Surf Break Co-Management:
Options for the protection and enhancement
of surf breaks in New Zealand

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A thesis submitted in partial fulfilment
of the degree of Master of Planning.
University of Otago, Dunedin, New Zealand.

1st November 2012

Abstract

The inclusion of surf breaks in the New Zealand Coastal Policy Statement (2010) establishes New Zealand as a potential world leader in surf break protection. The approach is highly dependent upon local authorities being required to give effect to these new policy directives. Providing for these policies requires a multi-faceted approach that includes surf break identification, mapping, monitoring, policy provision, integrated management approaches and evaluation. This presents significant challenges, especially given that most local authorities lack specific surfing expertise. Surf break users have extensive knowledge of local surf breaks and an inherent interest in the preservation of surfing resources, representing a potential aid to local authorities in providing for surf breaks. Surf break policy implementation arguably serves to benefit from the involvement of surf break users in management responses and decision-making processes.

This thesis involved a case study of the Auckland and Otago regions to explore surf break user values, the purpose of surf break management and the suitability of surf break co-management within New Zealand's resource management framework. The study involved an online survey of surf break users and interviews with key stakeholders in the management of surf breaks. A key theme that emerged throughout the research was the desire for surf break management to reflect the needs and vision of local surfing communities. The study identified providing for the general protection of a range of surf breaks and increasing recognition of the value of surf breaks as key outcomes for the management of surf breaks. Results showed that surf break users primarily value factors relating to wave quality and elements of naturalness, with values reflecting local issues. Findings highlighted the importance of scale in addressing surf breaks. Results suggest that management approaches designed to protect surf break values need to consider local issues and local surf break user values. For surf breaks the most appropriate scale of approach is most likely to be at a local-scale in order to produce tangible management outcomes and further engage surfing community involvement. Local-scale co-management programmes underpinned by a supporting policy framework of surf break identification, policy provision and monitoring represents a potentially beneficial option for surf break management in New Zealand. Co-management could enable local authorities to bridge potential funding and knowledge gaps, allow for surf break users to take ownership of surfing resources and serve to strengthen the consideration of surf breaks in formal decision-making processes.

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ACRPS	Auckland Council Regional Policy Statement
ARC	Auckland Regional Council
ASR	Artificial Surfing Reef
CBCM	Community-Based Coastal Management
CDC	Clutha District Council
CDRMP	Coastal Dune Reserves Management Plan
CMA	Coastal Marine Area
CPA	Coastal Protection Area
CRA	Coastal Reserve Area
DCC	Dunedin City Council
DCDP	Dunedin City District Plan
DoC	Department of Conservation
FMG	Fiordland Marine Guardians
HGMPA	Hauraki Gulf Marine Park Act
IBM	Integrated Beach Management
ICM	Integrated Coastal Management
KMG	Kaikoura Marine Guardians
NGCBPS	Northern Gold Coast Beach Protection Strategy
NSR	National Surfing Reserve
NSW	New South Wales
NZCPS	New Zealand Coastal Policy Statement
OLBC	Orewa Long Board Club
ORPS	Otago Regional Policy Statement
PPL	Protected Private Land
RCPA	Regional Coastal Plan Auckland
RDC	Rodney District Council
RMA	Resource Management Act
RPCO	Regional Plan: Coast for Otago
RPS	Regional Policy Statement
SANE	Surfers Appreciating the Natural Environment
SBNS	Surf Break of National Significance
SCBRA	South Coast Board Riders Association
SLNZ	Surf Lifesaving New Zealand
SPARC	Sport and Recreation New Zealand
SPS	Surfbreak Protection Society
SUP	Stand Up Paddleboard
TRC	Taranaki Regional Council
WDC	Waitaki District Council
WSR	World Surfing Reserve

1 Introduction

The protection of surf breaks and surfing areas is becoming increasingly recognised as an important facet of coastal management (Oram and Valverde, 1994; Buckley, 2002a; Lazarow, 2007; Scarfe *et al.*, 2009a; Fletcher *et al.*, 2011; Peryman and Skellern, 2011). Surf breaks can be degraded in a number of ways, including through the impacts of coastal protection works, changes to sediment supply and a reduction in water quality. There are numerous examples both internationally and in New Zealand where surf breaks have been adversely affected: a decline in wave quality at Mundaka, Spain, due to dredging of the estuary channel (Liria, *et al.*, 2009); closure of public access to the beach at Broad Bench, Kimmeridge, U.K., during Ministry of Defence firing exercises (Surfers Against Sewage, 2010); and a reduction of up to 100 metres in the potential length of ride at Manu Bay, Raglan, New Zealand, due to the construction of a boat ramp (Scarfe *et al.*, 2009a).

As a limited and finite natural feature of the coastal environment surf breaks have significant economic, cultural, social and spiritual value for local and wider communities (Scarfe *et al.*, 2003; Lazarow, 2007; Taylor, 2007; Peryman, 2011a). Surfing as an activity has grown from a largely underground sport to become a multi-billion dollar global industry (Lazarow, 2007). Despite the growth in the popularity of surfing, surf break protection remains in its infancy, with currently only the State of New South Wales, Australia, the State of Hawaii, U.S.A., and New Zealand providing specific formal recognition of surf breaks in policy documents.

In the New Zealand planning context surf breaks are afforded general protection under the Resource Management Act (RMA) (1991) as natural features in the coastal environment (Auckland Regional Council, 2010). The RMA (1991) functions as New Zealand's primary environmental legislation and establishes an integrated framework for the sustainable management of natural and physical resources. In the coastal environment, the New Zealand Coastal Policy Statement (NZCPS) operates as a function under the RMA (1991) working toward the sustainable management of the coastal environment (Department of Conservation, 2010). As a national level policy document regional councils and territorial authorities are required to give effect to the NZCPS in relevant planning documents, notably regional policy statements, regional plans and district plans. The NZCPS is required to be reviewed every ten years. The first NZCPS was issued in 1994. A review of the NZCPS (1994) began in 2003 and led to the NZCPS (2010).

The NZCPS (1994) did not specifically refer to surf breaks. The NZCPS (1994) review process resulted in a significant response by surfers and surfing organisations identifying surf break protection as a coastal management issue (Department of Conservation, 2008; Peryman and Skellern, 2011). The review process led to the inclusion of surf breaks in the NZCPS (2010), providing specific protection for 17 surf breaks of national significance whilst also providing general protection for surf breaks as part of the natural character of the coastal environment and as natural features within the coastal environment. The inclusion of surf breaks in the NZCPS (2010) establishes New Zealand as a potential world leader in the protection of surf breaks. Whereas international efforts to protect surf breaks have largely focused on the creation of one-off surfing reserves, the NZCPS (2010) effectively affords a level of recognition and protection to all surf breaks within the coastal environment.

The effectiveness of the NZCPS (2010) approach is highly dependent upon local authorities proactively incorporating surf break policy directives into regional and local level planning documents. Providing for surf breaks presents challenges to local authorities, many of which arguably lack expertise and understanding of surfing and surf breaks (Peryman, 2011b). Surf break management requires a multi-faceted process of surf break identification, mapping, baseline monitoring, policy provision, environmental impact assessment, integrated management approaches, on-going monitoring and evaluation (Scarfe *et al.*, 2009a). In addressing potential knowledge gaps, surf break users represent a source of expertise with genuine interest in the preservation of surfing resources. The surfing community has been largely instrumental in furthering surfing interests, actively promoting the value of surfing and seeking formal protection of surf breaks (Scarfe *et al.*, 2009a). The continued involvement of surf break users in surf break management represents a potentially symbiotic relationship between local authorities and the surfing community in managing surf breaks and related issues.

In considering the management of surf breaks, integrated coastal management (ICM) is broadly acknowledged as a tool to sustainably manage development in coastal areas (Healy and Wang, 2004). ICM recognises the complexities of the coastal zone in which decisions within all sectors and levels of government are harmonized and consistent with coastal policies (Cicin-Sain and Knecht, 1998). The emergence of ICM has coincided with a shift toward a more collaborative and participatory approach to decision-making processes, whereby community involvement is now recognised as a central tenet of planning practice (Sanoff, 2000). This shift has been particularly evident in coastal management where

traditional centralised management systems have given way to the emergence of community-based co-management strategies (Christie and White, 1997).

As features within the coastal environment surf breaks serve to benefit from an integrated approach to coastal management. Community-based management approaches offer opportunity for the surfing community to be directly involved in surf break management. Co-management arrangements further offer opportunity for surf break users to be directly involved with local authorities and other coastal stakeholders in working together in an integrated approach to surf break management. Involving surf break users in the co-management of surfing resources represents a potentially effective means for local authorities to provide for the protection and enhancement of surf breaks and thereby work toward the aim of the NZCPS (2010), that of achieving the sustainable management of the coastal environment.

1.1 Research Objective

The aim of this thesis is to investigate the potential for the co-management of surf breaks within New Zealand, considering the role of local authorities and surf break users as key stakeholders in the management of surf breaks. The research involves a comparative case study of the Auckland and Otago regions, with key findings further discussed in relation to other areas in New Zealand. The study is guided by the following research objective:

> *To evaluate the suitability of co-management options for the protection and enhancement of surf breaks within New Zealand's current resource management framework.*

The following research questions seek to inform the overall research objective:

> *1. What do surf break users value about the surf breaks that they use?*
>
> *2. What are the desired outcomes for surf break users in the management of surf breaks?*
>
> *3. Is co-management a viable option for the management of surf breaks?*

Research Question 1 seeks to identify the values that surf break users attach to surf breaks in their respective regions. Identifying surf break values enables decision-makers to target management approaches to protect and enhance those factors deemed to be of value. Current and future issues of concern are also explored to determine the relationship between surf break values and threats to surf breaks. Research Question 2 addresses the overall purpose of surf break management, identifying desired management outcomes for surf break users, as

well as the potential roles for local authorities and surf break users in management approaches. Research Question 3 seeks to determine the effectiveness of 7 surf break co-management options identified through the review of relevant literature and policy documents. The research aims to identify the best potential approach for each of the study areas as well as to consider findings in relation to other areas of New Zealand.

The research methodology involves a comparative case study of the Auckland and Otago regions, exploring management approaches at a national level through to an individual surf break level for each of the selected regions. The Auckland and Otago regions provide contrasting case studies for research into surf break management in New Zealand. Whilst the Auckland Region does not have any surf breaks of national significance under the NZCPS (2010), the Auckland Council is currently in the process of identifying surf breaks of regional significance and working toward the inclusion of surf break policy within its draft Unitary Plan (a combined regional and district plan) (Auckland Council, 2012a). In contrast, the Otago Region features four nationally significant surf breaks under the NZCPS (2010) but is yet to see any formal progress toward the implementation of surf break policy.

In undertaking this research, the study contributes to the body of knowledge relating to the consideration of surf breaks in coastal decision-making processes. The research follows on from the inclusion of surf break policy in the NZCPS (2010) and seeks to assist local authorities in developing an understanding of the level of potential surfing community involvement and desired surfing community outcomes in the management of surf breaks.

1.2 Thesis Structure

This thesis consists of nine chapters, including this introductory chapter. Chapter 2 undertakes a critical review of key literature for surf breaks and approaches to coastal management, framing the research context within which this study takes place. The review provides a general context of understanding relating to surf breaks in the coastal environment and surfing as an activity, explores integrated coastal management approaches, and focuses on efforts to protect surf breaks both internationally and in New Zealand. Chapter 3 details the methodological approach used to collect and analyse the research data. The chapter discusses the use of questionnaires and key informant interviews as primary data collection methods and also considers ethical considerations and the positionality of the researcher.

Chapter 4 presents contextual background for the study areas, providing an overview of surf breaks and related issues in the Auckland and Otago regions. Chapter 5 analyses relevant planning documents in order to establish the policy framework for surf break management at a regional level through to the local level for the study areas. Chapters 6, 7 and 8 present

results and discussion for each of the research questions. Chapter 6 explores surf break user values and issues of concern, Chapter 7 discusses the purpose of surf break management, whilst Chapter 8 evaluates the suitability of surf break co-management options. Chapter 9 draws together the preceding chapters to present key findings and final research conclusions.

2 Literature Review

2.1 Introduction

The purpose of this chapter is to critically review literature relating to surf breaks and approaches to coastal management. The review seeks to establish a context of understanding for surf break co-management and to identify any gaps in the existing body of knowledge. Surfing is noted as a relatively new field of coastal research, with the majority of studies undertaken in the last 15 years (Corne, 2009; Scarfe *et al.*, 2009b). With increasing recognition of the value of surf breaks, the scope of surf break research has expanded from initial studies into understanding physical wave processes to include research into artificial surfing reefs, wave modelling, surf culture, surf tourism and economic impacts, and coastal management (Scarfe *et al.*, 2009b). This review first provides a general overview of surf breaks and surfing as an activity, identifying surf break values and threats, and the current status of surf break research. Approaches to coastal management are then discussed, focusing on the emergence of integrated coastal management practices and community-based co-management strategies. The chapter concludes with a critical discussion of approaches to the protection of surf breaks both internationally and in New Zealand. Key review findings are further used to inform the overall research results and discussion.

2.2 Surf Breaks in the Coastal Environment

2.2.1 What is a surf break?

Surf breaks are a limited and finite natural feature of the coastal environment and serve as an important recreational resource for the surfing community (Peryman, 2011a). The New Zealand Coastal Policy Statement (NZCPS) (2010) (Department of Conservation, 2010:28) defines a surf break as:

> A natural feature that is comprised of swell, currents, water levels, seabed morphology, and wind. The hydrodynamic character of the ocean (swell, currents and water levels) combines with seabed morphology and winds to give rise to a "surfable wave". A surf break includes the "swell corridor" through which the swell travels, and the morphology of the seabed of that wave corridor, through to the point where waves created by the swell dissipate and become non-surfable. 'Swell corridor' means the region offshore of a surf break where ocean swell travels and transforms to a 'surfable wave'. 'Surfable wave' means a wave that can be caught and ridden by a surfer. Surfable waves have a wave breaking point that peels along the unbroken wave crest so that the surfer is propelled laterally along the wave crest.

Whereas the majority of waves that break on shorelines are not suitable for surfing, a surf break represents a unique combination of bathymetry, exposure to swell, tide and wind patterns that produce suitable surfing conditions (Scarfe *et al.*, 2003). Surfing requires waves that break and peel laterally, allowing the surfer to ride the wave crest in front of the breaking white-water section (Fig. 2.1) (Walker *et al.*, 1972; Scarfe, 2008). Waves that break all at once, or 'closeout', do not provide the surfer with a suitable wave crest to ride (Scarfe *et al.*, 2003).

Figure 2.1: **A surfer riding the wave crest in front of the breaking white-water section (source: Author, 2012)**

The combination of factors necessary to produce suitable surfing conditions means that the distribution of quality surf breaks is highly uneven, with certain areas more conducive to producing quality conditions than others (Corne, 2009). In New Zealand, for example, a number of quality breaks can be found in the Taranaki region, where, fully exposed to the Tasman Sea, a series of reefs, headlands and sandy beaches produce a variety of consistent high quality surfing waves (Bhana, 1996). Directly to the south of Taranaki, however, wave quality along the Kapiti-Mana coast sharply declines due to an absence of suitable bathymetric conditions and reduced swell exposure (Fig. 2.2) (Bhana, 1996).
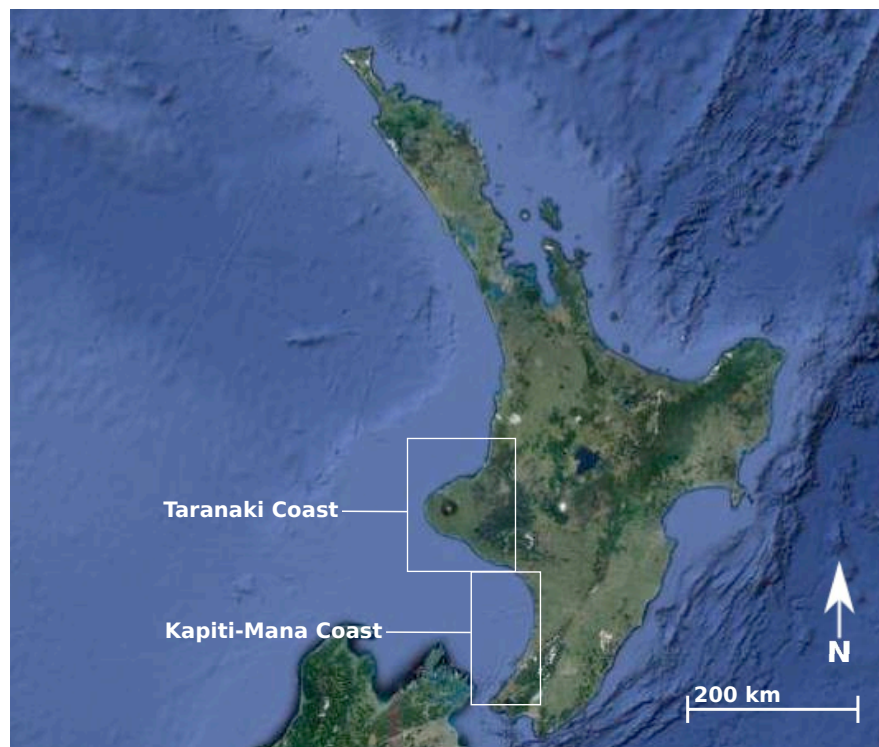
Figure 2.2: Location of the Taranaki and Kapiti-Mana coastlines in New Zealand (base image source: http://maps.google.com/)

Surf Break Components

The physical boundaries of a surf break extend well beyond the visible part of the breaking waves that surfers ride. As ocean swells may generate thousands of kilometres away before finally arriving at any given surf break, defining the physical boundaries of a surf break is inherently difficult and requires careful consideration of a number of factors including the swell corridor, preconditioning components (bathymetric features that focus wave energy), currents, beach state and sediment supply (Mead and Black, 2001). The NZCPS (2010) definition of a surf break includes the swell corridor as the area of open ocean that waves travel through before arriving at a surf break. As a wave approaches the coastal zone it travels through a series of features, or preconditioning components, that may refract, focus or organise a swell (Mead and Black, 2001; Scarfe *et al.*, 2003). These may be in the form of offshore sand bars, reefs or headlands and can play an important role in shaping incoming waves before they break (Scarfe *et al.*, 2003). Beyond the area of breaking waves other features contributing to surf break quality include currents and sources of sediment supply via longshore drift and terrestrial inputs. Changes within coastal systems to sediment supply volumes and pathways may ultimately impact on surfing wave conditions. Beach breaks and river or estuary entrance bar breaks are particularly reliant on sediment flows to produce suitable sand banks for waves to break on (Mead and Black, 2001) (See Appendix A for a description of different surf break types).

