fish stocks within the study area might be commenced and/or maintained in order that catch/effort by both groups may be scientifically ascertained and publicly disseminated so comments and attitudes expressed by both user groups may be founded on fact rather than hearsay.

**Issue Nine**

Planners and managers need to acknowledge and include management practices which account for in-transit use of the area by both sail and motor driven vessels for short term recreation and because of the area's provision of safe anchorages.

## **ACKNOWLEDGMENTS**

This study has been assisted by the comments, the sharing of information, and/or technical assistance from the following people and organisations:

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Ray Berkelmans, Steve Hillman, James Aston (Research and Monitoring), Tony Stokes, Rob McGill, Julie Bahr (Planning), Nicole Walsh, Jamie Storrie (Park Management), Sandra Anderson, Kim Treloar, Tania Adami (Environmental Impact Management), Mark Simmons, Leon Jackson, Deb Postle (Education and Information) and David Hamilton and Alix Walker, (Information Technology Services)

### **Queensland Department of Environment**

Graham Byron, John Olds, Greg Carter, Paul O'Neill (Rockhampton), Dave Orgell (Gladstone), Neill Russell, Rob Buck (Mackay), Cameron Mulville (Rosslyn Bay)

### **Queensland Department of Transport**

Adam Musial

### **Army Base Administrative Support Centre**

Jim Edwards, Dick Brealey, Geoff Briskey, Geoff Deagan

### **Central Queensland University**

Les Killion, Jillian Litster, Robert Ho (Lecturers), Bradley Nielsen and Conrad Jenkins (Technicians), Debra Drinan, Katrina Bird and Carol Bourne (Research Assistants), Wendy Tinney, Kerrilyn Page and Annette McPherson (General Staff)

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The executive and members of clubs and organisations located in the coastal zone between Mackay and Gladstone, as well as and including:

John Harry (Capricorn Cruising Yacht Club), Tracey Michaliczak (Gladstone Yacht Club), Amanda Cole (Keppel Bay Sailing Club), Dave Fleming (Mackay Yacht Club)

Bill Bowtell (Sunfish - Rockhampton), Kim Martin (Sunfish - Yeppoon), Brian Fennell (Sunfish - Mackay), Bill Sawynock (Sunfish - Rockhampton)

Mr McPherson (CAPTAG - Rockhampton)

Mike Pryor (Capricorn Fisheries Advisory Committee)

Serg DePinto (Mackay Regional Marine Resources Advisory Committee)

Neill Bennett (Gladstone Regional Marine Resources Advisory Committee)

The managers of the following organisations and businesses provided distribution points for the self-selection surveys used in this study:

Barra Bait and Tackle (Yeppoon), Rosslyn Bay Marina (Yeppoon), Rosslyn Bay Kiosk (Yeppoon), Rosslyn Bay Coast Guard (Yeppoon), Yeppoon Bait and Tackle (Yeppoon), Capricorn Coast Sport and Hobby Centre (Yeppoon)

Stanage Bay General Store (Stanage Bay)

Blue Fin Sports (Rockhampton), Kalka Bait and Tackle (Rockhampton)

Sarina Bait and Tackle (Sarina)

Mackay Fishing World (Mackay), Northside Fishing Centre (Mackay), Mackay Bait and Tackle (Mackay)

Gladstone Marina Bait and Tackle (Gladstone).

**Recreational users**

Finally, thank you to all the people who responded to the surveys whether they were mail, club, self-selection, commercial operator or boat surveys. Without your responses, this study would not have achieved its diversity in data collection.

My apologies to anyone who has been inadvertently omitted from the list of acknowledgments. The omission was not intentional.

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APPENDICES

Appendix 1. Shoalwater Bay Recreational Usage Survey



Central Queensland  
UNIVERSITY

**Recreational Usage Survey of Shoalwater Bay and  
Adjacent Waters**

This study seeks to determine the number of users, types of recreational use, areas of use as well as the opinions of current users regarding activities appropriate for the Shoalwater Bay area. The information gathered will assist future planning and management of the Shoalwater Bay area.

The completion of this survey is voluntary. Any information you provide will be anonymous.

Two maps are included in the survey to assist you with your responses.

Please use ticks (✓) unless asked to do otherwise. Some survey questions require brief written comments.

When you have completed the questionnaire, please return it in the reply paid envelope by 30 June 1996.

Thanking you

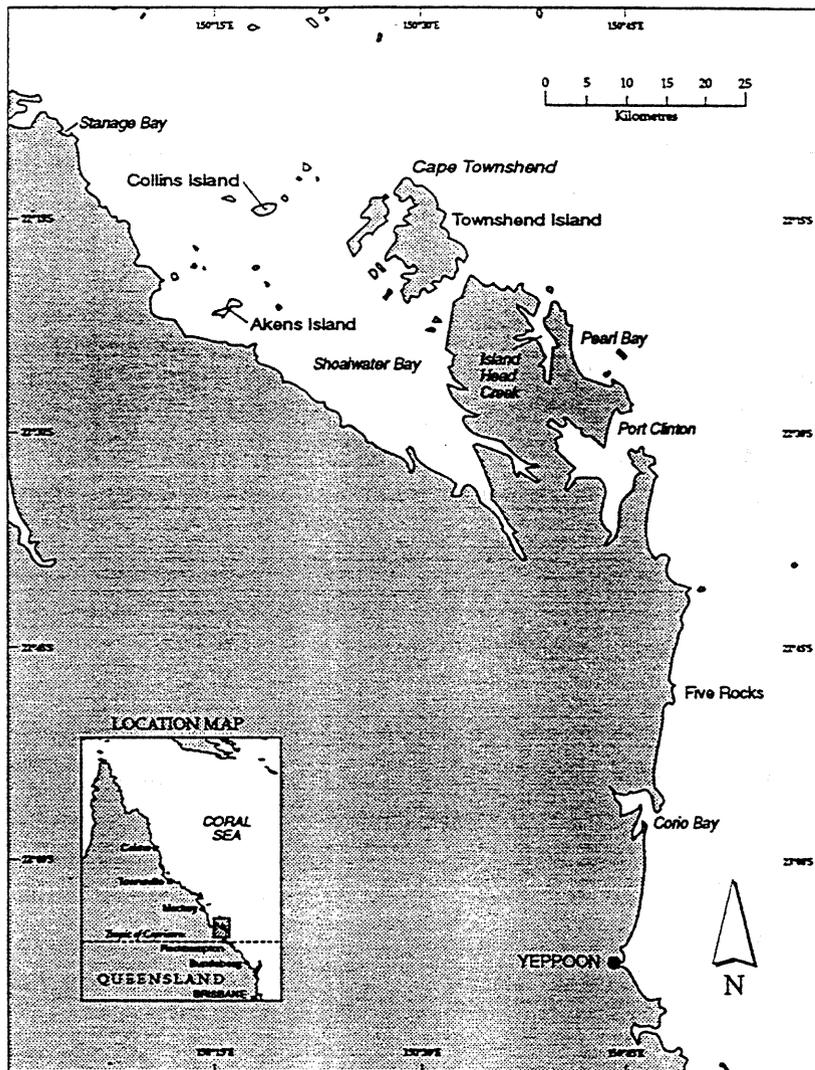
Gayle Jennings  
Lecturer  
Tourism and Leisure Studies

1. In the past year, have you used the waters shown in the map below?

a) Yes ( )                      b) No ( )

(If 'yes' continue, if 'no' please turn to question 12, page 4)

Map One



2. Please mark on the above map, the main places you go to with a cross (X) as well as the route you would take using a broken line ( - - - - - ).

3. How do you get to the places marked with an (X)?  
**(Please indicate the main form of transport used only)**

a) Own boat .....	( )
b) Relative's boat .....	( )
c) Friend's boat .....	( )
d) Club boat .....	( )
e) Charter boat .....	( )
f) Hire boat .....	( )
g) Car .....	( )
h) Other .....	( ) (Please specify) _____

The following questions relate to the map and your responses recorded on page one.

4. Where do you normally depart or launch from to reach the locations marked on Map One?

-----

5. At the places marked with an (X), which of the following activities do you do there? (You may tick more than one item. For item (j) please specify the activity.)

- a) Boating ..... ( )
- b) Recreational fishing ..... ( )
- c) SCUBA diving ..... ( )
- d) Kayaking ..... ( )
- e) Tourist activity ..... ( )
- f) Spearfishing ..... ( )
- g) Snorkelling ..... ( )
- h) Sightseeing ..... ( )
- i) Camping ..... ( )
- j) Other (please specify) ..... ( ) \_\_\_\_\_

6. If you marked more than one activity in question 5, which of the activities would you choose as your main activity?

-----

7. How often do you go to the area shown on the map?

-----

8. When do you go there? (Please tick only one item).

- a) Week days ..... ( )
- b) Weekends ..... ( )
- c) Holidays ..... ( )
- d) Other ..... ( ) (Please specify) \_\_\_\_\_

9. When was the last time you went to the area shown on the map?

-----

10. Who usually goes with you? (Please indicate the number of people in the brackets & specify for item (i). )

- a) Self ..... ( )
- b) Co-workers ..... ( )
- c) Family ..... ( )
- d) Club members ..... ( )
- e) Friends ..... ( )
- f) Tourist operator .. ( )
- g) Tourists ..... ( )
- h) Relatives ..... ( )
- i) Others ..... ( ) (Please specify) \_\_\_\_\_

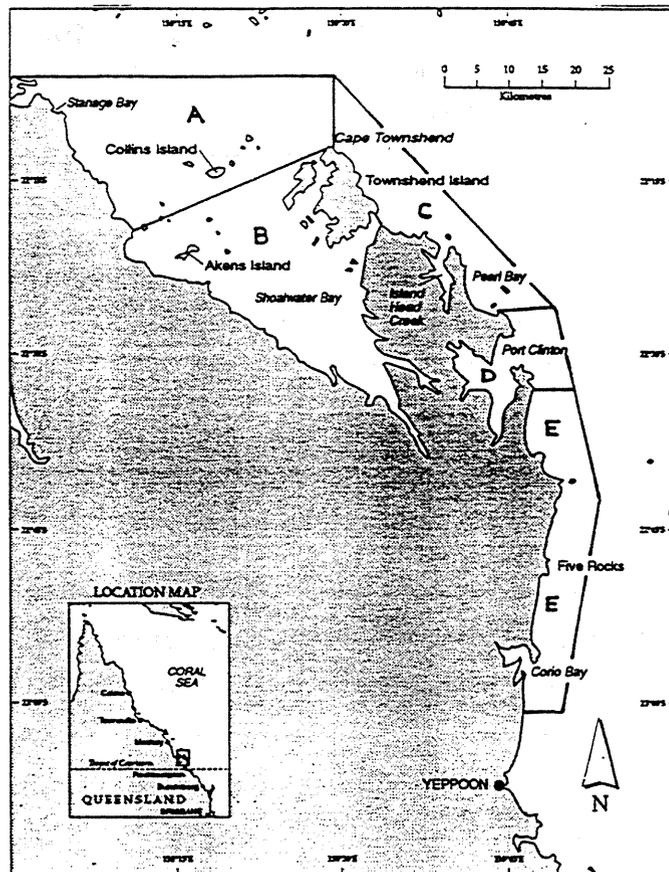
11. Why do you use the waters shown on Map One for your activity or activities?

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Map Two



12. Which of the following activities should and should not be allowed in each of the sections marked on the map above? (Please tick (✓) the activities you think should be allowed and use a cross (X) to indicate the activities you think should not be allowed in each of the Sections A - E. )

Activities	Section A	Section B	Section C	Section D	Section E
a) Bait netting and gathering					
b) Camping					
c) Recreational collecting (eg shells)					
d) Commercial collecting					
e) Sightseeing					
f) Crabbing and oyster gathering					
g) Diving					
h) Commercial line fishing					
i) Recreational line fishing					
j) Research activities					
k) Boating activities					
l) Tourist & education facilities/programs					
m) Spearfishing					
n) Commercial netting					
o) Indigenous hunting, fishing & collecting					
p) Photography					
q) Snorkelling					
r) Trawling					

13. Please use this space if you wish to comment on the choices you made in Question 12 or for any other general comments.

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**The final part of the questionnaire asks you for some personal details so that characteristics of users from various locations may be determined.**

14) What is your gender?

Woman ( )                      Man ( )

15) What is your age?

**(Please place a tick in the appropriate bracket.)**

15 - 19 .....	( )	40 - 44 .....	( )	65 - 69 .....	( )
20 - 24 .....	( )	45 - 49 .....	( )	70 - 74 .....	( )
25 - 29 .....	( )	50 - 54 .....	( )	75 - 79 .....	( )
30 - 34 .....	( )	55 - 59 .....	( )	80 - 84 .....	( )
35 - 39 .....	( )	60 - 64 .....	( )	85 + .....	( )

16) What is/was your occupation?

-----

17) What is your postcode? \_\_\_\_\_

18) How long have you lived there?

-----

\*\*\*\*\*

19) Have you completed this questionnaire before ?

a) Yes ( )                      b) No ( )

If yes, where?

-----

20) Are there any comments you wish to make regarding this questionnaire or anything related to this questionnaire?

a) Yes ( )                      b) No ( )

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**Thank you very much for your time, results of the survey will be published in boating & yachting magazines in July, 1997.**

## Appendix 2. Examples of Cover Letters



Central Queensland  
UNIVERSITY

Gayle Jennings  
Department of Social Sciences  
Faculty of Arts

Tel: (079) 309339

29 May 1996

Dear

A study of the recreational use of Shoalwater Bay and adjacent waters is being undertaken by Gayle Jennings from Central Queensland University for the Great Barrier Reef Marine Park Authority. The study seeks to determine the number of users, types of recreational use, areas of use as well as the opinions of current users regarding activities appropriate for the area. The information gathered will assist managers to plan for the future management of Shoalwater Bay and adjacent waters.

Several surveys, such as mail and club surveys are being conducted as part of the study. As a local resident and registered boat user, you are invited to participate in the mail survey component of the study by completing the enclosed questionnaire. A reply paid envelope has been included for its return. A reminder postcard is being sent to all persons included in the mail survey in one week's time. If you intend not to respond to the questionnaire, please ignore this reminder.

Please note that the completion of the questionnaire is voluntary. Any information you provide will be anonymous. To ensure this, you are asked not to record your name anywhere on the questionnaire. Please mail the completed questionnaire by **14 June 1996**.

If you are interested in the results of this study, they will be published as a news article in your local paper during July. If you have any concerns regarding the questionnaire please contact Gayle Jennings, Faculty of Arts, Central Queensland University, Rockhampton, 4702.

Yours sincerely

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Tel 079 30 9777 Fax 079 36 1361

Campuses located at Bundaberg Emerald  
Gladstone Mackay Rockhampton



Central Queensland  
UNIVERSITY

Gayle Jennings  
Department of Social Sciences  
Faculty of Arts

Tel: (079) 309339

29 May 1996

Dear Member

A study of the recreational use of Shoalwater Bay and adjacent waters is being undertaken by Gayle Jennings from Central Queensland University for the Great Barrier Reef Marine Park Authority. The study seeks to determine the number of users, types of recreational use, areas of use as well as the opinions of current users regarding activities appropriate for the area. The information gathered will assist managers to plan for the future management of Shoalwater Bay and adjacent waters.

Several surveys, such as mail and club surveys are being conducted as part of the study. If you have not already completed a survey, you, as a local recreational club member, are invited to participate in the club survey by completing the attached questionnaire.

Please note that the completion of the questionnaire is voluntary. Any information you provide will be anonymous. To ensure this, you are asked not to record your name anywhere on the questionnaire. If you choose to complete the questionnaire, please return it in the accompanying reply paid envelope and mail by **14 June 1996**.

If you are interested in the results of the study, they will be sent to your club executive as well as published as a news article in your local paper during July. If you have any concerns regarding the questionnaire please contact Gayle Jennings, Faculty of Arts, Central Queensland University, Rockhampton, 4702.

Yours sincerely

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Campuses located at Bundaberg Emerald  
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29 May 1996

## RECREATIONAL USERS OF SHOALWATER BAY & ADJACENT COASTAL WATERS

A study of the recreational use of Shoalwater Bay and adjacent waters is being undertaken by Gayle Jennings from Central Queensland University for the Great Barrier Reef Marine Park Authority. The study seeks to determine the number of users, key areas of use and types of recreational use undertaken in the area as well as current users opinions regarding activities appropriate for the area. The information gathered will assist managers to plan for future recreational use of Shoalwater Bay and adjacent waters.

Several surveys, such as mail and club surveys are also being conducted as part of the study. If you have not already completed a mail or a club survey, you, as a local resident and recreational user of the Shoalwater Bay area, are invited to participate in the study by completing the attached questionnaire.

Please note that the completion of the questionnaire is voluntary. Any information you provide will be anonymous. To ensure this, you are asked not to record your name anywhere on the questionnaire. If you choose to complete the questionnaire, please return it in the accompanying reply paid envelope and mail by **14 June 1996**.

If you are interested in the results of this study, they will be published as a news article in your local paper during July. If you have any concerns regarding the questionnaire please contact Gayle Jennings, Faculty of Arts, Central Queensland University, Rockhampton, 4702.

Yours sincerely

Gayle Jennings  
Lecturer in Tourism and Leisure Studies

Bruce Highway North Rockhampton  
Post: Rockhampton Qld 4702 Australia  
Tel 079 30 9777 Fax 079 36 1361



# Central Queensland UNIVERSITY

Gayle Jennings  
Department of Social Sciences  
Faculty of Arts

Tel: (079) 309339

Dear

A study of the recreational use of Shoalwater Bay and adjacent waters is being undertaken by Gayle Jennings from Central Queensland University for the Great Barrier Reef Marine Park Authority. The study seeks to determine the number of users, types of recreational use, areas of use as well as the opinions of current users regarding activities appropriate for the area. The information gathered will assist managers to plan for the future management of Shoalwater Bay and adjacent waters.

Several surveys, such as mail, club and self-selection surveys have already been conducted as part of the study. As a commercial operator, you are invited to participate in the commercial operator component of the study by completing the enclosed questionnaire. This questionnaire is the same survey which has been used with all other groups surveyed. A reply paid envelope has been included for the return of the survey. Should you not use the area discussed in the survey, would you please still answer the relevant questions relating to your non-use as well as your opinions?

Please note that the completion of the questionnaire is voluntary. Any information you provide will be anonymous. To ensure this, you are asked not to record your name anywhere on the questionnaire. Please mail the completed questionnaire by \_\_\_\_\_. A reminder postcard is being sent to all persons included in this survey in one week's time. If you intend not to respond to the questionnaire, please ignore this reminder.

If you are interested in the results of this study, they will be published as a news article in your local paper during September. If you have any concerns regarding the questionnaire please contact Gayle Jennings, Faculty of Arts, Central Queensland University, Rockhampton, 4702.

Yours sincerely

Gayle Jennings  
Lecturer in Tourism and Leisure Studies

Bruce Highway North Rockhampton  
Post: Rockhampton Qld 4702 Australia  
Tel 079 30 9777 Fax 079 36 1361

### Appendix 3. Reminder card for mail survey

4 June 1996

Last week a survey was sent to you which asked about your use of Shoalwater Bay and adjacent waters as well as your opinions concerning suitable activities for the area.

If you have already completed and returned the survey, please accept my thanks. If you have forgotten about it and intend to respond, would you please do so and return it today? Your information is important so that the usage patterns of Shoalwater Bay are correctly represented and opinions regarding the suitability of activities are adequately canvassed.

If you have not received a survey or have misplaced it, please telephone me on (079) 309339 and I will forward another to you.

