

**Perceptions and views of a community towards No-
take Zone Marine Protected Areas on the Tasman
Peninsula, Tasmania, Australia.**

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Declaration

This work contains no material which has been accepted for the award of any other degree or graduate diploma in any University or tertiary institution and, to the best of my knowledge or belief, contains no material previously published or written by another person, except where due reference has been made in the text.

A handwritten signature in black ink, reading "Mark Bantich". The signature is written in a cursive style with a large, stylized 'M' and 'B'.

Mark Bantich

To Mom, Dad and Gary

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Abstract

No-Take Zone Marine Protected Areas (NTZMPAs) have been recognised as an integral part of sustainable management of coastal and marine environments in many parts of the world. Since the declaration of the first NTZMPA few studies have focused on the views of the local communities affected by the establishment of a NTZMPA. In Tasmania studies have largely focused on the preservation of marine biodiversity.

The aim of the research was to assess the level of support of residents and shack owners in the Eaglehawk Neck and Fortescue Bay regions of the Tasman Peninsula (Tasmania, Australia) towards the potential establishment of a no-take zone marine protected area. The research also assessed which selection criteria for NTZMPAs were considered important by residents and shack owners in the region and determined the extent of community empowerment in the decision making process to establish an NTZMPA.

The Eaglehawk Neck and Fortescue Bay regions has historically been noted as being integrally linked to exploitation of the adjacent marine resources, both commercially and recreationally. Extensive community surveys were conducted with residents and shack owners in the research area.

The results show the majority of residents and shack owners would support a NTZMPA in the region if community concerns, such as resource access, were addressed before establishment. Community support for a NTZMPA a result of a perceived decline in the quality of the marine and coastal environment in the region. Community involvement was considered essential for any NTZMPA proposals in the study area. Results also indicate a need by government environment and fisheries management bodies to increase community awareness and understanding of marine management issues in order to support the need for NTZMPAs.

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Chapter 1

Introduction

1.1 Introduction

Marine Protected Areas (MPAs) have, in recent years, been recognised as an integral part of a sustainable management policy of coastal and marine environments in many parts of the world (Lien 1985, Kelleher and Kenchington, 1991, Ballantine 1993, Bleakely 1993, Otteson and Kenchington 1994, Buxton 1999, DPIWE 2000). Despite a great accumulation of empirical information since the inception of the first MPA, very little research has focused on the views and attitudes of the human communities most affected, or most likely to be affected, by the establishment of a MPA (Wolfenden *et al.* 1994, Hegarty 1997, Jacoby *et al.* 1997). Most anthropological studies have focused on the resistance of fisheries to this form of marine management, and have largely ignored the community as a whole (Fiske 1992, Exel 1999).

In Tasmania particularly, almost all studies have focused on establishing appropriate marine communities for the possible MPA designation (Edgar 1981, Edgar *et al.* 1994, Edgar *et al.* 1997, Edgar and Barrett 1997). There has also been little focus on any intracommunity conflict within a proposed or designated MPA. This represents a serious gap in the understanding and knowledge required to establish an effective system of MPAs. A MPA for the purposes of this research is defined as ‘an area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means’ (IUCN, 1994).

Australia declared its first MPA in 1894 (WCMC, 2000). Tasmania, a state of Australia, introduced the first of its four current coastal MPAs in 1989 (DPIWE, 2000). These MPAs were classified as No-Take Zone Marine Protected Areas (NTZMPAs) and are defined as ‘an area of intertidal or subtidal terrain, together with its overlaying water and associated flora, fauna, historical and cultural features, which have been reserved by law or other effective means to protect ... all of the enclosed environment’ (Kelleher and Kenchington, 1991).

The NTZMPA form of a MPA has been favoured by Tasmania to date in the development of its current system of MPAs (MMIC, 2000). The system was based on preservation of the natural biodiversity and established on an ad hoc basis, with little thought of creating a representative system of NTZMPAs throughout the state.

In 1998, the Tasmanian government pledged a representative system of Marine Protected Areas based on bioregionalisation studies. These studies have shown that Tasmania has at least eight distinct bioregions (IMCRA, 1998). At present, only two bioregions are represented by NTZMPAs, namely the Bruny and Freycinet bioregions (Edgar *et al.* 1994). This potentially will have a major impact on the management of the marine environment and associated economic and social implications to the Tasmanian community. This impact is especially felt in those communities that rely heavily on the marine resources of an area. The two bioregions already represented are noted as only preserving a small part of each bioregion (MMIC, 2000), thus it is likely more NTZMPAs for these regions will be considered, or at the very least, extensions to current reserves proposed. These decisions to increase the size and distribution of MPAs have met with much debate within the Tasmanian community.

One specific area where much debate is associated with a potential MPA declaration is adjacent to the coastal communities of Eaglehawk Neck and Fortescue Bay on the Tasman Peninsula, situated in southeast Tasmania, Australia. This area has historically been noted as being integrally linked to the exploitation and use of the adjacent marine resources, both commercially and recreationally. Eaglehawk Neck sustains a population of both residents and shack owners. Although Fortescue Bay has neither residents nor shack owners, it is integrally linked to the township of Eaglehawk Neck through the marine and coastal culture of the area. It has, in the past, been proposed on at least three different occasions as a possible site for a NTZMPA (MMIC, 2000). A NTZMPA in the area has the potential to affect the use of the area and those that use the area most often. Yet no research has been done to gain an understanding of the views and attitudes of those most likely to be affected by a NTZMPA in this region.

1.2 Aim and Objectives

The general aim of the thesis is to assess the level of support of residents and shack owners in the Eaglehawk Neck and Fortescue Bay regions of the Tasman Peninsula towards the potential establishment of a no-take zone marine protected area.

To achieve this aim the research has the following objectives:

1. Undertake a review of relevant literature in the field of MPA and NTZMPA planning and management;
2. Conduct a survey of residents and shack owners in the Eaglehawk Neck and Fortescue Bay regions of the Tasman Peninsula to ascertain the level of support for a NTZMPA in the region;
3. Determine which criteria are considered important by residents and shack owners in considering the possible establishment of a NTZMPA in the region; and
4. Assess the extent of community involvement in the decision making process to establish NTZMPA.

1.3 Chapter Outline

To achieve this aim and objectives the thesis is divided into seven chapters. Chapter 2 will review relevant literature of previous research into NTZMPAs from overseas, Australia and in Tasmanian. This chapter will trace the development of the concept of MPA and highlight problems and opportunities specifically associated with planning and management.

Chapter 3 will provide a background to the physical and social characteristics of the Eaglehawk Neck and Fortescue Bay regions. This chapter will characterise the community in which the study is focussed and the way in which residents and shack owners use the marine and coastal resources of the region.

Chapter 4 will outline the research approach undertaken for the thesis. Details on the types of questions and survey design will be provided. Chapter 5 will present the results of the surveys undertaken. Chapter 6 will then address the aim of the thesis which is to assess the overall level of support for NTZMPAs in the region. Chapter 7 will provide a summary conclusion and discuss the relevance of the research and outline future areas of study.

Chapter 2

Tasmania's development toward a representative system of Marine Protected Areas: the theoretical context

2.1 Introduction

This chapter will outline the historical development of MPAs internationally, and then focus on their development and current status within Australia and Tasmania. It will also provide an insight into the current understanding of MPAs by stakeholders in Tasmania by highlighting the historical approach to marine management and the differences that have arisen between stakeholders as a result.

The development and current legislative management practices involved in determining how the marine resources of the world are utilised is both complex and extensive. Mining, shipping, exclusive economic zones, military conventions, waste disposal and control of the worlds' fisheries are just a few of the many legislative and policies concerns of governments worldwide. Control of the worlds' fisheries has developed into a complex and sophisticated web of international, national and regional concerns.

Within Australia's 200 nautical mile Exclusive Economic Zone (EEZ), Federal and State governments have introduced policies and legislation dealing with the varied manner the EEZ is utilised. Most of the legislation and policies deal with interests involved in harvesting and extracting a number of different resources, including mining pursuits, fishing, transport, as well as scientific research.

Some of Australia's policies and legislation are designed to manage a diverse culture of extractive pursuits, including the introduction of Individual Transferable Quota (ITQ) systems for commercial fisheries, bag and size limits, Total Allowable Catches (TACs), and laws designed to limit the effectiveness and impact of new and existing technologies.

One of the more recent management tools, and of most significance to the research, is an understanding of the development and current policies and legislation focused on the implementation and management of MPAs (Jones, 1994), and in particular, Tasmania's focus on establishing a representative system of MPAs around its coastline.

MPA literature mostly focuses on the benefits of this form of management (Ballantine 1991, Ballantine 1997, Bleakely *et al* 1996, Edgar *et al* 1997, Buxton 1999, DPIWE 2000, Robert and Hawkins *in press*), but some of these benefits are contentious (Kenchington 1995). While MPA literature generally agrees that MPAs are important management tools for a precautionary approach to marine management, and that MPAs potentially could have a positive impact on biodiversity and biomass within the boundaries of a designated MPA, especially with regard to rare and threatened species, there is some debate as to the benefits to the fisheries themselves. Kenchington (1995) argues that small, highly protected MPAs could potentially have no effect on fisheries as proposed by some, and even potentially have a particularly negative effect on fisheries. NTZMPAs, however, in the Tasmania context, are not necessarily designed to benefit fisheries first and foremost, but could potentially primarily focus on the preservation of rare and threatened species (DPIWE 2000). Roberts and Hawkins (*in press*) in particular argue that MPAs should not necessarily be designed to primarily focus on improvement to fisheries, and even that there is a need to preserve the marine environment from the effects of fisheries. Any NTZMPAs in Tasmanian will however be established to ensure they have, in the least, no large detrimental impact to current fisheries (DPIWE 2000).

Eaglehawk Neck and Fortescue Bay are situated on the Tasman Peninsula and have had MPAs proposed in the area in the past. These proposals have focused on the preservation of biological diversity. Very little has focused on the views and attitudes of stakeholders in these areas (Fiske 1992, Wolfenden *et al.* 1994, Hegarty 1997, Jacoby *et al.* 1997, Exel 1999). Stakeholders are likely to be affected by the establishment of any MPA, and are ultimately the single most important consideration if an effective system of MPAs is to be introduced and maintained. MPAs are designed to limit or prevent human interference within a particular ecosystem or systems, thus it seems extremely important to involve stakeholders in the

establishment process to attempt to ensure the smooth establishment and maintenance of any MPA, or MPA system. The Tasman Peninsula has an extensive stakeholder base with little attempt to educate those stakeholders effectively in the past, or ascertain their views and attitudes towards this form of marine management.

2.2 International history of marine protected areas

Awareness of the decline of fisheries in the western world received attention as early as the 1890s, after a leading British researcher, T.H. Huxley, was commissioned by the British government to conduct an enquiry into the decline of the North Sea fishery (Kenchington, 1998). Huxley confirmed the decline of the fishery but his conclusions provided a dubious assessment for the preservation of the marine environment. He bemoaned the increasing hardships facing fishers and trawlers and further stated human interference could not impact negatively on the marine environment and felt it “absurd” that such suggestions could be made (Cushing, 1988).

Although MPAs have been established since the early 1930s (Wallis, 1971), international support for the establishment and protection of marine and estuarine protected areas only began to gain serious support in the 1960s following reports of marine pollution by Heyerdahl. Heyerdahl noted rafts of tar balls and debris in the mid-Pacific and Atlantic, and a series of oil spills, most notably the supertankers *Torrey Canyon* and *Amoco Cadiz* (Kenchington, 1990) drew public attention to the problem of marine pollution.

Momentum for the establishment of MPAs grew in 1962 with the First World Conference on National Parks in Seattle. Many countries established MPAs after the conference. In 1967 the International Union for Conservation of Nature and Natural Resources (IUCN) developed objectives for the conservation and establishment of MPAs. Along with United Nations Educational, Scientific and Cultural Organisation (UNESCO) and the United Nations Environment Programme (UNEP), the IUCN actively encouraged and aided nations to plan for, implement and manage marine protected areas under their own legal jurisdiction. The need for a systematic approach to establishing protected areas, however, was first suggested at the International

Conference on Marine Parks and Reserves at the Tokyo Conference in 1975 (Kriwoken and Haward, 1990). At the World Congress on National Parks held in Bali in 1982, the IUCN actively promoted the importance of MPAs to over 60 attending nations. Conference proceedings were collated into a source book on the fundamentals of marine conservation (Salm and Clark, 1984). This seemed to stimulate further studies in MPAs across the globe (Kriwoken and Haward 1990, Salm and Clark 1984, Silva and Desilvestre 1986). The result of this increased awareness, reinforced in many areas by domestic political pressure, was the establishment of various forms of MPAs in over 70 nations, including Australia (Kriwoken and Haward 1990). The awareness of the need for MPAs became so strong that the IUCN Commission on National Parks and Protected Areas created the position of Vice-Chairman, Marine, to develop and implement a global MPA program (Kenchington, 1999).

Between 1962 and 1985 Silva *et al.* (1986) stated that 430 MPAs had been established and that 295 proposals were under consideration worldwide. Of the 430, 118 of these had been established by 1970, many adjacent to terrestrial reserves, and by 1985 a further 111 had been established. According to Gare (1975) the areas that had been declared reserves could be found across several continents and in diverse habitats, including North America, South America, the Indo-Pacific (including Australia), Africa, the Mediterranean and Northern Europe. By 1995 a total of 1306 subtidal MPAs had been established (Kelleher *et al.* 1995). Within the 430 existing MPAs established up to 1985, Silva *et al.* (1986) found 91 different categories of MPAs existed, representing a range of environments. This showed the difficulty of fitting marine area management into pre-existing legislative and management approaches as countries adopted various legislative and administrative strategies and options in an attempt to conserve and protect their marine habitats.

According to Kenchington (1990), the 91 different MPA categories were variations of three basic legislative approaches. The first was an extension to terrestrial national parks legislation to incorporate intertidal or subtidal habitats. This approach was the most basic and often presented the most problems, or seldom fulfilled the requirements of MPAs (Kelleher and Kenchington, 1991). The second involved increasing the scope of fisheries legislation to include the protection of the habitat of

commercial species and for the general conservation of the relevant marine resources. The third type was the establishment of coordinating government body to develop, implement and manage the conservation, sustainable development, and in many cases, the multiple use, of a marine environment. The most well known MPA of this type is the Australian Great Barrier Reef Marine Park.

From 1989 to 1992 the World Resources Institute (WRI), IUCN and UNEP undertook a detailed and lengthy process of research and consultation to derive the 1992 Global Biodiversity Strategy (Kriwoken 1996). This initiative was seen as complementing the Convention on Biological Diversity (CBD) that highlighted the conservation requirements of the marine, coastal and estuarine environment. The Centre for Maritime Conservation (CMC), IUCN, World Wildlife Fund (WWF), UNEP and the World Bank (WB) produced the 1993 'Global Marine Biological Diversity: A Strategy for Building Conservation in Decision Making' in an attempt to focus attention on the unique nature of these environments (Kriwoken 1996). It provided more attention to the specific details on conservation requirements of marine environments and less detail on prescriptive techniques than that found in the 1992 Global Biodiversity Strategy.

In 1995 the Commission on National Parks and Protected Areas (CNPPA) published a four-volume report (Kelleher *et al.* 1995) aimed at identifying priority areas for the establishment and management of a global representative system of MPAs. Further objectives were to provide strategic guidance to governments, aid agencies, and others working to conserve marine biodiversity conservation and achieve sustainable use of the marine environment as well as offer recommendations that address priority issues for the establishment and effective management of MPAs. The CNPPA divided global marine areas into 18 marine regions based mostly on biogeographic criteria, but also taking into account political boundaries. In 1990, working groups consisting of marine resource managers and marine scientists were established in each region. Workshops were held in five different areas between February 1993 and January 1994. An extensive existing protected area database was updated and edited to establish a similar database on MPAs which has been used to generate location maps of MPAs worldwide, regional biogeographical classification, and the location of priority areas for the conservation of marine biodiversity of global significance.

2.3 No-take zone marine protected areas

Two approaches have been taken worldwide in developing MPAs. The method first used by managers involved the concept of multiple-use MPAs. Mostly these reserves tend to be large, the most famous of these in Australia being the Great Barrier Reef Marine Park. Multiple-use MPAs include areas of exploitation as well as areas of limited or no exploitation (MPA News 1999). These limited areas or areas of no exploitation are usually substantially smaller than the exploitative areas. These MPAs are managed to preserve biodiversity and to provide areas for public recreation, scientific study, education and tourism. They attempt to provide a holistic approach to marine management, marrying historical and social use of an area with conservation, extractive use and research.

The second and more recent approach has been the establishment of reserves that allow no exploitation, affording a high degree of protection to marine flora, fauna and other associated processes. Worldwide, these have tended to be small, highly protected areas. These MPAs are designed primarily for the conservation of biodiversity (DPIWE 2000). While conservation is the motivating factor for their establishment, research and education, as well as non-extractive recreational activities such as scuba diving are often motivating factors for their establishment. This form of reserve is known as a no-take zone marine protected area (NTZMPA) and is the most common of the two types of MPAs found in temperate waters and is the type of reserve that has been favoured by Tasmanian management bodies (DPIWE 2000). As defined in Chapter 1, a no-take zone marine protected area is: '[a]n area of intertidal or subtidal terrain, together with its overlaying water and associated flora, fauna, historical and cultural features, which have been reserved by law or other effective means to protect ... all of the enclosed environment'. (Kelleher and Kenchington 1991).

MPAs have been implemented extensively throughout the world and in parts of mainland Australia. It is recognised by many researchers and active users as vital for the continued sustainability of resources (Kenchington 1990, Kelleher and Kenchington 1991, Ballantine 1997a).

Even though the NTZMPA is widely acknowledged and accepted worldwide as providing a high degree of conservation of biodiversity their historical development is wrought with uncertainty. While many countries have created NTZMPAs in the past thirty years, it is difficult to establish the number of those NTZMPAs accurately. This is due mostly to the names assigned to NTZMPAs by various countries. Most of the literature focuses on the concept of MPAs, which have numerous definitions relating to any form of special regulation that has been implemented (Ballantine 1997a).

While individual NTZMPAs have been established around the world, no complete system of NTZMPAs has been effectively established around the world (Ballantine 1997a). According to Attwood and Bennett (1995), South Africa has several MPAs, but only eight conform to the definition of a NTZMPA. New Zealand has 12 NTZMPAs (Ballantine 1997a) but as yet there is no clear governing policy regarding the establishment of further reserves. The USA has established NTZMPAs and is proposing a complete system to be established in the near future (MPA News 2000c). Australia is a proactive country in both the designation of NTZMPAs and in establishing initiatives to introduce a complete system of MPAs as outlined by the Oceans Policy released in 2000 (Wescott 2000), but this policy is still in the planning and consultation stages with no guarantee of success, especially since some politically powerful groups seem opposed to the establishment of any MPAs (The Mercury 1999, MPA News 2000d).

2.4 The development of Australia's marine protected areas

In 1901 the three nautical mile territory extending from the high water mark seawards was considered the responsibility of the State governments. The Commonwealth government has jurisdiction over marine areas from three nautical miles to two hundred nautical miles seaward of the baseline of coastal land, Australia's limit of its EEZ under the Law of the Sea (Haward 1989). It was not until the 1940s and 1950s that an increase in involvement in marine resources by the Commonwealth Government developed (Kriwoken and Haward 1990). After lengthy conflict during the 1960s and 1970s between the Commonwealth and State governments the Australian High Court ruled in favour of a decision granting the Commonwealth

government sovereignty from the low water mark seaward to the edge of national jurisdiction (Kriwoken and Haward 1990). This led to the enactment of the Seas and Submerged Lands Act of 1973. Essentially, though, it focused more on rights over seabed minerals and petroleum than any other issues relating to marine management.

A change in Federal government in the mid-1970s enabled the States to press claims for responsibility in the territorial seas. The Offshore Constitutional Settlement (OCS) was passed in June 1979 resulted in the Federal government announcing offshore jurisdiction for State governments (Haward 1989). The OCS contained arrangements for the Great Barrier Reef Marine Park, other marine parks, historic shipwrecks and other issues relating to the marine environment (Kriwoken and Haward 1990). The enabling legislation for the OCS agreement was the *Coastal Waters Act 1980* that extended the State legislative power to include territorial seas, the air space above and a vested title of the seabed below the three-mile territorial sea within the States. The most important concern for MPAs was they could now be established by the Commonwealth beyond the three nautical mile limit, or by the State within the three nautical mile limit, or could be jointly managed by both governments (Kriwoken 1991).

Australia's first MPA, Ku-Ring-Gai Chase National Park, was established in 1894 (World Conservation Monitoring Centre 2000). Australia's largest and most famous MPA, the Great Barrier Reef Marine Park, was established in 1975 and encapsulates over 344 805 km² of tropical marine habitat, incorporating an exceptional diversity of species and habitat types (Cresswell and Thomas 1997).

Even with the government recognition of the need for establishing more MPAs, especially in the 1970s and 1980s, the Great Barrier Reef Marine Park constituted 94% of the total area of declared marine conservation areas in Australia in 1990 (Kriwoken and Haward 1990). Today, MPAs in both Queensland and Western Australia comprise 93.9% of the total area of MPAs declared in State and Territory waters (DPIWE 2000).

The number of areas preserved in Australia is difficult to assess. According to Kriwoken and Haward (1990), 189 Marine and Estuarine Protected Areas (MEPAs)

exist in Australia, with 15 of those occurring in Tasmania. Ivanovici (1984) stated that 121 MEPAs are in Australia, but confirmed that 15 exist in Tasmania. However, Cresswell and Thomas (1997) state that 148 MPAs exist in Australia, while Bleakley *et al.* (1996) document more than 300 MPAs and the World Conservation Monitoring Centre (WCMC) list 354 MPAs within Australia (WCMC, 1999).

The difference between the figures associated with Cresswell and Thomas (1997) and those of the WCMC (1999) and Bleakley *et al.* (1996) arise from different interpretations of the definition of a MPA. Cresswell and Thomas (1997) stated that their list of MPAs included only those “protected areas that have been gazetted primarily for their marine conservation function.” The lists provided by Bleakley *et al.* (1996) and WCMC (1999) include all those gazetted areas that qualify under the IUCN (1994) guidelines.

While differences in understanding of nomenclature do little to explain the national differences in MEPA/MPA numbers between the various authors, it does provide an insight into the difference in numbers in Tasmania. Assuming that Kriwoken and Haward (1990) used the same 15 sites as Ivanovici (1984) when stating the number of MEPAs in Tasmania, it is possible to establish how the differences have arisen with Cresswell and Thomas (1997), Bleakley *et al.* (1996) and the WCMC’s (1999) more recent count. Of the 15 MEPAs listed by Ivanovici (1984), Cresswell and Thomas (1997) have listed six Conservation Areas, one Game Reserve, two Historical Sites, two National Parks, one Nature Reserve, one State Reserve, one Wildlife Sanctuary Conservation Area and only three Marine Nature Reserves, namely Governor Island, Nine Pin Point and Tinderbox, all of which were declared in 1991. Maria Island, the largest of the wholly protected marine areas in Tasmania at the time, was declared an extension of an existing National Park. Bleakley *et al.* (1996) and the WCMC (1999) also state only the above three marine protected areas exist in Tasmania. All these areas were protected and managed by the Tasmanian Parks and Wildlife Service. In addition to these reserves, a crayfish reserve was established at Crayfish Point under the *Sea Fisheries Act 1959*, under the control of the Department of Primary Industries, Water and the Environment (DPIWE).