2.2.2 Surfing as an activity

Surfing's modern day origins trace back to the early 1900s when Hawaiian Duke Kahanamoka re-introduced surfing to the world through a series of exhibitions in North America, Australia and New Zealand (Irwin, 1973). Interest in surfing gradually grew until the 1960s when the surfing scene of Southern California exploded into popular culture (Finney and Houston, 1996). The last 50 years has seen huge growth in what was once an underground sport. Surfing is now a USD$10 billion per annum industry with an estimated 20 million surfers growing at around 12-16% per annum (Buckley, 2002a; Lazarow, 2007). The growth of surfing in New Zealand has emulated worldwide trends in popularity, with numbers swelling since surfers first started surfing at Piha, Auckland, in the 1950's (Bhana, 1996). Recent estimates for the number of surfers in New Zealand stand at over 145,000 (SPARC, 2009).

Surf break users, or 'surfers', utilise a wide range of wave-riding craft and represent a broad cross-section of society. Participation in surfing as a recreational activity ranges from that of a summertime weekend activity to the dedicated surfer who adheres to a complete surfing lifestyle (Taylor, 2007). Farmer and Short (2007:99-100) defined a surfer as:

> Any person who interacts physically with the surf for recreation. It includes bodysurfing, bodyboarding, surfboarding, surfskiing, surfboating, all forms of surf livesaving and lifeguarding but excludes all surf interaction powered by wind and machines.

Whilst the stereotypical image emanating from the 1960s and 1970s of surfers as young, unemployed males with questionable social morals has long held sway (Irwin, 1973; Finney and Houston, 1996), recent studies suggest surfer demographics have changed significantly. Women's surfing is recognised as the fastest growing surf market in Australia, with females making up to 10% of surfing participants (Surfing Australia, 2006). In New Zealand females make up to 14% of the surfing population (Surfing New Zealand, n.d.-a). Nelson *et al.* (2007) undertook an online survey of surfing participants at Trestles Beach, California, revealing an average age of 35.6 years old. Respondents showed a high level of education and employment with 42% having at least a college degree 72% working full-time, typically earning between USD$50,000 to $70,000 per year (Nelsen *et al.*, 2007).

2.2.3 The Value of Surf Breaks

Surf breaks have significant economic, cultural, social and spiritual value for local and wider communities (Scarfe *et al.*, 2003; Lazarow, 2007; Taylor, 2007). In Australia, for example, surfing reserves have been compared in terms of cultural value to sites of cultural, sporting, heritage and religious locations in other countries (Farmer and Short, 2007). Lazarow

(2007:18) argued that a lack of formal research into the benefits of surfing means that *"unlike other sports, such as recreational fishing, surfing has not been able to use the weight of economic or social welfare evidence to argue for the maintenance of or improvement to surfing amenity"*. Highlighting the value of surf breaks is seen as an effective method to promote surfing to the wider community, for *"political lobbying"* purposes (Scarfe *et al.*, 2009b:543), and to ultimately promote the management, protection and enhancement of surf breaks (Lazarow, 2007; Scarfe, 2008; Lazarow, 2009; Scarfe *et al.*, 2009a).

Economic Impacts

Research into the economic value of surfing remains limited, but studies have shown that the presence of a high-quality surf break can have significant social and economic value for a coastal community (Buckley, 2002a; Lazarow, 2009; Scarfe *et al.*, 2009a). A study of the economic benefits of recreational surfing along the Gold Coast, Australia, estimated that surfers were spending on average $AUD24.50 per surfing session, contributing between $AUD126-233 million in direct expenditure per annum to the local economy (Lazarow, 2009). A similar study at Trestles Beach, California, estimated that surfers spent an average $USD40.16 per surfer per surf session (Nelsen *et al.*, 2007). A United Kingdom study commissioned by Cornwall County Council and the South West Regional Development Agency found that surfers spent an average 8.5% more than the average visitor to the area (BBC, 2004). The study also found surfing provided for 1,607 full-time jobs and contributed £64m each year to the local economy compared to £52m for the sailing industry and £32m for the golf industry (BBC, 2004).

Surf tourism is now recognised as a significant global adventure tourism sector, with the associated economic benefits increasingly recognised at both local and national levels (Buckley, 2002a). Buckley (2002a:405) identified up to one third of surfers as *"cash-rich, time-poor"* and potential surf tourists. A 2006 market survey in Costa Rica found that surfing based activities accounted for up to 25% of the tourism economy (Lazarow, 2009). As surfing destinations such as Bali, the Mentawai Islands, Fiji and Tahiti have become entrenched in surf culture, new surfing frontiers continue to open up in places such as Papua New Guinea, Thailand and recently Western Africa. For many of these local communities surf tourism represents a vital source of income (Buckley, 2002a; Dolnicar and Fluker, 2003; Martin, 2010).

Social, Cultural and Spiritual Value

Surfing holds significant social, cultural and spiritual value for participants and communities. Surf breaks often act as a focal point for the surfing community and help to contribute to a

sense of identity and belonging. *"Surfing brings something else to communities and people. It links generations, it brings people together, it provides an avenue for outdoors based physical activity and it has helped build towns and communities"* (Lazarow, 2007:13). Peryman (2011a) highlighted the amenity value of a surf break in adding to the character of the coast for passive onlookers who watch surfers in the water. Wave riding or surfing also holds significant value to indigenous cultures around the Pacific, including Maori. Peryman (2011c) discussed the long association of surf-riding within the cultural heritage of Maori, identifying wave riding as a necessary skill for waka navigation and also a leisure activity.

Surfing holds significant spiritual value for many participants. Slogans such as 'only a surfer knows the feeling' and 'surfing is my religion' are commonplace within both mainstream interpretations of surf culture and surfers themselves (Taylor, 2007; Moore, 2011). Some surfers identify themselves as 'soul surfers' who *"consider surfing to be a profoundly meaningful practice that brings physical, psychological, and spiritual benefits"* (Taylor, 2007:923).

Surf culture has evolved to include a diverse range of sub-cultures within surfing and to infiltrate all corners of mainstream popular culture. Surfers themselves utilise a wide range of wave riding equipment, with each style of surfing, such as longboarding and shortboarding, developing its own style and approach to wave riding (Peryman, 2011a). The popularity of surf culture has seen elite surfers become internationally recognised sporting professionals, surf clothing labels such as Billabong and Quiksilver are now part of a global industry worth billions of dollars, and images of surfing have become common place all around the world (Lanagan, 2002; Lazarow, 2007). Lanagan (2002) argued that surfing has largely been commercialised and that surfing as understood by wider society has been altered. Indeed, most non-surfers are largely unaware of the protocols of surfing that operate in the water and on land. Young (2000) detailed the 'surfriders code of ethics' that acts like an informal rulebook for surfing (see Appendix B). Through this code surfers learn to share waves safely, respect one another and care for the surrounding environment (Peryman, 2011c). This code of ethics remains at the core of surfing culture today.

2.2.4 Threats to surf breaks

Identifying threats is an important first step towards the protection and enhancement of surf breaks. Surf breaks can be degraded in a number of ways and there are numerous examples internationally where surf breaks have been adversely affected by other activities. Access to the break, water quality and direct impacts on the quality of the wave can all compromise the

overall value of a surf break. Surf breaks may also suffer from overcrowding, which may in turn make surfing dangerous or lead to confrontation and episodes of 'surf rage'.

Access

Limiting access to surf breaks presents a direct threat to the use and enjoyment of surf breaks. In New Zealand, large tracts of coastal land remain in private ownership, requiring access through private property. Peryman (2011c) noted that whilst access arrangements in New Zealand between surfers and local landowners often exist to the benefit of surfers, in some circumstances restrictions have led to conflict between property owners and territorial authorities. Internationally, some of the most poignant examples of restricted access concern military activity. One of England's best waves at Broad Bench, Kimmeridge, sits on the boundary of a Ministry of Defence firing range, with beach access closed during firing exercises (Fig. 2.3). In 2008 an increase in firing exercises saw the beach closed for 228 days of the year and crucially the entire winter, the season most conducive to producing suitable surfing conditions (Surfers Against Sewage, 2010).

Figure 2.3: Ministry of Defence signage at Broad Bench, Kimmeridge, UK, 2008. (© Copyright Jim Champion. Source: http://www.geograph.org.uk/reuse.php?id=695285)

Water Quality

Poor water quality, typically due to land based discharge and occasionally maritime disasters, can significantly impact on the health of surfers as well as the use and overall value of surf breaks. Perryman and Skellern (2011) highlighted the impact of wastewater entering the surf

zone at Whangamata, New Zealand, after a heavy rainfall event in January 2011, with surfers suffering a range of complaints from nausea to conjunctivitis. Poor water quality is an on-going issue for the beaches of Southern California. Most surfers know not to surf for 72 hours after a rainfall event, with the majority of local county authorities issuing health advisory notices due to untreated storm water drainage running directly into the ocean (Surfer Magazine, 2010). Buckley (2002a) discussed the impact of surf tourism on water quality throughout the Indo-Pacific region, where waste and sewage management technologies are often inadequate or non-existent. The increased number of surfers may inadvertently degrade water quality, ultimately impacting on the quality of the surfing experience and threatening marine eco-systems (Buckley, 2002a).

The sinking of the *Prestige* oil tanker carrying 77000 tonnes of oil off the north west coast of Spain in November 2002 created the largest environmental disaster in the history of both Spain and Portugal (Butt, 2004). The oil slick affected the entire north coast of Spain and into Portugal and France. As well as decimating marine ecosystems, surf breaks were left empty throughout France, Spain and Portugal for the entire winter. Oil-covered beaches continued to impact on surfers, swimmers and tourists the following summer and beyond (Butt, 2004).

Direct Impacts on wave quality

Direct impacts on wave quality concern activities that interfere with the natural dynamics of a surf break, namely the swell corridor, seabed morphology and hydrodynamics (Scarfe *et al.*, 2009a; Peryman, 2011c). Such activities include coastal protection works, dredging, wave energy converters and aquaculture.

Coastal Protection Works

Management of the coastal environment has traditionally focused on protecting the coastline, or rather protecting coastal development, from coastal processes (Turbott, 2006). The use of coastal protection works, such as seawalls, breakwaters and groynes, invariably interfere with natural coastal processes and the dynamic equilibrium of coastlines, often creating additional problems (Black, 2001; Corne, 2009). Coastal protection works insensitive in design to surf breaks may seriously affect surfing conditions or further still destroy waves. Oram and Valverde (1994) discussed the demise of the Southern Californian surf break Killer Dana. Considered one of the best waves on the West Coast, U.S.A., the break was destroyed in the late 1960s by the development of a mile-long rock and concrete jetty built to facilitate the construction of a boat harbour. The surf break is now a car park.

Some coastal protection works have enhanced wave quality (Corne, 2009). Scarfe *et al.* (2009a) found that surfing conditions had improved significantly around the inlet and outlet jetties of Mission Bay Jetties, San Diego, California, U.S.A. (Fig. 2.4; Fig. 2.5). Whereas the typically planar beach morphology in the surrounding area tends to produce waves that 'close out' (break in a line rather than peel), the jetties were found to have created the bathymetric features necessary for surfing waves, retaining sand banks and focusing wave energy to create improved surfing conditions (Scarfe *et al.*, 2009a).

Figure 2.4: Jetty at Mission Bay, San Diego, California, U.S.A. (Scarfe *et al.*, 2009a:690)
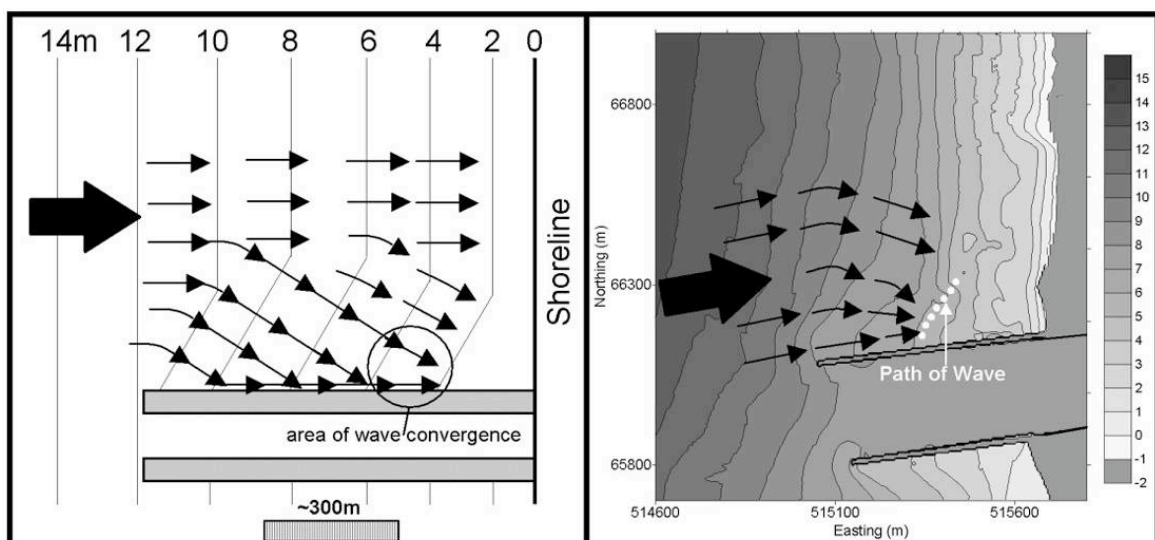
Figure 2.5: Incoming wave energy focusing at the northern jetty at Mission Bay, San Diego, California, U.S.A. (Scarfe *et al.*, 2009a:690)

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Enhancements in wave quality as such have often been referred to as 'accidental benefits', as typically there has been little or no consideration of incorporating surfing into design of coastal protection works (Corne, 2009; Scarfe *et al.*, 2009a). In a study into the impacts of coastal protection on wave quality at 30 different surf breaks from around the world, Corne (2009) found that 18 experienced a reduction in quality whilst 12 showed an enhancement or no change. Scarfe *et al.* (2009a) noted that in the last twenty years there has been a significant amount of research into understanding surf break characteristics and designing artificial reefs as a means of providing for coastal protection and recreational amenity. Researchers have argued that the existing body of literature regarding artificial reef design is sufficient enough to incorporate surfing amenity into most coastal protection works (Black, 2001; Scarfe *et al.*, 2003; Scarfe *et al.*, 2009a; 2009b). Artificial surfing reef design is further discussed in section 2.2.5 in relation to surf break research.

Activities within the Swell Corridor

Activities operating within the swell corridor of any surf break, notably aquaculture and wave energy conversion, can potentially affect swell characteristics and impact on surfing conditions. As demand from aquaculture for coastal space continues technological developments mean that open-ocean marine farming is becoming increasingly viable, with surfers concerned that surf breaks could suffer. Surfers in Christchurch, New Zealand, opposed plans in 2005 to establish a mussel farm 13.5 km off the coast at Pegasus Bay. Surfers were particularly concerned that the farm would create a swell shadow and reduce northeast swells getting into Christchurch town beaches (Burt, 2005). The proposed 2695-hectare farm represented New Zealand's second largest and first open-ocean marine farm, gaining resource consent in 2006 and finally approval from the Ministry of Fisheries in 2009 (Steeman, 2009). The farm is to be established over the next three to five years with conditions of consent including the monitoring of wave action and currents (Murdoch, 2009).

As research and development into wave energy conversion technology continues there is concern within the surfing community that attempts to harness wave energy will adversely affect swell characteristics entering surf break zones (Surfers Against Sewage, 2010). A study by Venugopal and Smith (2007), for example, modelled the wave climate around an array of hypothetical bottom mounted wave energy conversion devices estimating a reduction in wave heights downstream of the devices in the range of 13-69%. Venugopal and Smith (2007:9) commented that: *"The important observation is that whatever the porosity of the device, there is always a reduction in wave height in the downstream of the devices which may alter the sedimentation process and other wave phenomena near the coasts"*.

A recent development in wave energy has been the instalment of the Wave Hub in September 2010, a wave power research project on the Atlantic coast of Cornwall, United Kingdom. The proposal initially raised concerns that surf breaks in the area would be directly affected (Harrington and Andina-Pendas, 2008). Consent for the project was granted in 2008 after significant involvement of key stakeholder groups, including surfers, in the design and consultation phases of the project (Harrington and Andina-Pendas, 2008). Modelling of the impacts on wave heights estimated that wave height reduction could be as high as 15-30%, however, this was considered a worst-case theoretical scenario for the Wave Hub operating at 100% absorption (Black, 2007). Under the anticipated normal operating conditions the reduction in wave height is expected to be less than 3-6% at beaches in the direct shadow of the wave hub (Black, 2007). It is expected that under most conditions surfers will not notice any impacts on wave conditions, although on-going monitoring of the wave climate is a condition of consent (Harrington and Andina-Pendas, 2008).

Dredging

Dredging and the dumping of dredge spoil can have significant impacts on the quality of surf breaks that are dependent on the presence and condition of sand bars. One of the most highly publicised examples of dredging impacts on a surf break occurred at Mundaka, Spain, where the Mundaka sand bar is considered one of the best waves in the world. Liria *et al.* (2009) described the impact of the dredging and dumping event that led to a significant reduction in wave quality and eventually the cancellation of an elite surfing world tour event in 2005. In 2003, approximately $240,000m^3$ of sand was dredged from the estuary channel to a shipyard located some two kilometres up the channel to allow the removal of a large ship. Whilst the channel had been dredged on numerous occasions before without noticeable impact on the surfing wave, the volume of sand removed on this occasion was significantly increased. The dredging event altered the sedimentary equilibrium of the ebb delta system and the associated sand bar, changing the course of the outflow channel and sediment supply. The changes, however, were not irreversible and since 2006 the natural shape of the sand bar has gradually recovered and so too the quality of the surfing wave (Liria *et al.*, 2009).

Overcrowding and Surf Related Conflict

Surf breaks can suffer from their own success – overcrowded surf breaks can make surfing not only dangerous but also lead to confrontations between participants. Confrontation at surf breaks can negatively impact on the surfing experience and the overall value of a surf break (Young, 2000; Taylor, 2007). As surfing is guided largely by its own set of unwritten rules in the water, the surfriders code of ethics (Appendix B), novice surfers are often unaware of the

protocols and hierarchical order as surfers wait in the water for their turn. As surfers progress in skill, individuals inherently develop an understanding of these rules, such as who has priority to ride the wave, who should give way and what to do in potentially dangerous situations. The most important rule in surfing is one wave, one surfer. It is considered extremely bad etiquette for an experienced surfer to 'drop-in' on (ride in front of) another surfer already on a wave. Whilst a novice surfer dropping-in is generally tolerated to an extent (often quickly remedied with verbal instruction), experienced surfers dropping-in may result in verbal confrontation and in some cases physical violence, or 'surf rage'. In one of the most publicised episodes of surf rage former surfing world champion Nat Young was seriously assaulted in 2000 at his home break of Angourie, Australia, after a confrontation that began over who had wave priority (Young, 2000). Overcrowding at surf breaks can lead to an increase in the occurrence of surf rage, as surfing's unwritten rule – one wave, one surfer – essentially means that waves are a limited resource and the more surfers means less waves to go around.