Yours sincerely

Gayle Jennings  
Tourism and Leisure Studies



Central Queensland  
UNIVERSITY

Rockhampton Qld 4702 Australia



#### **Appendix 4. List of Clubs Approached**

##### **FISHING CLUBS:**

CAPTAG

Keppel Bay SFC

Capricorn Town and Country Fishing Club

Kalka Fishing Club

Ascott Offshore Fishing Club

Emu Park Fishing Club

North Rockhampton Deep Sea Fishing Club

Apex Deep Sea Fishing Club

Capricorn Amateur Angling Club

Keppel Light Gear Angling Club

Apex Angling Club

Rockhampton Amateur Angling Club

Fitzroy Amateur Angling Club

Capricorn Sport and Light Game Fishing Club

Rockhampton Leagues Club Fishing Club

Commonwealth Hotel Deep Sea Fishing Club

##### **REGIONAL MARINE RESOURCES ADVISORY COMMITTEES**

Mike Pryor (Capricorn Fisheries Advisory Committee)

Serg DePinto (Mackay Regional Marine Resources Advisory Committee)

Neil Bennett (Gladstone Regional Marine Resources Advisory Committee)

##### **YACHT CLUBS:**

Capricornia Cruising Yacht Club (Yeppoon)

Gladstone Yacht Club (Gladstone)

Keppel Bay Sailing Club Inc (Yeppoon)

Mackay Yacht Club (Mackay)

##### **SEA KAYAKING CLUB**

Appendix 5. Club Survey Reminder Letter



Central Queensland  
UNIVERSITY

Gayle Jennings  
Department of Social Sciences  
Faculty of Arts

Tel: (077) 309339

Dear

As you are aware, a study of the recreational use of Shoalwater Bay is being undertaken by Gayle Jennings from Central Queensland University for the Great Barrier Reef Marine Park Authority. During the third week of June, a letter inviting your club to participate in the club survey component of the study was sent to you. Should the executive of your club have been willing for its members to participate, ten sets of survey material also accompanied the letter.

If your club executive permitted the distribution of the survey to its members, and some of those members have not yet returned the survey, would you please ask them to do so by \_\_\_\_\_?

If you have any questions or comments regarding the study, please contact Gayle Jennings, Faculty of Arts, Central Queensland University, Rockhampton, 4702.

Yours sincerely

Gayle Jennings  
Lecturer in Tourism and Leisure Studies

Bruce Highway North Rockhampton  
Post: Rockhampton Qld 4702 Australia  
Tel 079 30 9777 Fax 079 36 1361

## **Appendix 6. Locations used for Self Selection Surveys**

Environment Centre (Yeppoon)

Remnant Vegetation (Shoalwater)

Mackay Fishing World (Mackay)

Northside Fishing Centre (Mackay)

Mackay Bait and Tackle (Mackay)

Sarina Bait and Tackle (Sarina)

Stanage Bay General Store (Stanage Bay)

Barra Bait and Tackle (Yeppoon)

Yeppoon Bait and Tackle (Yeppoon)

Capricorn Coast Sport and Hobby Centre (Yeppoon)

Rosslyn Bay Marina (Yeppoon)

Rosslyn Bay Kiosk (Yeppoon)

Rosslyn Bay Coast Guard (Yeppoon)

Blue Fin Sports (Rockhampton)

Kalka Bait and Tackle (Rockhampton)

Gladstone Marina Bait and Tackle (Gladstone)

## Appendix 7. Survey Advertisements

### Recreational Use of Shoalwater Bay and Adjacent Waters

A study of the recreational use of Shoalwater Bay and adjacent waters is being undertaken by Gayle Jennings from CQU for the Great Barrier Reef Marine Park Authority. The study seeks to determine the number of users, key areas of use and types of recreational use undertaken in the area as well as current users' opinions regarding activities appropriate for the area. The information gathered will assist managers to plan for future recreational use of Shoalwater Bay and adjacent waters.

As part of the study, several surveys are being conducted during June 1996. These include mail surveys of boat owners and commercial operators, recreational club surveys, self completion surveys at various bait and tackle shops, general stores and service stations, as well as on-site user surveys.

Your participation and cooperation would be greatly appreciated so that user patterns of Shoalwater Bay are representative and opinions regarding the suitability of various activities adequately canvassed. All data gathered will be anonymous. Reply paid envelopes will be attached to all surveys for ease of return. All responses should be mailed by 14 June 1996 and results of the surveys will be provided to this newspaper in July.

If you would like any further information regarding the study please contact Gayle Jennings, Faculty of Arts, Central Queensland University, Rockhampton Qld 4702 Ph: 079 30 9339.



Central Queensland  
UNIVERSITY

CO1551-K U2727

WEDNESDAY

June  
19

TMB, Wednesday, 12th June 1996. Page 5

# what's happening at CQU?

## Continuing Professional Education

The following Continuing Professional Education workshops are available during the next few months:

**Train the Trainer - Level 2 - Facilitation Skills**, 19 - 21 June, \$495  
**Time Management**, 27 June, \$195  
**Write for Work**, 4 July, \$195  
**Train the Trainer - Levels 1 & 2**, 8 - 12 July, \$795

**Communicating Effectively with Desktop Publishing**, 15 July, \$195  
**Effective People Management**, 17 July, \$195  
**Train the Trainer - Level 1**, 22 - 24 July, \$195  
**Time Management**, 25 July, \$195  
**Assertive Communication**, 26 July, \$195

All of these workshops are available to be conducted on site at a cost of \$1 200 per day plus expenses.

For further information or to enrol in any of the above courses, please contact Kerry at the Centre for Continuing Professional Education ☎ 30 9089.



Continuing Professional Education

## Seminar presented by Asia and Pacific Research Centre

### Singapore's Governance: A Model for the West?

presented by

Dr Douglas Sikorski  
 National University of Singapore  
 When: 12 June, 1 - 2 pm  
 Where: Building 32, Room G.18  
 Harvard Lecture Theatre, CQU

For further information, contact Professor Chris Leggett, Co-Director, Asia and Pacific Research Centre ☎ 30 9630.

## Recreational Use of Shoalwater Bay and Adjacent Waters

A study of the recreational use of Shoalwater Bay and adjacent waters is being undertaken by Gayle Jennings from CQU for the Great Barrier Reef Marine Park Authority. The study seeks to determine the number of users, key areas of use and types of recreational use undertaken in the area as well as current users' opinions regarding activities appropriate for the area. The information gathered will assist managers to plan for future recreational use of Shoalwater Bay and adjacent waters.

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Your participation and cooperation would be greatly appreciated so that user patterns of Shoalwater Bay are representative and opinions regarding the suitability of various activities adequately canvassed. All data gathered will be anonymous. Reply paid envelopes will be attached to all surveys for ease of return. All responses should be mailed by 14 June 1996 and results of the surveys will be provided to this newspaper in July.

If you would like any further information regarding the study please contact Gayle Jennings, Faculty of Arts ☎ 079 30 9339.

### Library Hours

Saturday - Sunday	2 pm - 5 pm
Monday	Closed
Tuesday - Wednesday	8.45 am - 9 pm
Thursday	9 am - 5 pm
Friday	8.45 am - 5 pm

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### AIM - Working with an Effective Team

Working together in a team demands consideration and effort. Successful team members understand and continually practise the appropriate team processes.

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- team exercise
- team role preferences
- levels of team development
- performance goals and objectives
- leadership and influence
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- team communications and commitment
- action plan for change

Date: 24 June 1996  
 Investment: \$225 (member), \$250 (non-member)

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Participants will identify and practise the key skills of communication, motivation, problem solving and decision making, enabling them to maximise their own potential and that of their staff.

#### Topics covered:

- personal qualities of a supervisor and team leader
- the communication process
- different styles of behaviour
- active listening skills
- motivating the workforce
- delegation
- performance problem solving
- decision making

Date: 6 - 8 August 1996  
 Investment: \$580 (member), \$640 (non-member)

For further information or to enrol, please contact Kerry at the Centre for Continuing Professional Education ☎ 30 9089.

Why not have an AIM workshop delivered at your organisation?

Call Bernard Thorpe, ☎ 30 9298 for more information about having an AIM workshop in your workplace.



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## This week...

The James Goldston Faculty of Engineering Seminar Series  
**The Fine Structure of Hydrophysical Fields. Methods and Criteria of Identification of the Internal Sources of Mixing in the Sea**, presented by Professor C Druet, Institute of Oceanology of the Polish Academy of Sciences Gdansk, Poland. Thursday 13 June, 4 - 5 pm, building 29, room 1.11, ground floor, Engineering C. ☎ 30 9732

**Research Seminar**  
**Executive Information Systems Framework: A New Framework for EIS Implementation**, presented by Anongart Srivihok, PhD student in Information Systems, Faculty of Business, CQU, Friday 14 June, 12 noon - 2 pm, (light lunch served at noon, presentation begins at 12.30 pm), building 34, room 1.19, John Cateek Building. RSVP: Joan Horton ☎ 30 9727



Central Queensland  
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Advertisement C9153M-CV U2779

## Appendix 8. Specific locations accessed by mail survey respondents

LOCATION	Frequency	Percentage
Stanage Bay	27	10.6
The Shacks	3	1.2
Shoalwater Bay	7	1.8
Cape Townshend	5	2.0
Townshend Island	6	2.3
Island Head Creek	31	12.1
Pearl Bay	50	19.5
Port Clinton	46	1.6
Quoin Island	21	8.2
Cape Manifold	10	3.9
Peaked Island	21	8.2
Flat Island	37	14.5
Five Rocks	57	22.3
WaterPark Creek	2	0.8
Corio Bay	123	48.1
Keppel Area	26	10.2
Yeppoon	11	4.3
Fitzroy River	13	5.1
Arthur Point	9	3.5
Leicester Island	4	1.6
Cliff Point	1	0.4
Freshwater Bay	10	3.9
Collins Island	5	2.0
Section A Area	15	5.9
Section B Area	5	2.0
Section C Area	9	3.5
Section D Area	2	0.8
Section E Area (1)	15	5.9
Section E Area (2)	28	10.9
Section E Area (3)	45	17.6
Section F Area	19	7.4
Outside the area	32	12.5
NO RESPONSE	132	51.6
Three Rivers	1	0.4
Nine Mile Beach	8	3.1
Emu Park	7	2.7
Akens Island	3	1.2
Canoe Passage	3	1.2
West Bight	2	0.8
Head Creek	2	0.8
Pinetree's Point	2	0.8
Triangular Island	1	0.4
Keppel Sands	2	0.8
Little Corio Bay	14	5.5
Island Head	1	0.4
Perforated Point	2	0.8
Five Rocks Island	5	2.0
Thirsty Sound	1	0.4
NO	1	0.4

## Appendix 9. Departure points included in the 'Other' category of Table 15

### Question 4 - Other

"Coorooman Creek." [MS:49]	"Beach." [MS:257]
"Causeway."	"Coorooman Creek." [MS:260]
"Broome Head property." [MS:86]	"Broom Head." [MS:265]
"Stockyard Point." [MS:96]	"Emu Park." [MS:271]
"Stockyard Point." [MS:104]	"Cawarrel Creek." [MS:271]
"Haven." [MS:112]	"Keppel Sands." [MS:294]
"Coorooman Creek. [MS:116]	"Thirsty Sound." [MS:304]
"Kinka." [MS:132]	"Port Alma." [MS:339]
"Plumtree." [MS:134]	"1770 and Shute Harbour." [MS:345]
"Along Beaches." [MS:139]	"Thirsty Sound." [CS:24]
"Emu Park Beach." [MS:148]	"Thirsty Sound." [CS:25]
Thirsty Sound." [MS:149]	"Broom Head." [CS:25]
"Beach." [MS:169]	"Great Keppel Island." [SS:01]
"Dive Centre - Great Keppel." [MS:176]	"Pacific Creek." [SS:02]
Mulumbin Beach." [MS:196]	"Coorooman Creek." [SS:232]
"Thirsty Sound." [MS:208]	"Thirsty Sound." [SS:36]
Fish from Bank only." [MS:214]	

## Appendix 10. 'Other' categories noted in survey

### Question 3 - Other

"Motorcycle - Five Rocks." [MS:552]  
"Truck and Ute." [MS86]  
"Coast Guard." [MS:92]  
"Yacht." [MS:145]  
"Yacht." [MS:290]  
"Delivery of charter boat." [MS:307]  
"Armed Forces exercises." [MS360]  
"Reefseeker (Great Keppel Island)" [MS369]  
"Work" [36]  
"Aircraft" [SS:37]

### Question 5 - Other 1

Crabbing. [MS:31]  
Crabbing. [MS:34]  
Bushwalking. [MS:55]  
Relaxing. [MS:57]  
Day Trip. [MS:62]  
"Sailing." [MS:82]  
"Surfing." [MS:83]  
"Surfing and bushwalking." [MS:96]  
"Beachworm collecting." [MS:104]  
"Walking." [MS:107]  
"Bushwalking." [MS:134]  
Professional fishing." [MS:140]  
"Sailing." [MS:145]  
"Sailing." [MS:147]  
"Cruising and exploring." [MS:156]  
"Walking." [MS:223]  
"Stopover (Yacht)." [MS:236]  
"Beachcombing." [MS:240]

"Crabbing." [MS:244]  
"Crabbing." [MS:248]  
"Photography." [MS:278]  
"Not stopping (yacht)." [MS:290]  
"Surfing." [MS:245]  
"Armed Forces exercises." [MS:360]  
"Club fishing." [MS:367]  
"4W Driving." [MS:369]  
"4W Driving." [MS:379]  
"Recreational crabbing." [MS:390]  
"Photography." [CS:12]  
"4W Driving." [CS:15]  
"Professional crabbing." [SS:09]  
"Cleaning out junk of this society. [SS:12]  
"Professional fishing." [SS:27]  
"Commercial fishing." [SS35]  
"Work (aircraft)." [SS:37]  
"Exploring." [SS:39]

### Question 5 - Other 2

"Enjoying nature." [MS:82]  
"Swimming." [CS:12]  
"House maintenance." [CS:15]  
"To write." [SS:12]

### Question 5 - Other 3

"Walking." [CS:12]

### Question 7 - Other 1

"3-15 times/year." [MS:07]  
"Pearl Bay once a year. Keppel Island once a month." [MS:12]  
"Three times a month." [MS:25]

"108 times a year." [MS:43]  
 "Bi-weekly." [MS:53]  
 "Varies widely." [MS:55]  
 "Fairly regularly." [MS:54]  
 "5 months of the year." [MS:95]  
 "10-20 times a year." [MS:134]  
 "June, July, August and September." [MS:140]  
 "40 weeks of the year." [MS:145]  
 "Irregularly." [MS:168]  
 "Very often - 20 times p.a." [MS:169]  
 "Not enough." [MS: 172]  
 "Daily." [MS:176]  
 "20 per year." [MS:186]  
 "Not often enough." [MS:194]  
 "About every 2 years." [MS:203]  
 "Regularly." [MS:229]  
 "Twice since 1991." [MS:262]  
 "Every 3 years." [MS:265]  
 "No set holiday period." [MS:268]  
 "Frequently." [MS:270]  
 "Fairly often." [MS:276]  
 "Once every 3 weeks approx." [MS:303]  
 "15-20 times a year." [MS:390]  
 "Any time." [CS:02]  
 "Frequently." [CS:07]  
 "Many times." [CS:11]  
 "Very often." [CS:12]  
 "15 times per year." [CS18]  
 "Pass through on way north." [MS:02]  
 "90 times a year." [SS:29]

**Question 8 - Other**  
 "Any day - all year round." [MS:24]

"When weather permits." [MS:28]  
 "When we can take time from property." [MS:36]  
 "Any time." [MS:73]  
 "Whenever I get a chance." [MS:83]  
 "Recreational fishing trips only." [MS:86]  
 "Home at Stanage." [MS:95]  
 "Day before full moon." [MS109]  
 "Weather." [MS:126]  
 "When weather is good." [MS:142]  
 "Any time it suits me." [MS:149]  
 "Any time." [MS:153]  
 "Weather permitting." [MS:156]  
 "Full time cruising - 85-91." [MS:164]  
 "Sunday - Thursday." [MS:200]  
 "Definitely not holiday periods." [MS:203]  
 "Any time - weather permitting." [MS:225]  
 "Rostered days off." [MS:231]  
 "Anytime." [MS:236]  
 "Any day of the week." [MS:241]  
 "When weather and tides allow." [MS:248]  
 "Any time - when weather permits." [MS:264]  
 "When weather permits." [MS:286]  
 "When weather permits." [MS:294]  
 "Rostered day." [MS:303]  
 "Any time weather permits." [MS:314]  
 "Not specified." [MS:317]  
 "Right weather." [MS:345]  
 "Army exercises." [MS:360]  
 "Any time - when Army doesn't have area restricted." [MS:390]  
 "Days off." [CS:03]  
 "Weather." [CS:23]

“Pass through on way north.” [SS:02]

“Weather.” [08]

“Any time the tides are suitable.” [SS:17]

“In suitable weather.” [SS:29]

“Mid year - 2 week period - December flights.”  
[MS:37]

### **Question 10 - Pax 1**

“Not specified.” [MS:42]

“Not specified.” [MS:249]

“Crew.” [MS:290]

“Platoon members.” [MS:326]

“Dog.” [MS:339]

“Not specified.” [CS:04]

### **Question 11 - Other 1**

“Surfing.” [MS:83]

“I do not take my boat in open waters.” [MS:109]

“Too far to travel to reach.” [MS:121]

“To make a living so that we can pay taxes to keep  
the rest of the bludgers in this country alive.”  
[MS:140]

“Not the best for fishing due to depletion of stocks.”  
[MS:148]

“Because I have operated in these waters as a  
professional as a professional and amateur fisherman  
since 1952 and I like the area.” [MS:149]

“Relative - Yeppoon.” [MS:169]

“Conduct diving business.” [MS:176]

“Have hut to stay at.” [MS:237]

“No special reason.” [MS:278]

“Boat parked at Keppel Sands.” [MS:294]

“I don't fish Corio north.” [MS:309]

“No fees, regulations - freedom.” [MS:323]

“Why does a duck have feathers?” [MS:343]

““Work.” [MS:360]

“Work.” [MS:380]

“House maintenance.” [CS:13]

“Relaxation.” [SS:13]

“Income.” [SS:27]

“Commercial fishing.” [SS:35]

“Wild life research.” [SS:37]

### **Question 13 - Other 2**

“Intend to become a commercial line fisherman.”  
[MS:38]

“Pearl Bay should be a tourist area.” [MS:49]

“Will this be productive?” [MS:51]

“Majority of time spent by myself - take friends and  
my children when they visit me.” [MS:82]

“Why do a survey on this area where access to  
approx 80% restricted by law and the other serviced  
by 2 roads. (1) Yeppoon to Byfield. (2) Cunawarra  
to Stanage Bay. The price of a boat capable of fishing  
the rest is beyond most family men.” [MS:84]

“Recreation fishing (line) together with  
photographing the undisturbed nature in general.”  
[MS:86]

“I only fish in my boat in lakes or creeks. I do not  
fish in the ocean. Sorry I am no help.” [MS:98]

“The current limit access has kept this area in its  
present pristine

### **Question 17 - 99 Option**

4720 (Postcode) [MS:38]

“4780.” [MS:41]

“4741.” [MS:103]

### **Question 18**

“A long time.” [MS:268]

## Appendix 11. Full transcriptions of reasons for using the study area for recreation

### Question 11 Comments by Mail survey respondents

#### 01 Amenities

"There is only one sea area in the area so it's the only one to use." [MS:01]

"Good fishing spots, beautiful views." [MS:06]

"This area is the most beautiful on the Queensland coast. The fishing is always good because of part-time Army use." [MS:17]