2.5 The current status of marine protected areas in Australia

The Australian Government asserts itself as committed to conserving and sustaining marine biodiversity and ecological integrity through the goals and principles of ecological sustainable development. According to the Task Force on Marine Protected Areas of the Australia and New Zealand Environment and Conservation Council (ANZECC TFMPA), this conservation movement has been ratified through Australia's international responsibilities and obligations under the 'Convention on Biological Diversity' (UNEP 1994), and addressed at a national level by the States and Territories under the 'Intergovernmental Agreement on the Environment' (IGAE) (Australia 1992a). The report further states that these obligations and responsibilities are implemented through a host of national strategies, including the 'National Strategy for Ecologically Sustainable Development' (Australia 1992) and the 'National Strategy for the Conservation of Australia's Biological Diversity' (Australia 1996).

In 1991 the Commonwealth launched the Ocean Rescue 2000 programme. Its goal was to ensure the conservation and sustainable use of the marine and estuarine environments around Australia. A key component of the initiative was to establish a representative system of MPAs (NRSMPA) (DPIWE 2000). This would help fulfil Australia's international obligations as a signatory to the *Convention on Biological Diversity* (UNEP 1992) which has promoted a representative system of MPAs at the global level.

At present three documents have been prepared to assist government agencies in the development of a national representative system of marine protected areas (NRSMPA) and to assist stakeholders in the understanding of the process and to promote and develop the NRSMPA (ANZECC 1998). All three documents have been developed cooperatively by the ANZECC TFMPA, and include the 'The Guidelines for Establishing the National Representative System of Marine Protected Areas' and the 'Interim Marine and Coastal Regionalisation for Australia' (IMCRA Technical Group 1998). The aim of the documents are to assist existing State, Territory and Commonwealth agency processes in providing a consistent and progressive

development and understanding of a national representative system of marine protected areas (ANZECC TFMPA 1998).

Following on from the 'Ocean Rescue 2000' programme has been the formation of Australia's Oceans Policy, a major initiative aimed at developing an integrated and ecosystems-based approach to planning and managing the coastal and marine environments of Australia. It is the most important recent policy established and is outlined by 'Australia's Ocean Policy-An Issues Paper' (Environment Australia Marine Group 1998). This policy highlights the importance of establishing an integrated approach to marine management by employing a range of mechanisms to provide Australia's marine environment with the best possible protection and to aid in the establishment of a representative system of marine protected areas. The policy was designed in the hope that it would integrate a healthy marine environment with an internationally competitive marine industry (National Oceans Advisory Group 2000). A part of this policy is the implementation of a regional plan for southeast Australia, including Tasmania. This is one part of a broad plan by the Federal and the Tasmanian governments to implement a representative system of MPAs under the 'Joint Policy for the Establishment and Management of Marine Reserves in Tasmania' (Tasmania 1990), discussed later in the chapter.

2.6 The development of marine protected areas in Tasmania

Until 1990 two agencies were responsible for legislative and administrative arrangements used to establish MEPAs. These were the Department of Parks, Wildlife and Heritage and the Department of Primary Industries, Division of Sea Fisheries. The former had a longer history of conservation of the marine and coastal environment. The *Tasmanian Scenery Preservation Act 1915* managed scenic and historical reserves the Scenery Preservation Board until 1971 when the National Parks and Wildlife Service (NPWS) was created under the *National Parks and Wildlife Act 1970*. Although Tasmania introduced some of the earliest conservation for areas under its jurisdiction when Macquarie Island was declared as a Wildlife Sanctuary under the *Animals and Birds Act 1928* in 1933, this did not recognise or include protection of

the marine environment. The *Sea Fisheries Act 1959* was the first legislation to provide for the regulation and management of fish and fishing.

In 1989 the Department of Parks, Wildlife and Heritage (formerly the Department of Lands, Parks and Wildlife) was created from an amalgamation of previously separated land and fauna management agencies which had shared the responsibility of establishing and managing conservation areas. While the department largely managed terrestrial and wildlife programmes it was also responsible for the protection of marine creatures such as seals and seabirds, reservation, interpretation, enforcement and management. Jurisdiction did not extend to aquatic or littoral animals or “fish” (Kriwoken and Haward 1990). Until the legislation of the *Living Marine Resources Act 1995* the *Sea Fisheries Act 1959* provided for the management and regulation of fish and fishing under the auspices of DPIWE (formerly the Department of Parks, Wildlife and Heritage). However, Section 3(1) of the *National Parks and Wildlife Act 1970* defined the Department of Parks, Wildlife and Heritage’ responsibilities as including ‘land covered by the sea or other water, and the part of the sea or those waters covering that land.’ As a result of those regulations the responsibility of planning and managing marine reserves rested with DPWH, while the management of the fisheries resources and the fishing industry within the reserve lay with DPIWE. MPAs could even be established under fisheries legislation and managed by the Division of Sea Fisheries in the role of ‘the sound management and protection’ of the Tasmanian fishing industry.

The current MPA strategy for Tasmania is the ‘Joint Policy for the Establishment and Management of Marine Reserves in Tasmania’ (Tasmania 1990). NTZMPAs in Tasmania are now managed by DPIWE under the *National Parks and Wildlife Act 1970* and *The Living Marine resources Act 1995*. *The Living Marine Resources Act 1995* provides for any further establishment of ‘marine resource protected areas,’ and may be established to ‘protect representative marine and estuarine habitats and ecosystems, and the maintenance of fish species ad genetic diversity.’ (DPIWE 2000:31).

Since the introduction of the first three NTZMPAs, and the Maria Island extension to the existing terrestrial National Park, little has been achieved around Tasmania’s most

populated coastlines. Macquarie Island and a group of seamounts (MMIC 2000, MPA News 2000b) off the southern tip of Tasmania have recently been declared MPAs, but both are several hundred kilometers offshore and likely to have little impact on current discussions.

2.7 The current status of marine protected areas in Tasmania

Presently Tasmania's marine environment and associated activities are managed under a complex system of both legislative and state policies (MMIC, 2000). Of particular interest are four Acts (*Living Marine Resources Management Act 1995*; *National Parks and Wildlife Act 1970*; *Marine Farming Planning Act 1995*; *Environmental Management and Pollution Control Act 1994*) and two state policies (State Coastal Policy 1996, State Policy on Water Quality Management 1997).

These Acts and policies aim to protect the environment in different ways, none of which are able to have complete control over marine area. As a result, Tasmania's three current coastal NTZMPAs and one National Park extension were established under both the *National Parks and Wildlife Act 1970* and the *Living Marine Resources Management Act 1995* (Hay 1997); the latter protecting fish species within the reserve (MMIC 2000). These reserves represent 0.011% of the Tasmanian state waters (DPIWE 2000).

NTZMPAs comprise such a small per cent of the State waters primarily because marine management areas are mostly classified as fisheries management areas. 302 fisheries management areas exist in Tasmania, 134 of which are restricted fishing areas and 168 are marine farms. The restricted fishing area categories include no-netting areas (61), recreational fishing areas (6), restricted fishing areas (13), shark nursery areas (18), other miscellaneous restrictions (39) and closed areas for fishing licences (7) (DPIWE 2000). None of these restricted fishing areas presently afford total protection to the marine environment. Marine farms can hardly be considered MPAs in terms of preservation of biodiversity of indigenous species or preservation of the natural fishery. In fact, there is debate over the possibility of increased nutrient

levels stimulating toxic algal blooms in the surrounding environment (DPIF 1997, Gibson's Limited 1998, Ritz *et al.* 1989).

Tasmania is party to the *Ocean Rescue 2000* programme, and a signatory to the *Inter-governmental Agreement on the Environment* (1992), which endorses the NRSMPA (DPIWE 2000) and as such is committed to establishing a representative system of MPAs (DPIWE 2000). To achieve this, the ANZECC TFMPA (1998) in its document 'The Guidelines for Establishing the National Representative System of Marine Protected Areas', has suggested all states, including Tasmania, adopt a comprehensive, adequate and representative system (CAR) of marine protected areas. According to DPIWE (2000), the principles of comprehensiveness, adequacy and representativeness are defined as follows:

- Comprehensiveness - the reserve system will include the full range of ecosystems recognised at an appropriate scale within and across each bioregion.
- Adequacy - the reserve system will have the required level of reservation to ensure the ecological viability and integrity of populations, species and communities.
- Representativeness - those marine areas that are selected for inclusion in MPAs should reasonably reflect the biotic diversity of the marine ecosystems from which they derive (DPIWE 2000:41).

To reach this goal, all states and territories will adopt the 'Interim Marine and Coastal Regionalisation of Australia' (1998) as the planning framework for developing their system of MPAs.

By adopting this framework, Tasmania recognises its marine environment as a temperate environment within the Southern Pelagic Province, consisting of eight bioregions. It will also declare at least one MPA in each of these bioregions. At present, only two of these bioregions are represented, the Bruny and Freycinet bioregions. This does not suggest that no more MPAs will be declared, as DPIWE

(2000) states these two regions are poorly protected at present. Parts of the Tasman Peninsula, located in the Bruny bioregion, were proposed as possible MPA sites between 1995 and 1996 (DPIWE 2000), and it is likely that these areas will be proposed again. Proposed sites within the study area included the coastline between Pirates Bay and Fortescue Bay (proposed at the Marine Reserves Bronte Workshop in 1996) and Waterfall Bay (proposed by the Eaglehawk Neck Dive Centre) (DPIWE 2000). An area of Port Arthur, including Carnarvon Bay to Remarkable Cave, was proposed by Edgar *et al.* in 1995, Edgar and Barrett in 1995 and at the Marine Reserves Bronte Workshop in 1996 (DPIWE 2000).

2.8 A social understanding of Tasmanian MPAs

Tasmania is perceived as controlling what many countries would consider a pristine, or relatively pristine marine environment. Yet research conducted in the late 1970s until the present suggests that this belief may be somewhat misguided (Edgar 1991, Edgar *et al.* 1994, Edgar *et al.* 1997). Reductions in commercial fishery catches, including scallops, abalone and rock lobster are becoming more evident as commercial fishers struggle to fill their quotas. Increasing discontent with the current state of marine resources by both commercial and recreational fishers and other user groups, such as the ecotourism industry, has seen a growing disillusionment with the methods and manner in which the resources are managed. Each stakeholder group that utilises the marine and coastal environment believes their issues are cause for most concern and few will acknowledge that they could be a part of the decline in the state of the marine and coastal environment, specifically fisheries (MPA News 2000b).

Residents and shack owners in coastal areas are stakeholders in their own right, and are some of the most important stakeholders in the process of establishing new NTZMPAs. Their lifestyles are intimately linked to the marine and coastal environment, and many undertake extractive pursuits.

Tasmania's attempts at establishing and maintaining protected areas are still in the fledgling stages of development and as a result the process has met much resistance as extractive stakeholders try to limit impacts which might affect their particular user

group (Cretney 1991, Gorman 1993). Because of this, different stakeholder groups perceive each other as a threat to their right to utilise the resources available. This scenario has been proven to be widespread in countries developing a policy of marine protected areas (Kenchington 1990, Smyth 1999, Gubbay 1995, McNeill 1999).

Tasmania's declaration of its first four coastal NTZMPAs was a time of immense political tension between commercial and recreational extractive users, political parties, scientists and environmentalists. The first proposals for NTZMPAs, in the early 1980s, met with such resistance from extractive users that they were not initially introduced. Political rallying, public meetings and on a few occasions, physical threats, were used to dissuade governments and individuals from promoting the concept of NTZMPAs. Many extractive users felt the proposed NTZMPAs would impact on their 'right' to fish, and limit their catches by closing productive fishing grounds. They were unwilling to compromise with other pro-reserve stakeholders, and the politically powerful recreational and commercial fishing bodies ensured NTZMPAs were not established by placing immense political pressure on the State government. It took another ten years of active campaigning by prominent scientists and environmentalists before any NTZMPA were eventually established in 1991.

The current proposals have met with similar resistance from commercial and recreational extractive users. They still cite a loss of productive fishing grounds as their major concern, and feel that NTZMPAs are poorly researched as a management tool.

These proposals are also now under increased pressure from environmental groups to establish a representative system of NTZMPAs around the state (Bell, pers. comm. 2000b). These groups are also pressuring the government to establish larger and more marine reserves based on past commitments (Bell, pers. comm. 2000a).

Tasmania's coastal users have traditionally practiced extractive pursuits, the most common being gillnetting, craypotting, abalone diving and linefishing. Commercial practices have also included trawling. These groups have traditionally resented any move to protect areas through restricted access. However, since the introduction of the first NTZMPAs there has been a shift by many commercial and recreational extractive

users from total opposition to any proposals, to at least a consideration of certain proposals. In recent times, many politically powerful fishing bodies have even proposed possible sites for the establishment of NTZMPAs around the state (DPIWE 2000), a concept many, based on the previous history of extractive users towards NTZMPAs, would thought quite ludicrous twenty years ago.

However, it is necessary to understand that there has been an increase in effort to implement a representative system of MPAs nationally and in Tasmania (MPA News 2000b, MPA News 2000a). The effort is from both the Federal and State governments and from increasingly politically powerful environmental groups. Tourism ventures, and in particular eco-tourism ventures, in Tasmania (Davis 1995, DPIWE 2000) and elsewhere in the world (Ballantine 1993) are also supporting further establishment of MPAs. For the first time the state is experiencing strong political support both for and against reserves.

2.9 Summary

- The concept of MPAs and their functions were developed as a result of concerns over the general decline in both the fisheries of the world and their associated habitats. The international development of MPAs is a recent one when set against other marine and coastal management policies. The first MPAs, and all those subsequently established, have been debated by a range of stakeholders. The concept of MPAs is, however, gaining popularity in many parts of the world.
- The development of Australia's network of MPAs began in 1938 with the establishment of the Great Barrier Reef Marine Park. Since then, many MPAs have been established around the Australian coastline. However, the percentage of coastline, and the range and diversity of habitats protected by these MPAs, is low. There is also no representative system of MPAs, with all current MPAs designated on an ad hoc basis. In the last ten years, Federal and State governments have increasingly viewed MPAs as a sound management option to the preservation of biodiversity and increasing continue to develop

more MPAs around Australia. The most significant policies regarding the establishment of a representative system of MPAs in Australia is Ocean Rescue 2000 and Australia's Oceans Policy.

- MPAs in Tasmania have all been declared as NTZMPAs on an ad hoc basis. They were first declared in 1991 and there are currently four around the mainland of Tasmania, comprising less than 0.001 per cent of the coastline. As part of a larger Federal initiative, and under the 'Joint Policy for the Establishment and Management of Marine Reserves in Tasmania' (Tasmania 1990) the Tasmanian government have pledged a representative system of MPAs for Tasmania. These NTZMPAs will focus on preservation of biodiversity, and an extensive implementation process is underway.
- Traditionally, Tasmania's use of the marine environment is largely extractive in nature, and stakeholder opposition to MPAs has historically been vocal, sustained and extensive. Recently, however, there is a growing voice favouring the implementation of a more extensive and representative system of MPAs in Tasmania.

2.10 Prospect

Chapter 2 has provided a theoretical background to the development of MPAs worldwide and to the development and current status of MPAs in Australia. It has also highlighted the attitudes of stakeholders towards MPAs in Tasmania. Chapter 3 will explore the social and physical background of the Tasman Peninsula, focusing on the Eaglehawk Neck and Fortescue Bay regions.

Chapter 3

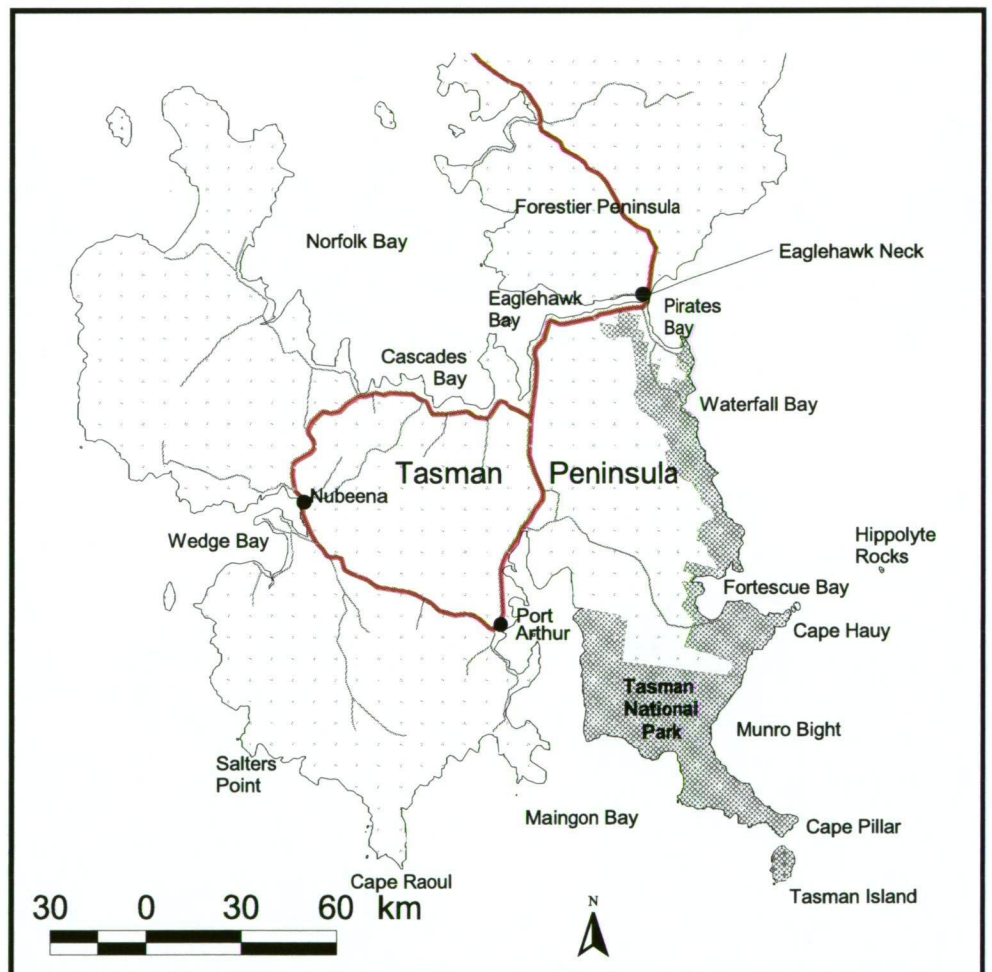
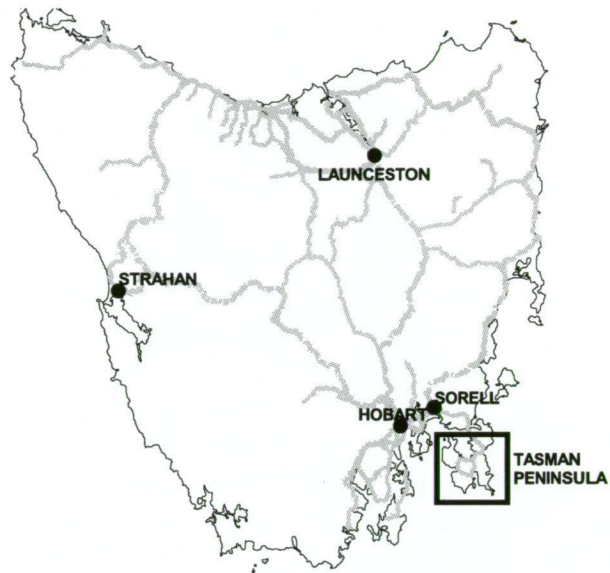
A physical and social description of Eaglehawk Neck and Fortescue Bay, Tasman Peninsula

3.1 Introduction

To understand the complexities of the NTZMPA debate it is important to provide some background on the area in which this research took place. Consequently, this chapter provides a description of the physical characteristics of the Tasman Peninsula with a particular emphasis on nearshore habitats. The chapter also provides an overview of the human use of the Tasman Peninsula. Throughout the chapter attention is focused on the eastern part of the peninsula. The Tasman Peninsula, and the eastern coastline in particular, is an area with high natural and cultural heritage values and has been subject to discussion about potential MPAs (see chapter 2).

3.2 A physical description of the Tasman Peninsula

The Tasman Peninsula is situated in southeastern Tasmania, approximately 100 kilometres from Hobart, the capital of Tasmania. A narrow tombolo approximately 300 metres in length connects the Tasman Peninsula to the greater part of Tasmania (Last, 1989). The township of Eaglehawk Neck is situated on either side of the tombolo. Fortescue Bay is approximately 40 kilometres south of Eaglehawk Neck. The entire peninsula has an area of approximately 47980 hectares.



Map 3.2 The Tasman Peninsula

The Tasman Peninsula has a dolerite and sedimentary cliff-dominated coastline incorporating many erosional features of 'grandeur and rarity' (Banks *et al.*, 1986:7) (figure 3.2.1). These features are also evident subtidally (Last, 1986). This coastal cliff formation dominates the approximately 30 kilometres of coastline between Eaglehawk Neck and Fortescue Bay. The only points on the eastern coast of the peninsula that are accessible at sea level by road are Eaglehawk Neck (Pirates Bay) and Fortescue Bay.



Figure 3.2.1. A view of the Pirates Bay and the cliff-dominated coastline.

To the north, there is road access to the eastern coast of the Forestier Peninsula and the nearest access points are at Blackmans Bay. Proceeding clockwise round the Tasman Peninsula coast beyond Fortescue Bay, the next access point is at the former convict settlement of Port Arthur. While there are a limited number of bays that provide shelter to boats in westerly weather conditions (figure 3.2.2), access by or to land along the eastern coast is restricted by a continuous belt of coastal cliffs that average approximately 180 metres in height.