2.2.5 Surf Break Research

Surfing is considered a relatively new area of research, with the majority of research undertaken within the last 15 years (Corne, 2009; Scarfe *et al.*, 2009b). Studies into the science of surfing were first conducted at the University of Hawaii in the 1970s, researching surfing characteristics and wave transformations (see Walker *et al.*, 1972; Walker, 1974). Interestingly, Walker *et al.* (1972:2609-2610) commented on some of the same key issues that affect surf breaks today, namely threats from overcrowding and the need to protect surf breaks:

> The rapidly increasing popularity of surfing and the loss of surf sites due to construction projects contribute to the overcrowding of surf sites. Overcrowding increases the frequency of injury and decreases enjoyment of the sport. Unlike skiing and golf, for which new recreational facilities may be built to meet the increased demand, surfing is confined to a limited number of natural surf sites, for given wind and wave conditions. Hence, an effort should be made to preserve and enhance these valuable natural surf sites and to develop design criteria for creation of multiple-purpose reefs.

A review of surfing literature by Scarfe *et al.* (2009b) identified different research categories to include artificial surfing reef (ASR) design, ASR monitoring, ASR construction, ASR sediment dynamics, biomechanics, coastal management, economics and tourism, industry, numerical and physical modelling, surfers and waves, sociology, and physical processes. The review of cited and peer-reviewed research acknowledged the physical processes around surfing breaks as well researched but identified specific literature on how to manage coastal

conflict issues around surfing breaks as lacking. *"More research on economics, sociocultural issues, coastal management, and the oceanographic effects of coastal development on surfing is required if the world's natural surfing breaks are to be preserved"* (Scarfe *et al.*, 2009b:553).

Artificial Surfing Reefs

A significant proportion of surf break research has focused on understanding the design and function of ASRs. Scarfe *et al.* (2009b) identified up to a quarter of publications for research-based surfing literature between 1971 and 2007 as relating to ASRs. In theory, ASRs can provide for both coastal protection and recreational purposes, making the structures potentially more versatile and adaptable than hard engineering structures (Black, 2001). As well as surfing, artificial reefs can provide for diving, fishing, swimming and other recreational activities (Black, 2001). As noted earlier, researchers (Black, 2001; Scarfe *et al.*, 2003; Scarfe *et al.*, 2009a; 2009b) have argued that there is enough current knowledge of ASR design to incorporate surfing into most coastal protection works. Whilst the initial design process requirements may be more complex than basic rock walls and groynes, ASRs have the potential for significant long-term social and economic benefits (Black, 2001).

Results from ASR projects have been mixed. Boak *et al.* (2000) discussed the then proposed ASR at Narrowneck Beach on the Gold Coast, Australia (Fig. 2.6). The reef was designed as part of the Northern Gold Coast Beach Protection Strategy (NGCBPS) and promoted as a sustainable long-term coastal management solution:

> The NGCBPS aims to decrease the magnitude of economic loss following storm events by increasing the volume of sand within the storm buffer seaward of the oceanfront boulder wall. The NGCBPS has the dual objectives of increasing the sand volume within the dunal buffer through beach nourishment and improving surf quality through the establishment of an artificial surfing reef. The project will cost a total of $8.8 million dollars (Australian) and is expected to yield benefit-cost ratios of over 60 to 1 (Boak *et al.*, 2000:3710).

Construction of the Narrowneck ASR, made of sand-filled geotextile containers, was completed in 2000. Subsequent monitoring has found the reef to be successful in retaining the wider beach (Jackson *et al.*, 2007), improving safety with a 60% reduction in surf lifesaver rescues (Corbett *et al.*, 2005), and providing for the rapid development of a diverse marine ecosystem, with the site becoming popular for fishing, diving, snorkelling and spearfishing (Jackson *et al.*, 2004). With regards to surfing, the reef is also considered successful in providing for improved surfing conditions, although the reef is not widely regarded as a great surf break (Jackson *et al.*, 2007). Jackson *et al.* (2007) suggested the presence of several world-class surf breaks in close proximity reduce the appeal of the Narrowneck reef to some

extent, but also argued that pre-construction media reports created unrealistic expectations that the reef would produce consistently high-quality surfing waves.

Figure 2.6: **Narrowneck Reef, Gold Coast, Australia: a. location of the Gold Coast, Australia (base image source: http://maps.google.com/); b. aerial view of the Narrowneck Artificial Reef (image source: http://www.goldcoast.qld.gov.au/_images/artificial_ reef.jpg); c. Narrowneck Beach in 1996 before the construction of the Artificial Reef (image source: http://www.seabreeze.com.au/Img/Photos/Kitesurfing/ 2876727.jpg); d. Narrowneck Beach in 2009 after the construction of the Artificial Reef (image source: http://www.seabreeze.com.au/Img/Photos/Kitesurfing/ 2876855.jpg)**

Other ASR projects have suffered similar setbacks, with high developer and public expectations for quality surfing conditions arguably not met. ASR projects at Bournemouth, U.K., and Mount Maunganui, New Zealand, have been surrounded in controversy. It is argued by some surfers that the Boscombe Reef at Bournemouth produces the 'wrong kind of wave', creating highly challenging waves that do not break for as long as expected (Fig. 2.7) (Bloxham, 2010). The company who designed and constructed the reef, New Zealand based ASR Ltd, countered that the reef had passed four of the five tests required by the local council and that the reef was not yet complete (McPherson, 2011). It is widely acknowledged that the Mount Maunganui ASR, another ASR Ltd project, has mostly failed to produce quality surfing conditions, with surfers largely ignoring the break and lifesavers citing safety

concerns in reporting increased rips and scouring on either side of the reef (McPherson, 2011). ASR Ltd countered that the reef was not completed to design specification, with financial issues resulting in less than half of the geotextile bags being put in place (McPherson, 2011). ASR Ltd entered into liquidation in September 2012 (Ministry of Business Innovation & Employment, 2012). In discussing ASR research, Scarfe *et al.* (2009b) noted that the topic is still relatively new and as such research has tended to focus more on reef design than construction, monitoring or shoreline response. Scarfe *et al.* (2009b) logically argued that as more ASRs are constructed, research will subsequently increase into understanding the construction, performance and monitoring elements of ASRs and ultimately improve performance outcomes.

Figure 2.7: **The artificial reef at Boscombe, Bournemouth, U.K.: a. aerial view of the reef (source: http://www.surfertoday.com/images/stories/boscombesurfreef.jpg); b. location of Bournemouth (base image source: http://maps.google.com/); c. the wave at Boscombe Reef (source: http:// blog.asrltd.com/home/tag/artificial-reef-design)**

2.3   Coastal Management

Given the wide scope and significant volumes of coastal management literature this review is by no means exhaustive, aiming instead to provide a general overview of the key issues and trends relevant to coastal management and in particular surf break management. Clark (1992:28) highlighted the need for effective coastal management approaches: *"The coastal zone is used extensively and increasingly for a large number of activities. These multiple uses are not always compatible and may result in a wide array of problems for resource users and decision-makers."* The challenges of managing competing uses, combined with increasing understanding of coastal systems, has led to the development of integrated approaches to coastal management.

2.3.1   Integrated Coastal Management

Integrated Coastal Management (ICM) is acknowledged as a tool to sustainably manage development in coastal areas (Healy and Wang, 2004) that recognises the complexities of the coastal zone in which decisions within all sectors and levels of government are harmonized and consistent with coastal policies (Cicin-Sain and Knecht, 1998). Participation of all stakeholders is recognised as a fundamental component of ICM (Cicin-Sain and Knecht, 1998). Sorensen (1997:9) defined ICM as:

> … the integrated planning and management of coastal resources and environments in a manner that is based on the physical, socioeconomic, and political interconnections both within and among the dynamic coastal systems, which when aggregated together, define a coastal zone. An integrated approach requires both the horizontal (cross sectorial) and vertical (the levels of government and nongovernment organizations) coordination of those stakeholders whose actions significantly influence the quantity or quality of coastal resources and environments.

ICM has become the 'umbrella term' for a number of different terms including Coastal Zone Management, Integrated Coastal Zone Management and Coastal Area Management (Sorensen, 2002). The practice of ICM extends back to at least 1965 and has become synonymous with the rhetoric of sustainable development (Sorensen, 2002). ICM was enshrined in coastal management practice at the 1992 Rio Earth Summit (United Nations Conference on Environment and Development) where one of the key recommendations was that the national management of coasts and oceans should be 'integrated in content and precautionary in ambit' (Cicin-Sain, 1993). Sorensen (1997:6-7) highlighted five key attributes that ICM approaches seek to address:

> 1. Coastal systems usually extend beyond a local government's jurisdiction. Many coastal systems extend beyond state or provincial borders and frequently straddle the boundaries of national jurisdictions.

2. Most coastal systems are significantly affected by the cumulative impact of the decisions and actions taken by many local users and the concomitant decisions made by the local unit and the subnational units of government.

3. The management of any one coastal system almost always requires the involvement of many agencies at the subnational or national level of government.

4. All the coastal systems are interconnected, and in all cases, no one subnational or national level agency has total control over all (or even most) of the inputs and outputs from one system to another.

5. Most coastal systems are dynamic and complex, and therefore it is difficult (if not almost impossible) to model the cause and effect relationships, and accurately predict the potential impacts of proposed development activities.

Continued interest in ICM has seen a proliferation in related literature and the implementation of programmes the world over. Sorensen (2002:1.4) commented that ICM has been applied *"... at all levels of governance, in all parts of the world, in all types of political regimes, in all types of environments, and at all levels of national economic development"*.

Critique of ICM

Despite the widespread application of ICM approaches some researchers argue that it has achieved little of the promise it once showed (Nichols, 1999; Sorensen, 2002; Billé, 2008). Sorensen (2002:1.3) commented that:

> … most of those who have been following the ICM star for three decades have either guarded optimism or pessimism about what ICM can accomplish, particularly in developing nations. In all nations long time practitioners have learned from experience that ICM is a very long and tiring swim against a continuous current of political and socioeconomic interests with short-term visions strongly tending to protect the status quo.

Criticisms of ICM include difficulties in defining the 'coast', the overly formal and rigid nature of ICM frameworks, an over-emphasis on community-based decision-making and unrealistic expectations of scientific knowledge (Makgill and Rennie, 2012). Other critiques include; the lack of opportunity for public involvement in decision-making processes, especially in offshore activities (Treby and Clark, 2004; Shipman and Stojanovic, 2007; McKenna *et al.*, 2008); the complexities of agency responsibilities along the coast (Sorensen, 2002; Shipman and Stojanovic, 2007; McKenna *et al.*, 2008); policy vacuums between national and local levels (Treby and Clark, 2004; Shipman and Stojanovic, 2007); inadequate availability of resources and information (Sorensen, 2002; Lowry *et al.*, 2005); the lack of legal authority of relevant authorities to effectively manage the coast (Sorensen, 2002; Lowry *et al.*, 2005); the political commitment of authorities from national through to local levels (Sorensen, 2002; Lowry *et al.*, 2005); and the level of inter-governmental co-ordination (Sorensen, 2002; Lowry *et al.*, 2005; McKenna *et al.*, 2008).

Despite such criticisms, ICM remains the principle approach to coastal management throughout the world, with research efforts focused toward implementing ICM programmes that address criticisms and ultimately improve coastal management outcomes (Sorensen, 2002; Healy and Wang, 2004; Billé, 2007; Shipman and Stojanovic, 2007; McKenna *et al.*, 2008). Healy and Wang (2004) commented that the benefits of ICM are often difficult to define, particularly as relatively few initiatives have progressed from the planning stage to implementation. Billé (2007) further cited a lack of effective evaluation of those programmes that have reached maturity as an on-going barrier to understanding and improving ICM outcomes. It is often easier to identify problems that are likely to occur in the absence of ICM, such as overly reactive management, adverse cumulative impacts, the transfer of problems from one sector to another, a focus on short-term economic outcomes and a fragmented geographical planning approach (Healy and Wang, 2004).

A Model for ICM: The Resource Management Act (1991)

Makgill and Rennie (2012) discussed the New Zealand Resource Management Act (RMA) (1991) as a model of best practice for ICM legislation. The Act adopts an effects based approach to resource management, managing the environmental effects of activities on land, air and water out to the 12 nautical mile limit of the territorial sea (Fig. 2.8) (Ministry for the Environment, 2006). The Act establishes an integrated cascading policy framework under which national, regional and local policy documents are prepared to achieve the purpose of the Act, that of promoting the sustainable management of natural and physical resources (Ministry for the Environment, 2006).
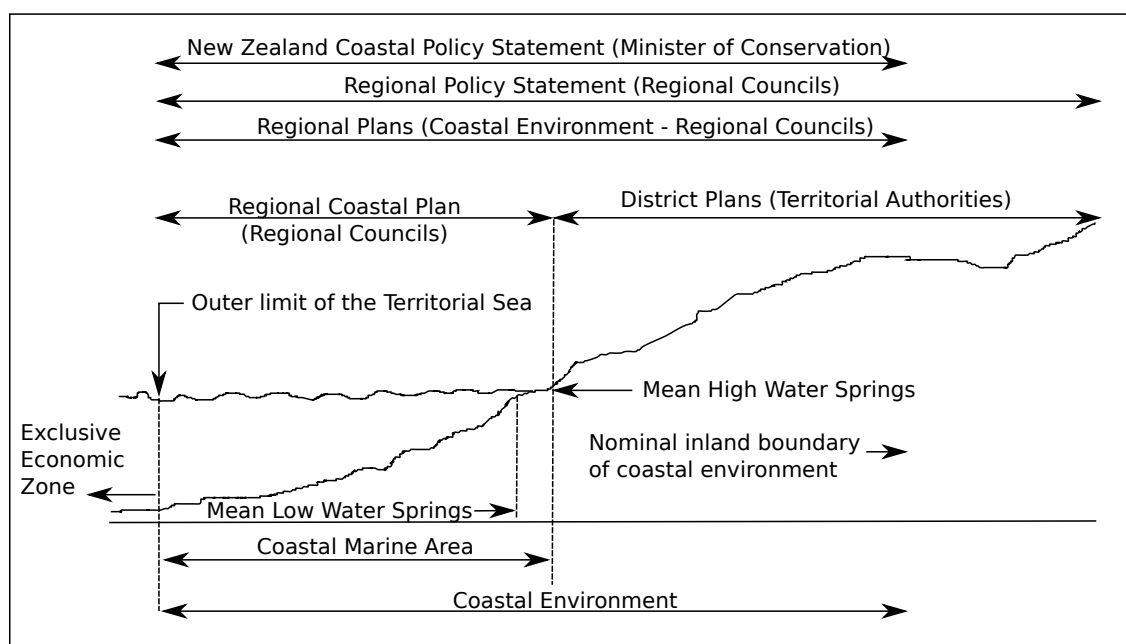
Figure 2.8: Integrated management of the coastal environment in New Zealand under the Resource Management Act (1991) (Adapted from Quality Planning, n.d.).

The enactment of the RMA (1991) arguably established New Zealand as the first nation to mandate ICM of its coastal zone out to the limit of its territorial sea, although the exclusion of fisheries and mining from the Act means that it is not a complete example of ICM (Makgill and Rennie, 2012). Makgill and Rennie (2012:156) argued that as a framework for ICM the RMA (1991) is *"robust"* to criticisms of other ICM regimes. For example, the Act adopts a situational dependent definition of the coastal environment and avoids the need for a special coastal management organisation by instead integrating the processes for implementing ICM into existing government structures and mechanisms, such as national policy statements and regional coastal plans (Makgill and Rennie, 2012). Makgill and Rennie (2012:159) emphasised that whilst the RMA (1991) provides a framework for ICM, it has not necessarily improved coastal management outcomes:

> In all respects, other than fisheries, New Zealand's RMA is a model of best practice in ICM legislation... We are not claiming that the on-the ground outcome has been a significant improvement in the quality of the coastal environment… However, we contend that the RMA… does provide a model of a legislative framework for implementing ICM.

Brookes (2000) also identified the scope that the RMA provides to achieve ICM, but comments that the practice of ICM remains underutilised:

> Integrated management is missing from our coastal management "toolbox". There is a lack of understanding of (or perhaps an unwillingness to understand) a systems or holistic approach towards coastal environments… It is also convenient because an acknowledgement of integrated coastal processes would require a willingness to retire from developing the most seaward parts of coastal land.

Peart (2007:4) cited the differences in approaches to coastal management between agencies as a major barrier to achieving ICM under the RMA:

> Conflicts can arise when different management agencies are trying to achieve different outcomes, through different management approaches, which benefit different stakeholders…Regional council planners talk about identifying the different values of the coastal environment and seeking to maintain these while enabling activities to take place… Territorial authority planners are more concerned with managing the coastal land development process... This can result in the management process focusing more on meeting the needs of people rather than nature.

Peart (2007) advocated the benefits of undertaking joint planning projects as a way to address differences in approach, although notes that the challenge remains to implement ICM initiatives at a broader scale. ICM initiatives tend to be locally focused, small-scale and non-statutory (Peart, 2007). Implementing holistic statutory ICM initiatives is recognised as a key task for coastal managers to achieve the purpose of the RMA (1991) in the coastal environment (Brookes, 2000; Peart, 2007).

2.3.2 Beach Management

Beach management, typically focusing on a single beach or a series of beaches, is an important consideration for surf break related coastal management at a local level. Increasingly recognised as a central component within ICM approaches, beach management deals with a range of issues relating to coastal protection, beach maintenance, recreational use and safety, beach access and providing for beach amenities (Micallef and Williams, 2002). According to Bird (1996:212) the aim of beach management is to *"… maintain or improve a beach as a recreational resource and a means of coast protection, while providing facilities that meet the needs as aspirations of those that use the beach".* Frampton (2010) argued that in the past beach management has focused more toward coastal defence purposes, giving only passing consideration to the amenity value of beaches. Frampton (2010) asserted that typically the primary value of a beach to a local community is providing for amenity, and often the associated benefits of tourism that follow, rather than its function as a coastal defence. James (2000) argued that beach management has traditionally focused on geomorphic hazards and the recreational human-use of beaches, largely ignoring the ecological and wider environmental values of beaches. Researchers also point out that beach management programmes have tended to address a single aspect, such as coastal protection, access or dune stabilisation, failing to provide for beaches within the larger coastal system (James, 2000; Frampton, 2010; Maguire *et al.*, 2011). As such, there is growing recognition of the need for a more holistic approach to beach management, termed integrated beach management (IBM) (James, 2000; Micallef and Williams, 2002; Ariza *et al.*, 2008; Defeo *et al.*, 2009; Frampton, 2010; Maguire *et al.*, 2011).