"Proximity to where we live. High scenic amenity. Convenient resort type facilities at Great Keppel Island." [MS:25]

"As this is a good fishing area. Also a very nice area to look at and visit with your family." [MS:27]

"Pleasant spot." [MS:36]

"To get away from commercialised areas. It's rough country to get there, but worth the effort." [MS:37]

"Safe, beautiful, apt for activities and unspoiled." [MS:43]

"Pleasure and fishing." [MS:44]

"Convenience, attractive areas, reasonable fishing and crabbing. Accessible by road." [MS:49]

"It's a nice place to camp and fish, and we usually catch some good fish." [MS:50]

"Get away from rat race." [MS:55]

"Because it's a beautiful place and there are safe anchorages." [MS:57]

"Picturesque." [MS:71]

"Because they are relatively untouched." [MS:79]

"Easily accessible. I've fished the area since I was 12 and have always got a few fish. It's also a good place to teach kids how to fish and then there's natural beauty of the place. It's also good surf fishing in the corner of Nine Mile Beach and Five Rocks." [MS:83]

"It is one of the four places on the Coast with access and that professional fishermen. Port Alma and the River are like the highway for traffic." [MS:84]

"It has a good supply of fresh water, the surfing is good, fishing and spearfishing is good, it is relatively close to home and it is a beautiful spot." [MS:96]

"Like the place." [MS:99]

"Unspoiled." [MS:107]

"Due to good fishing, good anchorages and good scenery." [MS:113]

"Remoteness, less people in area, better chance for a decent fish." [MS:118]

"Peace and quiet. Good fishing. Great for kids." [MS:132]

"It is probably the most beautiful coast line in Australia - I live here!" [MS:134]

"Because it is as yet unspoiled and original and uncrowded. It is also a safe haven when cruising the area." [MS:136]

"Beautiful unspoiled area. Quiet." [MS:138]

"Ease of location, relatively unspoiled; peaceful and tranquil." [MS:144]

"Uncrowded and unspoiled" [MS:147]

"Because I have operated in these waters as a professional fisherman and an amateur fisherman since 1952 and I like the area." [MS:149]

"Peaceful, good fishing and great scenery." [MS:151]

"It's a beautiful area and good fishing." [MS:153]

"Our local waters; area's spectacular beauty; remoteness; away from crowded areas; to catch a feed of fish; for cruising and exploring." [MS:156]

"It is the best coastline on the East Coast." [MS:157]

"Inaccessible to small craft and cars. Natural - undestroyed by idiots." [MS:160]

"Quiet and enjoyable. The fishing is not brilliant." [MS:163]

"It is a scenic route and scenic spot with fishing and crabbing available - quiet area; not over-run with vessels and people - very great recreationally - unspoiled area that should be retained." [MS:166]

"Good clear water - white sand - fair fishing!" [MS:168]

Quietness. Scenery. Usually good fishing." [MS:193]

"For the excellent fishing and beauty of the area."  
[MS:194]

"Diversity of fishing. Ability to camp in relative isolation. Appreciate the beauty of the area."  
[MS:196]

"It is one of the nicest areas on the Queensland coast. Vast areas of sheltered waters. Relatively unspoiled. Nov very accessible. Low numbers of users."  
[MS:203]

"Peaceful area - nice fishing." [MS:212]

"Because the water is clean." [MS:216]

"Because it is peaceful and relaxing." [MS:230]

"Recreational fishing. Pleasure." [MS:238]

"Beautiful country and fishing" [MS:240]

"Clean, clear waters and unspoiled areas." [MS:242]

"To get away from tourist areas and a place you can take your **dog**." [MS:255]

"Virgin country. Have hut to stay at." [MS: 257]

"Remote - unspoilt!" [MS:258]

"Because the scenery and anchorage, etc. are second to none." [MS:260]

"Ecological trips, fishing and looking at the remarkable features of the area." [MS:268]

"Relaxing - appreciation of scenery - small amount of table fish." [MS:271]

"Get away pleasure." [MS:276]

"Because of the isolation and the unspoilt environment." [MS:281]

"Safe, sheltered waters, sense of isolation ; wilderness, complexity of eco-systems re fish species." [MS:282]

"Because of the quietness, beauty and tranquillity and besides, at times the fishing is great!" [MS:310]

"They are unspoilt and accessible." [MS:311]

"Quiet beautiful - sunrise and sunset. Also quite area at times good crabbing and fishing." [MS:313]

"Because of the undeveloped beauty of the area." [MS:317]

"Good fishing, isolated, no resorts, no fees, no regulation, and freedom." [MS:323]

"Close to home and a little isolated." [MS:291]

"Good fishing and beautiful area." [MS:299]

"Cause I live in this area and being an Australian - I love the Reef!" [MS:302]

"Interesting sights and good fishing. I also use a lot of area north up the Percy's." [MS:304]

"Survival training. Superb fishing area and superb scenery." [MS:326]

"Pristine area, good boating, good fishing." [MS:328]

"Good fishing, crabbing and beautiful scenery." [MS:340]

"Good(?) fishing and scenic.

"Interesting and safe anchorages." [MS:346]

"Uncluttered by people - beautiful country." [MS:353]

I really enjoy the unspoiled environment and clear waters." [MS:354]

"Isolation, beauty, peacefulness, safe anchorages." [MS:358]

"Sports fishing; rec. fishing; pleasure; work." [MS:360]

"Not crowded, generally good weather and clear water." [MS:369]

"Enjoyment and appreciation of area." [MS:373]

"Nice and peaceful, good fishing - great spot." [MS:379]

"It is a very nice, relaxing spot and is a very good fishing spot." [MS:387]

"To get away from the rat race." [MS:389]

"Safe boating - National Park." [MS:390]

## 02 Proximity

"Close handy." [MS:04]

"Proximity. I have taken a boat to Stanage Bay, but is a long way. I have also fished Corio Bay in a dinghy but this is less common." [MS:08]

"Because I live here!" [MS:10]

"Proximity to where we live. High scenic amenity. Convenient resort type facilities at Great Keppel Island." [MS:25]

“Because of distance, and ability to return home safely in the event of a wind change/increased velocity, etc. Depends on who is in the boat at the time of rough seas, etc. [MS:30]

“Convenience, attractive areas, reasonable fishing and crabbing. Accessible by road. [MS:49]

“Proximity and beauty.” [MS:54]

“Close proximity to my residence.” [MS:58]

“These particular waters are sheltered and are closest to my home. [MS:59]

“I own a hut on Waterpark Creek and use the Creek and Corio Bay to fish and crab.” [MS:69]

“Easily accessible. I’ve fished the area since I was 12 and have always got a few fish. It’s also a good place to teach kids how to fish and then there’s natural beauty of the place. It’s also good surf fishing in the corner of Nine Mile Beach and Five Rocks.” [MS:83]

“Close to Rosslyn Bay; people require assistance.” [MS:92]

“Proximity to offshore Islands and reefs coupled with safe anchorage - either Port Clinton or Island Head Creek (or Pearl Bay - in good weather).” [MS:93]

“It has a good supply of fresh water, the surfing is good, fishing and spearfishing is good, it is relatively close to home and it is a beautiful spot.” [MS:96]

“These places are the closest available, even though they are not the best for fishing due to depletion of stocks.” [MS:148]

“Close to where I live.” [MS:154]

“Our local waters; area’s spectacular beauty; remoteness; away from crowded areas; to catch a feed of fish; for cruising and exploring.” [MS:156]

“Keppel Bay has good anchorage and islands to use - handy to Rosslyn Bay and Gladstone. Clean water. If had more time would go further north.” [MS:164]

“Because it is there and a part of Australia.” [MS:179]

“Close proximity.” [MS:185]

“Because close handy and good fishing.” [MS:190]

“Close calm waters.” [MS:192]

“Ease of access.” [MS:215]

“I can access both areas easily from the facilities provided at both ramps.” [MS:225]

“Closest coastal area, local knowledge.” [MS: 231]

“Close to home, not far to travel and good fishing at times.” [MS:233]

“Accessibility.” [MS:241]

“Because it is only 30klm from where I live!” [M:244]

Smallish boat - the area is handy.” [MS:256]

“These areas are close to Rockhampton and my family loves to fish and camp.” [MS:266]

“Ease of access to reasonable fishing grounds.” [MS:267]

“Convenience of area and availability of good fish.” [MS:270]

“The last untouched wilderness coast line in Central Queensland. One word - “Beautiful”.” [MS:272]

“Because I know the area.” [MS:283]

“Close to where I live.” [MS:308]

“They are unspoilt and accessible.” [MS:311]

“Readily accessible. Reasonably prolific marine life.” [MS:318]

“They are close to my home.” [MS:319]

“Close to home and a little isolated.” [MS:291]

“Nearest accessible area for pleasant boating and fishing.” [MS:298]

“Good fishing, easy access with small boats.” [MS:300]

“Cause I live in this area and being an Australian - I love the Reef!” [MS:302]

“Close to home and good fishing.” [MS:303]

“Local area within easy reach.” [MS:359]

“Because Corio Bay is the only estuary system within easy reach of Rockhampton which has not completely been ravaged by commercial netting but they are trying their hardest, especially the itinerants.” [MS:367]

“Only way to fishing spots.” [MS:383]

“Because it is in close proximity to my residence. I know the area well. I have been going to the area since I was a babe in my mother’s arms. [MS:390]

### 03 Family/Friends

“As this is a good fishing area. Also a very nice area to look at and visit with your family.” [MS:27]

“Peace and quiet. Good fishing. Great for kids.” [MS:132]

“Family and friends.” [MS:33]

### 04 Fish stocks

“To enjoy recreational fishing.” [MS:02]

“Very pleasant camping area and fishing spot.” [MS:05]

“Good fishing spots, beautiful views.” [MS:06]

“The variety of fish that can be caught there.” [MS:07]

“For digging yabbies and recreational fishing.” [MS:09]

“Good fishing.” [MS:11]

“This area is the most beautiful on the Queensland coast. The fishing is always good because of part-time Army use.” [MS:17]

“Recreational fishing.” [MS:18]

“Smaller boats can't get there and the area is not over fished.” [MS:19]

“To try and catch a fish - often without any luck at all!! The trawlers com in so close to the shore - they take the lot!!!!” [MS:21]

“Because of the lack of people in the area - it is nice and quiet and unspoiled.” [MS:22]

“As most other areas in Central Queensland are overfished this area whilst still having far too much fishing pressure still produces reasonable fishing.” [MS:24]

“Fishing. Swimming.” [MS:26]

“As this is a good fishing area. Also a very nice area to look at and visit with your family.” [MS:27]

“Mackerel fishing.” [MS:28]

“Best fishing.” [MS:29]

“Enjoyment of recreational fishing.” [MS:31]

“Recreational fishing and crabbing.” [MS:35]

“Pleasure and fishing.” [MS:44]

“Fishing.” [MS:46]

“The areas mainly north of Yeppoon for more successful fishing activities. East of Yeppoon for sheltered fishing areas and camping on Island (Keppel group).” [MS:48]

“Convenience, attractive areas, reasonable fishing and crabbing. Accessible by road. [MS:49]

“It's a nice place to camp and fish, and we usually catch some good fish.” [MS:50]

“Close to hand. Estuary fishing.” [MS:51]

“Recreational fishing, sightseeing and camping.” [MS:53]

“Recreational fishing.” [MS:60]

“Fishing.” [MS:61]

“Preferred fishing area from shoreline of Map-E to 30 miles East.” [MS:67]

“Reasonable fishing.” [MS:71]

“Recreational fishing.” [MS:73]

“Close.” [MS:71]

“Try to find a quiet fishing spot away from commercial netting.” [MS:80]

“A lovely area, much of it pristine, good fishing; some areas relatively remote; to get away from tourist areas; to enjoy nature.” [MS:82]

“Easily accessible. I've fished the area since I was 12 and have always got a few fish. It's also a good place to teach kids how to fish and then there's natural beauty of the place. It's also good surf fishing in the corner of Nine Mile Beach and Five Rocks.” [MS:83]

“Good fishing.” [MS:89]

“Recreational fishing.” [MS:90]

“Fishing and oysters.” [MS:95]

“It has a good supply of fresh water, the surfing is good, fishing and spearfishing is good, it is relatively close to home and it is a beautiful spot.” [MS:96]

“Good fishing most times. Well protected at most times of year. Relatively easy access to different parts of bay.” [MS:97]

“Fishing.” [MS:112]

“Due to good fishing, good anchorages and good scenery.” [MS:113]

“Fishing.” [MS:116]

“Remoteness, less people in area, better chance for a decent fish.” [MS:118]

“Good protection offering attractive anchorages and both estuary and reef fishing.” [MS:127]

“Good fishing” [MS:128]

“Fishing” [MS:130]

“Peace and quiet. Good fishing. Great for kids.” [MS:132]

“Fully retired - mainly recreational activity.” [MS:135]

“Fishing.” [MS:137]

“Recreational and fishing purposes” [MS:139]

“The fishing in some areas is generally good.” [MS:141]

“Good fishing - no fish around Keppel’s.” [MS:142]

“Peaceful, good fishing and great scenery.” [MS:151]

“It’s a beautiful area and good fishing.” [MS:153]

“Recreational fishing.” [MS:155]

“Our local waters; area’s spectacular beauty; remoteness; away from crowded areas; to catch a feed of fish; for cruising and exploring.” [MS:156]

“Quiet and enjoyable. The fishing is not brilliant.” [MS:163]

“Haven’t found a better fishing spot.” [MS:165]

“It is a scenic route and scenic spot with fishing and crabbing available - quiet area; not over-run with vessels and people - very great recreationally - unspoilt area that should be retained.” [MS:166]

“Potentially good fishing, crabbing in protected waters.” [MS:167]

“Good clear water - white sand - fair fishing!” [MS:168]

“Relatives live in Yeppoon and know the area for fishing.” [MS:169]

“Mainly fishing and crabbing.” [MS:171]

“Fishing.” [MS:175]

“Good fishing. Protected waters.” [MS:181]

“Reef fishing.” [MS:184]

Quietness. Scenery. Usually good fishing.” [MS:193]

“For the excellent fishing and beauty of the area.” [MS:194]

“Diversity of fishing. Ability to camp in relative isolation. Appreciate the beauty of the area.” [MS:196]

“It has deep water suited to good fishing. Relatively unpopulated.” [MS:196]

“Fishing and a weekend outing!” [MS:199]

“Better fishing.” [MS:202]

“Peaceful area - nice fishing.” [MS:212]

“Better fishing area.” [MS:214]

“Good fishing area.” [MS:219]

“Fishing and surfing.” [MS:220]

“Recreational fishing.” [MS:221]

“Good fishing grounds.” [MS:224]

“Recreational fishing, because I always catch enough for a meal.” [MS:226]

“Because of the types of fish and the quality of night anchorages.” [MS:227]

“Fishing possibilities.” [MS:229]

“Fishing is good.” [MS:232]

“Close to home, not far to travel and good fishing at times.” [MS:233]

“Fishing for mackerel (mainly).” [MS:234]

“Recreational fishing. Pleasure.” [MS:238]

“Recreational fishing” [MS:239]

“Beautiful country and fishing” [MS:240]

“Reefs off Cap Intern Resort attract mackerel.” [MS:251]

“Recreational fishing.” [MS:254]

“Because in the right weather conditions it proves favourable fishing.” [MS:264]

“fishing.” [MS:265]

“These areas are close to Rockhampton and my family loves to fish and camp.” [MS:266]

“Ease of access to reasonable fishing grounds.” [MS:267]

"Ecological trips, fishing and looking at the remarkable features of the area." [MS:268]

"Fishing." [MS:269]

"Convenience of area and availability of good fish." [MS:270]

"Relaxing - appreciation of scenery - small amount of table fish." [MS:271]

"To try to catch fish." [MS:274]

"Safe, sheltered waters, sense of isolation ; wilderness, complexity of eco-systems re fish species." [MS:282]

"Good fishing area." [MS:285]

"Because of the quietness, beauty and tranquillity and besides, at times the fishing is great!" [MS:310]

"Quiet beautiful - sunrise and sunset. Also quite area at times good crabbing and fishing." [MS:313]

"Good fishing." [MS:314]

"Usually catch fish for own use - catches are declining." [MS:320]

"Good fishing, isolated, no resorts, no fees, no regulation, and freedom." [MS:323]

"Fishing and camping." [MS:325]

"Because I like to do a bit of fishing and crabbing and it is a good all weather anchorage." [MS:236]

"Due to Reefs, etc around the islands." [MS:292]

"Recreational fishing." [MS:296]

"Nearest accessible area for pleasant boating and fishing." [MS:298]

"Good fishing and beautiful area." [MS:299]

"Good fishing, easy access with small boats." [MS:300]

"Close to home and good fishing." [MS:303]

"Interesting sights and good fishing. I also use a lot of area north up the Percy's." [MS:304]

"Survival training. Superb fishing area and superb scenery." [MS:326]

"Pristine area, good boating, good fishing." [MS:328]

"Good fishing most of the time." [MS:331]

"Good yabby beds and good fishing." [MS:335]

"Because of the good fishing." [MS:337]

"Because it is a nice area to go to get away from it all." [MS:338]

"Items 3,4,5,6 and 1 - for it's remoteness and more chance of catching a fish.

Item 2 for its a nice place and handy." [MS:339]

"Good fishing, crabbing and beautiful scenery." [MS:340]

"Good(?) fishing and scenic.