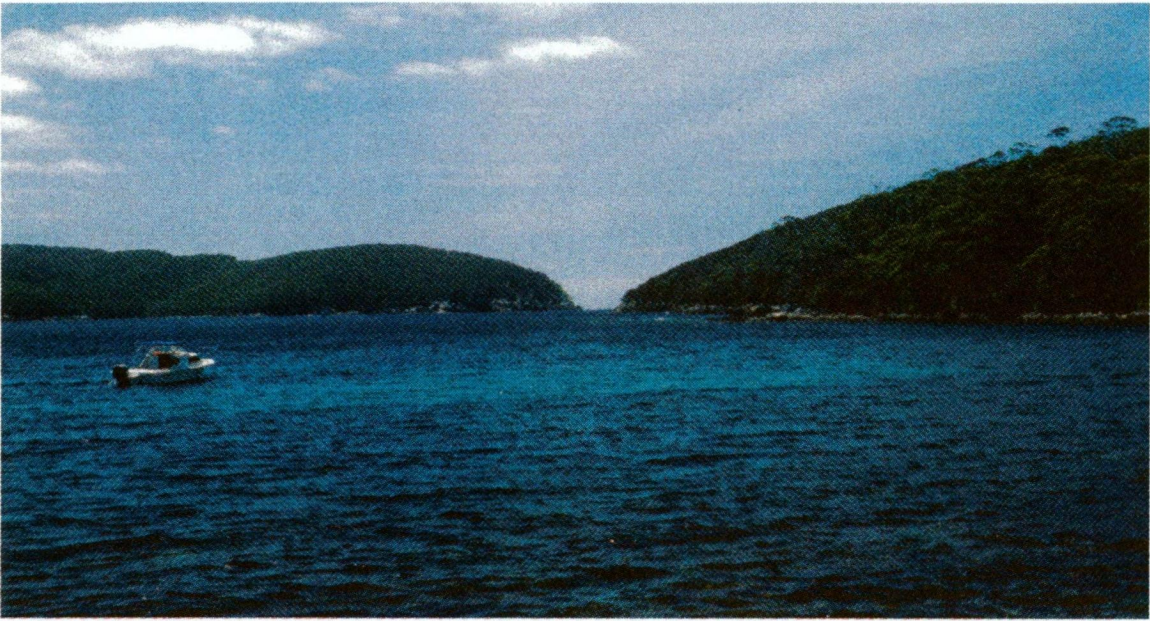


Figure 3.2.2 The sheltered Fortescue Bay is a popular boating area.

Tasmania has a temperate maritime climate typical of coast areas between latitude 40° and 60° in belts of prevailing westerly winds (Langford, 1965). The relatively evenly distributed rainfall on the Tasman Peninsula is higher than most of southeastern Tasmania (Matthews, 1986), averaging between 750 mm and 1250 mm annually (Langford, 1985). Most rain periods occur in the winter and spring months, although this form of precipitation does occur throughout the year. Waterfall Bay (figure 3.2.3), situated between Eaglehawk Neck and Fortescue, is a popular tourist attraction partly as a result of a large waterfall descending over 150 metres from the top of a dolerite cliff into the sea below. Flows vary in volume but the waterfall is visible throughout most of the year.



Figure3.2.3 Waterfall Bay, with the waterfall in the centre of the figure.

The mean daily minimum and maximum temperatures for Port Arthur in February are 11.1 °C and 18.8°C respectively, with the coolest and warmest recorded temperatures of 5°C and 36.1°C. The mean daily minimum and maximum temperatures in July are 5.5°C and 10.8°C respectively, with the coolest and warmest recorded temperatures of - 0.5°C and 16.0°C (Bureau of Meteorology, 2001).

The Tasman Peninsula occupies less than 1% of the total area of the state yet supports more than one-third of the total native vascular plants found in Tasmania with two plants unique to the peninsula (Brown and Duncan et. al., 1986). The peninsula does, however, lack the distinct alpine, wet and oligotrophic western environments associated with Tasmania. Instead, the vegetation types include mostly coastal heaths, dune vegetation and wetlands, dry and wet sclerophyll forests and some small areas of subalpine scrub and rainforests (Brown and Duncan et. al., 1986).

For a variety of reasons including poor soils, difficult topography and lack of access, most of the coastal strip on the east coast of the Tasman Peninsula has remained under natural

vegetation cover. In the area between Eaglehawk Neck and Fortescue Bay, eucalyptus forest dominates with *Eucalyptus obliqua* species being dominant (figure 3.2.4).



Figure 3.2.4 Typical vegetation along the coastal cliffs of the Tasman Peninsula, including the areas between Eaglehawk Neck and Fortescue Bay.

The nearshore zone of the study area reaches depths to 40 metres below the high tide mark, with the edge of the continental shelf 30 kilometres from shore in parts (Last, 1986). The eastern coastline is directly exposed to the southeasterly and the prevailing southwesterly winds and associated wave action. According to Last (1986:72) tides are ‘semidiurnal, of low amplitude and generally with low flow rates’. These deeper and more exposed eastern and southeastern coasts are primarily formed of hard substrates, most notably dolerite.

The reef topography is complex and variable. The sublittoral fringe is dominated by large brown algae, the most distinguishable being the bull kelp *Durvillea* (Last, 1986). Submarine caves and crevices occur subtidally throughout this region. These areas have

built a reputation with divers as some of the best temperate diving locations in the world. Noted underwater photographer David Doubilet states, 'this ocean, this edge of Tasmania, offers the softness of a seal's eye and the delicate curve of the kelp frond - bits of warmth in the cold sea.' (National Geographic, 1997:100).

Areas of the giant kelp *Macrocystis* are found further offshore, in some cases extending to the surface from depths of 30 metres (Last, 1986). Fortescue Bay, Pirates Bay (figure 3.2.5) and Port Arthur have small exposed beaches comprised of loose sediments with no attached vegetation (Last, 1986).



Figure 3.2.5 A view of the beach at Pirates Bay, Eaglehawk Neck.

As outlined in Chapter 2, the Tasman Peninsula is classified as part of the Bruny Bioregion under the 'Interim Marine and Coastal Regionalisation of Australia' (1998). According to Edgar *et al.* (1994:41) 'this bioregion has the highest localised level of marine endemism in Tasmania, and probably Australia.' The area includes high populations of the Zebel's Handfish (*Brachionichthyidae* family) and the Weedy Seadragon (*Phyllopteryx taeniolatus*), both species of importance to current marine

management policies and likely to be protected in some form in the future. Bryan (1984) noted numerous species in three caves in Waterfall Bay, including a single individual fish species, possibly of the Moridae family, previously undiscovered.

Water temperatures average between 9°C and 14°C in winter and 16°C to 22°C in summer, although fluctuations around these temperatures can be experienced throughout the year (Baron, pers. comm. 2000).

3.3 Human use on the Tasman Peninsula

The peninsula can be conceived as having three populations' categories as defined by the amount of time spent in the area. First there is a population of permanent residents (Table 3.3.1).

Year	Resident population at census date	Inter censal change Absolute	Inter censal change %
1947	1039	-	-
1954	1079	+ 40	+ 3.9
1961	1108	+ 29	+ 2.6
1966	1126	+ 18	+ 1.6
1971	1035	- 91	- 8.0
1976	928	- 107	- 10.3
1981	1116	+ 188	+ 20.3
1986	1369	+ 253	+ 22.7
1991	1593	+ 224	+ 16.4
1996	2256	+ 663	+ 41.6

Table 3.3.1 ABS (various dates). Tasman Municipality: Resident Population, 1947-1996.

From the 1976 census onwards, the permanent population has grown rapidly. Before this, two intercausal periods of decline largely reflected depressed agricultural markets. While employment in the study area has traditionally focused on primary industries such as

fishing and forestry, since the late 1970s population growth can be linked to an increase in employment related to tourism and in the number of retirees choosing the peninsula as a place to settle. Since the late 1970s, in fact, it has been stated ‘the *raison d’être* of the permanent population rests, to an increasing degree, on the provision of goods, services and labour from the other two groups [of populations]’ (Wood, 1986:139). Recent years have also seen the growth of substantial numbers of “alternative” settlers on the peninsula. Alternative settlers are those defined as those who embrace radical environmentalism, believing modern society to be unsustainable in the long term and that rejection of materialism is the only way that life on earth will become sustainable again. They mostly live in communal groups. The median household income per week on the Tasman Peninsula is AUD\$393 (Tasmania government, 2001) and is one of the lowest in the state.

The second population are shack owners. The peninsula has become a popular location for shack development with the majority of shack owners having permanent homes in the Hobart area. White Beach, near Nubeena, is the largest single shack settlement in Tasmania. Precise figures are not available but it has grown from 70 shacks in 1976 to over 330 in 1998 (Wood, pers. comm. 2000). Eaglehawk Neck has also seen relatively rapid shack development (Figure 3.3.1). According to Wood (1986) numbers of shacks in the Eaglehawk Neck region increased from 54 in 1960 to 165 in 1972. Today the number of shacks is closer to 200.



Figure 3.3.1 Shacks and permanent residences at Eaglehawk Neck.

There are no permanent residents or shacks in Fortescue Bay as it had previously been a part of a national park and some surrounding areas have traditionally been extensively logged. The newly formed Tasman National Park will incorporate Fortescue Bay and parts of Eaglehawk Neck within its boundaries (Tourism Tasmania, 2001) but it is unlikely that the status quo regarding the building of residences and shacks in the two areas will change. Many residents and shack owners from the Eaglehawk Neck visit Fortescue Bay, especially fishers who seek access to fishing grounds considered safe and productive.

Typically, shacks are heavily used during school holidays and at weekends. In areas such as the Tasman Peninsula with large numbers of shacks, such usage can easily double the population. In Tasmania as a whole, the vast majority of shacks are coastal, reflecting the fact that the recreational activities of shack users commonly involve the coast and coastal waters. In particular, net and line fishing and craypotting are recreationally very popular.

The third comprises tourists, most of whom spend relatively short periods on the peninsula. Port Arthur is a major destination for tourists visiting Tasmania and is currently the most visited tourist site in Tasmania annually, at around 200 000 visitors per year.

Whilst the population of the peninsula have been placed into three groups, it is important to remember that the groups overlap. Many retirees, for example, in choosing the Tasman Peninsula as a place to settle, have previously used a shack on the peninsula for recreational purposes. While Fortescue Bay does not have its own population of residents and shack owners, it has been incorporated into the study area as it is important commercially and recreationally and intimately linked to the culture and society of the residents and shack owners in the Eaglehawk Neck region. Any establishment of a NTZMPA in Fortescue Bay will likely affect the residents and shack owners of Eaglehawk Neck more than any other part of the Tasman Peninsula as it is used as a launch site by fishers in rough weather and to access fishing grounds further down the coast, away from Eaglehawk Neck.

Most land on the Tasman Peninsula is used either for agriculture or forestry with a significant area having given National Park status in 2000 (Tourism Tasmania, 2001). The Tasman National Park was proclaimed under the Regional Forest Agreement on 30 April 1999 and is an amalgamation of seven existing State Reserves in the area. It was identified as an area for reservation for several reasons, including its high conservation and scenic values.

The Tasman National Park incorporates the southwestern tip of the Tasman Peninsula, including Cape Raoul, Mount Brown, Remarkable Cave and Point Puer to Briggs Point. It also includes the southeastern tip, which features, Cape Pillar, Tasman Island and the Abel Tasman Forest Reserve. It also incorporates several offshore islands, including Fossil Island, Hippolyte Rocks and Tasman Island. The park will also include the Blowhole, Tasman's Arch and Devil's Kitchen, all well known tourist sites and all within

the study site. The Tasman National Park includes an area of 8,312 hectares (20,780 hectares) and is noted for its dolerite organ-pipe formations that rise as much as 300m (986ft) from the sea.

Commercial agriculture is concentrated in the northern and central southern parts of the peninsula. Most farm income derives from extensive grazing of cattle and sheep. A small number of farms have controlled atmosphere sheds for intensive chicken raising. Apart from a commercial strawberry farm situated at Eaglehawk Neck few other commercial agricultural pursuits exist in the study region. Most residents undertake subsistence agriculture.

Forestry operations are concentrated in the higher and wetter central parts of the peninsula and in the area between the main Port Arthur road and the eastern coastline. Management of harvesting operations in this latter area includes provisos to maintain the scenic quality of the area. For example, most logging operations are not visible from the main highway and unlogged buffer strips are maintained along skylines and stream courses.

Waters around the Tasman Peninsula have been used for commercial fishing for approximately 160 years (Harrison, 1986). A high proportion of the commercial fishery is based in the study area (figure 3.3.2). For a long period of time the area has been a major supplier of southern rock lobster (*Jasus edwardii*), or the more colloquial crayfish as it is commonly known, and scale fish, primarily for the Hobart market. Since 1965 the commercial harvest of abalone has become increasingly important. Today the invertebrate fisheries of crayfish and black-lipped abalone (*Haliotis ruber*) are the dominant commercial fisheries in the area. Even in 1985 some 324 tonnes of abalone were harvested, with a market price of AUD\$4 million. Today, that figure is much higher. Some scalefishing also occurs targetting several species, including striped trumpeter (*Lateolabrax lineatus*), snotty trevalla (*Seriola lalandi*), several flathead species (*Platycephalidae* family) and three tuna species (southern bluefin (*Thunnus maccoyii*), yellowfin (*Thunnus albacares*) and skipjack tuna (*Katsuwonus pelamis*)). The southern

bluefin is the most targetted of the tuna species. A particular method of commercially harvesting octopus exists only on the peninsula, with a single licence issued for the entire state.

However, only a small number of commercial fishers of abalone, crayfish and scalefish are based on the Tasman Peninsula itself. The bulk of the fishers using this area have bases elsewhere. Fishers in Tasmania generally are a relatively mobile group. Many of the abalone divers, for example, will trailer a boat to whatever part of the state is suitable for fishing. For these fishers, a trip may last a few hours. Many commercial crayfishers based further up the east coast of Tasmania concentrate part of their effort along the Tasman Peninsula, especially from Tasman Island northwards.

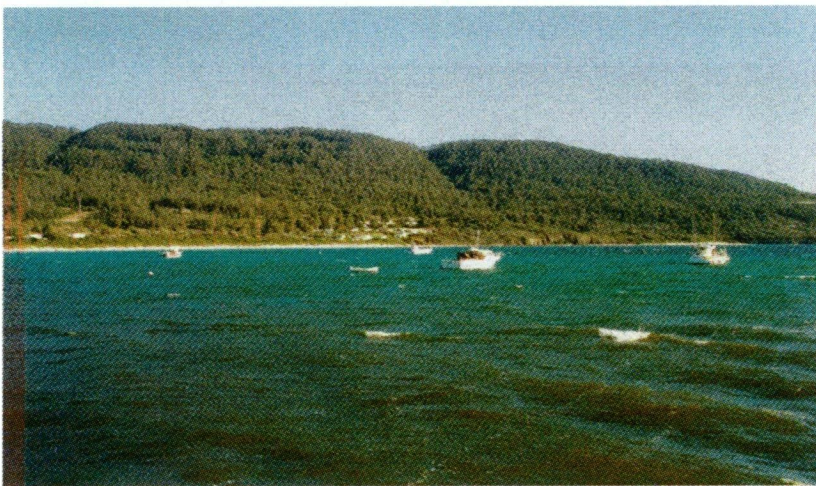


Figure 3.3.2 In rough conditions the launch sites at Eaglehawk Neck (pictured) and Fortescue Bay are used as safe anchorage points.

The recreational fishery has a popular and sustained interest in the area (figure 3.3.4) and comprises one of the major recreational fisheries in southern Tasmania (Harrison, 1986). Most of the recreational fishery is dependent on lightweight sea-going craft. The recreational fishery is as diverse as the commercial fishery and includes the extraction of crayfish and scalefish using a host of methods, including craypots, nets and linefishing. Limited recreational abalone extraction also occurs. A large recreational fleet targets pelagic species offshore of the study area, with catches dominated by southern bluefin tuna (figure 3.3.3), yellowfin tuna and albacore. Limited recreational fishing also occurs off the jetties and beaches situated in Pirate and Fortescue Bays.

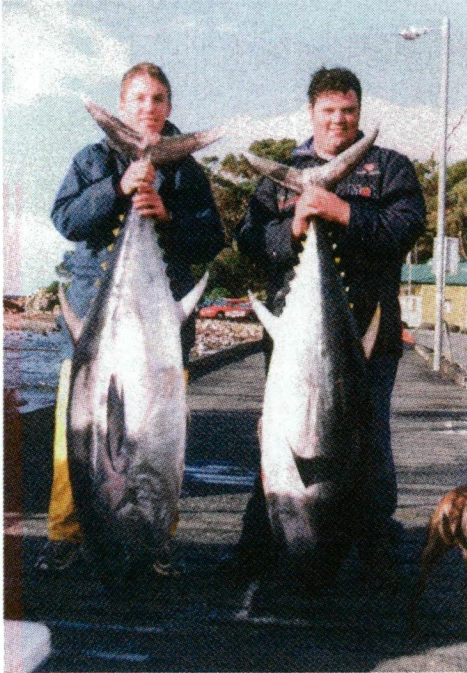


Figure 3.3.3 Eaglehawk Neck is a popular recreational fishing area.

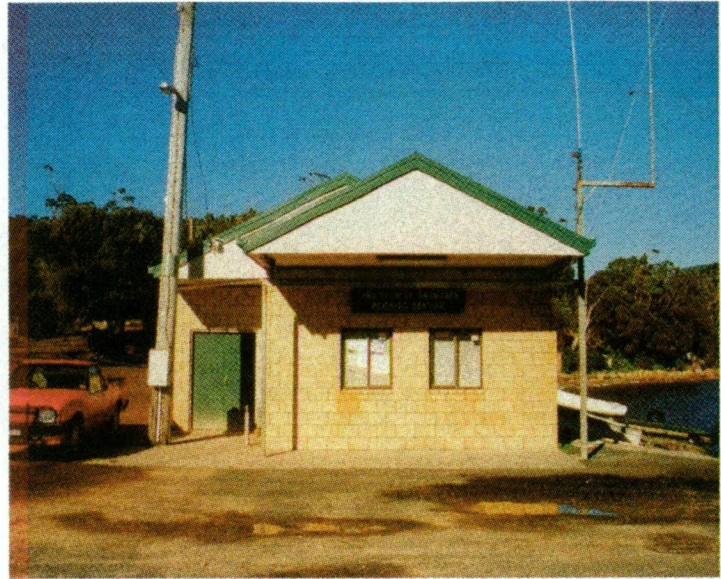


Figure 3.3.4 A recreational fishing club and facilities are situated at Pirates Bay, Eaglehawk Neck.

The fisheries in the study area are regulated by the generic rules of catch limits and closed seasons for certain species, temporal netting restrictions, etc. There is, however a localised netting restriction enforced. The two points of Waterfall Bay, for a distance of two hundred metres outwards and along the coast, are restricted netting zones. No netting can occur in these two areas at any time. In other areas of the peninsula shark nurseries exist, but do not encompass the eastern seaboard of the study area.

While mariculture is an important part of the commercial fishery on the Tasman Peninsula and includes Atlantic salmon, oysters and mussels, there are limited ventures in the study area. There is a large oyster farm in Norfolk Bay that reaches to the western side of Eaglehawk Neck. Sumner (1986) states that an abalone farm was established in Fortescue Bay, but current observations have found this farm no longer exists. This does not preclude the area from future interest in mariculture opportunities. Port Arthur, adjacent to the study site, is host to both commercial salmon and oyster farms and

therefore it is possible that certain sectors will at least attempt to propose mariculture opportunities in the study region in the future.

The Tasman Peninsula holds a special place in Australian history as the site of a major penal settlement for recidivists who had offended after being transported. Although guided tours were run in Eaglehawk Neck focusing on the natural beauty of the area as early as 1851 (MacFie, 1989), it is the ruins and associations from the 1830s to 1870s that form the basis of the tourist appeal of the peninsula. Whilst the main penitentiary was at Port Arthur, there were also outstations in other parts of the peninsula. Eaglehawk Neck was the site of a dogline and guard station designed to prevent convicts escaping across the narrow neck into the main part of Tasmania. There were also timber extraction operations at Fortescue Bay.

Since then, and especially in recent years, tourism is increasingly being seen by some as the most sustainable, consistent and highest income provider, superseding traditional primary sources of income such as commercial fishing. The Tasman Peninsula is one of the most visited areas of Tasmania annually and contains some significant tourist attractions. The former Port Arthur penal colony is the most visited tourist attraction in the state today.

Whilst Port Arthur itself is the major single attraction on the peninsula, several other sites have become part of the established tourist circuit. These include some spectacular coastal features in the Eaglehawk Neck and Fortescue Bay regions, and include the Blowhole, Devils Kitchen, Waterfall Bay, Tessellated Pavement (figure 3.3.5) and several coastal and cliff bushwalks.



Figure 3.3.5 The Tessellated Pavement, a popular tourist attraction, located in Pirates Bay at Eaglehawk Neck.

Other tourist attractions in the study area include the Officers Quarters, and a wildlife and snake park. The Peninsula is relatively small in size and as a result the tourist attractions situated throughout the area are easily accessed along with those from the study area.

Several businesses are supported by tourism in the study area. Those that have a primary impact on the marine environment include diving and fishing charters. While commercial and recreational fisheries have a long association with the Tasman Peninsula, there is a growing eco-tourism industry in the form of scuba diving. Scuba diving is becoming increasingly popular throughout the world, and the Tasman Peninsula is no exception (figure 3.3.6). Local divers and the commercial diving industry on the Tasman Peninsula generally do not extract any resources while diving. The industry has the potential to attract thousands of eco-tourists and generate more tourism income into the area, and as such will become more of a key player in the development of the Tasman Peninsula and the involvement in the management of its marine resources.

Secondary impacts occur from other businesses including tour operators, suppliers of basic goods and fuel, accommodation and restaurants. All these businesses are sustained by tourism in the area. The growing popularity of tourism on the Tasman Peninsula suggests greater numbers of tourist related ventures could be established in the area.