An important aspect of IBM is the consideration of beach amenity values. Frampton (2010:1120) referred to beach amenity as *"a perception by beach users of elements of a location that provide a positive, enjoyable benefit".* Beach amenity issues concern both physical characteristics, such as coastal defence, beach character and beach nourishment, and the management of beach use, relating to beach safety, access, zoning, information and the provision of facilities (Frampton, 2010). Understanding the perceived amenity values is an important first step in the management of beach amenity as no two beaches are the same and the relative amenity values will vary from location to location and user to user (James, 2000; Frampton, 2010). A study of beach users perceptions at seven Welsh beaches by Phillips and House (2009) found that surfers highly value physical characteristics at a beach, such as wave quality, whilst family beach-users highly value beach safety and eco-tourists value conservation. Phillips and House (2009) contend that beach management strategies tailored to suit local characteristics and tourist markets may improve beach management outputs.

2.3.3 Community-Based and Collaborative (Co-management) Coastal Management

One of the most significant changes to planning approaches since the 1960s has been the shift toward a more collaborative and participatory approach to decision-making processes, whereby community involvement is now recognised as a central tenet of planning practice and coastal management (Sanoff, 2000). This shift has been particularly evident in coastal management approaches where the traditional centralised system of management has given way to the emergence of community-based management strategies and collaborative, or co-management, strategies (Christie and White, 1997).

Community-Based Coastal Management

Community-based coastal management (CBCM) projects emphasise the integration of social, economic and environmental information at the community level, seeking to facilitate local control of marine resources in a 'bottom-up' approach (Christie and White, 1997). CBCM is widely considered an integral part of ICM, reflecting a global trend towards increased community participation in coastal management (Harvey *et al.*, 2001). The application of CBCM is diverse in form and function, ranging from community driven projects to government instigated programmes (Harvey *et al.*, 2001). A common element of CBCM is the ethic of stewardship whereby communities take on 'ownership' of local resources (Christie and White, 1997; Cicin-Sain and Knecht, 1998).

The overall effectiveness of CBCM approaches appears most evident at local scales, where projects have had positive impacts on local communities (Christie and White, 1997; Rivera and Newkirk, 1997; Cicin-Sain and Knecht, 1998; Nickerson-Tietze, 2000; Maliao *et al.*, 2009). Christie and White (1997:162) commented that: *The impressive ability of the community based approach to raise awareness about sustainable resource use and empower local communities to resist forces historically beyond their influence is a noteworthy success*". The success of any CBCM project is dependent upon a number of factors, including maintaining long-term community interest and participation as well as effective project evaluation (Christie and White, 1997; Harvey *et al.*, 2001; Clarke, 2008). Harvey *et al.* (2001) commented that a general lack of project evaluation means there is often limited information available about the outcomes of local coastal projects. The ability of CBCM projects to address issues beyond local scales is also a point of debate, with a clear need for additional strategies that address regional, national and international scales (Christie and White, 1997; Maliao *et al.*, 2009). Wide scale CBCM programmes may not produce tangible outcomes at a local level or effectively engage local community interest (Christie and White, 1997; Maliao *et al.*, 2009).

Environmental Volunteering

Volunteering is central to the success of many CBCM programmes (Harvey *et al.*, 2001). Volunteering is recognised as an important means of participating in civil society and has been advocated as an indicator of societal health (Measham and Barnett, 2008). Environmental volunteer stewardship generates reciprocal benefits for both the environment and participants (Ryan *et al.*, 2001; Measham and Barnett, 2008). Studies have found that volunteers experience increased levels of personal satisfaction and well-being through the opportunities that volunteering provides to make a positive contribution to the community, to increase social contact and to pursue personal interests (Measham and Barnett, 2008).

Measham and Barnett (2008) noted that much interest has focused on identifying tasks suited to volunteers, arguing the need to better understand what motivates volunteers in order to sustain long-term interest and participation. Measham and Barnett (2008:540) identified six key factors that motivate environmental volunteers:

(1) contributing to community;
(2) social interaction;
(3) personal development;
(4) learning about the environment;
(5) a general ethic of care for the environment;
(6) an attachment to a particular place.

Ryan *et al.* (2001) argued that volunteer programmes that take into consideration participant motivations at different stages of their involvement are more likely to foster both individual growth and environmental outcomes.

> They [the volunteers] are not free labour but individuals who will keep returning if their needs are met... Programme co-ordinators concerned about volunteer retention should strategize ways to provide learning opportunities that appeal to a range of volunteer experience. For example, one restoration group in south-east Michigan includes a plant identification walk after a work day of clearing exotic plant species (Ryan *et al.*, 2001:645).

Volunteer participation rates provide useful context for volunteer co-ordinators and providing authorities. The New Zealand General Social Survey 2009, a survey of 8000 individuals aged 15 and over, found that one-third of respondents had undertaken some type of voluntary work type in the four weeks prior to the survey (Statistics New Zealand, 2009). The survey also found those who do voluntary work have higher levels of life satisfaction (89.5%) compared to those who do not do volunteer work (84.2%) (Statistics New Zealand, 2009). Similar participation rates have been identified in Australia (32%), Germany (34%), Canada (27%), but higher in the UK (48%) and USA (44%) (Measham and Barnett, 2008). Research into volunteer participation rates has consistently found education and income, or the

accumulation of human capital, as effective predictors of volunteer activity (Measham and Barnett, 2008). Higher levels of human capital are associated with increased volunteer activity, whilst unemployed people display the lowest levels of volunteer activity (Measham and Barnett, 2008). Additional predictors include time availability and life stage, with middle age and retirement age linked with higher participation rates (Measham and Barnett, 2008).

Community-Based Coastal Management Case Study: Coastcare Australia

The 'Coastcare' programme is a community-based coastal stewardship initiative first implemented in Australia in 1995 (Clarke, 2006). Coastcare is essentially a grants programme aimed toward providing resources to encourage community participation in coastal management (Harvey *et al.*, 2001). Key objectives of the programme include:

> To engender in local communities, including local industries, a sense of stewardship for coastal and marine areas, (and) to provide opportunities and resources for residents, volunteers, business and interest groups to participate in coastal management (Commonwealth of Australia, 1997:6).

Coastcare was a partnership between the Australian Commonwealth, state and coastal local governments (Clarke, 2006), with state governments required to match federal financial contributions (Harvey *et al.*, 2001). Clarke (2006:311) commented that *"Coastcare itself is of international significance because it was a unique example of a program that formally linked three tiers of government and the community toward a common purpose. It proved to be a viable model of integrated coastal management".*

The programme initially ran from 1995 until 2002 when it was merged with other land-based community grant initiatives to form Envirofund, run by the National Heritage Trust (Clarke, 2006). Envirofund was subsequently merged in 2008 with the National Action Plan for Salinity and Water Quality to form a new initiative, *Caring for our Country,* implemented to create a more integrated and streamlined approach to national resource management (Wensing, 2008). Coastcare remains a part of the Caring for our Country initiative, although it is now known as *Community Coastcare* (Commonwealth of Australia, 2011). Coastcare supports a range of activities including planning initiatives, education and promotion, volunteer recruitment and co-ordination, on-the-ground action and monitoring (Harvey *et al.*, 2001; Clarke, 2006).

The Coastcare programme is considered to have been highly successful in achieving its primary objective of increasing community involvement in coastal management and instilling volunteers with a sense of ownership of their project and an increased affiliation with their local environment (Harvey *et al.*, 2001; Clarke, 2008). Despite this success researchers have argued that a lack of evaluation, with no set performance indicators or monitoring guidelines,

is a major weakness of the programme (Harvey *et al.*, 2001; Wescott, 2002; Clarke, 2006, 2008). Whilst the number of volunteers has increased, determining what constitutes 'effective' participation remains problematic (Clarke, 2008). Critics question whether Coastcare is simply a cost cutting operation aimed at getting volunteer groups to do tasks that are the responsibility of governments, or whether there is genuine interest in generating meaningful community-based participation in coastal management (Doyle, 2000; Harvey *et al.*, 2001; Wescott, 2002).

Volunteer Coastcare groups are also widespread in New Zealand, working in partnership with local communities, iwi, district councils, regional councils and the Department of Conservation. Coastcare programmes are recognised as having made *"a real and measurable difference to the quality of the coastal environment in many places"* (Brookes, 2000:11). Much of the work undertaken by groups in New Zealand has centred on the protection and restoration of dunes and wetlands, with a particular focus on mitigating the potential effects of climate change (Ministry for the Environment, 2008). Unlike Australia, there is no nationally funded Coastcare initiative. Instead, local authorities are encouraged to support Coastcare programmes as a coastal management tool (Ministry for the Environment, 2008). A Ministry for the Environment report (2008:76) advocated the use of Coastcare as a non-statutory management tool, stating that:

> Coastcare initiatives may be supported in regional and district plans and be allocated funding support in annual plans. Such programmes have proven to be highly successful in enhancing the buffer provided by the natural dune system and are an effective way of empowering communities and raising their awareness of coastal hazard issues.

Coastcare programmes are also recognised as cost-effective approaches to coastal management. A report by Environment Bay of Plenty (2005) identified Coastcare programme costs as ranging from around 1% to 10% of the cost of seawalls, dependent upon the initial condition of the dunes or beach state.

Co-Management Strategies

Recognition of the limitations of community-based and centralised coastal management approaches operating in isolation of each other has seen a natural progression toward collaborative or co-management approaches that involve the sharing of power and responsibilities between both communities and government (Christie and White, 1997; Berkes, 2009). Christie and White (1997) commented that if CBCM can be referred to as 'bottom-up' planning, then co-management is simultaneously 'bottom-up' and 'top-down'. Berkes (2009:1693) noted that there is no generally accepted definition of co-management,

rather *"the term refers to a range of arrangements, with different degrees of power sharing, for joint decision-making by the state and communities (or user groups) about a set of resources or an area"*. In many cases projects labelled as CBCM are in fact examples of co-management projects (Christie and White, 1997; Pomeroy and Carlos, 1997; Berkes, 2009). Very few purely community-based projects are undertaken, as most are dependent to some extent upon support from government or non-governmental organisations external to the community (Christie and White, 1997). In this regard, the Coastcare programme can be considered a co-management initiative.

Much like CBCM projects, the application of co-management is diverse in form, function and application, having become an integral component of ICM (Christie and White, 1997; Berkes, 2009). The strength of co-management lies in its ability to effectively coordinate, enable participation and mediate between different levels of government, key stakeholders and communities (Christie and White, 1997). Berkes (2009) commented that power sharing in co-management should ultimately be the result rather than the starting point for co-management. Critiques of co-management, however, ask whether decentralised management has actually resulted in improved environmental and social outcomes, with research suggesting mixed results (Cinner *et al.*, 2012). Critics further question whether meaningful community involvement has been achieved, citing the continued dominance of the government or other interest groups over the role of local communities (Christie and White, 1997; Berkes, 2009; Cinner *et al.*, 2012).

Studies have found co-management to be an evolutionary process built upon shared learning and trust-building (Berkes, 2004). Part of this evolution has lead to the emergence of 'adaptive co-management' as a natural extension of co-management (Plummer and Armitage, 2007). Whilst co-management involves vertical linkages between communities and levels of government, adaptive co-management reflects these vertical linkages as well as the horizontal linkages between all stakeholder bodies (Berkes, 2004; Olsson *et al.*, 2004). A key focus of adaptive co-management approaches is the on-going process of learning, with researchers advocating the benefits of a 'trial and error' management approach in order to promote further understanding (Plummer and Armitage, 2007; Armitage *et al.*, 2008; Berkes, 2009; Plummer and Fennell, 2009). In adopting this approach, researchers (Bellamy *et al.*, 2001; Plummer and Armitage, 2007; Berkes, 2009) have emphasised the need for effective evaluation, citing a general lack of evaluative processes in the management of natural resources. *"Evaluation is fundamental to identifying change, supporting an adaptive approach that is flexible enough to*

meet the challenge of change, and enabling progressive learning at individual, community, institutional and policy levels" (Bellamy *et al.*, 2001:408).

Co-Management in New Zealand

Statutory co-management arrangements in New Zealand include the co-management of fisheries resources between the fishing industry and the Crown and the co-management of traditional resources between Maori and the Crown. Non-statutory arrangements include Coastcare initiatives as discussed earlier. Much debate surrounds the effectiveness of co-management of the fisheries resource as underpinned through the introduction of the quota management system and individual transferrable quotas in 1986 (Yandle, 2008). Critics argue that the balance of power is heavily in favour of the fishing industry, further citing a critical lack of data and understanding as to the health of fish stocks as well as a lack of inclusion and poorly defined property rights for recreational fishers (Yandle, 2008; Memon and Kirk, 2011).

In New Zealand, the term co-management has become synonymous with statutory arrangements between Maori and the Crown. Increased recognition of the value of traditional ecological knowledge has seen a number of local authorities entering into co-management arrangements with Maori, such as the co-management of the Waikato River catchment area between the Waikato Regional Council and local iwi. Moller *et al.* (2009:212) noted that *"recently, the adaptive nature of traditional ecological knowledge and its coupling to environmental governance of local resource use is being recognised as adaptive co-management".* Moller *et al.* (2009) further noted the potential for both science and traditional ecological knowledge to assist each other and build upon adaptive co-management strategies. A review of five co-management arrangements between iwi and local authorities by Local Government New Zealand (2007) credited the strategies with improved communication and interaction between the parties and overall a more positive relationship.

Co-management initiatives in New Zealand include the Fiordland Marine Guardians (FMG) and more recently the Kaikoura Marine Guardians (KMG) and the Guardians of the Sounds (Marlborough Sounds) as community-driven coastal management approaches. Begun in 1995, the FMG process is widely regarded as a successful community-driven approach to the management of biodiversity conservation and fisheries sustainability, and is considered a model for sustainable resource management in New Zealand (Leslie, 2005; Cameron, 2006; Grafton *et al.*, 2008; Chapin *et al.*, 2012). The FMG process began as a community initiated response to concerns about escalating pressures in the coastal area and involved key stakeholders working together to produce the Fiordland Marine Conservation Strategy

(Fiordland Marine Guardians, 2012). The Strategy led to the enactment of the Fiordland (Te Moana o Atawhenua) Marine Management Act 2005 that in turn created the Fiordland Marine Area and gave the FMG statutory recognition as an advisory body (Fiordland Marine Guardians, 2012). Central to the FMG approach is the concept of 'gifts and gains': *"each stakeholder group that was granted opportunities must be prepared to make some sacrifice(s) for the general benefit of the group. This power sharing contributed substantially to goodwill and built trust among groups"* (Chapin *et al.*, 2012:8). The approach has largely been adopted by the KMG and is further explored in this research as a potential option for the inclusion of surf break users as key stakeholders in the integrated management of the coastal environment. The Kaikoura coastal environment is considered a relevant case study as it features a range of surf breaks, including Mangamaunu and Meatworks as surf breaks of national significance under the NZCPS (2010) (Fig 2.9).

Figure 2.9: Kaikoura District, New Zealand (base image sources: http://maps.google.com/; http://en.wikipedia.org/wiki/File:Map_of_New_Zealand_%28blank%29.svg)

The Kaikoura Marine Guardians - Te Korowai o Te Tai o Marokura

The KMG, or Te Korowai o Te Tai o Marokura, represents an integrated co-management approach to the Kaikoura coastal environment. *"Te Korowai o Te Tai o Marokura literally means "the cloak of Te Tai o Marokura", and culturally translates to lay a cloak of guardianship over the sea around Kaikoura"* (Kaikoura District Council, 2012). First established in 2005, the KMG process involves the following range of key stakeholders:

- Te Rununga o Kaikoura - Takahanga Marae

- Kaikoura Forest & Bird

- Kaikoura Boating Club

- PAU3 fishermen's association (commercial fishery)

- CRAMAC5 (commercial fishery)

- Kaikoura charter fishermen

- Eco tourism/Encounter Kaikoura/Whale Watch

- Kaikoura Marine and Coastal Protection Society

- Kaikoura set net fishers

- Te Rununga o Ngai Tahu (Te Korowai o Te Tai ō Marokura, 2011a).

The KMG have worked toward producing a draft marine Strategy August 2011. The Strategy was released for public submission between September to December 2011, with work currently being undertaken toward producing a final strategy incorporating decisions on submissions (Te Korowai o Te Tai ō Marokura, 2012). The Strategy sets out to achieve six objectives:

(1) Abundant fish for present and future generations.

(2) That future generations can continue to experience the wonders that we have today.

(3) Integrated land and water planning and with resource management processes under local control.

(4) Ngātī Kurī is recognised as tāngata whenua, and management provides for the traditional management practices and uses of the coast that sustain them as a people.

(5) The whole community consciously cares for Te Tai ō Marokura.

(6) Legal rights and obligations and local customs and codes of practice are respected and complied with (Te Korowai o Te Tai ō Marokura, 2011b:3-8).

Each objective is based around a series of 'gifts and gains', adopting the approach from the FMG. In the case of Objective 1, gifts and gains are set out as follows:

Gifts of fishing for abundance:
- Recreational fishers gift reduced bag limits.
- Commercial fishers gift fishing below maximum sustainable yield and within local codes.
- Customary fishers gift open access to most areas.
- Environmental interests concede to ongoing fishing in areas of high biodiversity.
- Ministry of Fisheries gifts localised controls.

Gains of fishing for abundance:

- More fish for all.
- Traditional fisheries sustained.
- More big fish accessible for recreational fishers.
- Sustainable commercial fishing.
- Increased opportunities for high-end charter fishing
- Local control (Te Korowai o Te Tai ō Marokura, 2011b:3).

Key features of the Strategy include the proposal to create a marine reserve, establish a marine mammal sanctuary, produce an integrated coastal management plan, and to achieve World Heritage status for Kaikoura (Te Korowai o Te Tai ō Marokura, 2011b). The Strategy acknowledges the popularity of surfing as a recreational activity in the area and the status of Mangamaunu (Fig. 2.10) and Meatworks as surf breaks of national significance. The Strategy lists eight additional surf breaks considered likely to be formally assessed as regionally significant at some stage in the future. Direction for surf breaks is provided for in a list of issues to be managed: *"Avoiding structures in the marine environment that would adversely affect surf breaks of national and regional significance"* (Te Korowai o Te Tai ō Marokura, 2011b:77). The potential for surf breaks to be included within wider integrated coastal management approaches, such as demonstrated by the KMG process, is further considered in Chapter 8 results and discussion.