"Good fishing, good surfing, protected anchorage." [MS:345]

"Safe sheltered water - fishing and crabbing." [MS:350]

"One of few areas available for estuary fishing." [MS:352]

"Fishing." [MS:355]

"Good fishing." [MS:357]

"Sports fishing; rec. fishing; pleasure; work." [MS:360]

"Because Corio Bay is the only estuary system within easy reach of Rockhampton which has not completely been ravaged by commercial netting but they are trying their hardest, especially the itinerants." [MS:367]

"Catching fish." [MS:371]

"Nice and peaceful, good fishing - great spot." [MS:379]

"Recreational fishing mainly but have worked in Apt. Clinton and have interest in same." [MS:380]

"Recreational fishing." [MS:381]

"Fairly secluded and good fishing." [MS:384]

"Best for boating and fishing" [MS:386]

"It is a very nice, relaxing spot and is a very good fishing spot." [MS:387]

"Fishing and camping." [MS:388]

## 05 Anchorage

"Deep anchorages on Conicle Island." [MS:12]

"Safe anchorage." [MS:13]

"Safe, beautiful, apt for activities and unspoiled." [MS:43]

"These particular waters are sheltered and are the closest to my home." [MS:59]

"Proximity to offshore Islands and reefs coupled with safe anchorage - either Port Clinton or Island Head Creek (or Pearl Bay - in good weather)." [MS:93]

"Due to good fishing, good anchorages and good scenery." [MS:113]

"Protected from the wind." [MS:124]

"Good protection offering attractive anchorages and both estuary and reef fishing." [MS:127]

"Because it is as yet unspoilt and original and uncrowded. It is also a safe haven when cruising the area." [MS:136]

"Keppel Bay has good anchorage and islands to use - handy to Rosslyn Bay and Gladstone. Clean water. If had more time would go further north." [MS:164]

"Potentially good fishing, crabbing in protected waters." [MS:167]

"Good fishing. Protected waters." [MS:181]

"It is one of the nicest areas on the Queensland coast. Vast areas of sheltered waters. Relatively unspoiled. Nov very accessible. Low numbers of users." [MS:203]

"Because of the types of fish and the quality of night anchorages." [MS:227]

"It's a logical stopover between Rosslyn Bay and further anchorages to north, ie - Hexam/Percy Island and vice versa." [MS:236]

"Because the scenery and anchorage, etc. are second to none." [MS:260]

"Safe, sheltered waters, sense of isolation ; wilderness, complexity of eco-systems re fish species." [MS:282]

"Transient." [MS:309]

"Yacht races and sheltering overnight." [MS:301]

"Good fishing, good surfing, protected anchorage." [MS:345]

"Interesting and safe anchorages." [MS:346]

"Safe sheltered water - fishing and crabbing." [MS:350]

"Isolation, beauty, peacefulness, safe anchorages." [MS:358]

## 06 People

"Because of the lack of people in the area - it is nice and quiet and unspoiled." [MS:22]

"The only place to go fishing with my size dinghy." [MS:64]

"A lovely area, much of it pristine, good fishing; some areas relatively remote; to get away from tourist areas; to enjoy nature." [MS:82]

"Few, if any people." [MS:107]

"Because it is as yet unspoilt and original and uncrowded. It is also a safe haven when cruising the area." [MS:136]

"Uncrowded and unspoiled" [MS:147]

"Our local waters; area's spectacular beauty; remoteness; away from crowded areas; to catch a feed of fish; for cruising and exploring." [MS:156]

"Inaccessible to small craft and cars. Natural - undestroyed by idiots." [MS:160]

"It is a scenic route and scenic spot with fishing and crabbing available - quiet area; not over-run with vessels and people - very great recreationally - unspoilt area that should be retained." [MS:166]

"Diversity of fishing. Ability to camp in relative isolation. Appreciate the beauty of the area." [MS:196]

"It is one of the nicest areas on the Queensland coast. Vast areas of sheltered waters. Relatively unspoiled. Nov very accessible. Low numbers of users." [MS:203]

"Good fishing, isolated, no resorts, no fees, no regulation, and freedom." [MS:323]

"Other areas are over populated." [MS:287]

"Isolation, beauty, peacefulness, safe anchorages." [MS:358]

"Not crowded, generally good weather and clear water." [MS:369]

"Fairly secluded and good fishing." [MS:384]

## 07 Activities

"Very pleasant camping area and fishing spot." [MS:05]

"For digging yabbies and recreational fishing." [MS:09]

"Family camping, recreational fishing." [MS:23]

“Fishing. Swimming.” [MS:26]

“Safe, beautiful, apt for activities and unspoiled.” [MS:43]

“It’s a nice place to camp and fish, and we usually catch some good fish.” [MS:50]

“Recreational fishing, sightseeing and camping.” [MS:53]

“Easily accessible. I’ve fished the area since I was 12 and have always got a few fish. It’s also a good place to teach kids how to fish and then there’s natural beauty of the place. It’s also good surf fishing in the corner of Nine Mile Beach and Five Rocks.” [MS:83]

“Scuba diving; camping.” [MS:90]

“It has a good supply of fresh water, the surfing is good, fishing and spearfishing is good, it is relatively close to home and it is a beautiful spot.” [MS:96]

“Recreational and fishing purposes” [MS:139]

“Keppel Islands.” [MS:145]

“The coastal waters have better visibility for diving (areas E, D, C) than the coast at Yeppoon and south. The water depth adjacent to the coast is deeper and the fishing is better than near Yeppoon.” [MS:150]

“Our local waters; area’s spectacular beauty; remoteness; away from crowded areas; to catch a feed of fish; for cruising and exploring.” [MS:156]

“They suit my activities.” [MS:170]

“Recreational.” [MS:172]

“To have an outing, fishing and camping.” [MS:186]

“Diversity of fishing. Ability to camp in relative isolation. Appreciate the beauty of the area.” [MS:196]

“Fishing and a weekend outing!” [MS:199]

“Fishing and surfing.” [MS:220]

“Sailing.” [MS:223]

“Recreation.” [MS:248]

“Activity” [MS:262]

“These areas are close to Rockhampton and my family loves to fish and camp.” [MS:266]

“Fishing and camping.” [MS:325]

“Race circuit - set by C.C.Y.C.” [MS:290]

“Survival training. Superb fishing area and superb scenery.” [MS:326]

Pristine area, good boating, good fishing.” [MS:328]

“Good fishing, good surfing, protected anchorage.” [MS:345]

“Best for boating and fishing” [MS:386]

“Fishing and camping.” [MS:388]

“Safe boating - National Park.” [MS:390]

## 08 Food

“To provide our family with a source of food.” [MS:42]

“To obtain fish for personal consumption.” [MS:62]

“Our local waters; area’s spectacular beauty; remoteness; away from crowded areas; to catch a feed of fish; for cruising and exploring.” [MS:156]

“Usually catch fish for own use - catches are declining.” [MS:320]

## 09 Other 1

“Easily accessible. I’ve fished the area since I was 12 and have always got a few fish. It’s also a good place to teach kids how to fish and then there’s natural beauty of the place. It’s also good surf fishing in the corner of Nine Mile Beach and Five Rocks.” [MS:83]

“To collect beach worms for our living, as these are the best areas.” [MS:104]

“I do not take my boat in open waters.”

“Have not used them. Consider it too far to travel to reach.” [MS:121]

“To make a living, so that we can pay tax to keep the rest of the bludgers in this country alive.” [MS:140]

“These places are the closest available, even though they are not the best for fishing due to depletion of stocks.” [MS:148]

“Because I have operated in these waters as a professional fisherman and an amateur fisherman since 1952 and I like the area.” [MS: 149]

“Section E should be dissected by Military boundary as shown. Survey has not taken account of different areas. Army Regulations apply in Shoalwater Bay Military Training Area. Item 12 is a wish list - will survey results be qualified by Army constraints?” [MS:156]

“Relatives live in Yeppoon and know the area for fishing.” [MS:169]

“Conduct a diving business.” [MS:176]

“Virgin country. Have hut to stay at.” [MS: 257]

“No special reason.” [MS:278]

“I don’t fish Corio North.” [MS:308]

“Good fishing, isolated, no resorts, no fees, no regulation, and freedom.” [MS:323]

“Boat parked at Keppel Sands.” [MS:294]

“Why does a duck have feathers?” [MS:343]

“Sports fishing; rec. fishing; pleasure; work.” [MS:360]

“Stupid question - I don’t own a helicopter.” [MS: 363]

## Appendix 12. Full transcriptions of comments relating to activities suitable in the study area

### Comments for Question 13 by Mail survey respondents

#### 01 Declining stocks

"It is my opinion that commercial fishing should be banned in Corio Bay from the headlands up stream. This area should be a recreational fishing area only. Having fished this area over the last 25 years commercial fishing has increased while the fish haul decreased. There are few areas where family fishing can be enjoyed and this is one of them." [MS:02]

"The reason I don't like commercial fishing is because they overfish any particular area." [MS:03]

"Commercial harvesting in closer areas restricts amateur catches." [MS:08]

"Commercial fishing is detrimental to those pristine areas. Trawling and their by-catch kills thousands of undersized fish. Public should have better access to these areas. Access to Areas "B", "C" and "D" is only for those fortunate enough to own a large boat and you can not land on the beaches because of Army regulations. Central Queensland fishermen have very few places to go." [MS:09]

"If everyone was careful and didn't take undersized fish we could all enjoy a "good" feed of fish. The trawlers ruin the bottom and destroy thousands of small reefs, etc. I do not eat shell fish of any kind. These should be procured by way of controlled farming methods." [MS:18]

"Commercial fishing is doing too much damage (trawling and netting)." [MS:20]

A "To try and catch a fish - often without any luck at all!! The trawlers come in so close to the shore - they take the lot!!!!" [MS:21]

"Commercial netting of fish has decreased fish population. Commercial crabbing has decreased the crab population." [MS:31]

"Crabbing should have a 2 year total ban for crab population to increase. Trawling should be banned from all coastal areas." [MS:65]

"The reason I don't want commercial netting in (E) is because over the last three (3) years commercial pressure has increased dramatically, and believe it or not, recreational pressure has probably decreased, because the Fitzroy River has been fishing so well. The reason I don't want any spearfishing is because there's been many barramundi speared through winter months - mainly breeding stock." [MS:83]

"I have fished and crabbed an area just north of Map 1 over the last 10 years and have noticed the decline of crabs and fish stocks, this I put down to the number of professional nets and crab pots I come across. What we call flogging a particular creek or creeks." [MS:103]

"I regard Area B as very special in regard to general marine life and consider it an important breeding ground for such life. The topography, ie- "Funnel" shaped, I feel would make marine life very vulnerable and activities listed." [MS:213]

"I have fished these areas for approx. twenty five years and fish stocks are slowly depleting due to trawling and commercial netting too close to shore." [MS:226]

"Collection leads to depletion. No commercial activities have the environment as top priority. By indigenous - does this allow commercial like activities to take place (netting, spearing)?" [MS:268]

"There should be 20km zone free from all pro. fishing from the beach and areas closed for 6 to 12 months to let fish breed up and severely policed with large fines." [MS:295]

"This area should be kept for fish and crabs to breed and not fished out like so many other places." [MS:341]

"Fish stocks seem to be drastically reduced over the last 2 years and a break in commercial fishing for a couple of years should help restock." [MS:359]

"Ring netting in Section A has seriously depleted the annual run of school and spotted mackerel down the coast. Otter trawls in Section E have a devastating effect on juvenile estuary species of fish and should be banned. All commercial activities should be banned from Corio Bay as it is too shallow to sustain the pressure." [MS:367]

## 02 Keep out

"It is my opinion that commercial fishing should be banned in Corio Bay from the headlands up stream. This area should be a recreational fishing area only. Having fished this area over the last 25 years commercial fishing has increased while the fish haul decreased. There are few areas where family fishing can be enjoyed and this is one of them." [MS:02]

"Good fishing spots, beautiful views." [MS:06]

"I do not believe trawling should be allowed at the mouth of Corio Bay which they do because it is a breeding ground and their by-catch kill a lot of young fish." [MS:07]

"Good fishing." [MS:11]

Choices are chosen considering Army use and closure part-time of its areas. From Corio South - **No trawling.**" [MS:17]

"No commercial use should be made of this area. Especially sandmining." [MS:19]

"In general I am not in favour of commercial netting and trawling close to the beaches and coastal headlands. Netting more so in beach side villages." [MS:27]

"Keep commercial chaps out so my children can catch a fish." [MS:33]

"Commercial netting, trawling , and spearfishing should be kept 5kms off-shore." [MS:35]

"I am a firm believer that any commercial activities should not be carried out in sheltered waters, eg - creeks, rivers or in Sections "A" and "B" type areas." [MS:37]

"I believe all types of commercial trawling should be prohibited at least 5 months from shores of all islands and beaches." [MS:46]

"Nil comment made except as in Item ® - that is definitely no trawling." [MS:47]

"No commercial activity **whatsoever!**" [MS:51]

"I have net fished Shoalwater area and have seen the destruction of turtles and dugong." [MS:57]

"Commercial netting and crabbing in closed water should be stopped immediately, ie - Corio Bay, Port Clinton and Shoalwater Bay. Some form of moratorium on recreational crabbing, ie - 12 months ban on crabbing in Corio Bay. [MS:58]

"Trawling should not be allowed within a 10km radius of the mouth of any creek, river or inlet, etc. because of the amount of young marine life killed, in the nets of trawlers, while moving in and out of these areas." [MS:59]

"Maybe commercial fishing with guidelines and seasons." [MS:61]

"Section "B" is the spawning ground which helps propagate Sections "A" to "E"." [MS:63]

"Crabbing should have a 2 year total ban for crab population to increase. Trawling should be banned from all coastal areas." [MS:65]

"These areas should remain untouched and could become a hatchery for all sea creatures" [MS:66]

"On several trips to the area indicated I have found enormous amounts of small fish of many species discarded by trawlers and floating on the surface, the result, I believe, of trawling too close to the shoreline in the area of Five Rocks and Cape Manifold south to Corio Bay. [MS:67]

"I have not visited this area as yet so am not in a position to answer, but feel that commercial fisherman encroach too close of shore at Yeppoon." [MS:68]

"Trawling should be banned within the area off Yeppoon and bounded by the Keppel Group." [MS:69]

"Pretty well nil commercial fishing." [MS:71]

"Keep trawlers and beam trawlers out of the waters - leave it for the general public." [MS:76]

"I hate seeing pristine areas commercialised and taxes charged on commercial enterprises going to lying politicians and bludging blacks." [MS:79]

"The reason I don't want commercial netting in (E) is because over the last three (3) years commercial pressure has increased dramatically, and believe it or not, recreational pressure has probably decreased, because the Fitzroy River has been fishing so well. The reason I don't want any spearfishing is because there's been many barramundi speared through winter months - mainly breeding stock." [MS:83]

"Professional fishing is out of hand. In years past if fishing was good the locals made money - now if the fishing is good, we have professional fisherman from Townsville to Bundaberg converge on the area and it si dead in a week. Tourism in an area only makes everything too expensive for the people who live there to use it." [MS:84]

"History shows that wherever commercial interests are allowed into pristine areas, they completely exploit it. Trawlers raid areas when they cant be discovered and the result is that there ends up being nothing for anyone! Camping/fishing should be allowed in the Shoalwater Bay area and Five Rocks area should never be closed for camping, etc." [MS:96]

"I find it hard to understand why commercial fishing is allowed to go on in Corio Bay - Fishing Creek and the whole of Waterpark Creek. This happened in Hervey Bay many years ago until a law was passed, whereby trawler fishing was not allowed within 9km of the shoreline. Since then reasonably good fishing has returned. Cannot something be done for this area? I am also very much against the taking of undersized marine species." [MS:97]

"Keep trawlers out of Corio Bay." [MS:99]

"I have fished and crabbed an area just north of Map 1 over the last 10 years and have noticed the decline of crabs and fish stocks, this I put down to the number of professional nets and crab pots I come across. What we call flogging a particular creek or creeks." [MS:103]

"Consider professional fishermen should give the whole area a break." [MS:114]

"Minimal and controlled use only." [MS:116]

All persons should be treated equal - black or white! Restrict all commercial operations to all areas. Camping facilities and reasonable two(2) wheel drive access to areas, however restrict certain areas." [MS:118]

"Trawlers do the most damage." [MS:123]

"Trawling, I believe tends to kill juvenile fish stocks, especially in some of these areas which are fish hatcheries, commercial netting, especially for mackerel spawns in this area is wholesale slaughter of fish. [MS:130]

"Commercial netting, trawling, line fishing, bate gathering has just about bugged the area in question. This whole area should be used by strictly amateurs. Also there should be no special dispensation for black, white or brindle." [MS:134]

"It is my opinion that commercial trawlers should not be allowed within 3 kilometres of the coast." [MS:139]

"Since trawlers have been allowed to operate close inshore to beaches in Yeppoon area, beach fishing is a complete waste of time. There are none (fish) left in this area. [MS:141]

"I feel that commercial fishing, ie - trawling should be restricted to waters a set distance from populated coastlines." [MS:144]

"Large areas should be out of bounds for all (stock regeneration)." [MS:147]

"You should have noticed I don't like commercial use of this or any area. This is due to the fact that they have destroyed the fishing and breeding grounds. If they had a limit of 8" nets then the smaller fish could go through and not just wiped out and wasted." [MS:148]

"I think there should be some coastal areas where trawling is prohibited because of the by-catch of small fish and turtles, therefore exclusion in this whole area would be a positive. No netting - E, D, C, B to protect dugongs. No camping/sightseeing to keep wilderness values for boating. No commercial line fishing to prevent over exploitation." [MS:150]

"Aboriginal or indigenous should not have any more rights than white! All commercial fishing should be stopped in Areas A-E. The amount of small fish they kill trawling is astronomical!" [MS:153]

"Question 12(B) - Not within 5km of Corio Bay." [MS:154]

"Because this is a unique area, sand mining and commercial fishing should be kept out of this area to preserve it for future generations." [MS:157]

"Commercial crabbing/oystering should not be permitted. Indigenous hunting, fishing etc should not be as a commercial enterprise." [MS:161]

Stop commercial trawling to prevent the killing of unwanted juvenile fish. New methods of harvesting is required.

"Trawlers should not be allowed because of killing and ploughing of the sea bed. Professional netting because of the tonnes they catch in one hit - none to catch on fishing lines." [MS:169]

"I don't think indigenous people should be able to collect or kill anything which the greater community is not. Commercial netters and trawlers are degrading the fisheries. The commercial netters and trawlers need more regulation and observation of their activities." [MS:170]

"I think Stanage Bay and Shoalwater Bay should be kept to recreational fishermen only!" [MS:171]

"If Activities (a), (b) and (i) for private purposes only and with a small bag limit. No commercial activities of any description in any area." [MS:173]

"This area is very sensitive. Commercial fishing and trawling would put great pressure on the area. [MS:181]

"Re: Indigenous hunting - one set of rules for all people. Commercial fishing, trawling and collecting - on large scale kills unwanted fish species. Australian coastal waters are being fished out. We should encourage fish farms even if it means pay more for fish in the shop.