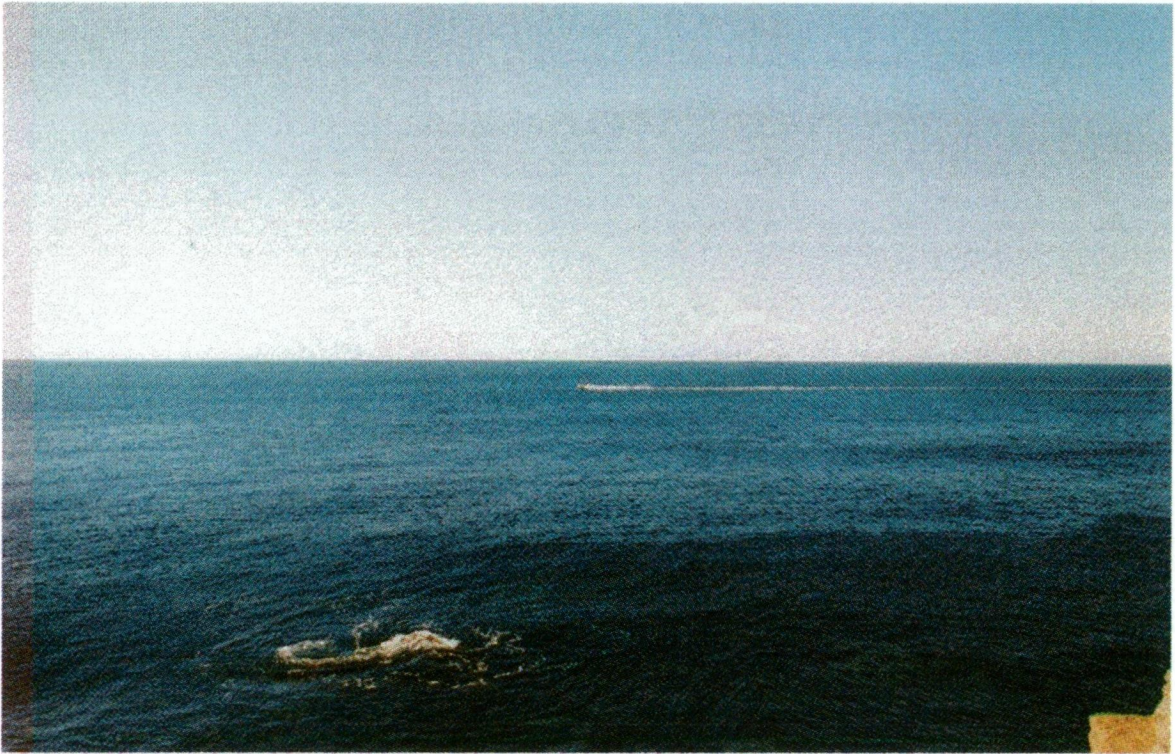


Figure 3.3.6 Local eco-tourism industries, such as the dive boat pictured, use Eaglehawk Neck as a launch site for their trips to various diving sites in the region.

3.4 Summary

The Tasman Peninsula is a relatively small part of the island state of Tasmania, yet is an area of high species diversity, and in some cases, endemism. Large parts of its coastline consist of cliffs and access to the eastern coastline is limited. Those areas of the marine environment survey show the Tasman Peninsula is home to several endangered or highly protected marine species, with one species only known from a single individual. Tourism and fishing pursuits and their associated industries are the largest income earners on the Tasman Peninsula. Limited agriculture and forestry production also occurs. Much of the terrestrial aspect of Tasman Peninsula is managed as protected areas. The largest of these

is the Tasman National Park, established in 1999, and includes in its boundaries much of the terrestrial habitat between Fortescue Bay and Eaglehawk Neck.

The Tasman Peninsula has one of the longest histories of modern Australia, dating back to the convict era. Three distinct human populations are found on the peninsula today, and include permanent residents, shack owners and tourists. Eaglehawk Neck has large resident and shack owner populations and is intimately linked to the surrounding marine and coastal environment. A high percentage of these populations, especially residents and shack owners, undertake both commercial and recreational extractive users. The most common include net fishers, craypotters, linefishing and trawling. The Peninsula's eco-tourism industry is expanding rapidly along with the number of non-extractive users.

3.5 Prospect

Chapter 3 has provided a backdrop against which the research is set. It has highlighted the physical and social features of the Tasman Peninsula and the Eaglehawk Neck and Fortescue Bay region. With the knowledge gained from chapter 2 and chapter 3, the importance of NTZMPAs to Tasmania, as well as an understanding of the features of research area allow the research approach shown in chapter 4 to be fully understood in the context of the research. Chapter 4 will show how the most effective method of data capture for the area was chosen, based on the knowledge gained in chapters 2 and 3, and how that most effective method was used to collect data from the research area.

Chapter 4

Research approach

4.1 Introduction

This chapter outlines the research approach undertaken to address the overall aim of the thesis, which was to determine the level of support for NTZMPA in the Eaglehawk Neck and Fortescue Bay regions of southeast Tasmania. The research approach needed to be robust enough to capture the necessary data to address the aim of the thesis but also cognizant of temporal and financial constraints.

4.2 Selection of methods

The Eaglehawk Neck and Fortescue Bay study area is relatively small in size, and is widely used by a number of different groups, including residents, shack owners, and tourists, in both commercial and recreational capacities. The research focused on residents and shack owners. At the outset it was considered necessary to gain both a quantitative and qualitative understanding of the attitudes of the residents and shack owners. Three separate sampling methods were chosen and these are discussed below.

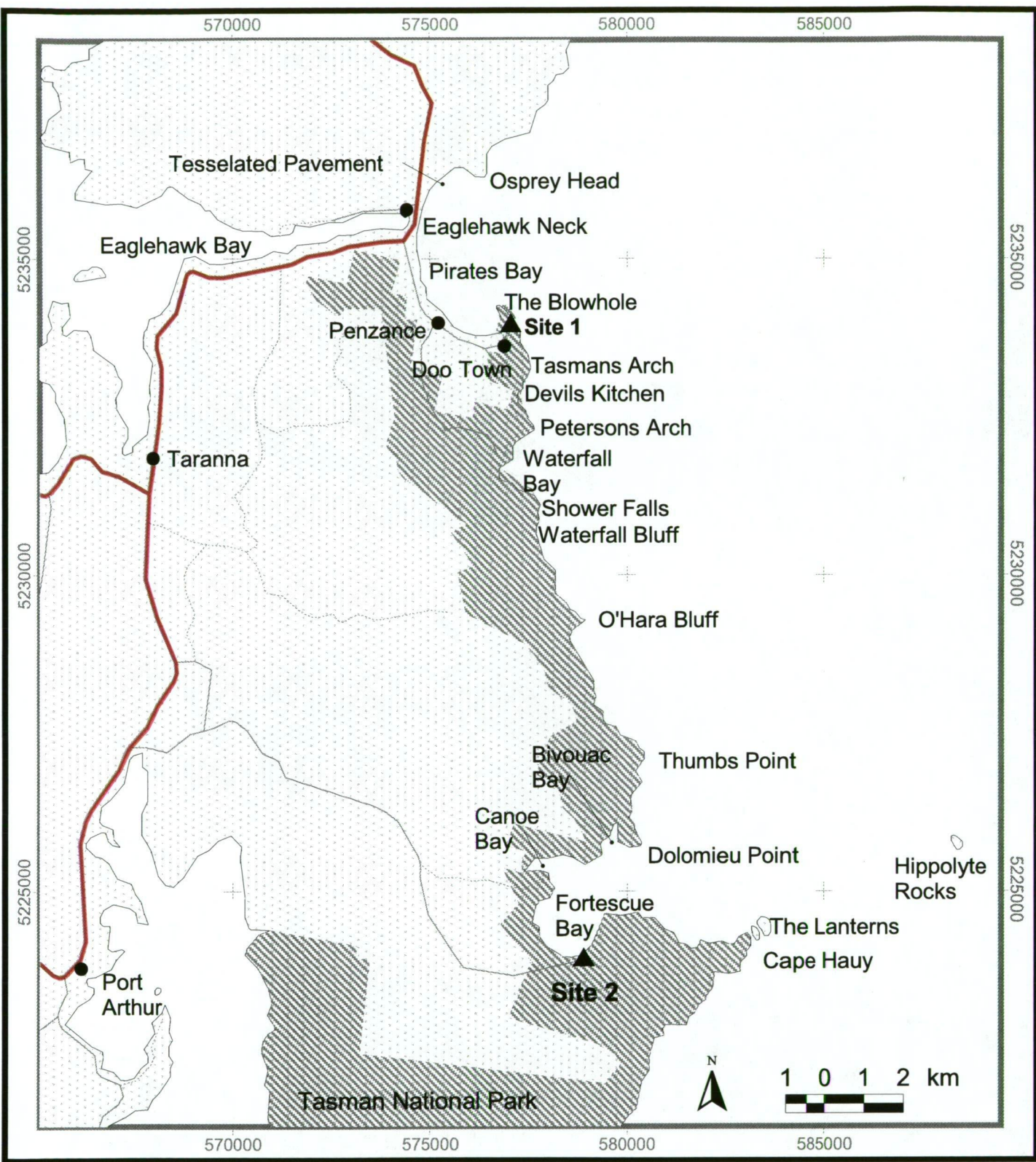
The first sampling method involved a randomly stratified sampling survey incorporating face-to-face questionnaires targeted at residents and shack owners actively utilising the marine environment in the area. This involved direct surveying of subjects in two sites, both situated on the eastern shore of the Tasman Peninsula (Figure 4.3). Site 1 (Eaglehawk Neck) is situated approximately twenty kilometres north of Fortescue Bay (site 2). The coastline between the two sites is dominated by sea cliffs. The two sites both incorporate a relatively sheltered bay and boat launching facilities. People were sampled at these boat launch sites and their immediate surrounds. In the case of site 1, surveys were undertaken at included a wharf, a fishing clubhouse and a recreational area. People were sampled at site 2 at a camping ground and boat launching facility. These two sites

are the only boat launching facilities in the vicinity and the only locations where easy access to the water is available.

Due to the relatively long distance between the two sampled sites both spatially (45 kilometres) and temporally (40 minutes), sampling times were divided between the two areas. In order to minimise sampling bias between the two areas, the two sites were sampled in such a manner as to ensure that although sampling dates were different, sampling days and times were mirrored. Sampling occurred over two weeklong periods and six weekends (Saturday and Sunday inclusive) between January 1999 and April 2000.

The two week long periods were divided into five separate sampling days each. Each day was further divided into a morning sampling session (6 am - 1 pm) and an afternoon session (2 pm - 8 pm). During the first day of the first week, the Eaglehawk Neck site was sampled in the morning and the Fortescue site was sampled in the afternoon. The following day this sampling process was reversed, allowing the Fortescue site to be sampled in the morning and the Eaglehawk Neck site to be sampled in the afternoon. This process was then repeated over the next four days to ensure each site was sampled on at least two morning and two afternoon sessions.

The second week long period followed the same sampling method, except the sampling times were reversed from the previous independent week. The result is that each site has five days of data for the two weeklong periods. Sampling also occurred over six separate weekends. A similar method to the weeklong sampling periods was used. The two days were divided into morning and afternoon sampling sessions as described above. People at each site were sampled on alternating sessions each day. For each weekend, each site had two separate samples consisting of a morning and afternoon. The process was reversed during the next weekend sample.



Map 4.3 The Eaglehawk Neck and Fortescue Bay Region of the Tasman Peninsula

Sampling took place between December 1999 and January 2000 (two week-long samples and two weekend samples) due to the large influx of shack owners over this period. Increased numbers of people sampled increased the likelihood of subjects with a broad range of interests in the marine and coastal environment.

However, this face-to-face sampling method had some limitations for several reasons. First, many subjects approached were in the process of launching their boats and were reluctant to spend time answering questionnaires. A similar response was found when subjects returned as most wanted to leave as soon as possible after removing their boats from the water. Because of this, few completed questionnaires were obtained from these subjects. Secondly, inclement coastal conditions for 15 days of the 22-day sample period resulted in very few potential subjects visiting the area. As a result, surveys conducted on those days were heavily biased towards non-extractive users (87%) who were on vacation and visiting the area for the first time, mostly from the mainland of Australia. Thirdly, those subjects who were willing to answer surveys usually discussed responses as a group. This resulted in almost identical responses for groups of questionnaires, even though the conversations between subjects often included several different viewpoints; with the dominant subject's thoughts being noted by all respondents. Also, due probably to the inclement weather during much of the sampling period, only two potential respondents were residents or shack owners in the study area and neither of them were willing to participate in the survey. Finally, many potential respondents could be seen utilising the area but did not approach the launch sites and their immediate surroundings. These included bushwalkers, beachgoers and surfers. While it is probable that not all of these potential respondents are residents or shack owners, it did suggest that the survey would be biased towards potential respondents who used boats for their activities.

Surveying activity was curtailed on three occasions because of intimidatory practices. On these occasions, subjects became aggressive when told about the purpose of the survey, and further questioning was abandoned.

Due to the problems associated with sampling the population found in the first survey and because of the relatively small population of ratepayers (1089) and a history of relatively poor survey respondent rates by Tasmanian communities (Stratford, pers. comm. 2000) it was decided the second survey method would survey the entire population of residents and shack owners in the research area to gain as many responses from shack owners and residents as possible (Appendix A).

The survey was directed at all ratepayers in the study area and thus the need for a random sampling method was not necessary. The areas surveyed included the Eaglehawk Neck and Taranna sections of the Tasman Municipality. Ratepayers fell into several groups of which two were of interest to the study: permanent residents and shack owners. Residents are likely to have long-term knowledge of the region. Shack owners have bought property usually for seasonal recreational use. In the research area, as in most parts of the state, marine and coastal-based recreational activities are popular amongst shack users. It follows that both residents and shack owners may be affected by changes in the declaration of NTZMPAs. Residents and shack owners, by the nature of their investments, are most likely to continue to utilise the area on an annual basis and thus are more likely to respond to a survey than those user groups who utilise a range of areas across the state and have a more limited interest in the area. Differences between residents and shack owners might also become evident as residents tend to have greater potential for change to their lifestyles than shack owners whose primary goal in the area is recreation.

In order to gain as complete an understanding of respondents views on NTZMPAs as possible, the survey incorporated both restricted and open-ended items (Bordens and Abbott, 1999). This allowed respondents to provide a quantitative and qualitative response to a question. Certain questions included a partially open-ended item as there were literally hundreds of categories that could have been specified.

A list of eligible voters for the Tasman Peninsula was obtained from a government electoral roll for the region and the ratepayers information maintained by the local municipal council. The list of ratepayers was deemed to be more complete as it accounted for many of the shack owners who would normally have been on voting rolls in the municipalities of their permanent residences. All subjects on the ratepayers list were sent surveys. A total of 1089 subjects were surveyed by mail and 204 responses were received, of which 196 responses were used for analysis (18%). The eight responses excluded from the analysis were returned due to the fact that potential respondents no longer resided at the mailed addresses. Of the 196 responses, 38.3% were residents; 46.45% shack owners; 5.6% shack users, and 8.7% property owners who did not live in the area but rented out the properties. As the focus of the research was on shack owners and residents, other responses were not included in the analysis of results. The effective response rate of the population surveyed was therefore 15.5% (165).

Follow-up surveys were not undertaken. The research focused on attitudes towards NTZMPAs in a specified area and was not designed to gain a temporal understanding of shack owner and resident views. No NTZMPAs have been established in the area, nor were there any other significant developments in the area that could have resulted in respondents views and perceptions changing during the duration of the research. Respondents' identities were confidential and will not be identified at any stage in the research. Identifying the respondents would not add significantly to the research, and in fact, could detract from the research as the respondents were able to express a range of different opinions without fear of intimidation. Responses could have been curtailed if they felt their identities would be made available to the general public.

Data obtained from the surveys were analysed using the statistical programme SPSS v8.0. A database was designed for the programme to establish a variety of trends recorded in the data from returned surveys. Data from the returned surveys were entered into the programme and analysed.

The third type of survey involved interviewing nine key informants in an attempt to gain a more qualitative understanding of relevant issues pertaining to the study. Potential informants were identified based on their standing in the community, their knowledge of the area and their active participation in different uses of the marine environment in the area. Potential informants were approached to take part in the survey. Nine individuals responded and made themselves available to be interviewed. All respondents actively used the area over extended periods of time and represented a wide range of interests. This allowed a more in-depth understanding of the issues documented than could be recorded in the other two forms of data capture. Although the respondents provide a wealth of information and differing views and attitudes to NTZMPAs their identities are anonymous. Their confidentiality is an important ethical consideration and will be enforced throughout the thesis.

A study involving either human or animal subjects can potentially transgress ethical boundaries. In order to ensure the research was undertaken in an ethical manner approval for the surveys was obtained from the University of Tasmania Ethics Committee before any surveying occurred.

4.3 Summary

Several information-gathering techniques were assessed in order to determine the best techniques to address the overall aim of the thesis. Two different methods were initially chosen to address the aims and objectives of the thesis. Both methods involved different survey techniques, including active sampling of users in the study area, and key informant interviews.

Active sampling of residents and shack owners proved ineffective for several reasons, and thus the survey was abandoned. All residents and shack owners in the study area were then surveyed using postal surveys.

A total of nine key informants were interviewed and 198 residents and shack owners replied to the postal surveys. This represents a significant response rate of the population of residents and shack owners in the study area.

4.4. Prospect

This chapter has outlined the design and research approach used to collect data from subjects. Chapter 5 will convert the data into information, focusing on the overall aim of the thesis. Both qualitative and quantitative results will be presented in a readily digestible form.

Chapter 5

Social and cultural dimensions of residents and shack owners towards marine protected areas

5.1 Introduction

Chapter 4 has shown the methods used to best obtain information from resident and shack owner respondents. It also showed how the data was analysed for more effective interpretation. The objective of this chapter is to use that data and present it in a more readily digestible form, represented by four major sections:

- A spatial and temporal understanding of respondents;
- Respondents views and attitudes towards no-take zone marine protected areas;
- An understanding of politics in decision-making;
- Categories and criteria of importance to residents and shack owners in the establishment of NTZMPAs; and
- Community involvement in the establishment of a possible NTZMPA.

This information will be used in Chapter 6 to establish a more knowledgeable understanding of the perceived issues facing residents and shack owners.

5.2 A spatial and temporal understanding of residents and shack owners

Respondents used the marine environment in several ways, with most using the area for more than one activity. The majority of residents and shack owners stated they undertook at least one extractive pursuit while utilizing the marine and coastal environment (Table 5.2.1).

Activity	Resident %
Commercial fishing	17.3
Recreational fishing	65.3
Recreational diving	37.3
Surfing	14.7
Bushwalking	42.7
Other activities	20

Table 5.2.1 Use of the marine environment by resident respondents in the Eaglehawk Neck/Fortescue Bay communities.

Although a large percentage of shack owners took part in a range of extractive activities (Table 5.2.2) the vast majority of shack owners were recreational fishers (80.2%). Residents' (Table 5.2.1) activities were more evenly pursued and included commercial fishing (17.3%), recreational fishing (65.3%) and to a lesser extent recreational diving (37.3%) (not all recreational divers extracted resources during that activity). Commercial fishing (1.1%) and recreational diving (18.7%) were practiced by far fewer shack owners than residents. Both groups, however, were dominated by recreational fishing with shack owners showing a greater bias towards recreational fishing than any other extractive activity.

Activity	Shack owner %
Commercial fishing	1.1
Recreational fishing	80.2
Recreational diving	18.7
Surfing	12.1
Bushwalking	40.7
Other activities	8.8

Table 5.2.2 Use of the marine environment by shack owner respondents in the Eaglehawk Neck/Fortescue Bay communities.

Whilst extractive activities appear to be the most popular, non-extractive activities are also practiced. Bushwalking, in particular, is a popular recreational activity with both residents (42.7%) and shack owners (40.7%), although there are few who pursue bushwalking exclusively. Most bushwalkers took part in some extractive pursuit. Surfing was also relatively popular (12.1%) although few surfers undertook any extractive activities in the study area.

The study area is a popular boating area (Table 5.2.3), with 57.3% of residents using boats at all times while undertaking their activities. A similarly high figure is seen with shack owners, where 61.5% used boats throughout their activities. Sixteen percent of residents and 19.8% of shack owners used boats for part of their pursuits,

while 26.7% of residents and 18.7% of shack owners stated they never used boats for their activities.

A high percentage of both residents (73.3%) and shack owners (81.3%) use a boat for all, or at least for some time of their pursuit, during their stay in the study area. The period of time over which these pursuits are undertaken are important in helping to gain an understanding of the importance of the marine environment amongst residents and shack owners (Table 5.2.3).

Time spent on boat during activities	Resident (%)	Shack owner (%)
Less than 10%	14.7	28.6
10-25%	5.3	14.3
26-50%	6.7	9.9
51-75%	10.7	8.8
76-100%	36.0	19.8
Spent no time on boat	21.3	17.6
Did not answer	5.3	1.1

Table 5.2.3 Time spent by residents and shack owners on boat during activities.

More shack owners (60.5%) spend less than twenty five percent of their time on their boats when undertaking activities than residents (41.3%). This includes, however, a relatively high percentage of both residents (21.3%) and shack owners (17.6%) who do not use boats for any of their activities. However, more residents (36%) spend most of their time on boats while undertaking activities in the coastal and marine environment than shack owners (19.8%). This suggests residents use the area almost exclusively use the area to set nets or craypots or to go fishing. Shack owners, on the other hand, only spend part of their time fishing or setting nets and craypots, and the rest of their time possibly playing with their children on the beach, or undertaking other activities not requiring the use of a boat.

An important consideration in understanding the views and attitudes of different user groups is the duration that respondents are in the study area. In the case of the residents the majority would be expected to spend most of their time in the area.

Shack owners are generally thought to migrate to the area over peak holiday periods and weekends. Tables 5.2.4 and 5.2.5 highlight the trends observed in the data. Table 5.2.4 shows the duration of shack owners visits to the area and Table 5.2.5 shows which months shack owners visited their shacks.

Time spent in study area	Shack owners (%)
Less than two weeks	14.3
2-4 weeks	20.9
5-8 weeks	28.6
9-16 weeks	20.9
More than 16 weeks	13.2
No answer	2.2

Table 5.2.4 Time spent by shack owners in the Eaglehawk Neck/Fortescue Bay area.

Table 5.2.4 shows the majority (70.4%) of shack owners spend 2-16 weeks in the study area. Most shack owners use the area for a relatively short period during the year, most likely during holidays and weekends.

Months study area is frequented	Shack owners (%)
All year	53.8
January	37.4
February	28.6
March	29.7
April	28.6
May	17.6
June	12.1
July	2.2
August	3.3
September	8.8
October	8.8
November	24.2
December	30.8

Table 5.2.5. Months the Eaglehawk Neck/Fortescue Bay area is visited by shack owners.

Table 5.2.5 shows that 53.8% of shack owners visit the area throughout the year. Most of these visits would be on weekends when leaving their permanent residences, usually situated in the cities, although their lengthier stays tend to be over the summer months. It is interesting that the commonly held belief that shacks are used primarily during the summer period is not fully supported by these figures.

Apart from the 53.8% of shack owners who visit the area throughout the year, November (24.2%), December (30.8%), January (37.4%), February (28.6%), March (29.7%), April (28.6%) and May (17.6%) are the most popular with shack owners who don't visit the area consistently throughout the year. These figures would partly

support the commonly held belief that shack owners visit the area mostly during the Christmas and Easter holiday periods, although it is evident the area is used throughout the year by the majority of shack owners. Whether that is a result of the possibility of improved fish catches over this period or the opportunity for families to gather together at the beach is open to debate. It is probably a combination of a family atmosphere and improved weather and marine conditions for coastal activities.

While the duration of visits and the periods over which they occur have been established, it is also important to have an understanding of the amount of time spent using the marine environment during their visits (Table 5.2.6.). This allows an insight into the value of the marine environment both residents and shack owners.

Time spent using the marine environment (per day)	Residents	Shack owners
Less than one hour	10.7	13.2
1-2 hours	30.7	41.8
3-5 hours	26.7	38.5
6-10 hours	16	4.4
More than 10 hours	9.3	0.0
No answer	6.7	2.2

Table 5.2.6 Number of hours residents and shack owners use the marine environment per day while on a visit.