Figure 2.10: Mangamaunu, Kaikoura. (© Copyright Warren Hawke. Source: http://www.low pressure.co.uk/ surftravelplanner/images/Kaikoura.jpg)

2.4   Coastal Management and Surfing

The protection of surf breaks and surfing areas is becoming increasingly recognised as an important facet of coastal management (Oram and Valverde, 1994; Buckley, 2002a; Lazarow, 2007; Scarfe, 2008; Scarfe *et al.*, 2009a; Fletcher *et al.*, 2011; Peryman and Skellern, 2011). Protection has largely focused on expert level waves, but there is growing awareness of the need to protect all kinds of waves, including learner breaks (Buckley, 2002b; Martin, 2010; Peryman, 2011a). In Phuket, Thailand, for example, surfing has provided an extra economic benefit to the local community with small swells providing good learner waves during the traditional tourism off-season. With local surf schools and board hire facilities flourishing, the conservation of the surfing resource is being seen as increasingly important (Martin, 2010). International efforts to protect surf breaks have largely focused on creating surfing reserves but despite growing interest surf break protection remains in its infancy. Currently only the State of New South Wales, the State of Hawaii and New Zealand provide specific formal recognition of surf breaks in policy documents.

Scarfe *et al.* (2009a) identified surf break management as requiring a multi-faceted process of surf break identification, mapping, baseline monitoring, policy provision, integrated management approaches, environmental impact assessment, on-going monitoring and evaluation. Providing for surf breaks in this manner presents significant challenges to coastal managers, many of whom arguably lack expertise and understanding of surfing and surf breaks (Peryman, 2011b). In addressing this potential knowledge gap, the surfing community represents a readily available source of expertise with genuine interest in the preservation of surfing resources. The surfing community has been largely instrumental in furthering surfing interests, actively promoting the value of surfing and seeking formal protection of surf breaks (Scarfe *et al.*, 2009a). Co-management arrangements potentially offer opportunity to the surfing community to be directly involved in surf break management. In the New Zealand context, Peryman (2011a:29) commented that:

> Local authorities have the ability to mandate combined management. Where policy implementation is often restricted and lacking effectiveness is the ability to fund management strategies. Given an existing level of community ownership inherent in the cultural connection between users and their natural resource – there is an existing incentive for enabling community-based co-management.

2.4.1   International Approaches to Surf Break Protection

Australia

Australia was the first country to establish a surfing reserve at Bell's Beach, Victoria, in 1973. A land-based reserve, Bell's remained the only surfing reserve in the world until 2006 when a

second reserve was created through the National Surfing Reserve (NSR) movement at Maroubra Beach, Sydney (Farmer and Short, 2007). Established in 2005, the NSR movement represents a voluntary organisation formed to identify, nominate and dedicate surfing reserves (Farmer and Short, 2007). Farmer and Short (2007:103) stated that *"the dedication of each reserve ensures Australia's top surfing sites are recognised as site sacred to surfers and the surfing community and that the local surfing community works towards the on-going preservation and enhancement of these sites"*. A key feature of NSRs is the formation of a local committee tasked with the management of the reserve (Farmer and Short, 2007). Committee members typically include local surfing community representatives, council members, and coastal experts (NSW Department of Lands, 2008).

As of March 2012, a total of 12 NSRs had been gazetted, with the latest reserve established on the Gold Coast, Queensland, incorporating the famed point breaks of Snapper Rocks, Kirra, Currumbin and Burleigh Heads (National Surfing Reserves, 2012). The Gold Coast reserve, along with reserves at Margaret River and Kalbarri in Western Australia, remain purely symbolic acknowledgements (National Surfing Reserves, 2012). In New South Wales (NSW) NSRs, such as the Manly-Freshwater reserve (Fig. 2.11), are given legislative recognition. In 2006 the NSW Government established NSRs as a new form of Crown land, extending 500 metres seaward from the high water mark (NSW Department of Lands, 2008). As Crown land NSRs are afforded protection within the Crown Lands Act (1989), providing official recognition *"on all Government records for posterity"* (NSW Department of Lands, 2008:3).

There is currently no body of literature assessing the effectiveness of NSRs in relation to their objective to recognise, preserve and enhance surf breaks. Achieving NSR dedication may in itself be a measure of success, with each site clearly receiving increased recognition of its value. This in turn arguably provides for increased consideration in planning processes and ultimately the preservation of the site. Farmer and Short (2007) stated that the idea of NSRs have been well received by both communities and councils, with more dedications expected in the next few years. In this context, Short and Farmer (2010:21) discussed the future of surfing reserves in Australia:

> It is envisaged there will be a total of about 25 NSRs. This leaves many hundreds of good, but not classic sites unrecognized. While nothing is being done at present, it is planned that they may become state or regional surfing reserves, so as to recognize their importance to the community and need for preservation as a surfing site.

Figure 2.11:   The Manly-Freshwater Beach National Surfing Reserve (source: http://www.surfing reserves.org/img/reserves/manly_map.jpg)

The Bells Beach Surfing Reserve

The Bells Beach Surfing Reserve is the oldest established surfing reserve in the world. Crown Land in the Bells Beach area was first designated as a public purposes reserve in 1879 for the protection of the coastline (Surf Coast Shire, 2010a). In 1973, the State Government of Victoria established the reserve as the Bells Beach Surfing Reserve for the purposes of recreation (surfing) and conservation (Fig. 2.12) (Surf Coast Shire, 2010a; 2010b). The land is currently reserved under the Victorian Crown Land Reserves Act 1978, with the local council, the Surf Coast Shire Council, appointed as the reserve manager (Surf Coast Shire, 2010a). The reserve is separate from the NSR movement, with no current provision for the dedication of NSRs in the State of Victoria.
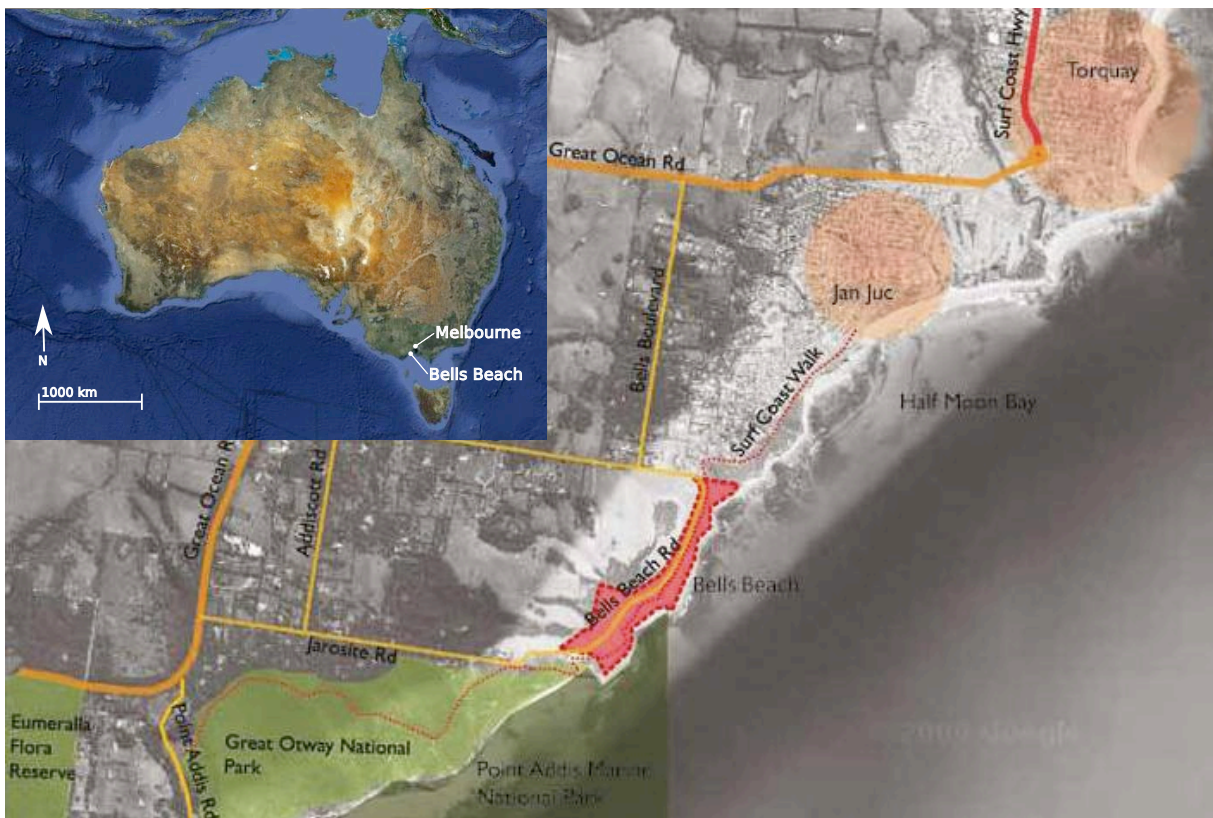
Figure 2.12: **Location of the Bells Beach Surfing Reserve, Victoria, Australia (base image source: http://maps.google. com/; map of Bells Beach image source: Surf Coast Shire (2010a:8))**

Similar to NSRs, the Surf Coast Shire has moved to establish a community based management committee for the reserve. In 2010 the Council adopted the Bells Beach Surfing Recreation Reserve Coastal Management Plan, aimed at developing *"an integrated management system that is consistent with a long term vision recognising the social, cultural, environmental and economic values for the reserve"* (Surf Coast Shire, 2010a:1). Part of the management strategy involved the formation of the Bells Beach Community Advisory Committee, tasked with providing advice to the Council in relation to the management of the reserve (Surf Coast Shire, 2010a). Committee members include representatives from Council, key stakeholder groups (including surfers), and community experts (Surf Coast Shire, 2010a).

Farmer and Short (2007:99) referred to Bells Beach as a successful example of the surfing reserve concept, with the area having *"blossomed under the protection afforded by its reserve status"*. Success in the management of the reserve includes the restoration of the coastal ecosystem, in large part due to the efforts of community volunteer organisations (Fox, 2011). Fox (2011:56) highlighted the efforts of the Surfers Appreciating the Natural Environment (SANE) community conservation group, formed in 1988 by local surfers in response to on-going environmental issues. SANE were recognised for their work becoming joint-winners in

the Community Action and Partnerships category of the 2010 Victorian Coastal Awards for Excellence (Victorian Coastal Council, 2012).

Despite the apparent success of the Bells Beach reserve, recent issues have resulted in a breakdown in the relationship between some surfing community groups (most notably SANE, Surfrider Foundation and Bells Beach Preservation Society) and the Surf Coast Shire (Brooks and Deane, 2012). The Reserve is now firmly on the tourist trail and visited by over a million tourists a year, with up to 50 commercial tourism buses stopping in the car parks each day (Houston, 2012). The current situation is recognised as dangerous and unsustainable, with the Council planning to build new car parking and toilet facilities to accommodate tourism growth. Opponents are urging for more community consultation (Brooks and Deane, 2012), arguing that the Council's plans will only attract more tourists and further exacerbate problems relating to safety, rubbish, toilets, erosion and a loss of character (Houston, 2012). The issue is yet to be resolved.

Hawaii

The State of Hawaii followed Australia in 2010 by creating two surfing reserves to protect the famed breaks of Waikiki and the North Shore of Oahu. Based on the Australian NSR model, the reserves set out to achieve three purposes:

(1) Formal worldwide recognition of the sites as surfing areas that have quality surf and significant cultural, historical, recreational, and competitive sports value;
(2) Recognition of the long and close relationship between surfers and the ocean;
(3) Promoting the long-term preservation of Hawaii surfing reserves for recreation and competitive surfing (State of Hawaii, 2010:1).

The reserves do not receive any direct funding, but allow for donations to be directed toward local authorities to provide for reserve markers and signage (State of Hawaii, 2010).

World Surfing Reserves

In addition to nationally led protection initiatives, a number of international surfing organisations actively promote surf break protection including the Save the Waves Coalition. Together with NSR Australia, Save The Waves founded the World Surfing Reserves (WSR) initiative in order to create a series of surfing reserves around the world that recognise quality breaks and the important role they play within the local community (World Surfing Reserves, 2011). To achieve WSR status, the local surfing community needs to meet set standards in community involvement, environmental protection and surfing amenity (World Surfing Reserves, 2011). Whilst the reserves carry no legal weight, the aim is to increase awareness of the value of surf breaks within the local community and wider area (World Surfing Reserves,

2011). In April 2012, Santa Cruz, USA, became the fourth surf break to be formally approved as a World Surfing Reserve, alongside Malibu, USA; Ericeira, Portugal; and Manly Beach, Australia (Save the Waves Coalition, 2012).

2.4.2 Surf Break Protection in New Zealand

New Zealand is recognised worldwide as a quality surfing destination and is home to numerous world-class surf breaks. Exposed to swells from all angles, New Zealand is renowned for its consistency and relatively uncrowded waves (Bhana, 1996; Morse and Brunskill, 2004). Surf break protection in New Zealand emerged as a direct response from the surfing community to threats to surf breaks, with the inclusion of surf breaks in the NZCPS (2010) considered a major achievement for New Zealand surfing (Peryman, 2011b). The NZCPS (2010) establishes New Zealand as a worldwide leader in the protection of surf breaks. Whilst the NZCPS (2010) does not specifically provide for the creation of surfing reserves, its approach is arguably far wider reaching, creating the framework for the protection of nationally, regionally and locally significant surf breaks.

The New Zealand Coastal Policy Statement (2010)

The NZCPS (2010) operates as a function under the RMA (1991) working toward the sustainable management of the coastal environment (Department of Conservation, 2010). The NZCPS (2010) is the first national level policy document that specifically provides for surf breaks. Policy 16 (Department of Conservation, 2010:19) affords specific protection for 17 surf breaks considered to be of national significance:

> **Policy 16   Surf breaks of national significance**
>
> Protect the surf breaks of national significance for surfing listed in schedule 1, by:
> (a) ensuring that activities in the coastal environment do not adversely affect the surf breaks; and
> (b) avoiding adverse effects of other activities on access to, and use and enjoyment of the surf breaks.

Fig 2.13 shows the approximate location of the 17 surf breaks listed in schedule 1 of the NZCPS (2010) as nationally significant.

The Board of Inquiry report into the Proposed NZCPS (2008) (Department of Conservation, 2009a:135) discussed the need to protect surf breaks not included in the list of nationally significant surf breaks:

> We agree that the matters of national importance – particularly preserving the natural character of the coastal environment and outstanding natural features from inappropriate subdivision, use and development – involves more than protecting surf breaks of national significance. Surf breaks not identified and protected as nationally

significant under policy [16] are also likely to require consideration under other policies, such as natural character, outstanding natural features and landscapes, public open space and public access.

Figure 2.13: **Surf breaks of national significance included under Policy 16 of the New Zealand Coastal Policy Statement (2010) (base image source: http://en.wikipedia.org/wiki/ File:Map_of_New_Zealand_%28blank%29.svg)**

Further protection for surf breaks is provided through Policies 13 and 15. Policy 13 'Preservation of natural character' specifically identifies surf breaks as part of the natural character of the coast, whilst Policy 15 'Natural features and natural landscapes' provides for the protection of natural features (with surf breaks defined as such in the NZCPS (2010) glossary) within seascapes.

Policy 13   Preservation of natural character

To preserve the natural character of the coastal environment and to protect it from inappropriate subdivision, use, and development…

Policy 15   Natural features and natural landscapes

> To protect the natural features and natural landscapes (including seascapes) of the coastal environment from inappropriate subdivision, use, and development…

Policies 13 and 15 effectively provide for surf breaks not included in Schedule 1 that may be regionally or locally significant, including those suited to novice surfers, or 'nursery breaks'. The NZCPS (2010) did not specifically identify these breaks in the expectation that regional and territorial authorities would be more suited to do so as suitable tools for identifying significant surf breaks developed (Peryman and Skellern, 2011). Peryman (2011a:24-25) commented on the key differences between the relevant policies:

> It important to distinguish between application of policy 16 with its focus on surf breaks for surfing and policies 13 and 15 with their focus on surf breaks as part of natural landscape character. With policies 13/15 surf breaks are not in their own right to be protected but as part of a wider array of natural values.

The Emergence of Surf Break Protection in New Zealand

The inclusion of surf break policy in the NZCPS (2010) resulted from a significant response by surfers and surfing organisations to the review process for the NZCPS (1994) (Peryman and Skellern, 2011). The review began in 2003 and received *"substantial submissions identifying surf break protection as a sustainable management issue",* leading to the inclusion of surf breaks within the Proposed NZCPS (2008) (Department of Conservation, 2008:28). The review process coincided with a proposed marina development at Whangamata, Coromandel, also home to one of New Zealand's best surf breaks. A proposal to build a marina inside the Whangamata Harbour on the Coromandel Peninsula met strong opposition from the surfing community and led to the formation of the Surfbreak Protection Society (SPS) interest group in 2006 (Peryman and Skellern, 2011). SPS has since been heavily involved in submissions processes relating to the inclusion of surf break policy within the NZCPS (2010) and on-going threats to surf breaks (Peryman and Skellern, 2011).

Whangamata Marina

A proposal to construct a marina inside the Whangamata Harbour sought resource consent for the building of a 205-berth marina, subsequent dredging of the sand bar at the mouth of the harbour and the dredging of a 1.5 kilometre channel up the intertidal flats to the marina (Davison, 2011). The project drew both strong support and opposition, with proponents citing the direct economic benefits, and opponents, particularly local iwi and the surfing community, concerned about the potential adverse effects to the harbour ecosystem and surf break (Davison, 2011). The Whangamata Bar is regarded as one of the best breaks in New Zealand, rated a ten out of ten in the New Zealand Surfing Guide (Fig. 2.14) (Morse and Brunskill,

2004). When conditions are right, 'The Bar' can produce long perfectly shaped waves that attract large numbers of surfers to the area (Bhana, 1996). The break is formed along the sand bar, making it susceptible to changes in sediment transfer patterns (Scarfe *et al.*, 2009a). Surfers insisted that the sand bar was crucial to the performance of the surf break and that the proposed dredging would directly impact on the wave quality (Davison, 2011). A 15-year legal battle to build the marina, costing the developers upwards of $2 million in legal fees, finally resulted in the project being granted resource consent with conditions that the Marina monitor the effects of dredging the harbour (Fig. 2.15) (Davison, 2011).