"I feel Shoalwater Bay (Section (B)) should be closed to recreational and commercial fishing. To have an area where fish and wildlife can breed with no disturbance is invaluable to the future of fisheries." [MS:186]

"The Corio Bay and Five Rocks area should be left alone by commercial operations and trawlers to allow for a specific breeding area, to keep fish and crustacean stocks high and not depleted." [MS:194]

"Bait, netting and recreational only. Camping, short time only - not permanent." [MS:195]

"Any highly mechanised fishery method (such as nets) should be excluded in breeding and associated eco-systems. In the 35 years I have been involved in this area I have seen shell life that was once prolific (washed up on beaches - reduced to near nil, except for very small species). There is only one pressure group impacting on this habitat - Trawlers! The bottom in this area has been dragged smooth and devoid of life to a large extent. I believe the bait and nursery areas should be protected - absolutely!" [MS:197]

"Disagree, unless bag limit set. Don't agree with turtle or dugong kill. I have lived at Airlie Beach and saw the dugongs disappear. All trawling should be ceased within 3 mile limit. Biggest killer of sea life!" [MS:198]

"Ban trawling. At least 6km from beach." [MS:201]

"Trawlers have already made grave in-roads to the fish populations in Island Head Creek and Port Clinton." [MS:203]

"Go crabbing when crabs are moving and also do fishing while crabbing. It is a good place to do some fishing and crabbing and also would like to see professional crabbers and net fishing banned in Corio Bay area because it is a hand place to go crabbing and fishing left on the coast. [MS:205]

"There should be no commercial fishing of any form allowed in these areas. Also a lot of National park exists here and should be open for everyone to see." [MS:209]

"Commercial fishing, etc. does not need to happen close to shore and in closed areas." [MS:211]

"Area E is the only area which concerns us, but we also feel commercial netting and trawling should not occur in any near coastal area." [MS:214]

"Commercial fishing, especially trawling is causing far more damage than any recreational fishing could cause, mainly because of the destruction of non-commercial fish!" [MS:215]

"Camping tourists sightseeing should be confined to selected areas so as not to damage the environment. Trawling should be kept away from breeding areas so small fish can survive and no commercial netting allowed in creeks or rivers as most of our fish are sold over-seas." [MS:217]

"Section "B" is dugong habitat and with depleted numbers due to indiscriminate commercial netting must be protected. (Ask marine parks about the persons involved.) [MS:225]

"Trawlers and pulse net fishing have decimated the fish sustainability of the area. Trawlers have even dragged chains to clear coral areas for the coral prawn, take undersized scallops, and have at times revealed the huge by catch washed up on shore. Sale of whole fish (gut intact) to the Taiwanese market allows unlimited overfishing by commercial netters. Bring in Northern Territory Regulations!" [MS:231]

"Netting and trawling kill too many unwanted fish." [MS:233]

"I feel the currents are too strong and water too dirty for these to be safe! From my experience commercial fishers tend to be unscrupulous in the area. They do not watch their nets properly and often net off creeks fully, making it impossible for others to use creeks and rivers." [MS:238]

"Should be no commercial fishing or trawling in bays." [MS:248]

"Section "B" and "D" should be kept for line fishing from boats or shores only. Also people over 50 years of age whose families have grown up need an area they can take their dogs with them." [MS:255]

"Commercial fishing, etc. should be looked at." [MS:257]

"No trawlers allowed in any area. Keep for recreational fishing only." [MS:263]

"Sections 'B', 'C', 'D' and part 'E' is Army country and should be maintained as such to try and replenish what has been destroyed over the years by commercial and recreational fishermen alike. While the Army remains (all out) excluding shelter in bad weather conditions." [MS:264]

"In my opinion Commercial operations in regards to shell collecting, crabbing, oystering, line fishing, netting and trawling are uncontrolled and these operators are devastating the areas to their own advantage and everyone else." [MS:267]

"Collection leads to depletion. No commercial activities have the environment as top priority. By indigenous - does this allow commercial like activities to take place (netting, spearing)? [MS:268]

"No commercial fishing or netting when the professionals have been in Corio Bay. You never catch a fish - they seem to take the lot." [MS:269]

"All users should get a fair go - access via Army country should be available - stronger action needed for "Shameter" and illegal netting." [MS:276]

"Trawlers shouldn't be allowed within 30 miles from any mainland or island." [MS:284]

"The banning of commercial netting from the Shoalwater Bay area has been a very positive step." [MS:311]

"Trawler should be kept 2klm off shore. Shoalwater Bay should be kept as a breeding ground for all marine life. Shell collecting, commercial or recreational should be in defined small areas in each of the large areas." [MS:317]

"Netting should be banned in enclosed waters and breeding areas." [MS:318]

"All trawling and commercial fishing banned!" [MS:322]

"Stop commercial netting close to the coast." [MS:290]

"There should be 20km zone free from all pro. fishing from the beach and areas closed for 6 to 12 months to let fish breed up and severely policed with large fines. [MS:295]

"I believe most of these area should be used for light recreational purposes and any commercial use be strictly controlled. The area should be occasionally inspected by Rangers and/or water police." [MS:298]

"I think trawlers should be kept away from the Yeppoon beach area and not stirring the bottom up, helping Yeppoon look prettier for tourists." [MS:303]

"Limit the Pro's from over fishing, crabbing. The feral goats need controlling on Townsend Island. The ban is Canoe Passage needs enforcing. Question on Indigenous fishing is a joke - they use modern methods and do not respect limits." [MS:304]

"The majority of commercial fishermen appear to care only for today's financial reward and give little thought to reducing stocks or the environment for future use." [MS:333]

"Ban all mono-filament nets." [MS:335]

"Bar all commercial activities." [MS:340]

"All activities ticked "Yes" to be strictly controlled and all commercial activities definitely out!" [MS:348]

"All people (except Army) should be allowed to use **all** the coastal areas. Trawling in shallow coastal waters should be stopped." [MS:353]

"Fish stocks seem to be drastically reduced over the last 2 years and a break in commercial fishing for a couple of years should help restock." [MS:359]

"Thirty years we have visited these areas, and seen what trawling and commercial fishing has done to the area. Some recreational activities have not been kind to the areas too, eg - fish and crab numbers and sizes; littering; roads/tracks." [MS:360]

"Ring netting in Section A has seriously depleted the annual run of school and spotted mackerel down the coast. Otter trawls in Section E have a devastating effect on juvenile estuary species of fish and should be banned. All commercial activities should be banned from Corio Bay as it is too shallow to sustain the pressure." [MS:367]

"I believe commercial operations cause more harm to an area then recreational operations." [MS:368]

"For the recreational fisherman to catch fish all professional fishing should be made to work 7-9 mile from all of the coast line. Ten years ago I could catch whiting from the beach but thanks to the trawlers who only kill whiting and small fish we no longer catch any whiting. So I cannot take my grandchildren fishing because there is nothing to catch." [MS:371]

"I feel there is too much commercial fishing being done on the Queensland coast line - much of it is carried out . [MS:382]

"Netting commercially is not good as too many unwanted species of fish are caught, die and are washed up on the beach." [MS:386]

"Section 12(b) I believe the Defence Department should be made to set aside areas in (c) and (d) for camping. Section 12 (o) Indigenous peoples should have no more rights than those of recreational users or commercial if these people are qualified, eg - Commercial fishermen have been severely penalised because of dugong yet indigenous peoples are allowed to kill these endangered species. [MS:390]

### **03 Increase commercial controls**

"Although I am not totally opposed to commercial fishing, crabbing, etc; I am opposed to the lack of zoning for commercial fishermen, eg - Bundaberg fishermen fishing Gladstone area during salmon and mullet runs, etc. Perhaps we should look at the N.T. for an example of fish control/ management of both amateur and professional activities." [MS:14]

"Indigenous hunting, fishing, etc, should only be by traditional methods. the amount of commercial netting should be strictly controlled, and stricter bag limits put in place to relieve pressure on fish stocks in these areas." [MS:24]

"Lack of familiarity with areas to north of Yeppoon makes it difficult to access what I would personally not like allowed. Generally I am interested in stricter controls on commercial fishing operations in particular." [MS:25]

"I believe commercial fishing activities benefit only a few compared to the economical significance of the large number of private fishermen competing for the same finite resource, eg - N.T. bought out all river barra licences (net) for obvious tourist benefit." [MS:62]

"Licences - for all netting, trawling and collecting." [MS:302]

### **04 Traditional fishing**

"Indigenous hunting, fishing, etc, should only be by traditional methods. the amount of commercial netting should be strictly controlled, and stricter bag limits put in place to relieve pressure on fish stocks in these areas." [MS:24]

"Traditional fishing for black and white." [MS:26]

"With respect to Item "O" only if done in traditional manner, ie dugout canoe - not alloy dinghy with outboard. With respect to Items "F" and "I" small bag limits to be imposed. With respect to Item "G" recreational diving - Ok." [MS:39]

"Indigenous hunting/fishing/collecting as for others. No discrimination on basis of race." [MS:92]

"On the indigenous question - it should be the same rules for all. Locals, visitors, professionals, amateurs, and I think that certain streams or areas should be closed to all activities for five (5) year periods on a rotational basis, ie - Area "B" followed by "D"." [MS:100]

"Limit the Pro's from over fishing, crabbing. The feral goats need controlling on Townsend Island. The ban is Canoe Passage needs enforcing. Question on Indigenous fishing is a joke - they use modern methods and do not respect limits." [MS:304]

### **05 Public consultation**

Nil comments.

### **06 Management Plan**

"It is my opinion that commercial fishing should be banned in Corio Bay from the headlands up stream. This area should be a recreational fishing area only. Having fished this area over the last 25 years commercial fishing has increased while the fish haul decreased. There are few areas where family fishing can be enjoyed and this is one of them." [MS:02]

"There is not enough good recreational fishing spots for the small family week-ender." [MS:05]

"I am not in favour of commercial netting in any areas on the coast. On the setting up of too many tourists pontoons for snorkelling or diving as too many tourists damage environment." [MS:06]

"Management plan is crucial to prevent natural resources from being destroyed. I only hope it is not too late!" [MS:23]

“With respect to Item “O” only if done in traditional manner, ie dugout canoe - not alloy dinghy with outboard. With respect to Items “F” and “I” small bag limits to be imposed. With respect to Item “G” recreational diving - Ok.” [MS:39]

“The majority of Shoalwater Bay is unsuitable for diving due fast currents and cloudy water. Some areas are dangerous for small boats due to tidal fast currents. Pearl Bay should be a tourist area. Military Training should take precedence over all the above in most land areas as Defence is one of major concerns.” [MS49]

“Sensible conservation of nature to preserve for posterity.” [MS:55]

“You’ve only given one set of options. The survey precludes other options, such as closing off each area - in rotation for one year at a time - to all activities.” [MS:92]

“On the indigenous question - it should be the same rules for all. Locals, visitors, professionals, amateurs, and I think that certain streams or areas should be closed to all activities for five (5) year periods on a rotational basis, ie - Area “B” followed by “D”.” [MS:100]

“There should be responsible use of area.” [MS:164]

“It is my general belief that the area should be managed and operated by the appropriate authorities (ie - forestry, etc) to maintain the environmental aspects of the area. A major emphasis on the number of users to the area at any one time. Look what’s happening to Fraser Island!” [MS:196]

“In my opinion these unspoilt areas should remain in their natural state. They should remain open for everyone to enjoy, as long as they are managed accordingly. Commercial, recreational and Indigenous groups need to combine together to ensure this is possible, by adhering to the same set of regulations. As for Areas “C” and “D”, they should be left completely undisturbed and I believe this possible due to their inaccessible location. With careful management and regular patrols they should remain for future generations to enjoy.” [MS:281]

“The east coast desperately needs somewhere wild and undeveloped. This small pocket is all that’s left. At all cost we should keep out the Keith Williams’! and leave this area as untouched as possible. It is far too precious in its present state.” [MS:323]

“Limit the Pro’s from over fishing, crabbing. The feral goats need controlling on Townsend Island. The ban is Canoe Passage needs enforcing. Question on Indigenous fishing is a joke - they use modern methods and do not respect limits.” [MS:304]

## **07 Bag limits**

“With respect to Item “O” only if done in traditional manner, ie dugout canoe - not alloy dinghy with outboard. With respect to Items “F” and “I” small bag limits to be imposed. With respect to Item “G” recreational diving - Ok.” [MS:39]

“Restricted bag limit recreational fishing.” [MS:71]

“If limits of catches are the same for everyone.” [MS:75]

“I find it hard to understand why commercial fishing is allowed to go on in Corio Bay - Fishing Creek and the whole of Waterpark Creek. This happened in Hervey Bay many years ago until a law was passed, whereby trawler fishing was not allowed within 9km of the shoreline. Since then reasonably good fishing has returned. Cannot something be done for this area? I am also very much against the taking of undersized marine species.” [MS:97]

“Closed seasons for crabs, prawns, for few years then re-assess areas.’ [MS:142]

“Strictly limit bag catches for recreational fishermen with heavier penalties for exceeding allowable catch number.” [MS:265]

## **08 Increase access**

“I think access through Shoalwater Bay by land should be allowed for collecting beach worms, as it is very difficult using the ocean.” [MS:104]

All persons should be treated equal - black or white! Restrict all commercial operations to all areas. Camping facilities and reasonable two(2) wheel drive access to areas, however restrict certain areas." [MS:118]

"Allow overland access into Port Clinton and Shoalwater Bay for recreational users." [MS:128]

"I enjoy the area and look forward to greater public access. Am happy for all to share in many ways. Commercial fishing operations are never well managed and causes depletion of stocks and degradation of marine environment. (I do not fish.) [MS:223]

"Section "B" and "D" should be kept for line fishing from boats or shores only. Also people over 50 years of age whose families have grown up need an area they can take their dogs with them." [MS:255]

"All users should get a fair go - access via Army country should be available - stronger action needed for "Shameter" and illegal netting." [MS:276]

"Most of the areas shown on map. People without a boar or only own a small boat cannot get to these areas. I think the Army own too much area in Shoalwater Bay. Most people will never see this area." [MS:299]

## **09 Activity controls**

"It is my opinion that commercial fishing should be banned in Corio Bay from the headlands up stream. This area should be a recreational fishing area only. Having fished this area over the last 25 years commercial fishing has increased while the fish haul decreased. There are few areas where family fishing can be enjoyed and this is one of them." [MS:02]

"We have not visited the areas mentioned on the maps. As we are recreational users, we naturally would like to see any activities carried out in these areas to control abuse, but allow as much access as possible to recreational users." [MS:15]

"No commercial use should be made of this area. Especially sandmining." [MS:19]

"Indigenous hunting, fishing, etc, should only be by traditional methods. the amount of commercial netting should be strictly controlled, and stricter bag limits put in place to relieve pressure on fish stocks in these areas." [MS:24]

"No restrictions but access should remain difficult and no commercial activities, except fishing permitted. Fishing commercially must remain even if by control otherwise there are few reasons for retaining ready access to marine health. Commercial fishing means governments, etc. have to be conscious of pollutants and waterway sustainability and fishermen are the first and most obvious persons to notice marine changes." [MS:41]

"Allow all forms of nature appreciation and non collective activities." [MS:71]

"I hate seeing pristine areas commercialised and taxes charged on commercial enterprises going to lying politicians and bludging blacks." [MS:79]

"Professional fishing is out of hand. In years past if fishing was good the locals made money - now if the fishing is good, we have professional fisherman from Townsville to Bundaberg converge on the area and it si dead in a week. Tourism in an area only makes everything too expensive for the people who live there to use it." [MS:84]

"History shows that wherever commercial interests are allowed into pristine areas, they completely exploit it. Trawlers raid areas when they cant be discovered and the result is that there ends up being nothing for anyone! Camping/fishing should be allowed in the Shoalwater Bay area and Five Rocks area should never be closed for camping, etc." [MS:96]

"All camping and other activities should be strictly controlled. The area should be declared a National Park (If it isn't already!) and policed by permanent rangers." [MS:105]

"My support for the activities not marked "X" has to be limited, as I have very limited data on areas "A", "B", "C" and "D". None of the activities is harmful at present due to very limited access. Thousands of visitors a year would very soon destroy this delicate environment." [MS:107]

All persons should be treated equal - black or white! Restrict all commercial operations to all areas. Camping facilities and reasonable two(2) wheel drive access to areas, however restrict certain areas." [MS:118]

"This area being one of the last coastal areas left unspoilt, should be preserved in this state at **all** costs. Most of Australia's coast (east) has been developed and exploited - surely we can preserve one section in it's natural state - what an opportunity this offers! [MS:136]

Port Clinton should remain as is!!

No Mining.

No Development

"Sand mining should be forever banned. The area should be World Heritage listed." [MS:138]

"I think there should be some coastal areas where trawling is prohibited because of the by-catch of small fish and turtles, therefore exclusion in this whole area would be a positive. No netting - E, D, C, B to protect dugongs. No camping/sightseeing to keep wilderness values for boating. No commercial line fishing to prevent over exploitation." [MS:150]

"Because this is a unique area, sand mining and commercial fishing should be kept out of this area to preserve it for future generations." [MS:157]

"This area is unique. It's fishing and other resources should be preserved, enhanced and managed so it can be used by the general community for recreational fishing and recreation and not spoilt by overfishing or locked up by the Army.

"If Activities (a), (b) and (i) for private purposes only and with a small bag limit. No commercial activities of any description in any area." [MS:173]

"Bait, netting and recreational only. Camping, short time only - not permanent." [MS:195]

"Disagree, unless bag limit set. Don't agree with turtle or dugong kill. I have lived at Airlie Beach and saw the dugongs disappear. All trawling should be ceased within 3 mile limit. Biggest killer of sea life!" [MS:198]

"I am not familiar with this area but I believe that all activities approved should be limited." [MS:210]

"These areas should be for recreational use only - it is lovely areas and relaxing to visit a while at any of them. [MS:212]

"I regard Area B as very special in regard to general marine life and consider it an important breeding ground for such life. The topography, ie- "Funnel" shaped, I feel would make marine life very vulnerable and activities listed. [MS:213]

"Camping tourists sightseeing should be confined to selected areas so as not to damage the environment. Trawling should be kept away from breeding areas so small fish can survive and no commercial netting allowed in creeks or rivers as most of our fish are sold over-seas." [MS:217]

"The questions we have "√" should be abided by legal limits and sizes for each individual, and also camping should be allowed as long as you leave the place in a clean area (take rubbish out). As for indigenous hunting, etc, this law should be made illegal for all people." [MS:218]

"Question J - Research activities - educational only. [MS:222]

"With recreational fishing there are limits on the amount of fish or crabs taken; but commercial fishermen take everything. This is why there aren't the amounts of crabs or fish around these days compared with years ago. There should be bans on fishing and crabbing for everyone so as to let them breed up again." [MS:230]

"The choices made are in the short term of the next five (5) years, longer term would depend on the saturation point/re fish stocks etc. Then maybe these places could be re-defined, ie - just anchorages - just hand line fishing, etc. [MS:236]

"I feel the currents are too strong and water too dirty for these to be safe! From my experience commercial fishers tend to be unscrupulous in the area. They do not watch their nets properly and often net off creeks fully, making it impossible for others to use creeks and rivers." [MS:238]

"I believe any activity that is allowed in any of these areas should be supervised by rangers and a fee charged to get in to cover the wage of the rangers. No glassware at all to be allowed into any areas and set camping grounds that are booked so that if any rubbish, etc. is left a fine can be imposed." [MS:249]

"Item "K" - Speed limits.

Item "B" and "C" - limits and species limits. Moorings rather than anchors used.

Item "J" - restricted research." [MS:258]

"It should be left for the Army and nature." [MS:261]

"These areas have been abused by both recreational and commercial fishing persons and these areas should be closed to all types of fishing and shell collecting to preserve our dugong and turtle population." [MS:266]

"I would like to see this area made a recreational only and to include the Military Training Area into a National Park." [MS:280]

"In my opinion these unspoilt areas should remain in their natural state. They should remain open for everyone to enjoy, as long as they are managed accordingly. Commercial, recreational and Indigenous groups need to combine together to ensure this is possible, by adhering to the same set of regulations. As for Areas "C" and "D", they should be left completely undisturbed and I believe this possible due to their inaccessible location. With careful management and regular patrols they should remain for future generations to enjoy." [MS:281]

"Item "O" - Indigenous activities - no concern in any areas as long as traditional methods are used and for subsistence only. If commercial or modern technology used same as for commercial fishermen, etc.

Item "Q" - Snorkelling and spearfishing often go "hand in hand" - snorkelling needs to be checked upon to ensure integrity of activity." [MS:282]

"I have never been there. I do believe all natural places of beauty should be left as it is. If we visit a place, we should leave it as we find it! If the places look like being raped close it off." [MS:283]

"C&D Shells (especially live) should not be collected (recreationally/commercially) .