It is clear that the marine environment is an integral part of the lifestyle residents and shack owners. The vast majority of both groups utilise the area for at least one hour a day. Most shack owners use the marine environment for one to five hours per day (80.3%), with residents showing similar trends (57.4%), although more spend longer (six to more than ten hours) on or near the water (25.3%) than shack owners (4.4%).

5.3 Is there resident and shack owner support for NTZMPAs in the Eaglehawk Neck/Fortescue Bay region?

Ballantine (1991) comments on a commonly identified NIMBY (Not In My Back Yard) attitude towards MPAs. This states users of an area are generally more opposed to NTZMPAs that have the potential to include their area of use within its boundaries. This is only partially shown in the data (Table 5.3.1).

	Australia (%)		Tasmania (%)	
Response	Resident	Shack owner	Resident	Shack owner
Yes	58.7	62.6	58.7	62.6
No	20	7.7	17.3	13.2
Undecided	20	26.4	20	22
No answer	1.3	3.3	4	2.2

Table 5.3.1 Resident and shack owner support for the concept of MPAs in Australia and Tasmania.

Most residents (58.7%) and shack owners (62.6%) felt that NTZMPAs were important in Australia. When referring to Tasmanian NTZMPAs, 58.7% of residents and 62.6% of shack owners supported NTZMPAs. Of note is the difference between residents and shack owners who feel NTZMPAs are not important in both Australia and Tasmania. 20% of residents felt NTZMPAs were not necessary in Australia and 17.3% felt they were unnecessary in Tasmania, compared to 7.7 % and 13.2% of shack owners respectively.

Less residents felt NTZMPAs were unnecessary in Tasmania than in Australia (albeit by 2.7%) while more shack owners felt that NTZMPAs were unnecessary in Tasmania than in Australia (5.5%). There is a relatively high percentage of residents and shack owners who were undecided over the idea of NTZMPAs in Australia (20% and 26.4% respectively) and Tasmania (20% and 22% respectively).

While these figures provide a basic quantitative understanding of support for NTZMPAs by residents and shack owners in the study area, a qualitative approach would provide a more in-depth understanding of these issues, as the respondents' reasons for support, or lack of support, may vary considerably.

Residents and shack owners who felt NTZMPAs were important in both Australia and Tasmania cited several reasons for their decisions. These included:

'Protecting and regenerating of the marine environment is good;'

'Protection of species;'

'Would prevent extraction of species;'

'Propagation;'

'Vitalised stocks would move into take zones;'

'Regeneration is important,' and
'Areas where fish breed need closing for spawning'.

Some of the resident and shack owner respondents felt NTZMPAs would be of value if they addressed certain concerns, such as:

'As long as commercials don't take over;'
'Provided they are in small areas;'
'Depends on location;'
'Limited commercial fishing only and longlining banned;'
'Areas should be kept to a minimum and no impact on fisheries;'
'Should not be in recreationally used areas,' and
'They have proved successful but must be in more remote areas.'

Those residents and shack owners who felt NTZMPAs were of no useful purpose provided several reasons, including:

'If everyone obeyed rules there is no need for protection;'
'Fish can't be contained and it is a right to extract resources;'
'Too many restrictions-takes fun out of living;'
'Increases pressure in areas not included;'
'Nature is able to cope and reserves would only interfere,' and
'A complete ban is unnatural-just need controls.'

Of those in favour of NTZMPAs in Tasmania, 12% of residents and 12.1% of shack owners felt there were enough NTZMPAs. 21.3% of residents and 27.5% of shack owners felt there were not enough in the state and those residents and shack owners who were undecided comprised 38.7% and 27.5% respectively.

Qualitative responses for residents and shack owners in favour and those against increasing the numbers of NTZMPAs varied. Responses in favour of more NTZMPAs in Tasmania included:

'Need more areas around the state;'
'Need more areas for fisheries protection,' and
'Need more areas for fish propagation and habitat protection'.

Those against the introduction of more NTZMPAs in Tasmania included arguments such as:

'Would impact on my fishing areas,' and

'Seal culling should be considered to increase fish catches'.

Some respondents were in favour of more NTZMPAs if certain conditions were met, including:

'Should be in areas of limited user group access;'

'Must not prevent residents enjoying their home,' and

'Location is important in ensuring positive benefits'.

Key informants responded to the perceived value of NTZMPAs in Tasmania. Support for the concept of NTZMPAs is dominant, but in all cases points of concern are expressed.

I think MPAs are a good idea to increase stocks if it is of an appropriate size. I'm not qualified to say what an appropriate size is. I know from talking to scientists who work up at Bicheno, the figures from the Bicheno reserve do not come out as they are diving in too deep water for the researchers to extract figures from their transects, but the recreational divers from the area mention the high densities of crayfish and abalone in the Governor Island MPA.

We believe in Marine Reserves, 'cos I think they simply give the area time to breathe and, you know, replenish the fish stocks and that, provided the netting or restrictions on fishing, in general, would, I think, not impact on the fishing outlets or the amount of gear that is sold ... If you restricted the number of fish taken that would have an effect on the sales ... But Marine Parks, yep, I'll go along with them. I think they are a good thing in the right place, it's just a matter of finding that right place.

Oh I think so yes, oh I think so but I think they need to be ah, declared in areas where they are going to cause the least disturbance. See if they want to put one, say somewhere at Eaglehawk Neck, it would only want to be a very small area. Where as if it were further a field you could get bigger coastlines, bigger areas, I'd say.

I think reserves (NTZMPAs) are a good idea with no catch zones, but I think before they do turn around and say, "Ok, this is going to be a reserve," they have got to do the scientific analysis of what fish use that area to breed in and pick the best areas ... The idea of locking off an area, I agree, but you have got to also look at the safety factor.

There were a few opposed to the concept of NTZMPAs, commenting:

I think a no-take zone would be a good idea in areas where thousands of people don't go ... I understand the argument [to implement NTZMPAs], and I understand the point that they are making but, um, the people with the experience and the people that are knowledgeable, we are already able to do that. In my opinion we don't owe the fish the resource as they put it, but the resource belongs to everybody. I mean, God put, not that I'm a God fearing or believing person but for want of something to say, I mean, God put it there or someone did or you know it evolved and we happen to be the lucky people that live here. We're the citizens of the state, we're the custodians of all that's on the ground and around us and in the water. We're all entitled to it, not people that are just selected through whether it's scientific research or whether it's through dollars or what to return money to the state or whatever. I think we're all entitled to take a little bit of it ... I just keep getting back to the fact that we should be able to pursue the culture we have. Whether it's in the bloody marine park or not! Because I can't see that, it's my opinion, but I can't see by closing an area off it's going to gain a lot for the greater community. There's not going to be a great deal of gain.

My belief is not so much to shut off an area, but restrict the ability to catch those fish. At the moment it's three nets per boat or two nets per person. You can't put a net in NSW, they'd hang you. Same in Queensland. I hope they never try ban nets in Tasmania but I think they've got to restrict it down to two, then down to one. If there's any fish about you get enough in one net.

The views and attitudes of residents and shack owners in the study area towards NTZMPAs in Australia and Tasmania have been gauged. This has provided an insight into the understanding of their views towards the concept on NTZMPAs. To

understand the impact of the views towards the possible effects NTZMPAs might have on them, it is necessary to consider their views and attitudes to a NTZMPA proposal that could directly affect their activities (Figure 5.3.1).

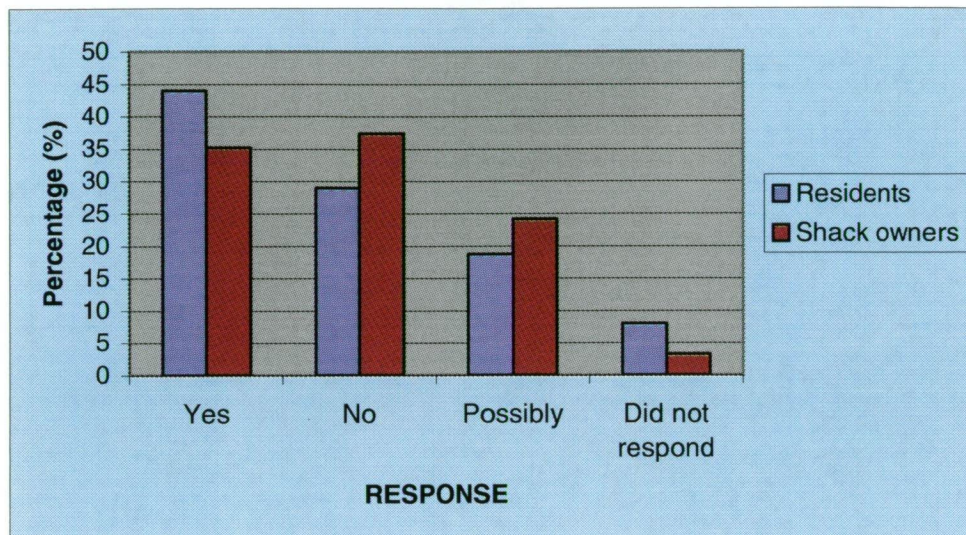


Figure 5.3.1 Would a NTZMPA impact on the personal use of the area by respondents?

More residents felt their use of the area would be impacted by the establishment of a NTZMPA (44%) than those who felt it would not impact on their use of the area (29.3%). This contrasts shack owners somewhat, as more shack owners thought their use of the area would not be impacted on (37.4%) than those who thought it would (35.2%).

A few residents and shack owners who felt the establishment of a NTZMPA would benefit them qualified their response with statements such as:

'Would improve amenity and land-based park;'

'Would be disappointed, but prefer future resource stability;'

'A more natural environment would improve the area,' and

'Long term benefits from fish propagation,'

The majority of qualifications were from respondents who felt a NTZMPA would impact on their use of the area. Residents commented:

'Would prevent me from enjoying my recreational activities;'

'Restrictions limit fishing areas;'

'Spend a great deal of time using the area;'

'Reduce safe fishing areas;'

'I make my living in the area;'

'Would need to move and exploit other areas,' and

'Would negatively impact fishing and tourism'.

Shack owners voiced similar sentiments:

'Zone not justified in restricting use of the area;'

'Have to travel further, possibly in worse weather;'

'Large areas of coastline can accommodate all interests;'

'It would limit catches,' and

'Small area with high recreational value'.

The perceived probability of a NTZMPA impacting on residents and shack owners in the region has been highlighted, but it is also important to focus on the perceived benefits towards the community and the individual that a NTZMPA would have if declared in the area (Table 5.3.2).

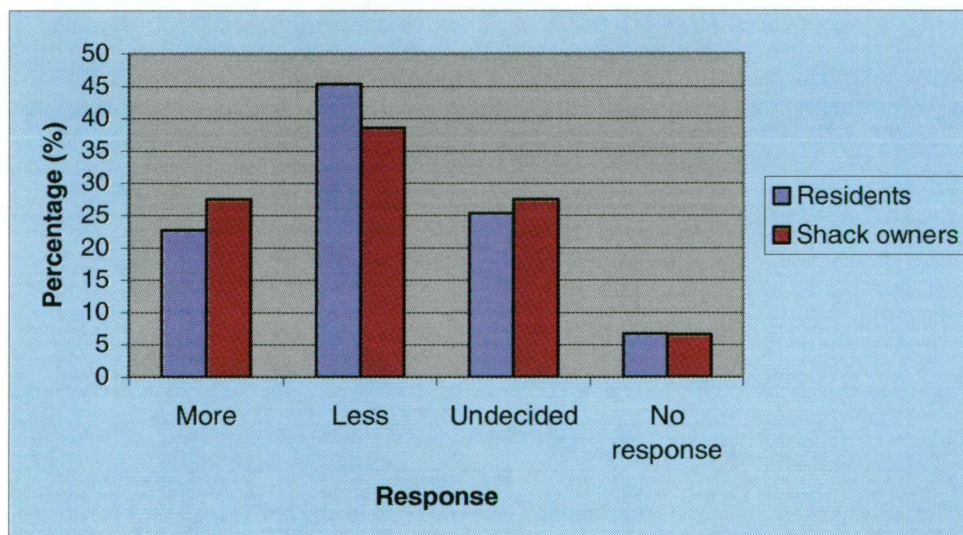


Figure 5.3.2 Number of benefits provided to the general community if a NTZMPA is established.

While more residents (45.3%) and shack owners (38.5%) felt a NTZMPA would provide less benefits than those who felt there would be more benefits (22.7% and 27.5% respectively), of note here is the number of residents and shack owners who are undecided (25.3% and 27.5 respectively).

A qualitative assessment of the responses provides an interesting insight into what respondents regard as a benefit, or not, as the case may be. Residents and shack

owners who felt the region would benefit from a NTZMPA had similar reasons for their comments, and included:

'Would benefit fish propagation''

'If beneficial to propagation, then I would agree;'

'Better fishing for the future;'

'Would prevent greed and overuse in the long term;'

'Benefits to propagation, science and protection immense,' and

'If a balance can be achieved.'

Residents and shack owners who felt there would be less benefits to the area if a NTZMPA were established were also eager to qualify their concerns:

'Fear commercials will take over;'

'Restricts recreational fishing and reduces tourism;'

'Reduce safety if forced to fish further out;'

'Community relies on commercial and recreational fishing,' and

'Local fishers would burden the community-unemployed'.

Key informants expressed their views along with respondents. Most voiced concerns about the impacts a large NTZMPA would have on the region:

I think with Fortescue Bay though, if it was proposed down that way you're gonna kill off a lot of ... Peninsula life like tourists going down there ... for fishing because if that's ten kilometres of coast, two wouldn't be too bad but if the worse happened and they got 10 kilometres, that wiped out that whole side of the Peninsula and there's not really parts you can call safely into after Eaglehawk Neck, so if you are fishing down that way as long as you could to Fortescue Bay or you could go from Fortescue Bay ... to say Port Arthur. Without that side in action that's it, you're gonna force people to go to other areas where they don't fish at the moment. That could be north of Pirates Bay, in that section between Eaglehawk Neck and Dunalley ... So I don't know, I think down there maybe come up with, maybe you could possibly break the coastline up, with non-reserves and marine reserves. You might have a cove here, a cove there, what ever is feasible, and could benefit the area.

While it would be lovely to have a reserve from Fortescue Bay to Pirates Bay there is no justification for the vast majority of criteria to shut down an area, and in the commercial sense there is no need.

When respondents were asked if the establishment of a NTZMPA in the area would affect the benefits they gained from the area, the responses were similar to those of general benefits to the area, but slightly more negative in their outlook (Figure 5.3.3).

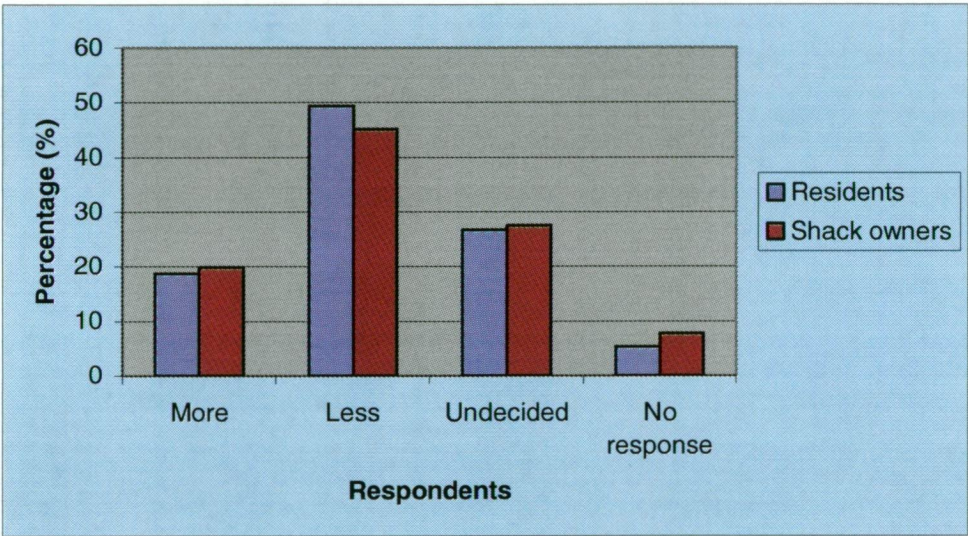


Figure 5.3.3 Number of benefits provided to the respondent if a NTZMPA is established.

Most respondents felt a NTZMPA in the area would provide less personal benefits than they currently enjoy. The data reveals some respondents felt the community would enjoy more benefits while they themselves would enjoy less.

Many of those residents and shack owners who believed they would personally benefit less from the introduction of a NTZMPA commented:

- 'Age precludes benefits in the short term;'*
- 'Employment loss risk due to decreased tourism;'*
- 'Fishing provides food and should be a right;'*
- 'Would reduce self sufficiency,'* and
- 'I pay my licences and should be allowed to fish wherever I want'.*

Some of those who felt they might personally benefit more from the introduction remarked:

'Increase quality of area;'

'Would benefit from increased tourism,' and

'Eco-tourism accommodation businesses would benefit'.

Almost all comments regarding a loss of personal benefits involve benefits of an extractive nature. Those who felt they would gain increased benefits did so as a result of an improved marine environment and positive spin-offs for tourism in the area in the form of increased tourism numbers.

5.4 A resident and shack owner understanding of the politics of resource use and decision-making

Political issues are found in most communities where a single resource is utilised by a number of different user types. This is also evident in the study area (Figure 5.4.1).

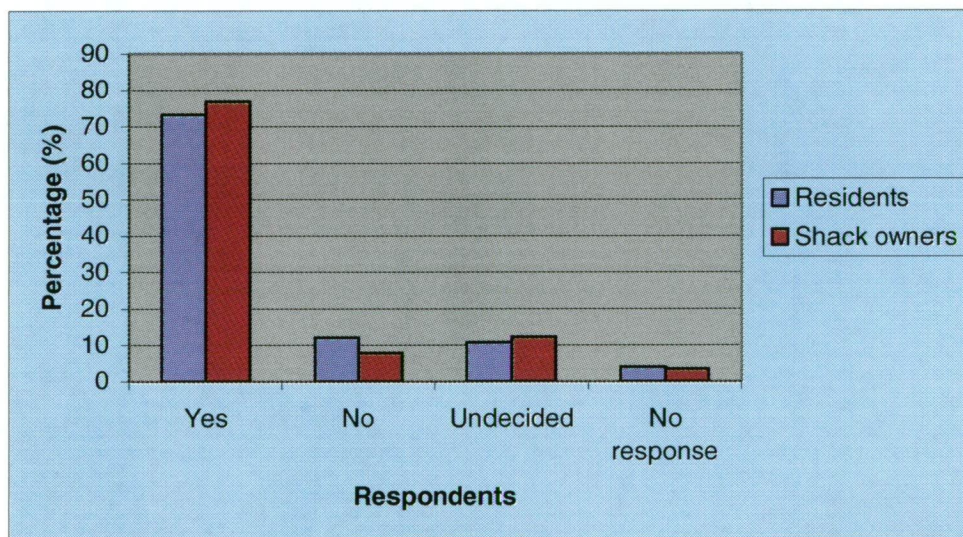


Figure 5.4.1 Is there conflict between different users?

It is evident that a high percentage of both residents and shack owners feel that there is conflict between different users. A qualitative analysis suggests the major conflicts occur between extractive and non-extractive users, or between different types of extractive users.

Comments regarding perceived conflict between users, particularly extractive and non-extractive users included:

'Extractive versus non-extractive and management;'

'Extractive versus non-extractive;'

'Users versus conservers;'

'Fishers versus divers'.

Those concerned with conflict between different types of extractive users commented:

'Commercial users versus recreational users,' and

'Commercial trawling versus recreational'.

While there are no aquaculture ventures in the study area, those that exist in other parts of the peninsula, specifically those at Port Arthur, might have been the reason for comments regarding conflict between aquaculture and other users. These included:

'Aquaculture versus environmentalists;'

'Aquaculture versus fishers;'

'Oyster aquaculture and fishers;'

'Aquaculture versus residents and recreational fishers,' and

'Fishermen and aquaculture versus conservationists'.

While the following comments are not particularly constructive to a meaningful debate over management of marine issues, they do show emotive and often uncompromising conflict between various users and possibly explains why the task of management is often considered difficult:

'Deep greenies and me,' and

'Bloody bureaucrats who will die if they don't stop eating hamburgers and pizzas.'

There was only a single response that mentioned a conflict between humans and the environment, in the form of:

'Seals versus fishers'.

Several key informants noted conflict between various users:

The bloody netting what is the scourge is around here, I don't mean amateurs either, I mean these bloody big trawlers, purse seine and trawlers ... If you stop the bloody purse seine netters coming in to clean up the bottom well you'd have

plenty of flathead out there. If you reduce the amount of mackerel that were taken by those trawlers out there, you'd have other fish species coming in, I think ... Japanese fishers set thirty or forty kilometres of line and they'd lose that much every week ... My father-in-law was tuna chartering, my brother-in-law still does it. My father-in-law gave it up because the tuna ran out, why, because they are not overfished here, they're overfished before they get here, so there's one operator who had to get out of the industry because of unfair or indiscriminate pressure on that particular fishery; not the Australian fisheries but where these fish originate from.

There is a lot of conflict between non-extractive and extractive users. Non-extractive users want to see what should be there while extractive users want to eat what was there ... Recreational fisheries need to be seriously looked at. It's one thing to put down what is happening to the commercial fishers-they are making a living out of it - but the recreational fishers see it as a God given right to go out and do these things. They have to realise that what God gave us is being reduced quite heavily.

A part of this conflict might stem from a perceived lack of consultation between users and managers during the implementation of management policies, or the perception that certain users are consulted more frequently and whose concerns are more heavily weighted in decision-making. Users, in this case, do not denote residents and shack owners, but rather the pursuits they undertake in the marine and coastal environment while in the area e.g. recreational or commercial fishing, diving, and other similar pursuits. The assumption is that both residents and shack owners will refer to the user groups they identify with when referring to consultation of user groups. The responses of residents and shack owners are shown in Figure 5.4.2.

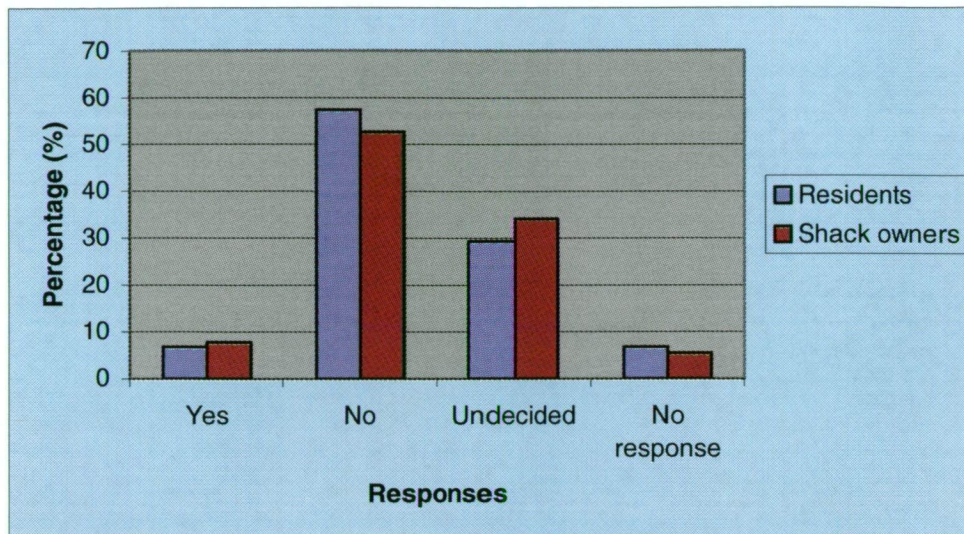


Figure 5.4.2 Are different user groups consulted adequately in issues involving MPAs?