In a submission to the Proposed NZCPS (2008), Mead (2009) outlined concerns regarding the quality of the impact assessment produced for the Whangamata Marina resource consent decision, citing failings in recognising the dynamics of surf breaks. Mead (2009) argued that the report focused too narrowly on the surf break itself rather than the processes that create the break. Mead (2009) further argued that the impact assessment failed to gather comprehensive baseline scientific data for the break, therefore rendering the proposed monitoring programme ineffective in its ability to isolate the cause of any changes. Over the last 18 months, some local surfers have complained that the wave quality has since reduced and are adamant that the marina is to blame (Davison, 2011).

Figure 2.14: The Whangamata Bar (Photo: SURF2SURF.com; source: http://www.surf2surf.com/ articles/surfers-want-whangamata-bar-protected)

Figure 2.15: Location of the Whangamata Marina and the Whangamata Bar (base image sources: http://maps.google.com/; http://en.wikipedia.org/wiki/File:Map_of_New_Zealand_%28blank%29.svg)

Support for the Inclusion of Surf Break Policy

In advocating for the inclusion of surf break policy in the NZCPS (2010), the Board of Inquiry report (Department of Conservation, 2009a:8-9) on the Proposed NZCPS (2008) commented that:

> Some of New Zealand's surf breaks are nationally and even internationally significant, attracting visitors from around the world, as well as providing a variety of surfing opportunities including some for learning on nursery surf breaks. The quality of the wave can potentially be compromised by developments in the swell corridor seaward of the break, and the enjoyment of surf breaks by surfers compromised by discharges, limitations on access, and changes to natural character. Some nationally significant surf breaks can and should be named (on an inclusive basis) to ensure recognition of their national priority for protection. There are no other mechanisms available to protect such surf breaks. We note this is in line with developments occurring internationally, with other mechanisms available in Australia for example. The economic value of surfing to tourism and the social benefits should not be underestimated.

A number of submissions were received in opposition to the inclusion of surf break policy. In particular, submitters questioned why surf breaks and surfing were being 'elevated' above other features of national significance and other recreational activities, such as areas of

significant biodiversity, key landscapes and dive or fishing spots (Department of Conservation, 2009a). Key submitters in opposition included a number of regional councils. In considering submissions opposing the inclusion of specific surf break policy, the Board of Inquiry report cited acceptance of the reasons outlined in the Section 32 report (a requirement of the RMA (1991) that evaluates proposed national policy statements) and further submissions received in support. The reasons given in the Section 32 report for the inclusion of surf break policy were that:

- surf breaks generate significant benefits to people and communities, including social and economic benefits;
- surf breaks are a finite resource which can be adversely affected by inappropriate use and development in the coastal marine area;
- the enjoyment of surf breaks by surfers can be adversely affected by discharges of sewage or other waste to the coastal marine area;
- access to surf breaks can be compromised by activities inshore of the break;
- protection of surf breaks has not generally been provided for in planning documents (Department of Conservation, 2009b:127).

Progress Toward Policy Implementation

Councils are required to give effect to the NZCPS (2010) as soon as practicable, however, there is no specific requirement or guidance as to how to provide for surf breaks (Peryman and Skellern, 2011). During the submissions process, SPS and other submitters pushed unsuccessfully for policy that would require regional councils to identify and protect surf breaks of regional significance and for policy to include direction and guidance on how to work with local clubs to identify surf breaks (Department of Conservation, 2009a). In considering these suggestions, the Board of Inquiry report (Department of Conservation, 2009b:133) stated that:

> We conclude that there should be no criteria in the policy for selecting further surf breaks of national significance given that there could be developments in the methodology in identifying and rating natural surf breaks. For example, we note the strong plea by many submitters for ensuring diversity of surf breaks so that all surfing skill levels are provided for.

Some local authorities have begun the process of identifying surf breaks, with research having been undertaken into the development of a suitable assessment framework for surf break identification (see Auckland Regional Council, 2010; Peryman, 2011a; 2011b). It is noted that the method used for deciding which surf breaks to protect under the NZCPS (2010), the 'Wavetrack method', is considered less than ideal (Department of Conservation, 2009a). The Board of Inquiry report (Department of Conservation, 2008) recommended the Wavetrack method, which involved the selection of all surf breaks that rated ten out of ten in the Wavetrack New Zealand Surfing Guide 2004 (Morse and Brunskill, 2004). Accepted by the

Board of Inquiry as the most authoritative guide to New Zealand surf breaks, the guide rates 15 out of 470 breaks covered as a ten. Papatowai in the Catlins area was also included because of its recent international attention as a world-class big wave surf break. Given the potential lengthy consultation process, it was decided that the Wavetrack method was, for the time being, the best approach to ensure surf break protection was included in the NZCPS (2010) (Surfbreak Protection Society, 2011). Peryman (2011c) commented on the need to establish a recognised identification method both to encourage councils to engage in the process and to ensure an ad-hoc approach does not develop. Formulating an effective method requires consideration of a number of factors including break rarity, representativeness, quality, nature of use (i.e.: nursery break/contest site/popular town beach), cultural heritage, local social and economic significance and associated activities (Auckland Regional Council, 2010; Peryman, 2011a). The most important factor will be to include community participation (Auckland Regional Council, 2010; Peryman, 2011a; 2011b).

Taranaki Regional Council

The Taranaki Regional Council (TRC) has been proactive in addressing surf break protection. The importance of surfing and the potential for surf tourism has long been recognised in the region, with State Highway 45 marketed as the 'Surf Highway'. With a number of world-class reef, point and beach breaks, Taranaki is home to a large resident surfing population and a strong surfing community (Morse and Brunskill, 2004). On the basis of submissions made by the surfing community, the TRC's current RPS provides recognition and protection of 81 regionally significant surf breaks. The RPS took effect in January 2010, before the NZCPS (2010) was gazetted. In recognising the importance of surf breaks to the region the RPS (Taranaki Regional Council, 2009:169) states that;

> Taranaki is recognised nationally and internationally for its surfbreaks. Surfbreaks depend on the presence of a combination of suitable seabed shape, swell direction and power, swell corridors that allow swells to arrive at the surfbreak and wind direction and force. High quality or high value surfbreaks in Taranaki attract surfers from throughout New Zealand and overseas as well as locally. High quality or high value surfbreaks of regional importance…. have been identified using the Council's inventory of Coastal Areas of Local or Regional Significance in the Taranaki Region (2004), the New Zealand Surfing Guide (2004) published by Wavetrack and by consultation with local surfers.

Importantly surf breaks are only considered in the explanations section and not in any objectives, policies or methods, with no information provided as to the relative values or significance of each of the breaks. Peryman (2011a) noted that a detailed explanations section can provide useful context, examples and descriptions to aid policy application and understanding whilst creating a more general and concise RPS. The disadvantage, however, is

that surf breaks are not specifically provided for in the objectives, policies, or methods section (Auckland Regional Council, 2010; Peryman, 2011a). In effect, whilst the RPS provides for a level of recognition and protection to surf breaks, the approach gives little statutory weight (Auckland Regional Council, 2010).

Auckland Council

The Auckland Council is currently in a consultation phase in working toward the identification of regionally significant surf breaks (Auckland Council, 2012b). Auckland Council, an amalgamation of all district and regional councils in the greater Auckland region, is in the process of developing the Auckland Unitary Plan. The Unitary Plan seeks to combine all of Auckland's district and regional plans into a single resource management plan. In April 2012 the Auckland Council undertook an online survey of surf break users intended to inform work toward the development of the Unitary Plan (Auckland Council, 2012b).

A background report into surf break protection prepared by the then Auckland Regional Council (ARC) to inform a Draft RPS recommended the inclusion of objectives, policies and methods specifically relating to surf break protection (Auckland Regional Council, 2010). The report included the identification and ranking of surf breaks based on a numerical values rating system for characteristics of individual surf breaks, such as wave quality, consistency and access. Consultation on the list of surf breaks and relative values was not undertaken as this was expected to occur during on-going development of the RPS (Auckland Regional Council, 2010). The report did not lead to any public policy before the formation of the Auckland Council.

Gisborne District Council

The Gisborne District Council, an amalgamation of the Gisborne Regional and District Councils, commissioned a background research report in 2011 into surf break identification and protection in the Gisborne district. The report by Peryman (2011a) included the identification of surf breaks of regional significance in the Gisborne District and established a community engagement plan and assessment criteria framework for the identification of surf breaks throughout New Zealand. The Council accepted the report recommendations and intends to build on the report findings and begin work on policy development from mid 2012 (Gisborne District Council, 2011).

Bay of Plenty Regional Council

The Bay of Plenty Regional Council assisted a second report by Peryman (2011c) into the identification of significant surf breaks and the development of associated assessment criteria in the Bay of Plenty region.

The Effectiveness of New Zealand's Approach to Surf Break Protection

The effectiveness of the NZCPS (2010) in protecting surf breaks remains to be seen. The approach relies heavily on local authorities taking a proactive approach. By not making the identification of regionally or locally significant surf breaks mandatory, the NZCPS (2010) may create an uneven approach to surf break protection (Skellern *et al.*, 2009). Councils will be further challenged by the need for effective cooperation in cross-boundary issues. The protection of surf breaks in the 'coastal environment' should invariably require regional and district councils to work together in managing activities within surf break catchment areas.

The use of the term coastal environment is considered a potential strength of the NZCPS (2010) approach. Whilst there is no provision to establish surfing reserves within the current legislative framework in New Zealand, Rennie (2009) commented that the surfing reserve mechanism utilised in Australia and Hawaii is inadequate to fully protect a surf break as the boundaries do not reflect the true extent of surf break dynamics. The surfing reserve model protects surf breaks from the high water mark seaward, 500 metres offshore in the case of Australian NSRs, whereas the NZCPS (2010) refers to activities within the coastal environment. Makgill and Rennie (2012) noted that the term coastal environment is not defined in the RMA (1991) or the NZCPS (2010) but instead has been determined on a case-by-case basis through the Courts, defining the coastal environment as *"an environment in which the coast is a significant part or element"* (Makgill and Rennie, 2012:12). The Proposed NZCPS (2008) referred to the effects of activities within the Coastal Marine Area, which would have set boundaries similar to those of Australian NSRs, but the wording was changed in the final NZCPS (2010) to coastal environment. There is currently no case law establishing the extent of the coastal environment in relation to surf breaks.

2.5 Conclusions

This chapter provided contextual understanding relating to surf breaks within the coastal environment, approaches to coastal management, and efforts to protect surf breaks. Surf break research is an emerging field in which the physical processes surrounding breaking waves are well researched but specific literature relating to the management of surf breaks remains limited (Scarfe *et al.*, 2009b).

Integrated coastal management (ICM) approaches have emerged to become the principle approach to coastal management throughout the world (Sorensen, 2002; Healy and Wang, 2004). Within the framework of ICM, co-management strategies provide the opportunity for local communities to become more involved in coastal decision-making processes, develop a sense of community ownership and to improve management outcomes. New Zealand's Resource Management Act (1991) creates a framework for ICM (Makgill and Rennie, 2012), although implementing broad-scale ICM initiatives remains a key challenge (Peart, 2007).

Surf break management equally serves to benefit from an integrated approach to coastal management (Scarfe *et al.*, 2009a). Whilst surf breaks are increasingly being recognised as an important aspect of coastal management, the management and protection of surf breaks remains in its infancy with only the State of New South Wales, Australia, the State of Hawaii, U.S.A. and New Zealand providing formal protection of surf breaks in policy documents (Scarfe *et al.*, 2009b). New Zealand is a potential world leader in surf break protection. Current international efforts to protect surf breaks have focused on the creation of one-off surfing reserves that aim to provide recognition and protection to a limited number of world-class surf breaks. The inclusion of surf breaks in the NZCPS (2010) provides specific protection for 17 breaks listed as nationally significant as well as general protection to surf breaks as part of the natural character of the coast and as natural features in the coastal environment (Peryman, 2011a). The effectiveness of New Zealand's approach to surf break protection remains to be seen. The process is highly dependent upon local authorities proactively providing for surf breaks in policy documents and implementing management strategies. Within this integrated framework, there is potential for communities to play a significant role in the management of surf breaks.

The following considers key review findings in relation to the stated research questions.

1. What do surf break users value about the surf breaks that they use?

The review highlighted surfing in terms of its economic, social, cultural and spiritual value to surfers and the wider community. Surf break users value physical characteristics contributing to wave quality as well as cultural aspects. For participants, surfing as an activity ranges from a weekend recreational pastime through to a complete way of life. Surfing has evolved its own unique culture, reflected in rules of etiquette that promote the sharing of waves safely, respect for others and care for the surrounding environment. Surf breaks can be degraded in a number of ways and impact on core surfing values. Issues of concern include water quality,

access, coastal protection works, dredging, activities operating within the swell corridor, surf break over-crowding and surf break user conflict.

2. What are the desired outcomes for surf break users in the management of surf breaks?

The ultimate aim of surf break management is the protection of surf breaks. Efforts to protect surf breaks have largely emerged from within the surfing community in response to the negative impacts of other activities. Increasing recognition of the value of surf breaks to the wider community is seen as a crucial step in promoting the protection of surf breaks. There is growing awareness of the need to protect not only world-class surf breaks but a range of surf breaks suited to all ability levels including learner waves.

3. Is co-management a viable option for the management of surf breaks?

Co-management arrangements offer opportunity for the surfing community to be directly involved in surf break management. Surf break users have an accumulated wealth of knowledge relating to the surf breaks that they use and a genuine interest in the preservation of surfing resources. The review discussed a number of community-based case study approaches to the management of the coastal zone at different scales:

Local Scale

- Coastcare
- National Surfing Reserves
- The Bells Beach Surfing Reserve
- World Surfing Reserves

Wide Scale

- Kaikoura Marine Guardians

The review effectively identified two different scales of approach: a local scale approach focused toward a single beach or area; and a wide scale approach focused toward the integrated management of the coastal environment. In addressing the overall research objective - to explore co-management options for the protection and enhancement of surf breaks within New Zealand's current resource management framework – each of these scales of approach is addressed in turn. The following chapter outlines the research methodology.

3 Methodology

3.1 Introduction

This chapter explains how the research methodology addresses the research questions and overall research objective. Divided into three sections, the first section outlines the research design, explains the theoretical framework and considers ethical considerations and the positionality of the researcher. A discussion follows of the methods used to collect, analyse, and interpret primary and secondary data, finishing with a review of the effectiveness of the methodology, identifying limitations of the research process and its impact on the research findings.

3.2 Research Design

The research design is guided by the research objective, which is to evaluate the suitability of co-management options for the protection and enhancement of surf breaks within New Zealand's current resource management framework (Fig. 3.1). The following research questions were drafted to inform the research objective:

1. *What do surf break users value about the surf breaks that they use?*

2. *What are the desired outcomes for surf break users in the management of surf breaks?*

3. *Is co-management a viable option for the management of surf breaks?*

A theoretical basis for the research was established in Chapter 2. The literature review was used to inform and guide data collection to ensure that the research questions and overall research objective could be addressed.

To examine co-management options for surf breaks it was first necessary to establish the purpose of surf break management. To this extent, Research Questions 1 and 2 sought to engage with surf break users and key stakeholders to identify values attached to surf breaks and desired outcomes for surf break management. Research Question 3 then considered the suitability of co-management options to facilitate these desired management outputs. A comparative case study approach was used to investigate co-management options in the Auckland and Otago regions of New Zealand. Findings from the two regions were further discussed in relation to their wider application throughout New Zealand.

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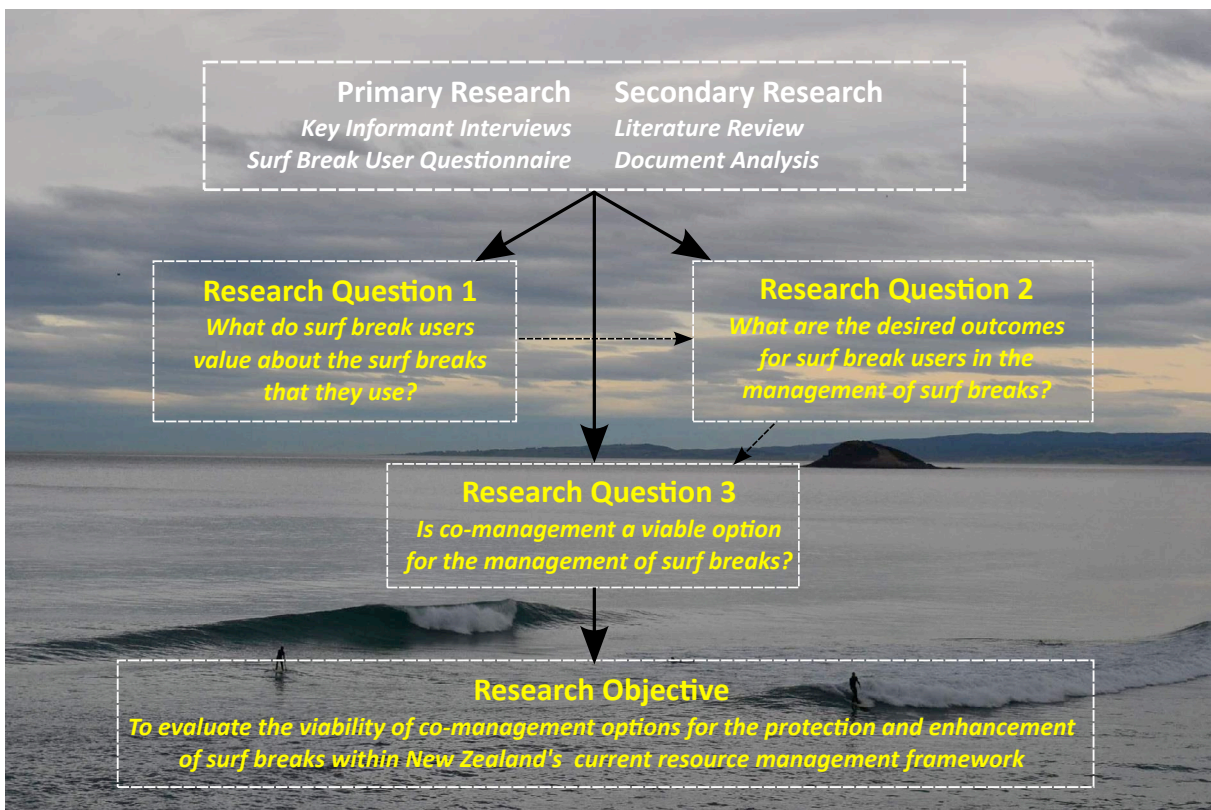
Figure 3.1: **Research framework (base image source: Author, 2012)**

3.2.1 Research Approach

It is generally accepted that research adopting both qualitative and quantitative approaches can strengthen research methodologies (Davidson and Tolich, 2003; Sarantakos, 2005; Bryman, 2008). This research incorporates both qualitative and quantitative data collection methods into the research design. Qualitative data collection involved a literature review, document analysis, questionnaire, and key informant interviews. Quantitative data was also sourced through questionnaire responses. The range of research methods used enabled the process of triangulation to be employed. Triangulation is referred to as the *"examination of a social phenomenon from different angles",* involving the use of *"more than one method or source of data in a research endeavour"* (Boeije, 2010:176). Triangulation is commonly used in social research to ensure reliable information is obtained (Sarantakos, 2005). Adopting a range of methods may allow for some of the weaknesses associated with one method to be compensated by the strengths of another method (Hall and Hall, 1996). Triangulation was used in this research to ensure reliability in data collection and analysis in order to strengthen the overall research design.