M&O - personal objections.." [MS:307]

"Because once you start letting tourists in and education facilities it becomes too commercial - then big developers want a piece of the action, that will only stuff it up. Its bad enough now with the commercial fishermen." [MS:309]

"Trawler should be kept 2klm off shore. Shoalwater Bay should be kept as a breeding ground for all marine life. Shell collecting, commercial or recreational should be in defined small areas in each of the large areas." [MS:317]

"Opposed to any form of commercial development." [MS:317]

"The east coast desperately needs somewhere wild and undeveloped. This small pocket is all that's left. At all cost we should keep out the Keith Williams'! and leave this area as untouched as possible. It is far too precious in its present state." [MS:323]

"I believe most of these area should be used for light recreational purposes and any commercial use be strictly controlled. The area should be occasionally inspected by Rangers and/or water police." [MS:298]

"From Five Rocks north in 'E' , 'D' and 'C' activities should only be by boat." [MS:332]

"Nine mile and three rivers beaches should be left for recreational use. Allowing campers to stay up to the northern end of three rivers beach with sites for quiet camping and part areas and areas for dogs and areas for no dogs, ie - National park southern end of Nine Mile - no dogs. Northern end - dogs allowed. Three Rivers beach - dogs allowed. Also people who let their dogs roam or bite people can get fined. Also littering or destroying the area be fined and made fix the area and maybe suspended from using the area for so long." [MS:338]

"Area (E) should be allowed to stay a 4WD track, but the area should be public land not Environment and Heritage. As it should be allowed to used by anyone who makes the effort to reach these destinations. But I believe instead of banning dogs, etc - there should be sections were dogs are allowed and not allowed and people who let their dogs stray or bite people should be liable to fines, and also people who litter or wreck areas should be fined. The area is a great area and should stay remote for its preservation." [MS:339]

"Good fishing, crabbing and beautiful scenery." [MS:340]

"This area should be kept for fish and crabs to breed and not fished out like so many other places." [MS:341]

"Thirty years we have visited these areas, and seen what trawling and commercial fishing has done to the area. Some recreational activities have not been kind to the areas too, eg - fish and crab numbers and sizes; littering; roads/tracks." [MS:360]

"Generally I'm a conservationist. 'Be green and save the scene.'" [MS:369]

"Section (b) - in restricted nominated areas. Section (c) - same as (b). Section (d) - limitations on quantity caught." [MS:374]

"Commercial netting area (b) should be very limited and controlled. Pt. Clinton should be managed so that fisherman and tourist operators and yachts don't spoil a very unique area." [MS:380]

"A season could be placed on all gathering and fishing." [MS:383]

## 10 Army

"Good fishing." [MS:11]

Choices are chosen considering Army use and closure part-time of its areas. From Corio South - No trawling." [MS:17]

"The ticks and crosses are inserted due to Army activities in the area and adjoining areas which could be affected by the Armed Forces. Most of the answers depend on environmental conditions and attitude of campers particularly." [MS:30]

"The majority of Shoalwater Bay is unsuitable for diving due fast currents and cloudy water. Some areas are dangerous for small boats due to tidal fast currents. Pearl Bay should be a tourist area. Military Training should take precedence over all the above in most land areas as Defence is one of major concerns." [MS:49]

"Much of the area in "B", "C" and "D" is controlled by the Army, and access is strictly limited - Area "B" is almost totally controlled and inaccessible." [MS:93]

"I am opposed to any land access to the military training area for the general public or any tourist resorts. The current limited access has kept this area in its present pristine state which I would like to see remain." [MS:113]

"No information is supplied regarding Army constraints. People who know nothing about the area are being asked to fill in a wish list. What purpose does a wish list serve for a Recreational Usage Survey?" [MS:156]

"Section B and C used for army - no recreation allowed." [MS:179]

"All activities subject to consultation with the Military authority with regard to any live firing areas and any areas where there may be unexploded munitions." [MS:187]

As I believe most of the area is owned by the Army, but is not used all year round." [MS:220]

"Any activities on land in Army area should not be allowed. Other activities adjacent to coastline only where no exercises are being held." [MS:239]

"As Areas "B", "C", and "D" are in Army Training Area most activities are restricted there. [MS:241]

"It should be left for the Army and nature." [MS:261]

"Sections 'B', 'C', 'D' and part 'E' is Army country and should be maintained as such to try and replenish what has been destroyed over the years by commercial and recreational fishermen alike. While the Army remains (all out) excluding shelter in bad weather conditions." [MS:264]

"All users should get a fair go - access via Army country should be available - stronger action needed for "Shameter" and illegal netting." [MS:276]

"I would like to see this area made a recreational only and to include the Military Training Area into a National Park." [MS:280]

"Most of the areas shown on map. People without a boat or only own a small boat cannot get to these areas. I think the Army own too much area in Shoalwater Bay. Most people will never see this area." [MS:299]

"Section (B) SWBTA - Exclusion because of possible danger. commercial fishing needs to be greatly reduced for the conservation of present and future stocks of marine animals/organisms. Commercial anything where the economic imperative dictates needs to be very well managed." [MS:326]

"All people (except Army) should be allowed to use **all** the coastal areas. Trawling in shallow coastal waters should be stopped." [MS:353]

### **11 Don't know area**

"Lack of familiarity with areas to north of Yeppoon makes it difficult to access what I would personally not like allowed. Generally I am interested in stricter controls on commercial fishing operations in particular." [MS:25]

"Gayle - it would be inappropriate for me to comment on these waters, as I have never been there - but I would most certainly comment on areas between Cape Capricorn and Bustard Heads and N/E to north reef.

"My support for the activities not marked "X" has to be limited, as I have very limited data on areas "A", "B", "C" and "D". None of the activities is harmful at present due to very limited access. Thousands of visitors a year would very soon destroy this delicate environment." [MS:107]

"As I have never been in any of the areas marked, I feel that to make decisions would be totally false. Thanking you!" [MS:120]

"Never having visited the area - I can not be specific as to the suitability of areas to certain recreations, eg - bait netting - spearfishing." [MS:122]

"Do not know the area." [MS:125]

"I'm afraid I have never been to any of the marked areas in Question 12 map, and it would be inappropriate of me to make a comment." [MS:174]

"This area has never been within my possibility of visiting and therefore I don't feel qualified to tender an opinion. But I do appreciate the chance to express one." [MS:207]

"I am not familiar with this area but I believe that all activities approved should be limited." [MS:210]

"Where left blank indicates my limited knowledge of the area or the activity." [MS:285]

"I do not use Shoalwater Bay and have no knowledge of the area, its usages or environs." [MS:306]

"I have not visited any of the areas on the map and have no opinion on what they should be used for." [MS:324]

"We have never been to this area, and don't feel we know enough about the area to make judgements on what activities should or should not take place." [MS:329]

### **12 National Parks**

"I would like to see this area made a recreational only and to include the Military Training Area into a National Park." [MS:280]

"I have noticed that the National Parks Service have defaced the Five Rocks area. There are so many sign posts that it has ruined the place - looks like a main street." [MS:01]

### **13 Other**

"The ticks and crosses are inserted due to Army activities in the area and adjoining areas which could be affected by the Armed Forces. Most of the answers depend on environmental conditions and attitude of campers particularly." [MS:30]

"It is my intention to become a commercial line fisherman in the coming years." [MS:37]

"By commercial line fishing I do not mean long line, ie multiple hooks." [MS:54]

"Re Question 10, the majority of time spent in the area would be by myself - I take friends and my own children when they visit me." [MS:82]

"Recreation fishing (line) together with photographing the undisturbed nature in general." [MS:86]

"I am opposed to any land access to the military training area for the general public or any tourist resorts. The current limited access has kept this area in its present pristine state which I would like to see remain." [MS:113]

"Personal opinion only." [MS:115]

All persons should be treated equal - black or white! Restrict all commercial operations to all areas. Camping facilities and reasonable two(2) wheel drive access to areas, however restrict certain areas." [MS:118]

"Camping should be allowed in Sections "D" and "E" as it is a long way to drive and back just for one (1) day's fishing. Camping would allow you to drive there for a week-end fishing." [MS:131]

"Commercial netting, trawling, line fishing, bate gathering has just about buggered the area in question. This whole area should be used by strictly amateurs. Also there should be no special dispensation for black, white or brindle." [MS:134]

"Section "B" is hardly used by recreational as it is too inaccessible and the Bay is full of large sharks which make it useless for diving and snorkelling and other activities.

"Aboriginal or indigenous should not have any more rights than white! All commercial fishing should be stopped in Areas A-E. The amount of small fish they kill trawling is astronomical!" [MS:153]

"No information is supplied regarding Army constraints. People who know nothing about the area are being asked to fill in a wish list. What purpose does a wish list serve for a Recreational Usage Survey?" [MS:156]

"Commercial crabbing/oystering should not be permitted. Indigenous hunting, fishing etc should not be as a commercial enterprise." [MS:161]

"Indigenous hunting should be done in a traditional method only - not high powered speed boats - outriggers and dugouts only." [MS:162]

"A safe boat launching ramp is needed somewhere in fishing area." [MS:168]

"I don't think indigenous people should be able to collect or kill anything which the greater community is not. Commercial netters and trawlers are degrading the fisheries. The commercial netters and trawlers need more regulation and observation of their activities." [MS:170]

"One activity not included in this section is commercial crabbing and my answer would be "No!". The sections not completed are unknown to me." [MS:188]

"The questions we have "✓" should be abided by legal limits and sizes for each individual, and also camping should be allowed as long as you leave the place in a clean area (take rubbish out). As for indigenous hunting, etc, this law should be made illegal for all people." [MS:218]

"A camping area should be provided in Section A. Jack Booted Land Dept officials removed all squatters in this section, selling their blocks in a million dollar sale and assuring them no holiday makers would use the area they vacated. (They said a camping area would be provided - it hasn't happened.)" [MS:221]

"Section "B" is dugong habitat and with depleted numbers due to indiscriminate commercial netting must be protected. (Ask marine parks about the persons involved.) [MS:225]

"Item "O" - in Question 12 is not relevant as indigenous people should not have more rights than other citizens, and in my experience they abuse rights more than most." [MS:227]

"Question 12 is a bit ambiguous as it asks for a definite "yes" or "no" answer. Each answer can be varied between "yes" and "no" with reservations with regard to (o). I believe indigenous people with access are selling tribal memberships to any willing to pay. [MS:240]

Item "O" - There is no difference between white Australians and indigenous Australians - and the question is offensive." [MS:242]

"Re: Item "K" - Leisure boating activities." [MS:270]

"Camping on-shore." [MS:278]

"Item "O" - Indigenous activities - no concern in any areas as long as traditional methods are used and for subsistence only. If commercial or modern technology used same as for commercial fishermen, etc.

Item "Q" - Snorkelling and spearfishing often go "hand in hand" - snorkelling needs to be checked upon to ensure integrity of activity." [MS:282]

"I have never been there. I do believe all natural places of beauty should be left as it is. If we visit a place, we should leave it as we find it! If the places look like being raped close it off." [MS:283]

"More amenities, ie - needed showers and toilets and rubbish bins, boat ramps. (Boat regulations) most expensive in Australia. [MS:291]

"I used to fish the Collins Island area regularly but that was years ago. We went by road to Coutty Uti (Macdonald's Point). sorry I couldn't be more help." [MS:297]

"Limit the Pro's from over fishing, crabbing. The feral goats need controlling on Townsend Island. The ban is Canoe Passage needs enforcing. Question on Indigenous fishing is a joke - they use modern methods and do not respect limits." [MS:304]

"I assume that sections B and C had the most sensitive environments." [MS:328]

"Why have we not been asked any questions on environmental matters relating to any proposed industry-development?" [MS:330]

"Bar all commercial activities." [MS:340]

"Queensland should recognise the industry of the Capricorn area should be aimed at tourism not commercial fishing. Tourism looks after the environment more and is financially more rewarding." [MS:342]

"Section (i) People should be allowed to camp (eg - build their own fires and use a bush toilet). Children are being far too sheltered. there should be areas especially for this purpose. Of course, they will need to be educated about keeping the area clean." [MS:354]

"Indigenous should be in the same section as 'Recreational'." [MS:355]

"I think family recreation is of utmost importance in today's world." [MS:378]

## **Appendix Twelve. Comments for Question 13 by Club survey respondents**

### **Question 13**

#### **01 Declining stocks**

"Areas around Yeppoon have been too heavily fished by professionals. Spawning areas like Shoalwater Bay, Island Head and Port Clinton will eventually end up like Corio Bay, if professionals are allowed to continue extensive netting. That is Corio Bay has little left for the amateur angler." [CS:05]

#### **02 Keep out**

"Trawling - not within 5km of the coastline. Sightseeing 0 only from boats or aircraft." [CS:01]

"I have worked on commercial boats and have seen first hand the damage that they do. Also recreational fishing should have strict guidelines to work from." [CS:03]

"Areas around Yeppoon have been too heavily fished by professionals. Spawning areas like Shoalwater Bay, Island Head and Port Clinton will eventually end up like Corio Bay, if professionals are allowed to continue extensive netting. That is Corio Bay has little left for the amateur angler." [CS:05]

“Trawling should not be allowed within 3km of the coast line. Trawling and commercial netting should not be allowed in Corio Bay.” [CS:07]

“Our indigenous friends enjoy enough other benefits and most do not appear to need to hunt turtle or dugong to survive. Spearfishing and trawling on coastal strips should be banned for at least 3km from shore. Question - How is the public ever going to get access to Areas “B”-“C”-“D” by land for all activities you have listed?” [CS:08]

“I think the time for allowing any live shell collecting is long since passed if we are really concerned about the environment Areas “B”, “C” and “D” are such a nursery and really don’t think commercial netting should be allowed.” [CS:12]

“Close off shore prawn trawling along Section “E” should be banned.” [CS:15]

“I believe that the areas on the map are of a few that are available to small craft fishing and land based visits. Commercial operations should be forced to use other areas.” [CS:19]

“Section “A” closed to all commercial fishing. Section “B” limited use only.” [CS:24]

### **03 Increase commercial controls**

“I am retired after crabbing and netting Shoalwater for the last 15 years, during that time I have killed at least 10 dugong and a lot more turtles. If our grandchildren are to see a dugong or turtle in the future, netting will have to be banned in this area.” [CS:02]

Section “E” - trawling should be allowed if given a 15 mile limit from shoreline or low tide mark out 15 miles.” [CS:28]

### **04 Traditional fishing**

Nil comments.

### **05 Public consultation**

Nil comments.

### **06 Management Plan**

Nil comments

### **07 Bag limits**

Nil comments

### **08 Increase access**

Nil comments.

### **09 Activity controls**

“Preserve the area.” [CS:06]

“I think the time for allowing any live shell collecting is long since passed if we are really concerned about the environment Areas “B”, “C” and “D” are such a nursery and really don’t think commercial netting should be allowed.” [CS:12]

“This area should be protected from being exploited by tourism and commercial fishing activities.” [CS:16]

### **10 Army**

Nil comments

## **11 Don't know area**

Nil comments.

## **12 National Parks**

"Keep National Parks completely out of the area." [CS:04]

## **13 Other**

"Trawling - not within 5km of the coastline. Sightseeing 0 only from boats or aircraft." [CS:01]

"Our indigenous friends enjoy enough other benefits and most do not appear to need to hunt turtle or dugong to survive. Spearfishing and trawling on coastal strips should be banned for at least 3km from shore. Question - How is the public ever going to get access to Areas "B"- "C"- "D" by land for all activities you have listed?" [CS:08]

"Unsure what is meant by "indigenous hunting?" [CS:11]

## **Comments for Question 13 by Self selection survey respondents**

### **Question 13**

#### **01 Declining Stocks**

"Isolation and scenery." [SS:26]

"Zones "C", "D" and "E" contain Corio Bay, Port Clinton and Island Head Creek - fish habitat and nursery/breeding areas. Biological fact - unless area is overfished, mortality of juveniles will have greatest impact on fishery. The Military Forces and Zoned Training Area, I believe to be the greatest conservation processes in Australia. This must be maintained." [SS:36]

#### **02 Keep Out**

"After 35 years of fishing the area I have seen what trawling has done to the area from the mouth of Fitzroy River to Cape Townshend and the effect the mullet netters have had - on all fish species." [SS:03]

"Get rid of professional nets and trawlers in Queensland. Take the Northern Territory approach." [SS:16]

"Many years in the Army tell me that this area (Section "B") should be left along completely, especially from commercial and recreational fishing activities. It's past the time when we humans learnt **not** to touch. We teach our children this, but have trouble ourselves." [SS:19]

"I think that they should ban all commercial netting and line fishing and also commercial crabbing in these areas as the pro fishermen take anything and put nothing back." [SS:22]

"Section "B" should be closed to all netting and crabbing and kept solely as a breeding area." [SS:25]

"Please use these grounds for recreational use - not for the State to make a dollar. Let not money rape this land of its resources. These grounds seem unspoilt - please keep the commercial fishing aspect limited as possible to ensure your children can catch a feed." [SS:28]

"Clearly there are a number of rogue commercial fishing operators within the area. These activities are observed regularly and little seems to be done by relevant authorities to control these activities. Everybody who uses the area knows these people. These vandals are the single biggest issue for the area." [SS:31]

"Commercial fishing has done a lot of damage already. Section "E" should be in two parts (Yeppoon → Five Rocks, and North of Five Rocks) . The different existing land users/ degree of existing land use/ degradation. Crabbing, etc - non-commercial only in areas indicated. Boating ... What? too vague (waterskiing ???!)" [SS:34]

"Commercial netting should be banned from all creeks and rivers. Trawling should be limited to at least 20 miles off shore. I have worked on trawlers and seen the destruction of small fish and other marine life." [SS:38]

### **03 Increase Commercial Controls**

Nil comments.

### **04 Traditional Fishing**

"Fishing is my only source of income." [SS:27]

### **05 Public Consultation**

"Any land or water usage should be addressed through a Great Barrier Reef Marine Park Authority. Public Zoning process." [SS:39]

### **06 Management Plan**

"I do not believe in green zones. They only make more jobs for Government workers. They are not necessary. Land and sea should be available to all who wish to use it." [SS:07]

"I think the whole area should be declared a Marine Park for passive recreational non-commercial use. Perhaps we could look at the National Trust of the W.K's "Enterprise Neptune" for ideas. Prawn trawling ruins an area. C.S.I.R.O. research has shown 10% of the catch is prawns, 90% - 'By catch'. It's estimated 35 million fish are destroyed per annum in N.S.W. alone by prawn trawlers. Commercial fishing without research is no better, examples - Orange Roughy off Tasmania, Tailor off Frazer Island, etc., etc. Any research been done in this area? I suggest aqua culture is the answer to commercial fishing. Now worth \$640 million per annum. To Australia up 1600% in four (4) years. Hope this is of interest to you and the best of luck in your research." [SS:21]

"Over the years I have had Army permission to visit, to research, photograph and film the mangrove flora. I know it is a very special area with a wealth of wildlife of all kinds, which should not be exploited for any reason." [SS:33]

"Totally close regions "B", "C", "D" and "E" north of Five Rocks." [SS:37]

### **07 Bag Limits**

Nil comments.

### **08 Increase Access**

"I do not believe in green zones. They only make more jobs for Government workers. They are not necessary. Land and sea should be available to all who wish to use it." [SS:07]

"All activities should be allowed. The water ways and land - all of it belongs to everybody to use!. Marine parks are not necessary and are only creating cushy government jobs." [SS:09]

"It's about time us - the people - the commoners - were given back our rights to use the land and waterways. As long as we are not polluting them with rubbish it has nothing to do with the Marine Parks, Universities, nor the government." [SS:10]

### **09 Activity Controls**

"I would like to see Sections "B" and "C" preserved. It is important to have some areas totally preserved. And then tapering all to surrounding sections. A lot of us Yachties travel north through this area and need all round anchorages in case of bad weather." [SS:02]

"From a camp fire at the eastern end of Pearl Bay, the whole of the area was burnt out. This was viewed from a boat under sail in late '70's. Activities that harm the basic environment should not be condoned." [SS:13]

"Many years in the Army tell me that this area (Section "B") should be left along completely, especially from commercial and recreational fishing activities. It's past the time when we humans learnt **not** to touch. We teach our children this, but have trouble ourselves." [SS:19]

“Commercial fishing has done a lot of damage already. Section “E” should be in two parts (Yeppoon → Five Rocks, and North of Five Rocks) . The different existing land users/ degree of existing land use/ degradation. Crabbing, etc - non-commercial only in areas indicated. Boating ... What? too vague (waterskiing ???!)” [SS:34]

“Totally close regions “B”, “C”, “D” and “E” north of Five Rocks.” [SS:37]

## **10 Army**

“Zones “C”, “D” and “E” contain Corio Bay, Port Clinton and Island Head Creek - fish habitat and nursery/breeding areas. Biological fact - unless area is overfished, mortality of juveniles will have greatest impact on fishery. The Military Forces and Zoned Training Area, I believe to be the greatest conservation processes in Australia. This must be maintained.” [SS:36]

## **11 Don’t Know Area**

Nil comments.

## **12 National Parks**

Nil comments.