The majority of both residents (57.3%) and shack owners (52.7%) felt that the different user groups were not consulted adequately. A low percentage of residents and shack owners felt there was adequate consultation (6.7% and 7.7%) with a higher percentage undecided (29.3% and 34.1% respectively). The assumption can be made here that, when referring to inadequate consultation, they are referring to the user group they associate themselves with.

Figure 5.4.3 shows the highest percentage of residents (44%) felt certain user groups were given more opportunity to input ideas into any MPA establishment process. There was also, however, a high percentage of residents that were unsure (38.7%). In contrast, the majority of shack owners (58.2%) were unsure if any user consultation bias existed, while a smaller percentage (27.5%) felt that certain user groups were consulted more frequently.

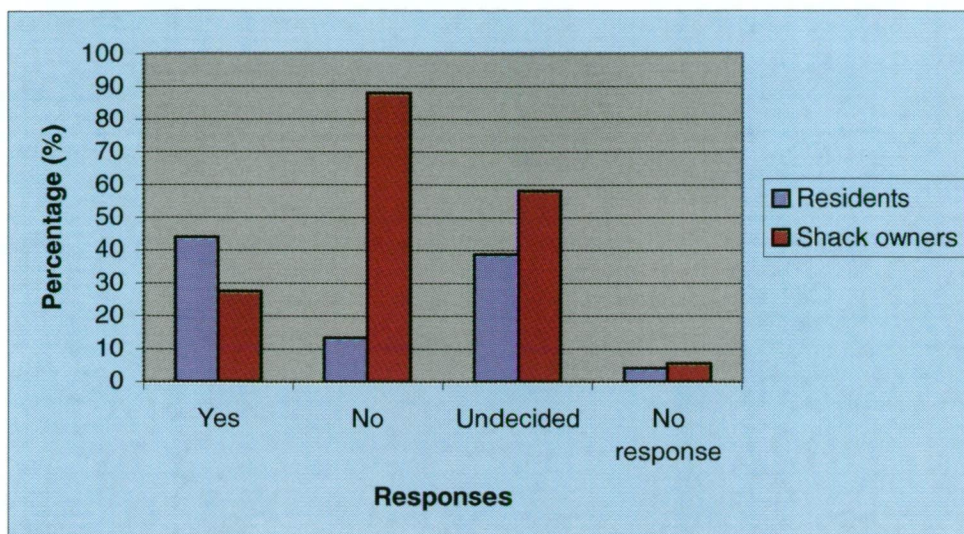


Figure 5.4.3 Are certain user groups consulted more frequently over MPA issues?

Residents commented the most with suggestions as to which groups were consulted more often than others, and included:

- 'Commercial fishers consulted more frequently;'*
- 'Dive group with Waterfall Bay area;'*
- 'Conservation interest groups consulted more frequently;'*
- 'Aboriginal groups consulted more often;'*
- 'Commercial and tourism interests consulted more - most vocal,'* and
- 'Small groups easily convinced are consulted'.*

There were also those residents who remarked on which user groups they perceived were largely ignored in the process:

- 'Commercials not consulted adequately,'* and
- '[Fishing] industry not properly consulted – government use minority groups'.*

Shack owners were less likely to qualify their views, but those who did remarked:

- 'Commercial fishers consulted more frequently;'*
- 'Wealthy corporations allowed to degrade environment;'*
- 'Divers more vocal;'*
- 'Conservation groups more frequently consulted,'* and
- 'Lack of public consultation'.*

Most key informants commented on consultation issues:

A serious lack of education of stakeholders exists. Most stakeholder input into fisheries is done at the management committee level. You end up with a few stakeholders who are aware of what is going on but the majority of stakeholders are not educated with what is actually happening in their fishery ... Some stakeholders are justified in their lack of trust of fisheries management as decisions are often political and fisheries related. They have not been kept in the picture and do not understand why these things are being done. All they see are people trying to restrict what they do without good reasons being put forward, and therefore they ask "why." They often see it as "rampant greenies" trying to restrict what they are doing when they don't have any derivation from the industry they are trying to control.

People having ideas and studying and being scientific about a lot of things ... can have a lot of influence on the governments and government departments, but these people have to realise that people like me and people older than me in their 70s and 80s have a hands on understanding ... some scientists have never been on the water, never been on a crayboat, never spoken to a crayfisher. The knowledge that has been gathered over generations of people working and using the sea, living next to it, that's invaluable, because they have so much knowledge.

It has been established that residents and shack owners feel there is conflict between user groups and that certain of those groups are favoured during consultation over issues relating to NTZMPAs. It is also relevant to establish if residents and shack owners believe particular user groups should be consulted more frequently, and if so, which groups (Figure 5.4.4)?

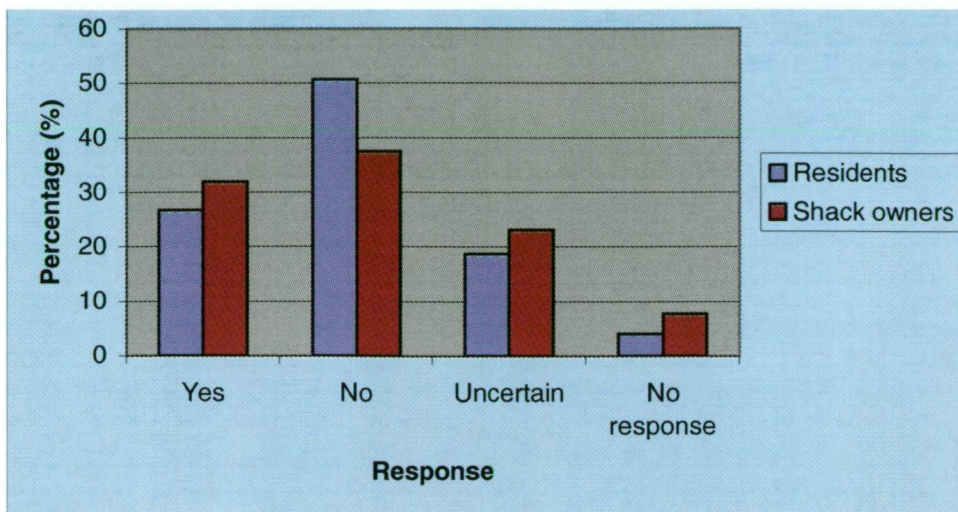


Figure 5.4.4 Should certain user groups be consulted more frequently over MPA issues?

Residents (50.7%) seem more convinced than shack owners (37.4%) that no user group should be consulted more frequently than any another. Those residents and shack owners (26.7% and 31.9% respectively) in favour of weighted consultation are outnumbered by those against it. Based on Figures 5.4.2 and 5.4.3 it is not surprising that there are several respondents undecided on this issue.

Residents and shack owners that qualified their support for a consultation bias and those against it cited similar reasons. Those in favour of biased consultation remarked:

'Commercial and recreational fishers should have more of a say;'

'Recreational users;'

'Those who fish the areas;'

'Only locals who live in the area should be consulted;'

'User groups who use and live in the area;'

'Commercial fishermen in the area;'

'Scientists more consultation, fishers less,' and

'Club/professionals – more sustainable thinking than professionals.'

Those against consultation of particular user groups to the detriment of others commented:

'All stakeholders should have opportunity to submit proposals;'

'All sections of the community,' and

'Equal representation'.

One key informant commented:

There are more people around now who use the resource, not only for extractive purposes. As a result those groups should have more of a say than given at present.

Another suggested:

In my mind the commercial fishers have a stake in this, the recreational fishers should have a very low input. A marine reserve is needed. We should put one in and we should be looking to include the stakeholders in that. The major stakeholders as far as extractive industries are commercial fishers. I'm sure that some areas could be negotiated.

Responses to questions on consultation and representation have been explored, but it is also necessary to establish if residents and shack owners believe the State Government is adequately managing and resolving issues related to NTZMPAs. It must be noted this is not an indication of government competence towards NTZMPA issues, but rather the perceived concern, or lack thereof, by respondents (Figure 5.4.5).

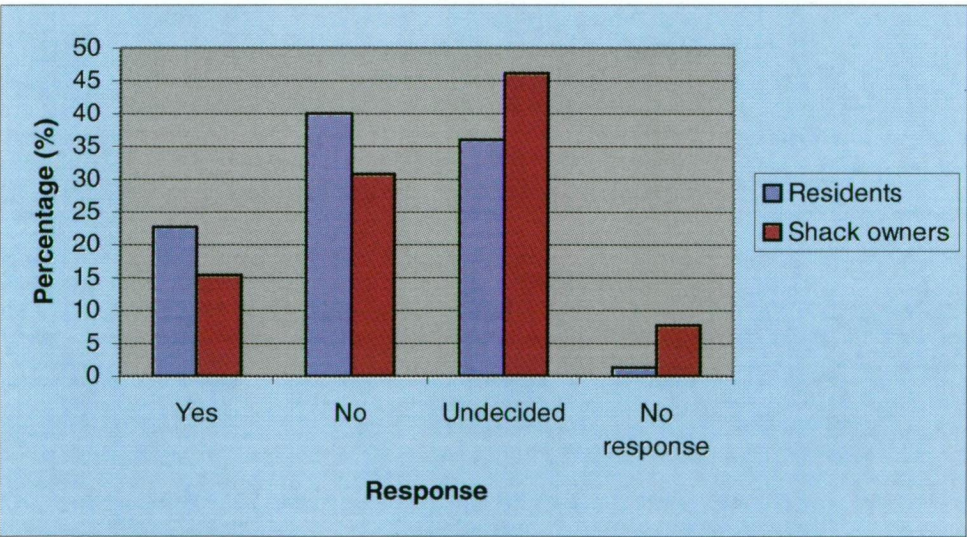


Figure 5.4.5 Is there enough government concern for NTZMPA issues?

Most residents (40%) felt the government had not shown enough concern for issues regarding NTZMPAs compared to those who felt concern was at an acceptable level (22.7%), and those who were undecided (36%). Shack owners seemed slightly more reserved in their views as most (46.2%) were unsure of the level of concern of the

government with a smaller percentage (30.8%) feeling more concern was needed. Few (15.4%) shack owners felt enough concern had been shown compared to residents.

Similar responses are noted for residents and shack owners regarding their perceptions of the government's effective and adequate resolution of NTZMPA issues (Figure 5.4.6).

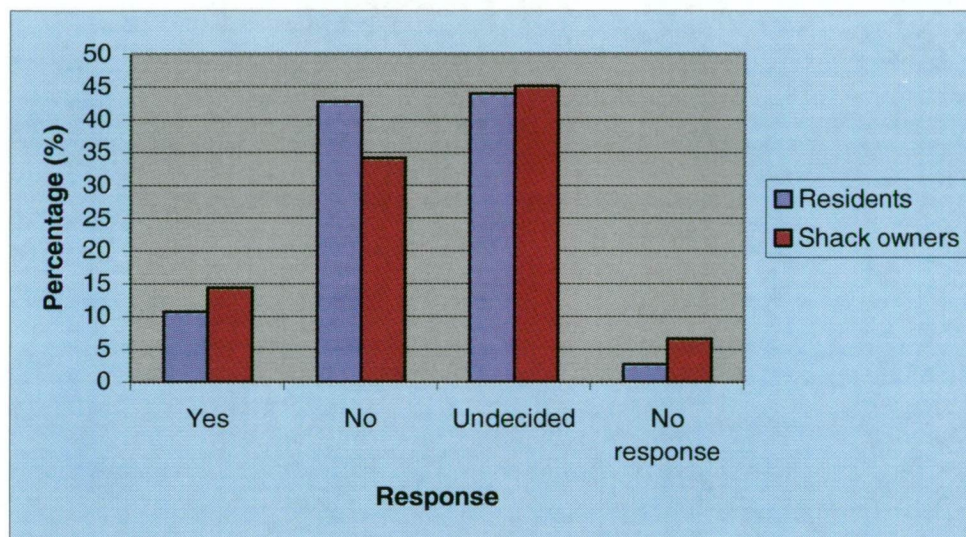


Figure 5.4.6 Are NTZMPA issues being adequately and effectively resolved by the government?

While the highest percentage of residents and shack owners (44% and 45.1%) were undecided as to the effectiveness of the government's efforts towards issues involving NTZMPAs, residents who felt that more could be done by the government were only a slightly behind (42.7%), with shack owners less concerned at 34.1%. The difference between both residents and shack owners regarding those who felt the government were being effective and those felt it was not was, however, quite marked. Only 14.3% of shack owners and 10.7% of residents seemed content that the government was effectively and adequately resolving issues related to NTZMPAs.

While these beliefs are noted, they would provide a greater insight if qualified. Several residents and shack owners commented:

'Fisheries knowledge needs to be increased and implemented;'

'Too much arguing – lack of consultation;'

'Funding a big problem;'

'Done nothing about the recreational fishery;'

'Government doesn't listen to fishers, only to advisors;'
'Government more concerned by votes and most powerful lobbies;'
'Government do what they want anyway;'
'Plan too one-sided;'
'Government only listens to greenies and fisheries department;'
'Won't change status quo to ensure future sustainability;'
'Too much emphasis on scientific reports, not traditional use;'
'Government not interested in non-extractive ideas;'
'Too autocratic,' and
'Too little too late, but it is now or never.'

There were also cautious and positive responses, including:

'A positive start made to a complicated issue;'
'Let's see how it resolves the next suite of MPA proposals,' and
'Government concern possible, but not readily shown.'

A few key informants were quite vocal towards this issue:

And here they are trying to [strong expletive] tell us to put a couple of marine parks, so we can look after the fish. [strong expletive] we got to start looking after those things first, sort all that out these trawlers out here and such like.... Rock lobster and abalone have an intensive consultation process with the government ... because it is extremely valuable and the government gets a lot of money out of the abalone industry because they tax it on the bloody beach twice. The abalone divers have to pay a tax on top of taxes ... so why wouldn't they (government) look after it. It is in the government's interest to look after it ... The federal government recently spent over Aus\$400 million telling us how good this new tax system is going to be for us ... but at least everybody is being informed ... I'm not saying the government should go overboard, but at least everybody who has a vested interest in it ... should be informed ... It is very important.

DPIWE should be producing ... a magazine every twelve months on new developments on their scientific research and investigations, and what results they've got. People would buy it if they brought one out ... I believe a lot of things should come with your licence, even if your licence is a little bit more

expensive. Its information that is going to protect the industry ... All our licence gives at the moment is a book on restrictions, that's about it.

Management has to be looked upon as a very broad thing. At the moment management of fisheries is regarded as restricting catch but not restricting all aspects of catch. There has to be some very hard decisions that are going to be politically extremely uncomfortable made, as in shutting down recreational net fishing and putting other restrictions on other recreational and commercial fishing, looking at some way to enhance recruitment as well. Management is perceived as bringing in regulations to stop people from catching anything and putting a size limit onto something. That is only part of it, not all of it. It covers a huge range of options, most of which haven't even been thought of, let alone addressed.

5.5 An understanding of the categories and criteria of importance to residents and shack owners in the establishment of NTZMPAs

Results have shown that many residents and shack owners support the establishment of NTZMPAs and would not be opposed to a NTZMPA in the study area, if particular concerns are incorporated into a decision making process. Responses have also shown scepticism towards the manner in which NTZMPA issues have been managed to date. A review of the literature (Chapter 3) showed that policy makers and managers assess the possible effectiveness of a NTZMPA using certain criteria. Different criteria are used throughout the world, and Tasmania has selected several on which they will identify the suitability of an area for the possible establishment of a NTZMPA. While these have been outlined in Chapter 3, of interest is which of these selected categories residents and shack owners perceive to be used in the current establishment process of NTZMPAs in Tasmania (Table 5.5.1). An insight into which criteria residents and shack owners feel should be used when establishing a NTZMPA (Table 5.5.2) will help provide an understanding of their views towards management policies and those entrusted with the management of the marine environment through any differences noted.

Category	Resident (%)	Shack owner (%)
All categories	21.3	20.9
Fish propagation	24	29.7
Education	13.3	22
Preserving biodiversity	25.3	24.2
Restoring biodiversity	22.7	28.6
Habitat protection	34.7	35.2
Limiting human impact	40	27.5
Other	14.6	6.6
Unsure of categories used	29.3	36.3

Table 5.5.1 Categories believed to be used in establishing NTZMPAs.

Most respondents felt habitat protection and limiting human impact were the most important criteria currently used in establishing NTZMPAs. Preservation and restoration of biodiversity and fish propagation followed. While there was a relatively high percentage of residents (21.3%) and shack owners (20.9%) who felt all categories were considered in the decision making process, there were also many residents and shack owners who were unsure of which categories were used (29.3% and 36.3% respectively).

While there was little difference between responses between residents and shack owners in most categories, there are large differences in “limiting human impact” and “education” categories. There were respondents who felt other categories were used in decision-making, and included:

‘Stop commercial exploitation;’

‘Creating more employment for each other in Parks positions;’

‘Benefits to individuals;’

‘No beneficial categories exist;’

‘Under the guise of fish propagation;’

‘Bureaucratic empire building,’ and

‘Tourism.’

These comments, for the most part, suggest that management bodies are viewed by these respondents in a less than favourable light. It is also interesting to note that most of these respondents were residents.

The results tend to show that most residents and shack owners feel that current management strategies revolve around some form of protection of the environment and limiting the impact of humans on that environment.

Criteria	Resident (%)	Shack owner (%)
All criteria	20	22
Community needs	73.3	58.2
Economic benefits	37.3	34.1
Commercial fishing needs	53.3	41.8
Recreational fishing needs	64	63.7
Other user group needs	36	35.2
Scientific evidence	52	48.4
Habitat protection	65.3	57.1
Species propagation	58.7	52.7
Tourism potential	41.3	40.7
Educational benefits	40	34.1
Monitoring and policing	42.7	37.4
Other	10.6	8.8

Table 5.5.2 The criteria considered important by residents and shack owners in establishing a NTZMPA.

Residents felt that the most important criteria for consideration is that of community needs (Table 5.5.2). Next were habitat protection and recreational fishing needs. Shack owners, on the other hand, believed recreational fishing needs to be the most important criteria for consideration, followed by community needs and habitat protection. This suggests both residents and shack owners feel the criteria of most importance are those that maintain or enhance their current lifestyles. However, habitat protection also features high on the list. It could be assumed that this was as a direct result of the common conception that habitat protection leads to increased fish catches. While this is possible, it seems more likely that residents and shack owners are concerned with the current state of the marine environment, reflected through the reduction in fish catches. This is evident in Table 5.5.2, which show both residents and shack owners view species propagation and scientific evidence as important criteria in NTZMPA establishment.

5.6 Community empowerment in the decision-making process

While it must be stressed that the aim of the study is not to propose a NTZMPA in the study area, it is necessary to establish if residents and shack owners would want to be involved in any decision making process, and the nature and extent of that involvement (Figure 5.6.1).

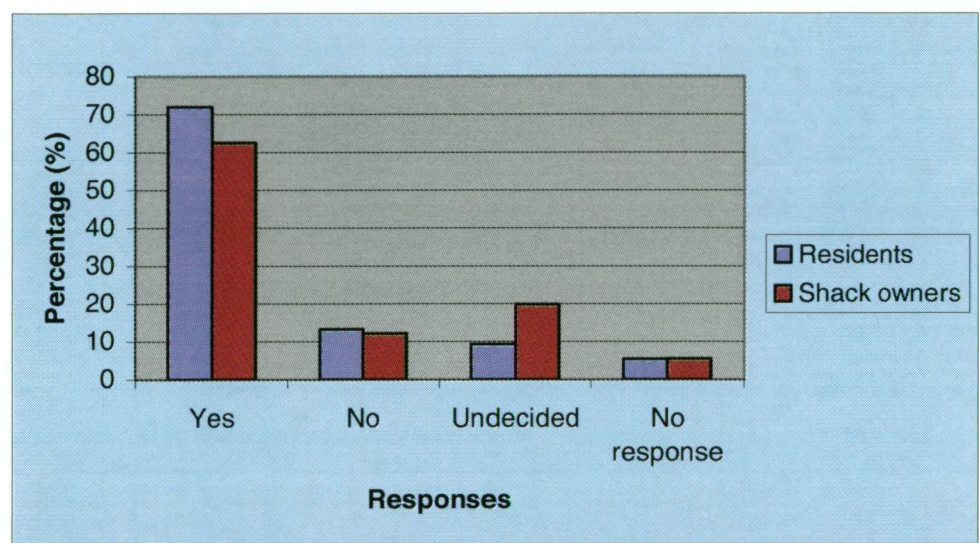


Figure 5.6.1 Resident and shack owner responses towards involvement in a possible decision making process to establish a NTZMPA in the study area.

The vast majority of residents and shack owners stated they wanted to be involved in the decision making process if a NTZMPA was to be proposed in the area. Although low in numbers, there were those who were undecided about their involvement in any decision making process. This is possibly a “wait-and-see” approach, taken more by shack owners than residents. It is thought that these respondents would alter their decision once they had established the impact a proposed NTZMPA would have on their use of the area.

While these responses are noted, it is probably more intuitive to gain an understanding of the type of involvement residents and shack owners would want in a decision making process.

Residents were more likely to qualify their responses. The most frequent response included:

- ‘Fully informed and consulted in discussions at all stages’ (20%);*
- ‘Public meetings in concerned areas’ (12%), and*

'Take part in all discussions' (12%).

Other responses included:

'Informed by printed correspondence;'

'Vote;'

'Fully consulted and compensated if adversely affected;'

'To be informed of meetings, outcomes and other developments,' and

'Attend forums'.

Some residents were cautious in their response:

'Only interested if consultation effective-not so at present,' and

'Information, and then choice to be involved'.

A few residents were pessimistic about any possible involvement:

'Would oppose any proposals;'

'Oppose minority groups with poor knowledge making decisions'.

While shack owners were less likely to qualify their answers many responses were similar to those of residents. Other comments of interest included:

'Right to comment;'

'Opinion sampling;'

'A committee with fishing knowledge should be established;'

'Want my opinion given equal weight with conservation groups;'

'Only local community should be involved,' and

'Have a chance to support the process.'