3.2.2 Comparative Case Study Approach

A comparative case study approach was adopted to investigate the application of surf break management options in different regions of New Zealand. Case study research is noted for its

ability to attain in-depth knowledge about a particular place, network or process (Marczyk *et al.*, 2008). In selecting the study area size, the most appropriate scale for the purposes of this research was considered to be at a regional level. Surf breaks cover significant expanses of the coastal environment, crossing regional and territorial jurisdictional boundaries. It is argued that an integrated approach to surf break management that transcends these boundaries is likely the most effective management approach for surf breaks. New Zealand's resource management framework further determines that regional councils will invariably have a key role in the management of surf breaks, required to give effect to the New Zealand Coastal Policy Statement (NZCPS) 2010 through regional policy statements and regional coastal plans. Consequently, the study sought to examine management approaches at a national level through to an individual surf break level for each selected region.

Selecting Study Regions

The Auckland and Otago regions were selected for the purposes of this study. Practical considerations dictated that the scope of the study be limited to two study areas, with time constraints requiring the completion of the thesis within eight months. The Otago Region provided an opportune study area as I, as the researcher, reside in Dunedin. I am also familiar with surf breaks in the Auckland Region, having lived in Auckland for four years. This familiarity provided me with a background understanding of surfing in each of the regions. Researcher positionality is further discussed in the following section.

In comparing the study areas there are noted points of difference of interest to this research. These differences include:

- The presence of nationally significant surf breaks as listed in the NZCPS (2010)

- Progress towards the implementation of NZCPS (2010) surf break policy.

Whilst the Auckland Region does not have any surf breaks of national significance included under Policy 16 of the NZCPS (2010), Auckland is home to a number of regionally valued surf breaks and a significant surfing population. Auckland Council is currently in the process of identifying surf breaks of regional significance, working toward the potential inclusion of specific policies relating to the protection of surf breaks within its draft Unitary Plan (a combined regional and district plan) (Auckland Council, 2012a). In contrast, the Otago Region is home to four nationally significant surf breaks included in the NZCPS (2010). The Otago Region is yet to see any formal progress toward the implementation of surf break policy under the NZCPS (2010). The Auckland and Otago regions effectively provide contrasting case studies for research into surf break management in New Zealand. Each

region is discussed in further detail in Chapter 4. Research results are primarily assessed in relation to these regions, with findings further considered in regard to their wider application throughout New Zealand.

3.2.3 Positionality

Positionality is a key consideration in any research process, referring to the relationship between the views of the researcher and the content of the research (Smith and Bowers-Brown, 2009). There is the potential for the structure and outcomes of the research to be shaped by the conscious or unconscious position of the researcher (Sarantakos, 2005; Smith and Bowers-Brown, 2009). As a researcher, I was aware of positionality issues and endeavoured to maintain a neutral approach throughout the research process. My experience as a surfer provided me with a good basic understanding of surf breaks. I have been surfing for 15 years as a shortboarder and longboarder, typically surfing two or three times a week. I am a male, 35 years old and began surfing in the Wellington Region. I have since lived and surfed in the Auckland Region for four years and for seven years in the Otago Region. I am involved in surfing as a recreational surfer, do not belong to any surfing based clubs or environmental groups and was not involved in the NZCPS (2010) submissions process. To maintain a neutral stance care was taken in the design of the questionnaire and key informant questioning to avoid leading questions, with a range of participants involved in the research to ensure a wide representation of key stakeholder views.

3.2.4 Ethical Considerations

Ethical consideration is a key component of any research process. Researchers should ensure that the potential for ethical issues to arise are minimised (Sarantakos, 2005). Ethical guidelines established by research institutions function to make sure researchers adhere to set standards (Sarantakos, 2005). The University of Otago sets out a clearly defined ethical approval process, requiring that any research involving human participants be conducted to the highest ethical standards (University of Otago, n.d.-a). The University of Otago Human Ethics Committee granted ethical approval for this research prior to the collection of primary data.

Advising participants of their rights in the research process is critical to ensuring ethical research is undertaken (Singleton *et al.*, 2009). To ensure research participants were informed all interviewees were sent an electronic copy of an information sheet outlining the interview process (Appendix C). A hard copy of the information sheet was provided to participants before the interview if the electronic copy had not been received. All participants were required to sign a consent form giving their approval to take part in the research prior to the

commencement of the interview (Appendix D). All interviewees were informed of their right to refuse in answering any of the interview questions or end the interview at any stage without any disadvantage to themselves.

Ethical consideration was also given to ensuring participant confidentiality. Singleton *et al.* (2009:61) stated that *"no matter how sensitive the information, ethical investigators protect the right to privacy by guaranteeing anonymity or confidentiality"*. Personal anonymity was guaranteed to all questionnaire participants and to all interview participants who requested to remain anonymous. All personal information was destroyed at the completion of the research process.

3.3   Data Collection and Analysis

3.3.1   Secondary Data Collection

Secondary data collection involved the literature review in Chapter 2 and a document analysis presented in Chapter 5. The data collected from secondary sources was used to inform the use and design of the primary research methods. The document analysis in Chapter 5 considered relevant policy documents relating to the management of surf breaks and the coastal environment in New Zealand at regional and local levels for the Auckland and Otago regions. Document analysis is important for understanding legislative and policy frameworks and is very useful when using a case study approach (Marshall and Rossman, 2011). Data collected through document analysis is independent of the researcher's actions and is free from social bias that may occur in interviews (Corbetta, 2003). Findings from the literature review and document analysis were used to inform research results in Chapters 6, 7 and 8.

3.3.2   Primary Data Collection

Primary data collection involved online questionnaires and key informant interviews. The questionnaires were hosted online from 11 June to 20 July 2012. Key informant interviews were conducted in Auckland from 12 June to 23 June 2012 and in Dunedin from 30 July to 13 September 2012.

Key Informant Interviews

Key informant interviews sought to engage with identified key stakeholders in the management of surf breaks. As noted in the literature review, surf break management is a relatively new field of interest with a limited number of experts. In order to select relevant key informants a purposive sampling technique was applied. Purposive sampling allows the researcher to target participants with expertise in the research field (Sarantakos, 2005). Snowball sampling was also used during key informant interviews to source a greater range of

research participants. Snowball sampling allows research participants to suggest to the researcher potential participants of interest (Sarantakos, 2005). The technique is particularly useful for research topics with a limited number of individuals with expertise (Sarantakos, 2005).

The Selection of Key Informants

Key stakeholders in the management of surf breaks were identified by their role in coastal management and surfing. A range of different organisations and individuals were sought to ensure a wide understanding of the topic and a balanced view on related issues. The following key stakeholders were identified as having particular interest in the management of surf breaks in New Zealand, with the number of research key informants from each stakeholder group identified in brackets (see Appendix E for a full list of key informants):

- Regional councils (x2)

- District councils (x1)

- The Department of Conservation (x3)

- Local iwi

- Surf break users (x12)

- Boardrider clubs (x3)

- Surfing organisations (x2)

- Surf Lifesaving New Zealand (x1)

- Coastal environmental groups (x3).

Identified key stakeholders represented a wide range of potential participants. Attempts were made to engage with at least one representative from the key stakeholder groups in each of the regions. The majority of key informants were also surfers, providing a good understanding of core surfing concepts. No iwi representation was gained although some of the participants identified themselves as Tangata Whenua. These individuals commented that any views expressed were their own personal views as attaining iwi representation was not practical as it would require full consultation of its members. Local authority participation involved the Auckland Council and Otago Regional Council. No district council key informant could be sourced in the Otago Region as potential participants considered the research topic to be an issue for regional councils. District council involvement is considered important in an

integrated approach to surf break management. Any further research would benefit from district council involvement. Overall key stakeholder representation is considered by no means exhaustive but does represent a wide range of views of those potentially involved in the management of surf breaks.

Interviews explored key informant opinions in relation to co-management opportunities for surf breaks and the relationship of surf breaks within the wider coastal environment. Key informants were asked to express their professional opinion in relation to the research topic. It is noted that the opinions expressed represent the personal views of the respondent and do not necessarily represent the official views of the organisation. Key informants were initially contacted by phone or email requesting their participation in the research. Participants were informed that their participation would involve a semi-structured interview of approximately 30 minutes. Arrangements were made to confirm a suitable interview time and location. Verbal or written consent was requested prior to the commencement of the interview for responses to be recorded by dictaphone and later transcribed and used to inform research findings.

Key Informant Interview Technique

Interviews involved a semi-structured interview technique. Whereas a structured interview technique adheres to a setline of questioning, a semi-structured interview technique allows the interviewer to follow up on points of interest and potentially gain a greater depth of response (Sarantakos, 2005). The technique also enables interviewees to *"develop ideas and speak more widely on the issues raised by the researcher"* (Denscombe, 2003, p.167). A series of open-ended questions were prepared in advance to guide the interview process (See Appendix F). The specific line of questioning changed depending on how the interview developed and how participants responded. Whilst no two interviews were the same, the consistent use of similar questions and topics ensured that the data obtained from different interviews could be compared and analysed.

Data Analysis: Key Informant Interviews

Data analysis of key informant interviews established key themes emerging from the research. Key informant interviews produced a significant amount of raw data. To reduce and organise the data interviews were transcribed and then coded thematically in accordance with the set research questions. The process of 'coding' is widely used in social research to categorise and organise results (Walliman, 2011). Coding is an *"analytical process"* that requires the researcher to interpret and summarise research findings (Walliman, 2011:133). Keyword searches were further used to identify themes in the research and cross-reference relevant

responses to other research questions. Results from the key informant interviews and analysis are presented in Chapters 6, 7 and 8.

Online Questionnaire

Two online questionnaires were developed to determine surf breaks user values and perceptions toward the management of surf breaks. Separate questionnaires were designed for the Auckland and Otago regions, with the only difference being specific reference to each of the regions (see Appendix G). The questionnaire consisted of 26 questions and was designed to take about 15 minutes to complete. A questionnaire was chosen for this study as the potential for a large sample pool size and number of responses was considered more beneficial to the research than conducting a small number of interviews with individual surf break users. Davidson and Tolich (2003) noted that online questionnaires are particularly useful in targeting response groups who regularly access the internet. In this regard, an online questionnaire was considered appropriate as surf break users typically follow online weather forecasts and surf reports on a regular basis to determine suitable surfing conditions.

Questionnaire Design

Questionnaire design is a key consideration to ensure that data is of a high quality and that the research objective is addressed (Sarantakos, 2005). Questionnaire structures can be categorised into standardised, unstandardised and semi-standardised formats (Sarantakos, 2005). Standardised questionnaires are highly rigid, limit answers to those set by the questionnaire, and are predominantly used in quantitative research. Standardised questionnaires employ pre-coded questions, requiring the respondent to select an answer from a set list. Un-standardised questionnaires are less rigid, allow respondents to answer in their own words, rely on open-ended questions, and are associated with qualitative research. Semi-standardised questionnaires adopt a combination of both standardised and un-standardised elements. For the researcher, open-ended questions provide a greater degree of information, whilst pre-coded questions enable the researcher to efficiently classify responses or respondents (Sarantakos, 2005). A semi-standardised questionnaire structure was adopted as most suitable for this research. The questionnaire design combined open-ended and pre-coded questions in order to collect both qualitative and quantitative data. This approach enabled the researcher to quantify responses to some questions as well as explore respondent opinions further, adding to the depth of data collected.

Questionnaire design is a highly skilled task that demands methodological competence, skill in questioning techniques, and a high degree of research experience (Sarantakos, 2005). Any questionnaire should be clear, easy to read, and most importantly designed to achieve its

purpose (Sarantakos, 2005). The questionnaire was designed to be easy to follow, progress in a logical sequence, be free from leading questions, and set at a level suited to the targeted respondents. Clear instructions were provided for each question, with the same style of response sets for pre-coded questions repeated to facilitate understanding and ease of response.

Sourcing of Questionnaire Respondents

The questionnaire was designed and hosted online using the survey software SelectSurvey.NET. Use of the software was provided through licensing arrangements with the University of Otago. Participants were invited to follow a link to a web page hosting the questionnaire. The questionnaire sought to engage with surf break users familiar with surf breaks in either the Auckland or Otago regions. To source respondents emails were first sent to surfing related website administrators asking for assistance in promoting the link to the questionnaire. Contact was made with surf report providers Surf.co (www.surf.co.nz) and Auckland Surf (www.aucklandsurf.co.nz) who agreed to promote links through the website. Other surfing related websites that helped in promoting links included Surfbreak Protection Society (www.surfbreak.org.nz), Dunedin Light (www.dunedinlight.com), and Isolated New Zealand Bodyboarding (www.isolated.co.nz). To promote a representative response, further emails inviting respondents were sent to a range of surf break user groups. Boardrider clubs, surf lifesaving clubs, kayaking clubs, coastal environmental groups and surfing industry contact details were sourced via internet searches. Email recipients were invited to forward the email invitation to contacts. An overview of the research objective was provided to respondents through the email invitation and at the start of the questionnaire itself. All participants were guaranteed anonymity in their involvement and no personal information was collected.

A minimum of 50 completed questionnaires for each region was set as a targeted response level. As noted, the sourcing of questionnaires was reliant on voluntary support from website providers that could not be guaranteed and no budget was spent on the promotion of the survey. The questionnaire also required participants to give up their free time, involving 26 questions and a mix of closed and open questions. It could further be expected that a significant proportion of potential respondents would not be interested in partaking in online surveys. As such, this response rate was considered appropriate as it would provide for a range of different views whilst not setting unrealistic expectations.

Data Analysis: Questionnaires

The questionnaires produced a large volume of quantitative and qualitative data. Quantitative data was exported to a Microsoft Excel spread sheet for analysis. Data was sorted into three columns, one for each of the Auckland and Otago regions and one combined. Percentage calculations were performed to enable comparisons between data sets. The data was then used to inform research findings and presented as results in Chapters 6, 7 and 8 through a series of tables and graphs. Qualitative data was exported into a Microsoft Word document. Responses were coded in relation to the research questions and keyword searches were performed to identify emerging themes from the responses. Some of the comments from the questionnaire were used in the results chapters where deemed appropriate.

3.4   Reflections on the Research Process

Identifying research limitations is an important step in assessing the scope of the research (Sarantakos, 2005). Limitations need to be taken into account when forming research findings and applying research outcomes (Sarantakos, 2005). The main limitations for this research related to the case study approach and the sourcing of a representative sample of questionnaire respondents and key informants.

A limitation of case study research is its inability to produce findings that can be generalised and applied beyond the specific case (Marczyk *et al.*, 2008). Whilst the case study approach enabled an understanding of surf break management options in the Auckland and Otago regions, caution needs to be taken in discussing findings in relation to their wider application throughout New Zealand. Surf breaks in each region are subjected to a range of differing circumstances and some findings may not be directly transferable. The case study approach was also limited in the number of selected study areas. The researcher acknowledges that findings may have benefitted from the selection of more than two regions, although due to time constraints this was not considered feasible.

Sourcing key informants presented challenges in gaining a representative sample of those involved in the management of surf breaks. Surf break management potentially involves a number of different organisations and individuals, requiring a level of expertise in understanding surfing and surf break issues. As surf break management is a relatively new area of coastal management, some key informants were not aware of issues relating to surf breaks or their inclusion in the wider management of the coastal environment. To address gaps in knowledge, key informants were provided with an information sheet detailing the research objective and establishing a general context of understanding relating to the inclusion of surf breaks in the NZCPS (2010) and surf break issues. The research context was further

explained at the beginning of each interview. Whilst efforts were made to create a context of understanding, some key informants were unable to provide detailed responses to surf break management questions due to a lack of expertise.

During the research process, both the researcher and key informants further identified a number of additional affected parties as potentially of interest to the research. Most of those identified were either long-time local surfers or coastal experts. Attempts were made to interview some of those identified, but due to time constraints the researcher was unable to interview a number of these potential key stakeholders. As a result, it may be that some key stakeholders were not interviewed.

Gaining a representative sample of surf break users for the questionnaire also presented challenges. The definition of surf break users incorporates a wide range of activities and participants. As the questionnaire was undertaken entirely online, the approach excluded those who do not have access to computers, those who do not follow online surf reports, and those who choose not to partake in questionnaires. In addition, the websites that promoted the link to the questionnaire were primarily focused toward surfers rather than kayakers or surf lifesavers. To attempt to engage with a broader range of surf break users, email invitations were sent differing groups and individuals to gain a more representative sample. In considering questionnaire results, however, it is important to take into account that identified values do not necessarily represent all surf break users.

3.5 Conclusion

The research methodology involved a comparative case study of the Auckland and Otago regions to evaluate the suitability of co-management options for the protection and enhancement of surf breaks in New Zealand. Both quantitative and qualitative research methods were used to enable the researcher to categorise research findings and to allow for a deeper understanding of key stakeholder responses. Primary data collection involved key informant interviews and online questionnaires. Secondary data collection involved a literature review and document analysis. Identified research limitations included the application of case study findings to a wider New Zealand context and the representativeness of research participants. These limitations were considered in addressing the overall research results and discussion presented in Chapters 6, 7 and 8. The next chapter provides an overview of surf breaks and related issues in the Auckland and Otago regions.

4 Surfing in the Auckland and Otago Regions

4.1 Introduction

This chapter provides an overview of surfing and surf breaks in both the Auckland and Otago regions, identifying current issues of concern and council involvement in surf break related matters. Both regions are home to a range of surf breaks and are recognized as surfing destinations in themselves. The regions provide contrasting case studies for wider research into the management of surf breaks in New Zealand.

