

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.

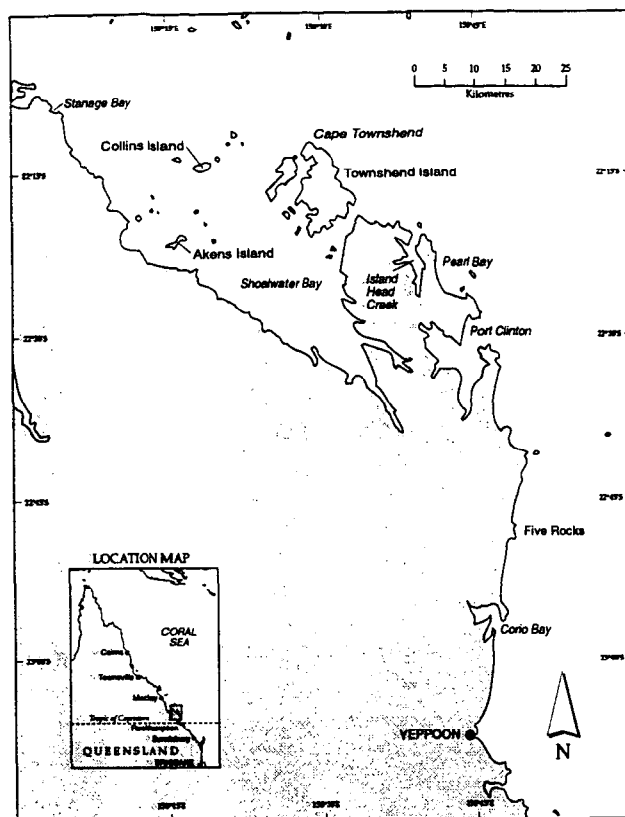
The scope of the brief excluded the study of recreational usage of the area by indigenous users. The GBRMPA advised that this was included in the brief of another study. The GBRMPA also excluded the direct targeting of commercial fishers from this study.

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 division¹, the key fishing locations were the

¹ 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 experience². 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

² 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 area³ 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 Sunfish⁴ 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 ageing⁵ population (Stehlik and Bulis, 1996 8 - 11). The Fitzroy and Livingstone⁶ 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 types⁷. 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 -

³ 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.

⁴ Sunfish is the Queensland Sport and Recreational Fishing Council.

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

⁶ The Livingstone local government authority includes Yeppoon.

⁷ 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 fishers⁸ 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 conflicts⁹ 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 activities¹⁰ 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.

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

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

¹⁰ 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.