Key informants expressed similar sentiments:

A lot more scientific work needs to be done to find out what goes on down below the surface before any decisions are made. Everyone that has any interest in it whatsoever should be able pour over it ... Nothing gets up peoples' noses more than not being be consulted. We are just told what is going to happen, not adequate consultation at all.

I mean I really think that there needs to be a lot of negotiation and I think the residents and the fishermen would need to be fully informed ... Yep, I think yeah, they must be part of the whole process, every body have a say. Yep, it's all about informing people ... to do it the proper way is to consult with everybody. We all know that its right but you've got to get everybody's backing or it will probably fall on its face.

The information (regarding the research) should be made public.

What we do need now is to sit down with everybody involved and come up with a location that not only fills the requirements we need to have for habitat and species protection but also doesn't infringe to a too greater extent on the local commercial fishery ... If you are going to close down an area you need to have as many habitats as possible in a small area to reduce impact on commercial fisheries. Other aspects should come into this. One of the up-and-coming industries in this region is tourism. Diving tourism is very, very important. It brings in a significant number of people to the region. If you are looking at the actual users of resources around here diving tourism is a major use of that resource. Since it is a non-extractive user of the resource it would be benefited by putting in a marine reserve. The diving industry wants a large area, fishing industry wants a small area so a compromise has to be made and it needs to be agreed upon the majority of the people. We need to come up with something that covers the scientific criteria that are needed but can also please as many of the other people as possible.

5.7 Summary

- While there seems to be concern over the benefits of the establishment of a NTZMPA in the study area, the majority of both residents and shack owners would not be opposed to the establishment of a NTZMPA, particularly if certain concerns are taken into account; most notably boat safety and loss of fishing grounds. Those in favour of the establishment of a NTZMPA cited environmental improvement in the form of, amongst others, fish propagation, habitat restoration and protection as the reasons for their support of the concept. A relatively high percentage of both residents and shack owners were unsure of both the establishment of a NTZMPA and the possible consequences of such an action.

- Many residents and shack owners felt there would be less benefits to both the community and themselves if a NTZMPA was established in the study area but a high percentage seem to be taking a “wait-and-see” approach. The majority felt there was conflict between the various user groups in the area, with most of that conflict between extractive users and non-extractive users, as well as commercial fishing enterprises and recreational fishers. Many felt consultation with user groups, especially the user group they were associated with, was inadequately consulted on issues involving NTZMPAs. A high proportion of residents and shack owners felt the government had not shown enough concern towards the issue of NTZMPAs, and especially toward the concerns of different users, although many residents and shack owners were undecided towards the level concern shown by government. Similar levels of views were expressed towards the perceived adequacy and effectiveness of the government’s resolutions of issues relating to NTZMPAs.
- Most residents felt the most commonly used current establishment categories for NTZMPAs involved limiting human impact, although the second highest percentage of residents were unsure of which categories are used. There were relatively high percentages (22.7%-34.7%) of residents who felt categories involving aspects of conservation of the environment should be considered. Slightly fewer people felt all categories were currently considered important by federal and state bodies in establishing NTZMPAs. Most shack owners were unsure which categories were used in the establishment process. Those who identified criteria most commonly referred to categories aimed at conservation of environment. The limiting of human impact was not thought to be as relevant a category as perceived by residents.
- Although differences appear when residents and shack owners identify which criteria they feel should be important in the establishment of a NTZMPA in the study area, most viewed community needs, recreational fishing needs and habitat protection as being of most significance; followed by species propagation and scientific evidence. Commercial fishing needs, tourism, economic benefits and

education were also noted as being important, but less so than those previously mentioned.

- The vast majority of residents and shack owners would want to be involved in decision-making processes aimed at the possible establishment of a NTZMPA in the study region. The level of involvement differs, but two common themes are found in most responses. The dissemination of information to all concerned is considered important, as is the need to have comments and views taken into account, especially those of the individual.

Prospect

Chapter 5 has shown the information that was extracted from the surveys discussed in Chapter 4. Chapter 6 will use this information to create a greater understanding of the views and attitudes of the residents and shack owners towards NTZMPAs, focusing on the three research questions posed in Chapter 1. The chapter will also highlight aspects of the historical development of these responses towards this form of marine and coastal management and suggest the most effective means to assess the possibility of establishing a successful and appropriate NTZMPA.

Chapter 6

Views and perceptions of residents and shack owners towards NTZMPAs

6.1 Introduction

The marine and coastal environment of the Eaglehawk Neck and Fortescue Bay region form an integral part of the lifestyle of residents and shack owners. The region is used extensively throughout the day, and consistently throughout the year, with activities peaking during the summer months. The entire region is actively utilised and harvested widely and that the economic investment in the area is focused on the marine and coastal environment. A particular resource used consistently and extensively by a community will become an integral part of the culture of that community. In this case, the marine and coastal environment is the focal point of the community in the Eaglehawk Neck and Fortescue Bay region.

A community, however, is the sum of many parts. These parts have, in many respects, different understandings of their environment and consequently, different value systems. The community's ideas on how its resources should be managed differ, and often those ideas conflict with one another. Views towards the various management strategies of the Eaglehawk Neck and Fortescue Bay region also differ within the community. One of those strategies, the possible establishment of a NTZMPA, perhaps reflects some of the most diverse opinions. These diverse opinions are expanded on in this chapter through objectives three and four, outlined in chapter 1.

6.2 Resident and shack owner support for no-take zone marine protected areas in the study region

Although there are many similarities between residents and shack owners, there are also many differences in their perceptions of NTZMPAs. The largest differences, however, seem not to be between these two groups, but rather within the groups, based on their use of the area.

From interview responses in Chapter 5, it is seen that residents are generally more attached socially, economically and emotionally to the area than shack owners. The marine and coastal environment is, for many, the main reason they have moved to, or stay in, the area. Their livelihoods are derived from the resources and associated tourism of the area, or they have retired to the area to enjoy the lifestyle it offers. Many residents have an extended association with the area, and are thus more likely to be wary of change perceived as impacting negatively on their culture. They are also likely to be more concerned with the health and sustainability of the area, and ultimately, the sustainability of their lifestyle. As a result, most attempt to balance their understanding of conservation of the environment with the desire to continue the lifestyle provided by that environment.

Many shack owners express similar views to residents, especially those that have vacationed in the area for many years, or those intending to retire to the area. The livelihoods of shack owners are not wholly affected by any changes to their use of the marine and coastal environment. However, any such changes to the shack owners that have invested both money and time into local shacks are likely to be viewed conservatively if any possible changes to their use of marine and coastal environment would occur. In many respects, those who perceive a threat to the quality and nature of their recreation are more likely to be opposed to any changes to the management of the marine and coastal environment than many residents, especially if their major pursuit in the area involves extraction of a resource. However, the majority support shown for NTZMPAs suggests that many shack owners realise the need for conservation of the area if their recreation is to continue.

Shack owners use this form of recreation to improve their quality of life. The relaxation gained from time spent at their shacks, and associated activities, is sometimes perceived as more important than concern for the future sustainability of the marine and coastal environment. However, the realization that their continued recreation relies on the health of the marine and coastal environment has led to the majority of residents and shack owners to support NTZMPAs, provided establishment is in areas that would generally have a limited impact on their current use.

Residents identify the need to maintain their current lifestyle, whereas shack owners visit the area to improve their quality of life by increasing the enjoyment of their recreation. Both groups are as likely to understand the need to reduce or restrict their current recreational pursuits to ensure future benefits, as these changes are likely to affect the reasons the groups utilize the area. As a result three different sets of views and understandings identified by residents are mirrored by shack owners.

Firstly, there are those who are totally opposed to the concept of NTZMPAs. Although they are low in number, they are often most vocal and thus have the potential to influence decision-making, at least in the initial public consultation stages of the NRSMPA. As outlined in chapter 2, the initial MPA establishment process in the early 1980s was discontinued due to political pressure from a minority of stakeholders. All of those opposed to NTZMPAs are active extractors in the area, either in the form of recreational and commercial fishers, or to a lesser extent, recreational divers. This is not a new phenomenon. Most conflict throughout the world in establishing MPAs has been between managers and fishers, or those who derive their livelihood from extraction in the sea. In the Galapagos Islands, considered by many as a haven for marine research, there has been intense conflict between fishers and conservation bodies (MPA News, 2001).

The perception in the research area is that any NTZMPA will have many negative implications, including a reduction in the size of fishing grounds, reduced catches and a decrease in safety for seagoing craft. These perceptions seem to cover a much deeper concern of extractive users, and in particular fishers: that of loss of lifestyle enforced by individuals and organizations perceived as having little knowledge of the area, little association with the users of the area, no understanding of the dynamics of the community, and often, political and personal motives of little benefit to those most likely to be impacted by these decisions. There is a deep mistrust towards fishery and government environmental bodies and non-governmental organisations, in many cases resulting in opposition to any changes proposed as they are ultimately viewed as a direct threat to their lifestyles. Many fisheries decisions are often perceived as being made for political or other reasons not specifically supporting or enhancing environmental concerns or those stakeholders likely to be most affected. Commercial trawling was often perceived by respondents as the cause of the decline in the quality

of the fisheries of the area, and consequently the decline of the marine and coastal environment as a whole.

The second group of residents and shack owners, and by far the largest (58% and 60% respectively), favour the concept and further establishment of NTZMPAs. They have noticed a general decline in the quality of the resource, both in terms of decreased catches and increased effort and development. They attribute this to increased numbers of visitors to the area, and specifically, increased numbers of fishers, both recreational and commercial. The increased number of fishers, combined with increased extractive technologies, has led some residents and shack owners to feel that the resource is being utilised with increasing effort, and more efficiently, than when they first arrived in the area.

More established residents and shack owners feel that many visitors, or new arrivals in the area, do not have as strong a bond with the area as they themselves have, and are less likely to be concerned with the future sustainability of the area. In fact, there is often a perception that this influx of new visitors is having a negative effect on the environment at an increasing rate. Newer residents and especially shack owners believe they have a greater understanding and involvement in environmental concerns than those that are more established. While they generally do not blame the more established residents and shack owners for the decline of the marine and coastal environment, many do feel these more established groups are more concerned with their own extractive pursuits than they are with helping ensure the sustained health of the environment. Although the views of the older and younger groups differ at times, the two groups both believe there is an urgent need to conserve the remaining habitat and its associated flora and fauna. However, they feel that the majority of other users are only interested in extractive practices and are unable, or not willing, to understand the need to utilise the marine and coastal environment in area in a sustainable fashion.

In order to prevent continued degradation and to allow for a recovery of the environment, the residents and shack owners feel that protected areas need to be enforced through the establishment of NTZMPAs. While some of these residents and shack owners do not take part in any extractive activities and therefore would not be affected by any establishment of NTZMPAs, most do practice extractive pursuits in

the area. It seems their desire to extract is tempered by knowledge that the reduction in catches they have witnessed is attributed to too many fishers utilizing the area. So while they will continue to extract, they believe some part of the environment should be free of human impact, in the hope that the protected area will recover to previous levels, and perhaps provide secondary benefits to the area such as fish propagation.

Those who do not extract from the resource believe that fishers have too much influence over the management of marine resources, and have little understanding of marine management other than ensuring that their extractive pursuits are maintained. Many believe, especially non-extractive scuba divers, that they have as much of a right to utilise the resource as other users, and are becoming more vocal regarding the establishment of areas free from extractive pursuits. These non-extractive supporters of NTZMPAs believe that preservation of the resource is paramount, and the most effective method of achieving this is through the introduction of NTZMPAs.

These non-extractors believe it is fishers that have degraded the resource, and thus the most effective manner to rehabilitate and preserve the resource is to prevent extraction. They believe this is best achieved through the establishment of NTZMPAs. At the same time, however, they realize the cultural significance and economic gains of fishing to the area, and thus are not in favour of especially large NTZMPAs.

The third group of residents and shack owners are those that are uncertain of their standing regarding NTZMPAs. Most of these residents practise extractive activities. There seems to be a “wait-and-see” approach, both towards location and size of any proposed NTZMPA, and a desire, by a smaller proportion of the group, to gain a deeper understanding into all the issues involved. This group is potentially most likely to adopt a NIMBY approach (Ballantine, 1991) based on the nomination of new reserve locations. If a proposed NTZMPA does not impact on their use of a particular area, they are likely to neither support nor protest it, as any outcome would not affect them. However, if a proposed NTZMPA includes in its area part, or all, of the areas where they undertake their extractive pursuits, there is a high probability they will motivate to relevant management bodies that the reserve does not impact heavily on their use of the area, or they could simply oppose its establishment.

This group of residents and shack owners are most likely to oppose a NTZMPA based on two factors: safety at sea and loss of commonly frequented fishing grounds. Many believe a NTZMPA, especially in an area such as Fortescue Bay or Pirates Bay, will impact heavily on their use of the area. These two areas are used extensively when inclement weather forces boats back from further out to sea, or by small boats that are unwilling to risk a long trip out to deeper water in the event of a sudden weather change. Also, many areas are well known by extractive users. These extractive users have a knowledge and understanding of the most productive places to set pots, or the most productive reefs to set their nets on. It is part of their enjoyment and it creates a safe area within which they are able to fully enjoy their pursuits. These extractive users perceive that closing these areas off will force many of them to seek new grounds further out to sea, or force them into smaller areas. They believe this will increase the dangers of boating, forcing them to fish further from safe launch points, increase competition and place a heavier demand on the areas left over for extractive use if a NTZMPA is established.

6.3 Categories of importance to residents and shack owners in the establishment of no-take zone marine protected areas

As explained in Chapter 2, the development of a representative system of MPAs in Tasmania is outlined by ten key steps and two of those steps involve establishing relevant criteria for the identification and selection of MPAs (MMIC, 2000). They include, amongst others, the identification of ecological importance, uniqueness of the flora, fauna or ecosystems, productivity of the area, biogeographic importance and naturalness of the area (MMIC, 2000). The identification of potential MPAs in Tasmania is conducted through a formal process and includes nine criteria. These criteria are wholly focused on establishing the potential of the biological components of an area to add to a representative system of MPAs. All these criteria are aimed at establishing whether a possible MPA will add to the representativeness and comprehensiveness of a representative system of MPAs.

Once potential NTZMPAs have been identified through the identification process using the criteria outlined, NTZMPAs will then be selected based on seven other criteria outlined in the Marine Protected Areas Strategy (MMIC, 2000). Unlike the identification criteria, the selection criteria are not based wholly on biological and

ecosystem concerns, but focus on both anthropological and biological concerns. They include economic interests, indigenous interests, social interests and practicality/feasibility, as well as concerns for scientific interests, replication and a vulnerability assessment.

It is interesting that perceptions of residents and shack owners towards establishment criteria identified closely parallel the identification and selection criteria outlined above. Most felt the criteria used to establish, or potentially establish, existing and potential NTZMPAs focused on biological and ecosystem preservation and conservation. Habitat restoration, fish propagation, as well as preservation and restoration of biodiversity were criteria commonly perceived used to establish MPAs. Many residents in particular felt that limiting human impact was an important current consideration in the establishment process.

Those criteria identified by residents and shack owners as being important in any further establishment of NTZMPAs were similar to the anthropological and biological criteria outlined by the establishment criteria outlined by MMIC (2000). There were, however, a number of respondents, and shack owners in particular, that were unsure of any criteria used in the decision making process. It appears that residents were more aware of issues involved in the management of their immediate environment, as a result of their greater dependence on the area, than shown by shack owners. The varied responses towards perceived criteria used in the establishment of NTZMPAs highlight three separate views towards.

First, some responses suggest that current governmental environment management bodies were perceived by some residents and shack owners as focusing on environmental concerns borne out of the concern that damage inflicted upon the marine ecosystems has been as a result of the influences local communities have had on their immediate environment. The result is an “us verses them” attitude. This belief, associated exclusively with extractive users, intimates that management bodies and their policies need to be opposed as part of their focus was restricting the perceived rights of both commercial and recreational fishers.

In some instances these extractive users are justified in their understanding of management issues. Most stakeholder input into marine management, and especially fisheries management, is at the management committee level. The end result is a few stakeholders are aware of the issues concerned but the majority of stakeholders are not informed with what is happening in their fishery. Some stakeholders are justified in their lack of trust of fisheries management as decisions are often political and fisheries related.

The second view toward governmental environment and fisheries management bodies originates from residents and shack owners that have no knowledge of the criteria used in the establishment process for NTZMPAs. While some with little knowledge of the establishment criteria agree with the sentiments of those that feel their interests are being ignored, the majority of those that hold this type of view follow two separate approaches in their beliefs.

The first approach to the beliefs of these users that have little knowledge of the NTZMPA establishment process involves those who do not know the criteria used for selection and are particularly concerned. These are mostly shack owners, although there are a few residents, who are either not often, or never, involved in pursuits involving the marine environment. They generally favour bushwalking. They are seldom associated with those opposed to MPAs. These users are not affected by the MPA debate and are content to let those more affected debate the issues.

The second approach of users that have little knowledge of the NTZMPA establishment process involves those who are unaware of current selection criteria, but feel that they are not the correct criteria as the benefits derived from the establishment of NTZMPAs seldom positively affect them, and in fact, seem likely to negatively affect them. This view is held mostly by shack owners and their source of information on NTZMPA issues are those users first described as having the 'us vs. them' attitude. These users are often exposed only to the perceived consequences of MPAs and almost always in a negative light. What little background information given often ignores the many potential benefits of a NTZMPA, such as habitat protection, fish propagation and preservation of biological diversity. Their exposure to the concept of MPAs is largely negative, with little understanding of any background

information. These mostly extractive users are often against the concept of MPAs, or at least sceptical of current MPA policies.

The absence of any process to continually and effectively educate users about NTZMPAs, and in fact all marine and coastal management issues, ensures their most consistent medium of information gathering is from those they associate with. In the study area, this is largely other extractive users. While information is generally distributed to stakeholders when they purchase any type of extractive licence, this information usually only highlights the legislation associated with that particular fishery, such as bag and size limits for particular species. There is little information regarding the reasons for imposing these restrictions or the current status and findings of the research organisations that advise on legislation. Without a proper understanding of the processes involved in marine management, and specifically NTZMPAs, and with the knowledge that a NTZMPA could affect their current lifestyle, it is not surprising that this negative attitude has emerged.

The third view toward governmental environment and fisheries management bodies is held predominantly by non-extractive conservationists, although there are a limited number of extractive users that hold the same view. These users view governmental environment and fishery management bodies in similar ways, but with one difference. The first of these two differing views is that management bodies have not done enough to conserve the marine environment in the past, have largely ignored their voice, and have favoured extractive interests in past decision-making. The second differing view is similar except that these users feel governmental environment and fishery management bodies have at least attempted to conserve the marine environment. They feel government environment and fishery management bodies should now use this new interest in marine management to further conserve the marine and coastal environment, including establishing further NTZMPAs. This group, although relatively small, is part of an increasingly powerful green movement with strong convictions, and their comments are unlikely to be ignored.

Three differing views towards governmental environment and fisheries management bodies regarding the categories perceived used in the present establishment of MPAs have been shown. These views are not associated with residents or shack owners, but

with different user groups, such as fishers and divers, within the two resident and shack owner groups. The perceptions of these user groups are in part correct, as aspects of conservation of biodiversity were the main criteria used to establish existing NTZMPAs, and are currently being used to propose further NTZMPAs in Tasmania. However, the newly proposed representative system of MPAs for Tasmania includes criteria for the preservation of biodiversity mostly in the selection of possible sites for new NTZMPAs. The strategy cites using other criteria to identify NTZMPAs for establishment from the range of possible sites or new NTZMPAs identified using the selection criteria. While these criteria involve aspects of preservation of biodiversity, they mainly focus on socio-economic and associated cultural impacts. Even though few resident and shack owners have an understanding of the NTZMPA establishment process outlined by MMIC (2000) the criteria they believe should be used to consider establishing any new NTZMPA almost mirrors those second criteria, used to select NTZPA sites proposed using the first set of criteria, set out by the MPA strategy.

Most responses by both residents and shack owners favoured selection of criteria based on social concerns, most notably, community needs and recreational fishing needs. However, almost as important was the belief that habitat protection was a necessary criterion to be considered. Both groups of stakeholders, through their criteria selection, are attempting to find a balance between a concern for the environment and a desire to maintain their current lifestyles. This, in many ways, is perhaps a more developed view of the NIMBY approach (Ballantine, 1991). Instead of stakeholders opposing NTZMPAs that directly impact on their use of an area (as the NIMBY approach states), residents and shack owners are trying to marry conservation with traditional use in the area. They realise the need to conserve the marine and coastal environment, but want legislation and policies to achieve it without impacting too heavily on their use of the area. This “Possibly In My Backyard” (PIMBY) approach is an important step in the development of a representative system of NTZMPAs for two reasons. First, increasing numbers of stakeholders are more likely to at least consider further NTZMPA proposals. Secondly, and more importantly, the knowledge and understanding of the marine and coastal environment of these stakeholders will, in many cases, be available to complement the scientific knowledge of the area. In effect, a partnership of varied strengths would allow the most comprehensive understanding of the area and its

associated systems as possible to be undertaken. The major obstacle is that policy and management processes acknowledge the usefulness of the diverse nature of varied stakeholder groups and their abilities and actively encourage residents and shack owners to provide their understanding and knowledge of the area.

While most responses by both residents and shack owners favoured selection of criteria based on social concerns, most notably, community needs and recreational fishing needs, there was one clear difference in perceptions between residents and shack owners. Residents placed a far higher priority on community needs as an important criterion for consideration in any establishment process. This suggests residents are more concerned with the management of the research area than shack owners, and thus likely to be both more interested in any developments and have a greater desire to be involved in the decision-making process.

It is concerning that residents and shack owners perceive the selection criteria used to select NTZMPA sites as the establishment criteria used to nominate sites for possible selection. This can only be a direct result of a lack of awareness of the aims and objectives of the representative MPA establishment process. This is linked directly to a historically poor educational process. A serious lack of education of stakeholders exists. Most stakeholder input into fisheries is done at the management committee level. A few stakeholders are aware of current initiatives but the majority of stakeholders are not educated with what is happening in the marine and coastal environment. They are not given, as a matter of course, information in a readily digestible form. It is not surprising that relatively few respondents felt education was an important selection criterion to consider. Their previous involvement in educational processes of promoting marine research has been limited and thus they do not believe any beneficial educational process can be gained from the marine and coastal environment if an NTZMPA is established.

6.4 Community involvement in the decision-making process

During the initial stages of the process to establish a representative system of MPAs around Tasmania, the MMIC enlisted DPIWE to produce two documents outlining the background to the representative system of MPAs (DPIWE, 2000) and the Tasmania

MPA strategy (MMIC, 2000). Both of these were made available to the public in August 2000. In addition, DPIWE conducted a consultation process through a series of public meetings around the state from the beginning of August 2000 through to the middle of September 2000. These were designed to propose the aims and objectives of the strategy to interested stakeholders, and to allow all interested parties to voice their comments.