## **13 Other**

“I would like to see Sections “B” and “C” preserved. It is important to have some areas totally preserved. And then tapering all to surrounding sections. A lot of us Yachties travel north through this area and need all round anchorages in case of bad weather.” [SS:02]

## **Comments for Question 13 by Commercial operator survey respondents**

### **01 Declining stocks**

Nil comment

### **02 Keep out**

“Areas “C”, “D” outside Port Clinton / Island Head Creek are totally different to the areas within and so I would think zoning restrictions could be more special, eg - trawling, spearfishing ok outside these areas but not inside the actual anchorages.” [MS:01]

### **03 Increase commercial controls**

Nil comments.

### **04 Traditional fishing**

Nil comments

### **05 Public consultation**

Nil comments.

### **06 Management Plan**

“Areas “C”, “D” outside Port Clinton / Island Head Creek are totally different to the areas within and so I would think zoning restrictions could be more special, eg - trawling, spearfishing ok outside these areas but not inside the actual anchorages.” [MS:01]

“The areas “C”, “D” and “E” are not large enough or deep enough to handle commercial netting on a regular basis.” [MS:02]

**07 Bag limits**

Nil comments.

**08 Increase access**

Nil comments.

**09 Activity controls**

Nil comments.

**10 Army**

Nil comments.

**11 Don't know area**

Nil comments.

**12 National Parks**

Nil comments.

**13 Other**

Nil comments.

## Appendix 13. Full transcriptions of general comments made by each survey group

### Comments for Question 20 by Mail survey respondents

#### 01 Commercial operations

"All commercial boats should be kept at least 20km off-shore." [MS:04]

"A couple of years ago there was a pro. camp at Kelly's with bags of mono-filament nets. Fisheries advised me they were from Bundaberg and were legal. A couple of weeks ago I saw pros drifting nets up the creek. This small area can't sustain this kind of treatment and produce fish for ammeters!" [MS:02]

"Over fishing and crabbing in all areas indicated on your map will destroy this important resource. Management Plan/seasonal closure is needed - **Now!!**" [MS:23]

"Size limits and current bay limits are a good idea, not enough National Park officers but some have an attitude problem. Shallow waters near coast are damaged by trawling and bait fish and prawns are killed." [MS:35]

"Disagree with trawlers being allowed to operate so close to the coast-line." [MS:44]

"I feel the amount of coastal commercial fishing and trawling is destroying the habitat and the future of fish stocks on reef areas for both recreational fishing is the survival of all fish species. I am a consciencious fisherman." [MS:48]

"All commercial activities should be excluded from Area "E". Minimum size and bag limits should be rigorously enforced." [MS:54]

"I hope this questionnaire helps to stop commercial fishing in the area." [MS:79]

"I think commercial netting and trawling should be restricted by a buy back of licences to restrict the heavy pressure applied by their activities on the marine life in these areas and all of Qld." [MS:80]

"I think all known anchorages should be left open due to safety reasons and accessibility be left as it is to keep pressure off al areas. I think commercial netting should be stopped in Corio Bay because it's getting flogged! In one day I saw five (5) different apparatus between Fishing Creek and Yeppoon." [MS:83]

"I would very much like to see all trawl, beach and river net fishing banned. So that the depleted fish and crustacean stocks can have a chance to replenish for the future of all concerned. I would like to see more fish habitats established, especially in the Shoalwater Bay area, which is very unique. We must also try to protect the Dugong - what's left of them." [MS:97]

"Do something about trawlers in Corio Bay and professional net fishermen, eg - opening of Barra season." [MS:99]

"The present policy of allowing professional netting in Corio Bay, Ross Creek and other areas in "E" have virtually wiped out fishing and crabs in this area since 1991 and catches have only returned this year. The professionals take everything including female crabs and undersized fish without fear of inspection." [MS:109]

"There should be a 3km limit on trawlers on coast line, also commercial fishing not allowed in Fitzroy River." [MS:111]

"I am sympathetic that professional fisherman would loose jobs, but I know what they have done and still do! Perhaps tourism could be made to play a bigger part. [MS:114]

"Keep trawling boats out to a minimum 10km limit. [MS:126]

"We cannot lock away this large area as it is a very productive fishing area. If we don't use it then somebody else will come here and use it for us." [MS:140]

"Trawling not only stirs up silt and breeding areas, the silt kills fish. If you have ever been behind a trawler, you would have seen dead fish floating everywhere. Much of this comes from the deck, because of being undersized or just can't sell at the time. Unlike the government, I believe it is the commercial fishermen that are destroying the fishing habitat - not the recreational fishermen." [MS:148]

"Stop commercial fishing in all areas - A-E!" [MS:153]

"Commercial crabbing, netting and trawling is causing untold damage to our coastal fish numbers." [MS:163]

"Shoalwater Bay - keep out professional fishermen to let fish breed up. Trawlers to be kept to a 3 mile limit of beach or mainland." [MS:169]

"No commercial activities whatsoever." [MS:175]

"Commercial netting must stop in Corio Bay. Also, trawling at the mouth of the Bay must be stopped." [MS:201]

"I wish to comment on our commercial fishing as I have watched our trawlers off Sarina drop by catch from their decks and over the years where we used to catch a feed and go home we now catch nothing. Trawlers should be kept to areas not used as breeding grounds for fish and other animals. Some trawlers travel right up to the beach on high tide. When setting out your Questionnaire you should have room for comments on each question.

Question 12

Comments

Camping - A, B, C, D, E

Where areas are set aside.

as we don't wish to abuse the area, only use it for its reserves and beauty." [MS:217]

"If you want to look after this area [Section A to E] all you have to do is **BAN** all netting (bar bait getting). Most of the area except "A" and "E" are too inaccessible for the public to intrude on (most is Army controlled)." [MS:221]

"I am **not** against commercial or professional fishing, but the current regulations allow for them to fish in breeding areas and in areas where there is little chance for fish to grow to maturity - this includes prawns." [MS:226]

"Close in-shore areas should yield for local consumption only - not to supply overseas markets where the potential is unlimited to decimate stocks. Regulate commercial opinions to look after their own area only." [MS:231]

"I have lived and fished this area for twenty five odd years. The things I have seen trawler fishermen do is nothing short of criminal to dugongs, dolphins, etc. with their nets and so called legal means of fishing. In a mere few years to come our marine life will be non-existent, unless trawlers are made to stay out of bays, estuaries, etc. These boats are capable of fishing several miles off the coast and should be made to do just that. There should be a limit of five (5) miles or more off the coast to operate. In the five (5) years I spent as a deck hand I witnessed the slaughter of countless tons of immature marine life destroyed in their nets and tipped into the ocean to feed the following sharks after their few measly prawns were sorted from thousands of dead fish, crabs, etc. (marine life).

I resigned. One who cares.

In areas of Australia where indigenous people are allowed to hunt and fish as they did before the white man arrived - they should be made to live without the Dole, aluminium dinghies, outboard motors, Whiteman's food and alcohol and live and hunt as they did 200 years ago. Otherwise except the Whiteman's life style and live and obey the rules like the rest of us.

Thank you!" [MS:264]

"The areas included in the two maps are virtually the last remaining areas of the Queensland coast **not** devastated by commercial and tourist operations and populating. Let's leave it as it is!" [MS:267]

"Close all rivers, bays, creeks and inlets to commercial netting in Queensland." [MS:269]

"I believe that all rivers, creeks and places like Corio Bay should be protected from all types of commercial fishing as I believe this is the only way we will improve our fish, crabs and prawn stocks." [MS:310]

"I wish all commercial netting to be banned to try and save the turtle and dugong." [MS:314]

"These areas are breeding grounds for a lot of marine life and should be restricted from commercial use." [MS:318]

"All trawling and commercial fishing banned." [MS:322]

"Reinforce the need to limit professional fishing pressure on the area, and bag limits for amateurs." [MS:304]

"Trawlers should be more controlled. Professionals should not be allowed to net as they do in Bays close to cities or fish breeding grounds. As professionals still net creeks and rivers from one bank to the other." [MS:347]

"Keep the commercial netting and trawling activities at least 30km from the coast line." [MS:363]

"It is time the government recognised the dollar value of recreational fishing and buys back professional licences on the east coast or bans professional from all estuaries. The powerful pro. lobby have made few concessions whilst the amateur fishermen are bearing the brunt of bag limits. Clubs have practised conservation by voluntarily increasing the minimum length of bream and flathead over the legal length some years ago whilst the pros. have no regard for the resource tomorrow." [MS:367]

"When can we ban all professional and commercial fishing from our beach? some trawler net prawns off our beaches - no more than 200 metres off shore, killing all small fish at the same time. Whiting, brim, flathead, small salmon, sand crabs then throw them overboard where nobody can prove anything!" [MS:371]

"Keep the commercial people out. All campers must have the proper toilet facilities, ie - Porta-potty or same - That's all!" [MS:374]

## **02 Thank you**

"Wish you luck with the bureaucrats. [MS:09]

"Unfortunately I have not had the opportunity to fish/visit this area but I believe what happens as a result of this study will reflect on our fishing areas. Thank you for this opportunity to comment." [MS:14]

"Great to see we are asked about our world!" [MS:17]

"Consider having Question 12 optional. Thanks for the information in the covering letter." [MS:25]

"Sorry for being late." [MS:33]

"Good luck." [MS:55]

"Is this question meaningful? I hope someone takes some bloody notice before it is too late!" [MS:134]

"Thank you, Gayle! It is wonderful to be able to contribute some thoughts through this questionnaire. I am interested in the society in general and feel that this highly strung society greatly needs such placid recreational activities as fishing, crabbing, admiring the beauty of our coastline and getting away from pressure cooker activities to gentle relaxation with nature." [MS:166]

"Keep up the good work. This region needs care and protection, otherwise it will be degraded before we know it. Development and mining will also be detrimental effects." [MS:170]

"Fine thing!" [MS:181]

"I hope the input of various amateur boaters will have some impact on allocation of natural resources." [MS:203]

"This area has never been within my possibility of visiting and therefore I don't feel qualified to tender an opinion. But I do appreciate the chance to express one." [MS:207]

"Because of the extremely high registrations cost we pay on boats and trailers, we should have the best facilities and instead we have very little in the areas mentioned in your survey. We hope your survey will help to improve the current conditions. good luck!!!" [MS:291]

"You are welcome and good luck!"

## **03 Time/survey**

"Survey arrived on 12.06.1996 a bit late to get back by 14.06.1996." [MS:12]

"Consider having Question 12 optional. Thanks for the information in the covering letter." [MS:25]

"Please use up to date phone book for addresses as this questionnaire was only received on 20.06.1996." [MS:37]

"Only got the questionnaire on 10.06.1996 and received and reminder on the 11.06.1996 advising that the questionnaire had been sent last week - I hope the results are processed with more efficiency!!!!" [MS:46]

"Will this be productive?" [MS:51]

"The survey was received on 11.06.1996, the reminder was received on 12.06.1996. Perhaps there could be room for improvement in the mailing procedures." [MS:82]

"Don't send the reminder two days after the survey. That's annoying." [MS:92]

"However you got my name? You should not be allowed to send this out." [MS:133]

"More than three (3) days notice to receive from before closing date." [MS:142]

"Only received on Tuesday, 11th June and required to be returned by Friday, 16th June. I feel that more time should have been allowed to digest information for true and proper answers to be given." [MS:144]

"First - this questionnaire received 12.06.96. I hope most other people received theirs in time." [MS:146]

"Send survey materials earlier - this questionnaire was received one day **after** the nominated closing date!" [MS:259]

"Have you sent a similar survey to all commercial fishermen?" [MS:330]

"I only received it on 11.06.1996 (due back 14.06.1996) though letter dated 29.05.1996." [MS:369]

#### **04 Management Plan**

"Guns (private) should not be allowed in the area - as well as sandmining. [MS:118]

"I would like to see this area made a recreational only and to include the Military Training Area into a National Park." [MS:280]

"I have used this area frequently in the past for both commercial (tourists and barging freight) and private use. this is one of the most diverse areas on the Queensland coast and should be able to be used by **most** user groups." [MS:307]

"Because of the extremely high registrations cost we pay on boats and trailers, we should have the best facilities and instead we have very little in the areas mentioned in your survey. We hope your survey will help to improve the current conditions. good luck!!!" [MS:291]

"Hope tis results in more official control over these areas." [MS:298]

"The areas you are surveying should be left as they are for the people. we don't want flash camping grounds built. that would only attract the people who don't really want to get back to nature!" [MS:354]

"It is my observation that controlled private boat use does not unduly damage fragile marine areas. (I lived in Cairns for 20 years) as long as there are restrictions on such activities as spearfishing, trawling, tourist operations." [MS:377]

#### **05 Consultation**

Nil comments.

#### **06 Access**

"I would like to see public access to the coast south of Stanage Bay and off military area for camping. This could be in designated places, eg - Broome Heads. [MS:27]

"The Military Training area **must** remain in place. Pearl Bay area should be reclaimed for tourist purposes. The RAAF bombing range on Townsend Island **may** have to be moved for safety reasons if Pearl Bay is reclaimed. Road access to most areas for trailer boating is necessary." [MS:49]

"Shoalwater Bay and water areas should be open to public during non-exercise time via permit or other for recreational use as on land and water.' [MS:72]

"I think all known anchorages should be left open due to safety reasons and accessibility be left as it is to keep pressure off al areas. I think commercial netting should be stopped in Corio Bay because it's getting flogged! In one day I saw five (5) different apparatus between Fishing Creek and Yeppoon." [MS:83]

"I believe this area should be left open to the public who totally respect the habitat without damaging and wrecking same. People should have the right to utilise that location who entirely respect the natural habitat without damaging same." [MS:86]

"I'm not sure what the reasons are for this questionnaire, but I hope that you see from my answers that I and a lot of other people in the Gladstone area never want the Five Rocks/Three rivers area closed for camping and recreational use. We want more of the area opened for the public!" [MS:96]

"Sick of the Army having open slather on fishing and hunting in Shoalwater Bay area. Open it to everyone." [MS:128]

"The first question we ask when looking for a place to go is "Can we take our dog?" [MS:255]

"I have used this area frequently in the past for both commercial (tourists and barging freight) and private use. this is one of the most diverse areas on the Queensland coast and should be able to be used by **most** user groups." [MS:307]

"Sand mining should not be allowed. Army should let people camp. What is known as Three Rivers camp site - it has been used for about 20 years." [MS:325]

"Access to Shoalwater Bay is only available by 4WD and I feel they are doing a lot of damage to certain areas. Access should be improved for conventional vehicles." [MS:361]

"The Army should allow camping in the Three Rivers area of Five Rocks when there are no exercises in progress." [MS:379]

## **07 Dugongs**

"If any areas can be identified as dugong habitat - speed limits for craft should be imposed, if this can aid their survival." [MS:39]

While working for a professional crabber. Every professional fisherman who puts a net in these waters are killing turtles and dugongs, and until the authorities stop this practice its the end of these species in Shoalwater. I have no objections against professional crabbing in the area, but I am fully against any type of netting in this area whatsoever. The decline of turtles in Island Head Creek over the last 8 years is unbelievable." [MS:57]

"I would very much like to see all trawl, beach and river net fishing banned. So that the depleted fish and crustacean stocks can have a chance to replenish for the future of all concerned. I would like to see more fish habitats established, especially in the Shoalwater Bay area, which is very unique. We must also try to protect the Dugong - what's left of them." [MS:97]

"I wish all commercial netting to be banned to try and save the turtle and dugong." [MS:314]

## **08 No more rules**

"No more rules - please." [MS:26]

"Would not like to see any restrictions imposed on public use." [MS:373]

"I believe that access to the areas is sufficiently restricted with Defence activities without any further restrictions." [MS:390]

## **09 Preservation**

"The area should be preserved as an environmental and recreational area." [MS:19]

"This area of the coast line is too valuable to ignore and needs some kind of protection if we are to save it for future use. Once it is gone it cannot be brought back." [MS:22]

"I suggest you try to come to some arrangement with commercial and amateur fishermen to regularly monitor the marine environment, and rigorously object to the Queensland Government establishing a mariner in the area nominated above the existing ones, if any. A mariner in this area will make access too easy and increase use beyond sustainability." [MS:41]

"Stop the pollution into waterways destruction of mangrove and sea grasses." [MS:76]

"I believe that these areas, and in particular areas "C" and "D", which are almost pristine and unspoiled should be preserved in that state for as long as humanly possible (for posterity). Areas such as Port Clinton and Island Head Creek and Pearl Bay should be deemed fish habitat reserves, and closed to commercial netting - before it is too late!! NB To view this coastline from Corio Bay to Townshend Island by boat, close to the shoreline and enter the secluded bays en-route is a magical experience - one never to be forgotten - **Please let us preserve this for future generations in its unspoiled state.**" [MS:93]

"I was taken to Cape Parmeston quite some years ago and to put it mildly - it is not the same.

I hope some day to take my children some day to a place like the Cape and enjoy it as I did those years ago."  
[MS:103]

Tourism as such should be confined to only areas with the least effect on the environment." [MS:122]

"We appreciate this opportunity to express our very strong feelings for the preservation of the Shoalwater Bay area and would like to see it all become a National Park." [MS:136]

"From my experience, rubbish, bottles, etc, left behind by users detracts from the beautiful area it is." [MS:164]

"Keep up the good work. This region needs care and protection, otherwise it will be degraded before we know it. Development and mining will also be detrimental effects." [MS:170]

"This is one of the few areas along the Queensland coast that offers safe anchorage in all weather for boats of two (2) metres or more draught. Free and unhindered access to all vessels, both local and those voyaging north or south along the Central Queensland coast should be preserved not just for convenience, but for safeguarding the very lives of mariners caught in the area with bad weather threatening. It is also a beautiful and unique area and should be kept in its natural state as far as is practical and reasonable." [MS:173]

"I would like to see these areas controlled as much as is possible, to restrict damage to the area, prohibit mining, and generally preserve the area for future generations. Keep up the good work!" [MS:174]

"In planning for the future of our coastal lands and oceans, please ensure that people are educated on all areas of littering, conservation and safety." [MS:194]

"**Small** areas within the area should be totally protected as to be used as control samples. Other small areas should be protected from other forms of activities to form some reliable data base to establish the various impacts the different pressure groups are having. This would allow worthwhile relevant research to be enacted." [MS:197]

"Australia is best country in the world with its natural beauty, wonderful coastline and beaches and it will require tougher laws to protect it for the future, ie - Green Island and Stradbroke." [MS:200]

"Please - let this area remain in its pristine state - no mining - no resorts - and Army out after period of time."  
[MS:258]

"Greed is the major problem with us humans. Until we all become environmentally friendly this area will always be under threat." [MS:266]

"The Army are doing a good job in looking after this pristine piece of coastline. I would not like to see it opened up any more than it is." [MS:311]

"All boat users and tourists should take all rubbish and leave the area the way they found it - Nature's way!!

"National Parks and environment seem to go a little over the top at times, so some people disrespect them. They should do things with reason and listen to all people. There are all types of people who make up this world, and we should make areas to suit all types and protect the environment and discipline those who disrespect the environment - but still let everyone enjoy it." [MS:338]

“This area has huge tourist potential. National Parks should administer the area. no urban development. Environmentally ‘Friendly’ resort - ok.” [MS:391]

## 10 Don’t know the area

“We do not fish at all in areas on the map, and cannot comment, therefore Question 12 as don’t know the area at all.” [MS:87]

“The area you are surveying is not in my recreational area, so I think it would be unfair of me to answer any questions without any first hand experience.” [MS:182]

“I live on Great Keppel Island and therefore don’t frequent the area at all.” [MS:246]

“We did not know the general public was allowed access to Shoalwater Bay. We thought it was an Army training area - completely off limits to everyone else.” [MS:329]

“I don’t have any information to enable me to differentiate between the five zones. It is outside my local area. My opinions on usage are therefore unwarranted.” [MS:351]

## 11 Management strategies

“All commercial boats should be kept at least 20km off-shore.” [MS:04]

“Size limits and current bay limits are a good idea, not enough National Park officers but some have an attitude problem. Shallow waters near coast are damaged by trawling and bait fish and prawns are killed.” [MS:35]

“Far greater control on people taking undersized crabs and fish bag limits especially reef fish. A minimum of four (4) pots per boat instead of per person. Pro crabbers that saturate an area at a specific time.” [MS:58]

“I had the pleasure of visiting Five Rocks area and felt that this area is at present being mismanaged. We feel that 4x4 vehicles need to be restricted from degrading sand dunes (A **must!!!**) [MS:63]

“My comments at Question 13 (\*) should extend over the whole coastline. It would be easier to police and regenerate all fish stocks in that particular area over the five (5) year period.