These documents and public meetings show that both DPIWE and the MMIC appear committed to ensuring the MPA process is both transparent and community-integrated. Responses from the public consultation process indicate that there is an overwhelming majority that supports the establishment of new MPAs around the state. However, the effectiveness of their campaign has been somewhat reduced by past historical differences between sections of the public, most notably extractive users, and governmental decision-making bodies as outlined in chapter 2. Management of the marine environment has traditionally taken a top-down approach. In this model, decisions are made by governmental environment and fisheries management bodies and imposed on users of the marine and coastal environment. These mostly extractive users are forced to abide by any new rules implemented with limited knowledge of why these new rules have been imposed. A consequence is that many users, especially those whose practices are affected, become antagonistic towards governmental environment and fisheries management bodies. These management bodies, in return, view some groups of users, especially extractive users, as the source of their management problems. These views are also clearly evident in the study area. The result is a deep mistrust of governmental environment and fisheries management bodies by users, and a hierarchical management approach of enforcement of new policies and regulations with a concern of limited constructive consultation, with extractive users especially, if new regulations are first widely consulted on.

Many respondents felt that governmental organisations had not managed the NTZMPA establishment process effectively in the past, or they perceived governmental environment and fisheries management bodies as conceding to the wishes of powerful lobby groups. Unfortunately, this mistrust based on past perceived events, generally overflows into current processes. As a result, any new policies are

likely to be viewed sceptically before any details are fully understood. The task of governmental environment and fisheries management bodies then becomes more difficult, as policies are essentially opposed before they are fully comprehended.

Non-extractive users have also historically been sceptical of governmental environment and fisheries management bodies and their associated policies and legislation, although usually less so than extractive users. Many of these non-extractive respondents felt extractive users were consulted most frequently and had greater emphasis in any decision-making processes than non-extractive users as they were perceived to be politically more powerful, especially commercial extractive users.

These differing viewpoints are reflected, to varying degrees, in the responses of both residents and shack owners. There are few differences between responses of either group, almost mirroring one another. The vast majority of residents and shack owners stated a desire to be actively involved in any discussion process. This desire is seen by three different views.

First, many residents and shack owners not only want to be fully informed at all stages of the possible establishment of any NTZMPA in the area, but also seek to be actively involved in the decision-making process. Most of these respondents are extractive users, although there are some non-extractive users, especially scuba divers and those associated with conservation groups. Many of these users are most likely to be affected by any establishment of a NTZMPA in the area. As a result, they are interested in decisions and processes that would lead to the establishment of a NTZMPA in the area. This desire stems from the historical “us vs. them” attitude, where users are sceptical of the reasons for the establishment of new policies and legislation by governmental environment and fisheries management bodies. These respondents also want to ensure that they have a full and complete understanding of all the processes involved, as well as the knowledge that their input into the process will be integrated into any possible establishment process.

This first view is seen in three different ways. First, there are those who will actively attempt to ensure any establishment of NTZMPAs in the area are prevented outright.

Not surprisingly, these respondents were extractive users. Secondly, there are those who will use the process to actively promote NTZMPAs in the area. These are mostly non-extractive users and comprise a small percentage of this particular response group. The third group, and the largest, want as much information as possible about the establishment of any proposed NTZMPA. They also want to be involved in the decision-making process as this will allow them a complete an understanding as possible about the need for a NTZMPA in the area and the research used to determine the best locations for any NTZMPA. These respondents also want to be involved, where necessary, to ensure any established NTZMPA will provide the best possible benefits to the area with as little impact on their use of the area as possible. It is this group that are most likely to adopt a NIMBY approach based on proposed sites for a NTZMPA. If they feel a beneficial NTZMPA cannot be established in the area, they want their objections to any establishment seriously considered. If, however, they believe that there would be benefits to the area from the establishment of a NTZMPA that would outweigh any negative effects to them, they want their recommendations of support given as much weight as other groups opposed to any proposed NTZMPA in the area.

The second view regarding residents and shack owners seeking to be involved in any decision-making processes, which includes the majority of residents and shack owners, involves wanting to be informed about the process, but not necessarily interested in actively involved in any discussions. These residents and shack owners are comprised several groups of extractive users, non-extractive users and other interested stakeholders that do not necessarily use the marine and coastal environment in the area on a regular basis, but have an interest in the management of the area as a whole. This group could also adopt a NIMBY approach based on proposed sites for a NTZMPA. At present, they believe the current initiatives do not affect them and have adopted a laissez-faire approach to their introduction. However, if specific sites proposed under the establishment processes of the representative system of MPAs include areas utilised by these respondents, they are likely to become more proactive in their involvement in any further discussions. Most of that involvement will be to oppose those specific NTZMPAs that would directly affect them or to propose that the boundaries be modified in size (a reduction in size) or in location. If the proposed

boundaries do not interfere with their current use of the area, they are likely to remain unconcerned with the establishment of a NTZMPA.

The third view regarding residents and shack owners and their involvement in any decision-making processes, and which has the smallest support of all three views, relates to those that are not at all interested in any involvement in the decision-making process. Two diverse groups of stakeholders take this view. The first of these diverse stakeholder groups, and the smallest percentage, are extractive users that portray an intense dislike for any governmental environment and fisheries management bodies and their policies. They totally oppose the concept of MPAs and do not intend to be involved in discussions that propose them. This viewpoint is potentially particularly destructive to their lifestyle because if they are not willing to involve themselves in the consultation process their concerns will likely not be considered and they will be alienated from the decision-making process. If a NTZMPA is then established in the research area it could potentially encompass areas that they use. Without any involvement in decision-making process they would be unable to attempt limiting negative impacts to their current extractive practices. The second stakeholder group not interested in involving themselves in any decision-making processes are those residents and shack owners that do not take part in any extractive or non-extractive pursuits that involve the coastal and marine environment and are therefore not particularly interested in its management. They have no desire to be involved in any decision-making process and will probably take no part in any further discussions.

Extractive users have traditionally been one of the most involved stakeholder groups in decisions over coastal and marine management. The growing eco-tourism industry is, however, also claiming a stake in the resource. The increasing size of this industry suggests extractive users will now have to consider the arguments of both governmental environment and fisheries bodies as well as those of the non-extractive industry interested in the same resource.

6.5 Prospect

Chapter 6 has shown particular understandings of the attitudes of residents and shack owners towards the possibility of establishing a NTZMPA in the Eaglehawk Neck and

Fortescue Bay region. A summary of this chapter is not offered here, but will instead be highlighted in the next chapter. Chapter 7 will conclude the research by addressing the overall aim of the research and objectives three, four and five set out in Chapter 1.

Chapter 7

Conclusion

7.1 Introduction

The general aim of the thesis is to assess the level of support of residents and shack owners in the Eaglehawk Neck and Fortescue Bay regions of the Tasman Peninsula towards the potential establishment of a no-take zone marine protected area.

To achieve this aim the research had the following objectives:

1. Undertake a review of relevant literature in the field of MPA and NTZMPA planning and management;
2. Conduct a survey of residents and shack owners in the Eaglehawk Neck and Fortescue Bay regions of the Tasman Peninsula to ascertain the level of support for a NTZMPA in the region;
3. Determine which criteria are considered important by residents and shack owners in considering the possible establishment of a NTZMPA in the region;
4. Assess the extent of community involvement in the decision making process to establish NTZMPA; and
5. Provide an assessment of the level of support for a NTZMPA in the Eaglehawk Neck and Fortescue Bay regions.

The first objective was met in chapter 2 with a detailed assessment of the literature on MPA and NTZMPA planning and management in an international, national and Tasmanian context. The second objective was met in chapter 3 with an overview of the types of survey methods employed to address the overall aim of the research. Objectives three, four and five and considered in detail next.

7.2 Resident and shack owner support for no-take zone marine protected areas in the study region

While there seems to be some concerns by residents and shack owners over the benefits of establishing a NTZMPA in the study area, the majority of both groups would support the establishment of an NTZMPA, particularly if certain of those concerns were taken into account; most notably boat safety and loss of fishing grounds. Those in favour of the establishment of a NTZMPA cited environmental improvement in the form of, amongst others, fish propagation, habitat restoration and protection as the reasons for their support of the concept. This support was result of respondents perceptions of a decline in the marine and coastal environment in the research area. This included, amongst others, a reduction in both quality and quantity of harvested resources.

Many respondents felt there would be fewer benefits to both resident and shack owners, and themselves, if a NTZMPA was established in the study area. However, these residents and shack owners were willing to first consider all relevant information before they judged a NTZMPA's potential impact. Most respondents felt there was conflict between the various user groups in the area, with the majority of that conflict between extractive and non-extractive users. Respondents also perceived conflict between commercial fishing enterprises and recreational fishers. Many respondents thought the government had not shown enough concern towards the issue of NTZMPAs, and especially toward the concerns of different users. Similar views were expressed by respondents towards the perceived adequacy and effectiveness of the government's resolutions of issues relating to NTZMPAs.

7.3 Categories of importance to residents and shack owners in the establishment of no-take zone marine protected areas

Most respondents felt that current criteria used to select possible sites for NTZMPAs were based almost entirely on biological and environmental concerns. As a result, respondents believed governmental environment and fisheries management bodies implemented NTZMPAs because these management bodies thought users, especially extractive users, were responsible for the perceived decline in the state of the marine and coastal environment.

These varied responses by residents and shack owners reflected three commonly held views towards the possible establishment of NTZMPAs. First, an “us vs. them” view by residents and shack owners towards management bodies will ensure these respondents oppose the establishment of an NTZMPA in the study region. This view creates an attitude of antagonism between governmental environment and fisheries management bodies and users, with both sides perceived competing for the same resource. In the second view, respondents believe conservation of the marine and coastal environment is important and support the establishment of a NTZMPA. To a greater or lesser extent management bodies are seen as attempting to conserve the marine and coastal environment, although these respondents believe governmental environment and fisheries management bodies should be more proactive in establishing further NTZMPAs around the state and potentially in the research area. The third view of respondents are those that are unsure if they would support a NTZMPA in the research area. This view is held predominantly by those respondents seeking further information about the potential effects a NTZMPA would have in the research area before they decide to support any establishment.

Respondents believed a different set of criteria should be used to assess possible sites for a NTZMPA than those used presently by governmental environment and fisheries management bodies. Respondents thought current criteria for establishment of a NTZMPA focused predominantly on biological concerns and felt more appropriate establishment criteria would involve social, economic and environmental concerns. The two most important concerns were those of community and recreational fishing needs, however, fish propagation and habitat preservation and conservation were also viewed as important criteria in any decision-making process.

7.4 Community involvement in the decision-making process

The vast majority of respondents strongly believed they should be consulted in any decision-making processes. This was especially evident if these processes would potentially impact on their use of the marine and coastal environment in the area. The level of involvement in the process differed, but two common themes were found in most responses. First, the dissemination of information to all concerned was considered important by the majority of respondents. Second, most of that majority

also wanted stakeholder comments and views taken into account by government environment and fisheries management bodies controlling these decision-making processes, especially those of the individual. It is clear respondents felt their involvement in any such process was an important consideration due to the cultural significance of the marine and coastal environment to residents and shack owners.

7.5 Conclusion

Most respondents supported the concept of NTZMPAs, based largely on the perception that the state of the marine and coastal environment in the research area is declining. There is a growing concern for the perceived decline of the quality of the habitat, and the extractive processes negatively impact on that habitat. Respondents, however, believed a NTZMPA in the research area should not detract from the inherent culture of the region.

The majority of respondents supported the concept of a NTZMPA as they believed it was the most appropriate method to prevent degradation of the marine and coastal environment through increased human use. However, respondents believed the size and position of a NTZMPA should take into account the cultural significance of the area, including potential loss of fishing grounds, as well as perceived potential increased risks to activities undertaken in the marine and coastal environment, particularly the use of sea-going craft. To determine potential impacts of establishing a NTZMPA, and its most effective location to fulfil the requirements of the NRSMPA while still taking into account the concerns of the local community, the majority of residents and shack owners want to be kept informed of all relevant information and decisions, and if necessary, be fully involved in all aspects of any decision-making processes.

An effective process of consultation to establish a NTZMPA, and to ensure its goals are best achieved, relies to a large extent on government environment and fisheries management bodies involving residents and shack owners in a partnership of learning and understanding in the processes that control the marine and coastal environment and the concerns and wishes of the community; as well as the most effective manner to marry these social and biological concerns. This would ensure that if a NTZMPA is

established in the Eaglehawk Neck and Fortescue Bay regions it would preserve the biological diversity of the marine and coastal environment while enhancing, over the long term, the lifestyle of residents and shack owners.

The hardest component of this process, if undertaken in the research area, rests with the relevant government environment and fisheries management bodies. It is imperative they undertake a transparent consultation to involve stakeholders in the decision-making process. To date, DPIWE, the relevant management body, has focused on a transparent consultation process and it seems likely they will involve residents and shack owners in the decision-making process if the Eaglehawk Neck and Fortescue Bay regions is nominated for the possible establishment of a NTZMPA. The consultation process, however, is still in the early stages of development. Once a NTZMPA is established, immense effort will be needed to ensure that it is as productive and successful as possible based on the criteria used for its establishment.

Tasmania is committed to establishing a representative system of NTZMPAs, and it is most likely that a NTZMPA will at least be nominated for consideration in the Eaglehawk Neck and Fortescue Bay regions. If a NTZMPA is to be successfully established, both in terms of biodiversity and community acceptance, DPIWE will have to actively educate stakeholders in all aspects of the NRSMPA and include them as an integral component of any research and decision-making bodies. Without the support of most residents and shack owners, the success of a NTZMPA is far from guaranteed, both in terms of preservation of biodiversity and benefits to the community.

If a NTZMPA is established it will signal the start of a difficult and protracted, yet potentially exceptionally beneficial, process of promotion, maintenance, understanding and enforcement of the NTZMPA and its goals. This stage will become extremely difficult to undertake effectively if the residents and shack owners of the region do not support a NTZMPA. If, however, the majority of the community are prepared to play a positive role in what could potentially be a valuable asset to the community, and the research has shown they are prepared to play this positive role, the task will become easier, the goals achieved quicker, and the benefits greater.

The success of a NTZMPA in the region rests, to a large extent, on the support of the residents and shack owners in the community. They will only involve themselves if they believe the process of establishment is transparent, that stakeholders are involved in all decision-making processes, and that extensive research is undertaken to ensure that as much as possible is known about the area before any final decision is made.

Establishing a NTZMPA in the Eaglehawk Neck and Fortescue Bay regions would undoubtedly add to a comprehensive, adequate and representative system of reserves aimed at preserving biodiversity within Tasmania and Australia. The most effective manner of achieving an appropriate outcome, however, is through an extensive and transparent partnership between all stakeholders. Currently, there is majority support for, at the very least, NTZMPA in the research area, but any NTZMPA will need to be of the right size, and in the right place to be effective. Accurately gauging those dimensions cannot easily be achieved without the assistance of the community.

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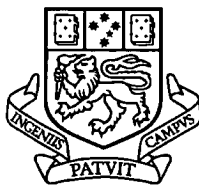
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Appendix 1



UNIVERSITY OF TASMANIA

Assessing community and user group perceptions, understanding and views of no-take zone marine protected areas in the Fortescue Bay and Eaglehawk Neck regions

Dear Resident or Shack owner,

I am conducting a study of community and user group perceptions towards No-Take Zone Marine Protected Areas in Tasmania, using the Fortescue Bay/Eaglehawk Neck area as a case study. This research is part of a masters degree at the University of Tasmania.

Currently, there is a focus in Tasmania to conserve parts of the marine and coastal environment using no-take zone Marine Protected Areas. This means that in areas conserved in this manner, nothing may be removed from the reserve, either living or dead.

However, even with this evolving focus on Marine Protected Areas, there has been very little communication with shack owners and residents of coastal areas.

By answering this questionnaire, your views of the marine environment and its management will help develop an understanding of what communities think about No-Take Zone Marine Protected Areas and what they would like to see happening in the marine and coastal environment.

This is an imperative part of successfully managing our coastal environment, as it is ultimately the immediate community and user groups who are most affected by management plans.

This survey is not an attempt to establish a marine reserve in the area. It will only be used to research community perceptions towards marine management issues.

The surveys are voluntary and there is no obligation to answer. All results are dealt with in a strictly confidential manner and all information pertaining to the questionnaire will be securely stored.

This survey has been approved by the University of Tasmania Ethics Committee.

If you have any queries or complaints regarding the survey or procedures used during the questionnaire, please contact **Dr Lorne Kriwoken (03-6226 2458)** or **Dr Chris Hooper (03-6226 2763)**.

Thank you for taking the time to complete this questionnaire.

Yours faithfully

Mark Bantich

QUESTIONNAIRE TO ASSESS COMMUNITY AND USER GROUP PERCEPTIONS, UNDERSTANDING AND VIEWS OF NO-TAKE ZONE MARINE PROTECTED AREAS IN THE FORTESCUE BAY/EAGLEHAWK NECK REGION OF THE TASMAN PENINSULA, TASMANIA

SPATIAL AND TEMPORAL DISTRIBUTION

1. How do you use the marine and coastal environment (numbered in order of most time spent)?

☐ Commercial fishing
 -type of fishing.....

☐ Recreational fishing
 -type of fishing.....

☐ Commercial diving
 -type of diving

☐ Recreational diving
 -type of diving

☐ Bushwalker

☐ Surfer/kayaker

☐ Other.....

2. Do you use a boat for your activities?

☐ Yes
 ☐ No
 ☐ Sometimes

3. What proportion of your time do you spend on your boat during your activities?

☐ Less than 10 %
 ☐ 10-25%
 ☐ 26-50%
 ☐ 51-75%
 ☐ 76-100%

4. Are you a:

☐ Resident
 ☐ Shack owner
 ☐ Shack user
 ☐ Other

5. How much time do you spend in the Eaglehawk Neck/Fortescue Bay area per year?

☐ Less than 2 weeks
 ☐ 2-4 weeks
 ☐ 5-8 weeks
 ☐ 9-16 weeks
 ☐ More than 16 weeks

6. Which months do you use the Eaglehawk Neck/Fortescue Bay marine areas?

☐ November
 ☐ December
 ☐ January

☐ February
 ☐ March
 ☐ April
 ☐ May
 ☐ June
 ☐ July
 ☐ August
 ☐ September
 ☐ October
 ☐ All year

7. On average, how much time do you spend per day using the marine environment in the area during your stay?

☐ Less than one hour
 ☐ 1-2 hours
 ☐ 3-5 hours
 ☐ 6-10 hours
 ☐ More than 10 hours

UNDERSTANDING OF MARINE PROTECTED AREAS

8. Do you know what current Marine Protected Area legislative establishment processes are?

☐ Yes
 ☐ No
 ☐ Partly

If No, proceed to Q10.

9. If yes or partly, do you agree with current Marine Protected Area legislative establishment processes?

☐ Yes
 ☐ No
 ☐ Not sure

Please explain.....

VIEWS ON MARINE PROTECTED AREAS

10. Do you think no-take zone Marine Protected Areas in Australia are a good idea?

☐ Yes
 ☐ No
 ☐ Undecided

Please explain.....
.....
.....

11. Do you think no-take zone Marine Protected Areas in Tasmania are a good idea?

☐ Yes
☐ No
☐ Undecided

12. If yes, do you think there are enough no-take zone Marine Protected Areas in Tasmania?

☐ Yes
☐ No
☐ Undecided

Please explain.....
.....
.....
.....
.....

13. Do you think a no-take zone Marine Protected Area in the Eaglehawk Neck/Fortescue Bay area will provide more benefits or less benefits to the general community?

☐ More
☐ Less
☐ Undecided

Please explain.....
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14. Do you think a no-take zone Marine Protected Area in the Eaglehawk Neck/Fortescue Bay area will provide more benefits or less benefits to you?

☐ More
☐ Less
☐ Don't know

Please explain.....
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MARINE PROTECTED AREA PERCEPTIONS

15. Which categories do you think ARE USED in establishing no-take zone Marine Protected Areas in Tasmania?

☐ Fish propagation
☐ Education
☐ Preserving biodiversity
☐ Restoring biodiversity
☐ Habitat protection
☐ Limiting human impact
☐ Other.....
.....
☐ All
☐ Not sure what categories are used

16. Do you think there is conflict between different user groups in the marine and coastal environment?

☐ Yes
☐ No
☐ Undecided

If yes, which groups do you think are in conflict?
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17. Do you think the different user groups who use the marine environment are consulted adequately in the MPA establishment process?

☐ Yes
☐ No
☐ Undecided

18. Do you think certain user groups are consulted more frequently over Marine Protected Area issues?

☐ Yes
☐ No
☐ Don't know

Please explain.....
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19. Do you think certain user groups should be consulted more frequently than other user groups over the management of the area?

☐ Yes
☐ No
☐ Uncertain

20. If Yes or No, which user groups should/should not be consulted more frequently over management issues in the area?

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21. Do you think the government has shown enough concern for issues involving Marine Protected Areas?

- ☐ Yes
- ☐ No
- ☐ Not sure

Please explain.....

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22. Do you think Marine Protected Area issues are being effectively and adequately resolved by the government?

- ☐ Yes
- ☐ No
- ☐ Not sure

Please explain.....

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23. Do you know of any scientific evidence presented aimed at establishing no-take zone Marine Protected Areas in Tasmania?

- ☐ Yes
- ☐ No
- ☐ Unsure

Which evidence?.....

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24. Do you believe the scientific evidence presented regarding no-take zone Marine Protected Areas in Tasmania?

- ☐ Yes
- ☐ No
- ☐ Undecided

Please explain.....

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25. What criteria do you believe SHOULD BE used in deciding whether or not to establish no-take zone Marine Protected Areas in Tasmania?

- ☐ Community needs
- ☐ Economic benefits
- ☐ Commercial fishing needs
- ☐ Recreational fishing needs
- ☐ Other user group needs
- ☐ Scientific evidence
- ☐ Habitat protection
- ☐ Species propagation
- ☐ Tourism potential
- ☐ Educational benefits
- ☐ Monitoring and policing
- ☐ Other.....

26. Do you think a community-based and monitored no-take zone Marine Protected Area is a good idea (ie. An area which is not legislated but one which the community designates voluntarily?)

- ☐ Yes
- ☐ No
- ☐ Possibly

27. What factors do you think might inhibit such a no-take zone Marine Protected Area?

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28. Do you believe a no-take zone Marine Protected Area in the Eaglehawk Neck/Fortescue Bay area would impact heavily on your use of the area?

- ☐ Yes
- ☐ No
- ☐ Possibly

Please explain.....

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29. If a hypothetical no-take zone Marine Protected Area was proposed in the Eaglehawk Neck/Fortescue Bay area, would you want to be consulted in the discussion process?

- ☐ Yes
- ☐ No
- ☐ Possibly

30. If Yes or Possibly, how would you want to be involved in the discussion process?

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