\* (“On the indigenous question - it should be the same rules for all. Locals, visitors, professionals, amateurs, and I think that certain streams or areas should be closed to all activities for five (5) year periods on a rotational basis, ie - Area “B” followed by “D”.” [MS:100] ) [MS:100]

“Consideration should be given to a **combined** no on fish of each species and an overall limit per recreational vessel. This would prevent small fast boats carrying say six (6) persons (five (5) fishing for the boat and taking home one (1) or two (2) fish) taking large catches (say 180 fish on a single outing) and selling same on the black market.” [MS:127]

“Too many people are fishing illegally - it’s time someone stoped this carnage.” [MS:262]

“There has to be recreational fishing licences and money used to save all the areas etc, fishing and land.” [MS:295]

“Reinforce the need to limit professional fishing pressure on the area, and bag limits for amateurs.” [MS:304]

“I believe that so the industry and fun of recreational stays all commercial fishing and crabbing should either be zoned for each licence has an area only; that way southern fishermen don’t come north and wipe out a supply and then go home. Or better still crabbers, prawners and fishermen should be given (granted) a lease of mud flats or suitable land to farm the above and work with Government and Universities. This way everyone gets a fair go! Fishermen get a steady market to supply and natural stock is kept for the recreational fishermen and environment. People do not get to lose their livelihood, gain the experience of all and make money through taxes and exports.” [MS:339]

## 12 National Parks

"We appreciate this opportunity to express our very strong feelings for the preservation of the Shoalwater Bay area and would like to see it all become a National Park." [MS:136]

"I like the National Parks designated areas scheme - should be more of it!" [147]

"I would like to see this area made a recreational only and to include the Military Training Area into a National Park." [MS:280]

"National Parks and environment seem to go a little over the top at times, so some people disrespect them. They should do things with reason and listen to all people. There are all types of people who make up this world, and we should make areas to suit all types and protect the environment and discipline those who disrespect the environment - but still let everyone enjoy it." [MS:338]

"The National Parks people are ruining the area by making the place look over done. We go to places that used to look natural, but are now ruined with logs and signs." [MS:01]

## 13 Other

"The whole questionnaire depends on whether or not the Keppel Island group is included as I have never been in the other areas specified on the map 1." [MS:30]

"Why do a survey on this area where access to approximately 80% is restricted by law and the other serviced by two (2) roads:

1. Yeppoon to Byfield
2. Cunnamore to Stanage Bay

The price of a boat capable of fishing the rest is beyond most family men." [MS:84]

"More questions regarding tagging fish." [MS:142]

"The whole of the Shoalwater area should never have been for the exclusive use of the Armed Services. As in wartime, they still have to work with and amongst civilians and the area was and still is a very valuable area for grazing, farming, fishing, mining, tourist, recreation and research." [MS:149]

"There should be no distinctions made between recreational line fishing and spearfishing when determining the use of the area." [MS:150]

"Concerned about methodology of this Survey.

Proper information should have been provided to participants. Fail to see how a "wish list" of uninformed opinions could be a useful contribution to future planning and management of Shoalwater Bay Military Training Area." [MS:156]

"This is one of the few areas along the Queensland coast that offers safe anchorage in all weather for boats of two (2) metres or more draught. Free and unhindered access to all vessels, both local and those voyaging north or south along the Central Queensland coast should be preserved not just for convenience, but for safeguarding the very lives of mariners caught in the area with bad weather threatening. It is also a beautiful and unique area and should be kept in its natural state as far as is practical and reasonable." [MS:173]

"If the waters of Sections B, C and D were known to me I would think my answers would be the same." [MS:188]

"Section 1 didn't allow me to comment because I didn't use the area in last 12 months. I have used it before, frequently, and should have been given the opportunity to answer, ie - make it an open question." [MS:209]

"Make sure the results of this survey are acted on and not shelved, making the survey a waste of resources, time and money." [MS:225]

"Many boaties would like to see the Army let them use at least one anchorage during their manoeuvres - its a long way without them! This valuable area should not be the sole preserve of A.A.F." [MS:236]

"I am concerned at the abuse by commercial fishers (crabbing), eg - using Canoe Passage even though closed - illegal netting. I am also concerned about the lack of bait fish, eg - mullet (small) in the creeks around Stanage/Plum Tree. Is this because of poor water quality. It is not from overfishing for bait. There is a distinct lack of skip jacks as

well. Southern currents and northern currents wash up on one of the beaches (Bainborough) island in the Duke Group. does this bring chemicals from cane fields, etc? [MS:238]

"You should have the Army Reserve boundary marked on the maps." [MS:239]

"Army area, ie - Five Rocks north to Switzerland Bay should be open to 4WD entry. Access through Shoalwater Army Area should be open to all not selected individual groups, ie - colour makes no difference." [MS:242]

"The last few times we had been to Five Rocks we have been quite disgusted in the behaviour of some people, and could not let the children walk on the beach by themselves." [MS:249]

"There is enough." [MS:261]

"Hard to understand relevance of Question 11." [MS:276]

"Sorry, this does not concern our area." [MS:336]

"I think it would be wise to check where Cape Hillsborough is around 200km north of your maps shown." [MS:349]

"Get the Army out of Shoalwater and let the people back in to enjoy their own country." [MS:353]

"A lack of detail re Keppel Island." [MS:359]

## **General comments made to Question 20 by Club survey respondents**

### **Question 20**

#### **01 Commercial operations**

"Banning of commercial netting in all estuaries, eg - Port Clinton, Island Head Creek. Turtles and Dugongs are almost depleted from these two areas to what they used to be. Fishing has gone off to hell!" [CS:01]

"If all gill netting is not stopped in the Shoalwater Bay area then you can forget about trying to save the dugong and especially the turtles with the small barnacles that grow on their shells they are caught in these nets by the dozens." [CS:02]

#### **02 Thank you**

"Thanks for the chance to comment. I have handed out the other 10 copies you gave me and people had a very positive response to filling it out, so hope you receive them all back. Would really like to have a copy of your results." [CS:12]

#### **03 Time/Survey**

Nil comments

#### **04 Management Plan**

Nil comments

#### **05 Consultation**

Nil comments

#### **06 Access**

"They should open the area up in Section "D" for recreational fishing with set guidelines to and from boat ramp." [CS:26]

#### **07 Dugongs**

"Banning of commercial netting in all estuaries, eg - Port Clinton, Island Head Creek. Turtles and Dugongs are almost depleted from these two areas to what they used to be. Fishing has gone off to hell!" [CS:01]

## **8 No more rules**

Nil comments.

## **09 Preservation**

“Access to Port Clinton and Island Head should never be made available by road. Shouldn't the Swains Reef also get a mention?” [CS:04]

“A small section of Corio Bay should be set aside for breeding purposes and **all** activities banned in this area.” [MS:15]

## **10 Don't know the area**

Nil comments.

## **11 Management strategies**

“They should open the area up in Section “D” for recreational fishing with set guidelines to and from boat ramp.” [CS:26]

## **12 National Parks**

Nil comments.

## **13 Other**

“Access to Port Clinton and Island Head should never be made available by road. Shouldn't the Swains Reef also get a mention?” [CS:04]

“Question 13 - In a semi closed area - Army country “B”, “C” and “D”. What value is this Survey?” [CS:08]

“There was no question about mining of the beaches and hinterland.” [CS:25]

## **Comments for Question 20 by Self Selection survey respondents**

### **01 Commercial operations**

“I feel very strongly about my comments I made at Questions 12 and 13.” [SS:22]

“It would be an unwarranted over-reaction for recreational fishing to be banned from these areas. The only serious problem facing the area is commercial fishing with nets and trawling. Under no circumstances should long line ever be permitted!” [SS:30]

### **02 Thank you**

Nil comments.

### **03 Time/Survey**

Nil comments.

### **04 Management Plan**

“I think the whole area should be declared a Marine Park for passive recreational non-commercial use. Perhaps we could look at the National Trust of the W.K.'s “Enterprise Neptune” for ideas. Prawn trawling ruins an area. C.S.I.R.O. research has shown 10% of the catch is prawns, 90% - ‘By catch’. It's estimated 35 million fish are destroyed per annum in N.S.W. alone by prawn trawlers. Commercial fishing without research is no better, examples - Orange Roughy off Tasmania, Tailor off Frazer Island, etc., etc. Any research been done in this area? I suggest aqua culture is the answer to commercial fishing . Now worth \$640 million per annum. To Australia up 1600% in four (4) years. Hope this is of interest to you and the best of luck in your research.” [SS:21]

“Area “E” - south of Waterpark Point (Corio Heads, should be Zone “F”. I realise the activities in Question 12 are from Department of Environment, but should be designated land or sea, as this is most important in several cases as now covered by Law, eg- sightseeing should not be via vehicle or from above highest astronomical tide mark.” [SS:36]

## **05 Consultation**

Nil comments.

## **06 Access**

“The use of this area (with safeguards) would even the load on the Keppel area. It should not be restricted to a selected few, eg - the Army and indigenous people.” [SS:14]

## **07 Dugongs**

Nil comments.

## **08 No more rules**

Nil comments

## **09 Preservation**

“I would like to see total protection of Shoalwater Bay area. No comment on the questionnaire.” [SS:03]

“Let’s try not to much this area up any more than we have already.” [SS:13]

“Do not destroy what we have to enjoy!” [SS:19]

“The Army restrictions on entry have been excellent in terms of wild life / habitat conservation. Area acts as replenishment for adjacent waters so keep it closed!!” [SS:37]

## **10 Don’t know the area**

Nil comments.

## **11 Management strategies**

Nil comments.

## **12 National Parks**

Nil comments.

## **13 Other**

Who is paying for this survey? Don't you and your green friends know our country is broke enough without this crap!!” [SS:07]

“Why is it necessary?! Who is paying for it and the paper used, etc.? Who is sponsoring this survey? Please publish this in the paper.” [SS:09]

“What need is this questionnaire? Who is paying for it? This is one more step to communism.” [SS:10]

“Appears amateurish and non-conductive.” [SS:15]

“I need this area to exist.” [SS:27]

“What is the purpose of this survey, ie - What are the plans for the area. What will be the impact on the Stanage township?” [SS:29]

“The way I see this questionnaire, is that I think you did not read the finding of Shoalwater Bay Inquiry. I don’t think you know of what usage, or look to see what already has been done on this area before. All of these questions have been answered in the Inquiry into the usage of the Shoalwater Bay Inquiry. [SS:35]

## **Comments for Question 20 by Commercial Operator survey respondents**

### **Question 20**

#### **01 Commercial Operations**

Nil comments.

#### **02 Thank You**

Nil comments.

#### **03 Time/Survey**

Nil comments.

#### **04 Management Plan**

Nil comments.

#### **05 Consultation**

Nil comments.

#### **06 Access**

Nil comments

#### **07 Dugongs**

Nil comments.

#### **08 No More Rules**

“I believe there is far too much management of Queensland waters, it is impossible to manage what they already are trying to manage. It is like a police state.” [MS:03]

#### **09 Preservation**

Nil comments.

#### **10 Don’t know the area**

Nil comments.

#### **11 Management strategies**

Nil comments.

#### **12 National Parks**

Nil comments.

#### **13 Other**

Nil comments.

#### Appendix 14. Specific locations accessed by club survey respondents

(Frequencies and percentages summed in columns)

(Column summed frequencies and percentages)

N = 38

[40 people returned surveys, 38 indicated that they used the area and 2 indicated that they were not users of the area.]

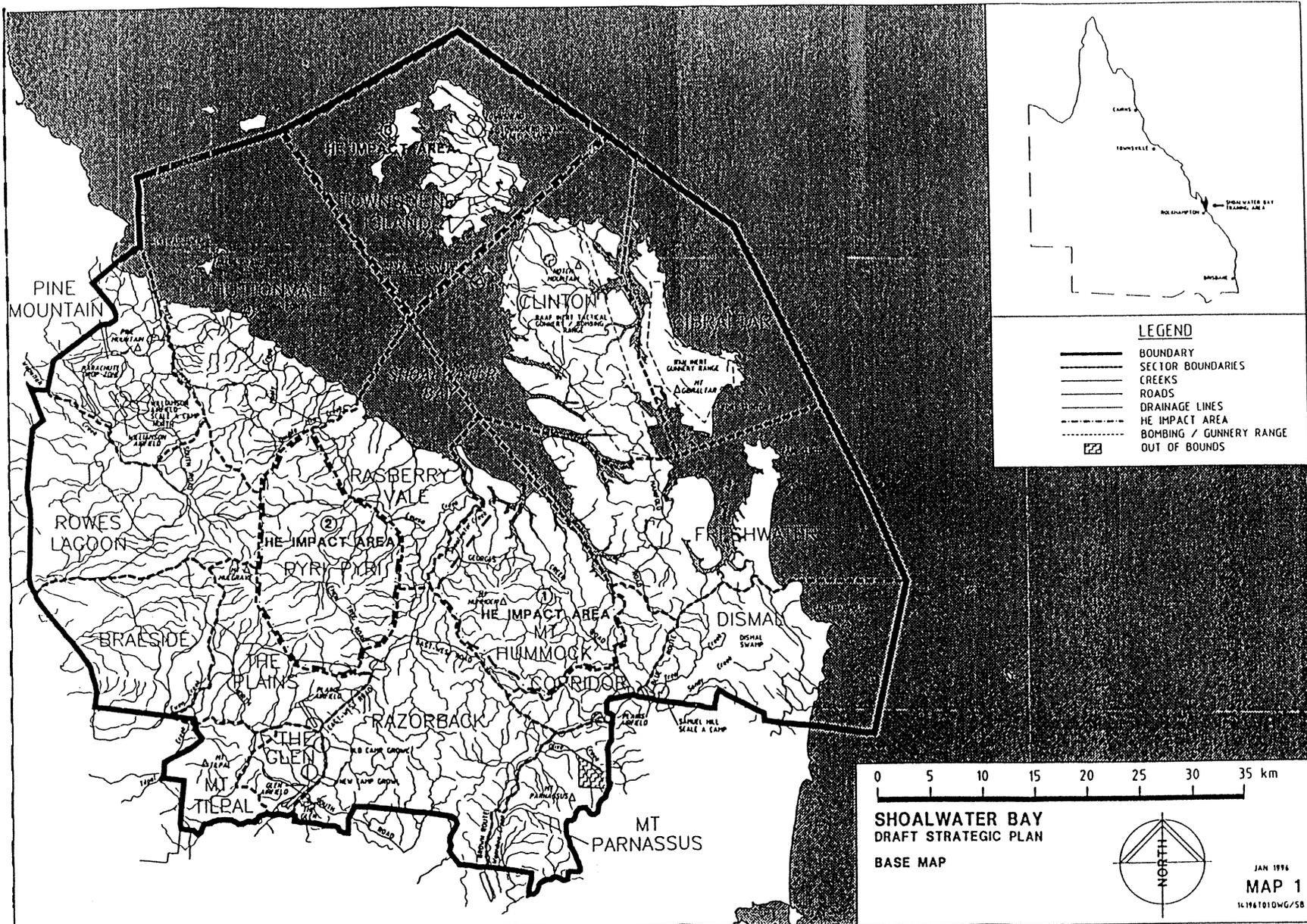
LOCATION	Frequency	Percentage
Stanage Bay	3	
The Shacks		
Shoalwater Bay		
Cape Townshend		
Townshend Island	2	
Island Head Creek	10	
Pearl Bay	9	
Port Clinton	23	
Quoin Island	5	
Cape Manifold	3	
Peaked Island	4	
Flat Island	4	
Five Rocks	8	
WaterPark Creek		
Corio Bay	27	
Keppel Area	4	
Yeppoon		
Fitzroy River	2	
Arthur Point		
Leicester Island		
Cliff Point		
Freshwater Bay	1	
Collins Island	2	
Section A Area	2	
Section B Area		
Section C Area		
Section D Area		
Section E Area (1)		
Section E Area (2)	3	
Section E Area (3)	8	
Section F Area	4	
Outside the area	5	
NO RESPONSE	2	
Three Rivers	1	
Nine Mile Beach	2	
Emu Park		
Akens Island		
Canoe Passage		
West Bight		
Head Creek		
Pinetree's Point		
Triangular Island		
Keppel Sands		
Little Corio Bay		
Island Head		
Perforated Point		
Five Rocks Island		
Thirsty Sound		
NO		

**Appendix 15. Specific locations accessed by self selection survey respondents**

<b>LOCATION</b>	<b>Frequency</b>	<b>Percentage</b>
Stanage Bay	1	
The Shacks		
Shoalwater Bay	7	
Cape Townshend	1	
Townshend Island		
Island Head Creek	9	
Pearl Bay	13	
Port Clinton	16	
Quoin Island	2	
Cape Manifold	1	
Peaked Island	1	
Flat Island	2	
Five Rocks	1	
WaterPark Creek		
Corio Bay	8	
Keppel Area	3	
Yeppoon		
Fitzroy River	3	
Arthur Point	1	
Leicester Island		
Cliff Point		
Freshwater Bay	2	
Collins Island	2	
Section A Area	7	
Section B Area	5	
Section C Area	2	
Section D Area	1	
Section E Area (1)		
Section E Area (2)	4	
Section E Area (3)	1	
Section F Area	5	
Outside the area	8	
NO RESPONSE	20	
Three Rivers		
Nine Mile Beach		
Emu Park		
Akens Island	2	
Canoe Passage		
West Bight	1	
Head Creek	5	
Pinetree's Point		
Triangular Island		
Keppel Sands		
Little Corio Bay	3	
Island Head	1	
Perforated Point		
Five Rocks Island	1	
Thirsty Sound	2	
East Creek	1	
Strong Tide Passage	5	

**Appendix 16. Specific locations accessed by commercial operator survey respondents**

LOCATION	Frequency	Percentage
Stanage Bay		
The Shacks		
Shoalwater Bay		
Cape Townshend	1	
Townshend Island		
Island Head Creek	5	
Pearl Bay	4	
Port Clinton	3	
Quoin Island		
Cape Manifold		
Peaked Island	1	
Flat Island	1	
Five Rocks		
WaterPark Creek		
Corio Bay		
Keppel Area		
Yeppoon		
Fitzroy River		
Arthur Point		
Leicester Island		
Cliff Point		
Freshwater Bay		
Collins Island		
Section A Area		
Section B Area		
Section C Area	1	
Section D Area	1	
Section E Area (1)		
Section E Area (2)		
Section E Area (3)		
Section F Area		
Outside the area		
NO RESPONSE		
Three Rivers		
Nine Mile Beach		
Emu Park		
Akens Island		
Canoe Passage		
West Bight		
Head Creek		
Pinetree's Point	1	
Triangular Island		
Keppel Sands		
Little Corio Bay		
Island Head		
Perforated Point		
Five Rocks Island		
Thirsty Sound		
NO		



Source: Gutteridge Haskins and Davey 1996, Department of Defence: Shoalwater Bay Training Area Draft Strategic Plan, Gutteridge Haskins and Davey, Cairns, Appendix One.

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