4.2 Auckland Region

4.2.1 Surfing in Auckland

As New Zealand's most populous area, the Auckland Region is also home to the nations largest population of surfers (Bhana, 1996). With a 2011 resident population of 1,486,000 (Statistics New Zealand, 2012), the Auckland Region is forecast to grow beyond two million by 2041 (Auckland Council, 2012c). Whilst home to a diverse range of quality surf breaks, no surf breaks in the Auckland region are included in the NZCPS (2010) as nationally significant. A number of surf breaks are, however, arguably regionally significant as surfing is long established as a popular recreational activity in the region with surf breaks on both coasts well frequented (Fig. 4.1) (Auckland Regional Council, 2008).

Auckland's urban location enables centrally located surfers to access surf breaks on both coasts within a 40-minute drive although conditions on each coast contrast markedly (Bhana, 1996). The West Coast is fully exposed to the Tasman Sea, with the prevailing southwest flow ensuring no shortage of swell, wind and rain (Morse and Brunskill, 2004). Apart from a few small coastal communities the West Coast remains largely undeveloped, with the Waitakere Ranges acting as a natural buffer between the coast and the urban limits of Auckland City. Muriwai and Piha/Karekare are the largest West Coast communities with 2006 census populations of 2,214 and 2,466 respectively (Statistics New Zealand, n.d.-a). The signature black sand West Coast beaches typically sit between rocky cliffs and headlands producing suitable surfing conditions year round, although summer tends to produce conditions most conducive to surfing in offering smaller clean swells and an increased frequency of offshore easterly winds (Bhana, 1996; Morse and Brunskill, 2004). The West Coast beaches are notorious for rips and currents, keeping lifeguards particularly busy during

summer months when beaches are most crowded (Morse and Brunskill, 2004). Popular West Coast surfing beaches include Piha (Fig. 4.2), Muriwai and Maori Bay.
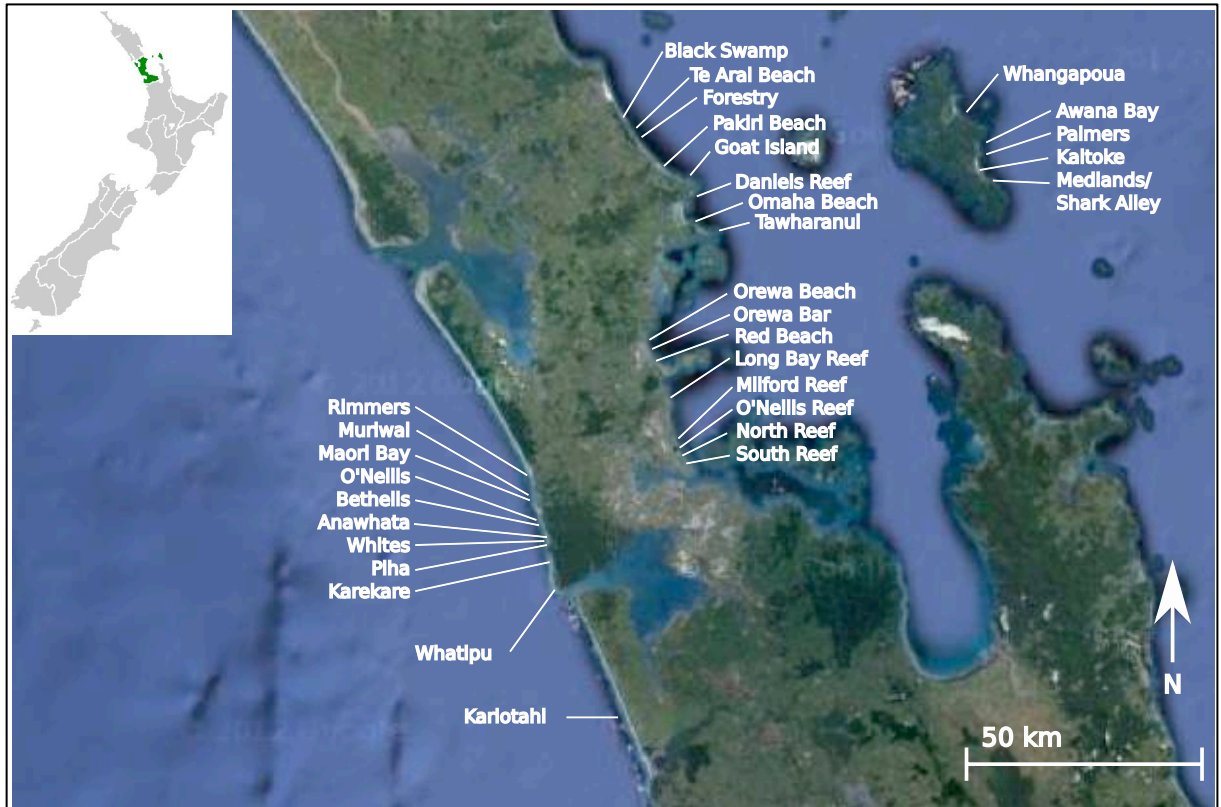
Figure 4.1: Surf breaks in the Auckland Region included in the Wavetrack New Zealand Surfing Guide (Morse and Brunskill, 2004) (base image sources: http://maps.google.com/; http://en.wikipedia.org/wiki/Auckland_Region)

Figure 4.2: Piha Beach, Auckland (© Copyright Alexander Todorenko; image source: http://www.fotonewzealand.co.nz/daily/559/)

The East Coast sits largely within the Hauraki Gulf, with long stretches of coast sheltered from swells by islands in the Hauraki Gulf and the Coromandel Peninsula (Bhana, 1996). The coastline is typically highly developed, with remaining pockets of undeveloped coastline

subject to significant development pressure. Reduced swell exposure combined with the prevailing southwest flow means East Coast beaches are often swell starved, relying on swells from low pressure systems to the northeast or localised wind swells (Bhana, 1996). Swells typically increase in frequency throughout the summer months, with tropical depressions occasionally producing swells large enough to push waves into inner city North Shore surf breaks such as North Reef and Milford Reef (Fig. 4.1). Swells tend to be short lived and water quality along inner city beaches may be compromised from stormwater runoff (Morse and Brunskill, 2004). Further north toward the beaches of Te Arai and Pakiri swell exposure increases and hence the frequency of surfable conditions, although the best East Coast surf can be found on Great Barrier Island where maximum swell exposure and a range of sheltered surf breaks combine to produce quality surfing conditions (Bhana, 1996).

Of particular interest at Orewa is a current resource consent application to construct four multi-purpose artificial reefs as a beach management solution to shoreline erosion (Fig. 4.3) (Resource Management Solutions Ltd, 2010). The reefs are designed to enhance surfing conditions. The Auckland Council is currently processing the application although as noted in Chapter 2, ASR Ltd – a partner in the Orewa reef project – has since entered into liquidation. It is not clear what impact the collapse of ASR Ltd would have on the project.
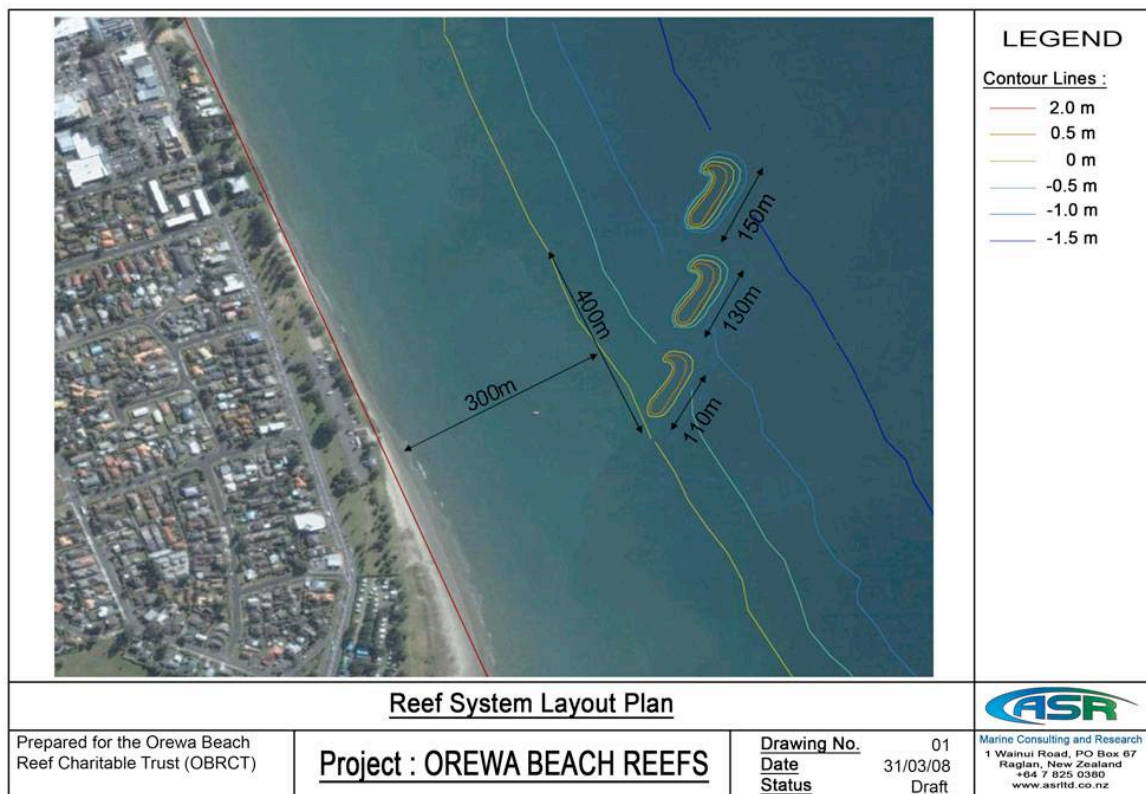
Figure 4.3: **Layout plan for one of the proposed artificial reefs at Orewa, Auckland (source: http://www.orewabeachreef.org/images/Reefs1-s.jpg)**

Auckland has a long established surfing culture, with surfers visiting Piha since the 1950s (Bhana, 1996). A number of surfing boardrider clubs exist, including West Coast based Keyhole Boardriders, Maori Bay Boardriders and Piha Boardriders Club, as well as East Coast based Orewa Longboard Club and Omaha Boardriders. Surf Lifesaving New Zealand has 17 clubs in its northern region, 10 of which are located within the Auckland Region. The Auckland Region is well serviced by the surfing industry, with a range of surfboard makers and retail shops, as well as surf schools based at Piha, Muriwai, Kumeu, Omaha and Te Arai. Auckland holds regular local, national and international surfing events, with Piha hosting the International Surfing Association World Junior Surfing Championship in 2010 (Surfing New Zealand, n.d.-b).

4.2.2   Council Involvement in Surfing

A background report into surf breaks in the Auckland Region was prepared to inform the Draft Auckland Regional Policy Statement for the then Auckland Regional Council (ARC). The report identified and assessed relative values for 40 potentially regionally significant surf breaks in the Auckland region (Auckland Regional Council, 2010). The overall significance of each break was assessed against a series of nine indicators including wave quality, frequency (of surfable conditions), naturalness, and the level of use. Each surf break was assigned a numerical rating out of ninety (as the sum of each of the nine indicators rated out of ten) based on the local knowledge of ARC officers. The top 10 breaks identified are shown in Table 4.1. The report highlighted the range of surf breaks in the region, commenting that:

"it is important to retain the existing variety of surf break types in the region to encompass a range of surfing skill levels and provide variety in the spectrum of surfing opportunities" (Auckland Regional Council, 2010:11).

Table 4.1:   **Top 10 Surf Breaks in Auckland Region from the Auckland Regional Council surf break report (Auckland Regional Council, 2010).**

Surf Break	Total (out of 90)
Piha (West Coast)	73.5
Muriwai (West Coast)	66.5
Maori Bay (West Coast)	64.5
Karekare (West Coast)	61.5
Bethells Beach/ O'Neills (West Coast)	60.5
Whangapoua Beach/ Okiwi (Great Barrier Island)	56.5
Medlands Beach/ Shark Alley (Great Barrier Island)	54.5
Pakiri Beach – Forestry (East Coast)	53
Te Arai Beach (East Coast)	53
Omaha Beach-Bar (East Coast)	53

The ARC submitted to the Proposed NZCPS (2008) in support of the inclusion of surf break policy. In its submission the ARC cited concerns regarding the inclusion of only a list of nationally significant surf breaks, arguing the need to extend protection to other surf breaks: *"We consider that the current list of surf breaks should be expanded to include breaks in the Auckland region to recognise the significance provided by the high number of people able to access them"* (Auckland Regional Council, 2008:5). The submission further suggested that regional policy statements and regional coastal plans could identify nationally and locally significant surf breaks with associated policies and rules set in place (Auckland Regional Council, 2008).

The Auckland Council undertook an online surf break user survey during February and March 2012. The survey sought to *"gather supporting evidence for the inclusion of surf break provisions in the Auckland Council Unitary Plan"* (Auckland Council, 2012a, p.1). The survey investigated the popularity of surf breaks and the reasons why people choose to surf the breaks that they use, with a total of 1,452 surveys completed. The survey identified 39 breaks in the region considered the most surfed and well-known, with the top ten surf breaks 'surfed in the last 12 months' listed as:

1. Piha
2. Te Arai Beach
3. Pakiri Beach (north - Forestry)
4. Muriwai Beach (south)
5. Maori Bay
6. Tawharanui
7. Omaha (beach and bar)
8. Karekare
9. Pakiri Beach (south)
10. Bethells Beach (Auckland Council, 2012a:3).

A summary report for the survey noted that these breaks are typically highly accessible and produce surfable and higher quality conditions on a consistent frequency. The report also commented that surf breaks that produce waves 'suitable to learners or novices', such as Orewa Beach and Omaha Beach, were *"popular for a significant percentage of the surfing population"* (Auckland Council, 2012a:9).

4.2.3 Surf Break Issues in the Auckland Region

The ARC surf break report identified some issues of concern for Auckland surf breaks. These included the impact of sand mining at Pakiri on wave quality and increasing population pressures:

> It is expected that the number of people participating in surfing will grow as the regional population grows. At the same time, there will be pressure for increased development and works along the coast in response to demands for other activities or in response to the effects of climate change (Auckland Regional Council, 2010:11).

The remoteness of most of Auckland's surf breaks mean that until now many have remained in a largely natural state, with *"no documented cases of surf breaks being destroyed by development in Auckland"* (Auckland Regional Council, 2010:11). Some surfers, however, argue that the placement of groynes in the sea to protect development at Omaha Beach in the 1970s resulted in the build-up of sand seaward and a significant decrease in the quality of the Omaha Bar surf break (Rooney, 2011).

Additional respondent comments from the Auckland Council survey identified coastal development, pollution or poor water quality, and sand extraction or dredging as key issues of concern. In particular, proposed coastal development at Te Arai drew comment from *"a large number of respondents"* (Auckland Council, 2012a:12). A variety of different proposals to develop Te Arai have met strong public opposition. An original proposal in 2005 to establish a 1400-lot coastal community was revised downward to 850-lots in 2006, 180-lots in 2008, and to a current proposal for a 46-lot rural residential development (Thompson, 2012). Concerns have been raised as to the potential impact of the development on surf breaks and wider amenity values in the area. The area is an important ecological wetland area in close proximity to a Department of Conservation wildlife sanctuary and a noted nesting ground for the critically endangered New Zealand fairy tern (Thompson, 2012).

4.3 Otago Region

4.3.1 Surfing in Otago

The Otago Region is home to a strong local surfing scene and is considered one of the best areas for surfing in New Zealand (Bhana, 1996; Morse and Brunskill, 2004). The region features a range of high quality surf breaks and receives consistent year-round swells on both its southern and northern facing coastlines (Morse and Brunskill, 2004). The Wavetrack New Zealand Surfing Guide identifies 34 surf breaks within the Otago region (Fig. 4.4; 4.5), noting that: *"If you have an appetite for adventure you'll find a hundred more quality breaks which are not mentioned in this guide"* (Morse and Brunskill, 2004:496).
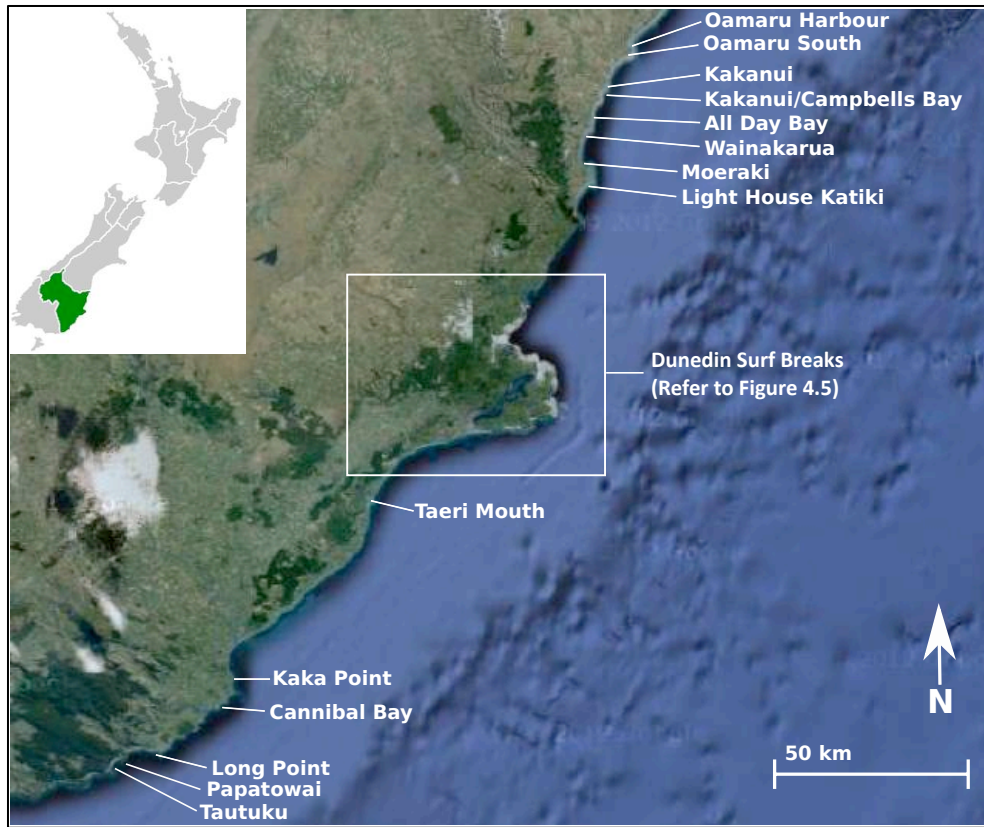
Figure 4.4: Surf breaks in the Otago Region included in the Wavetrack New Zealand Surfing Guide (Morse and Brunskill, 2004) (base image sources: http://maps.google.com/; http://en.wikipedia.org/wiki/Otago_Region)
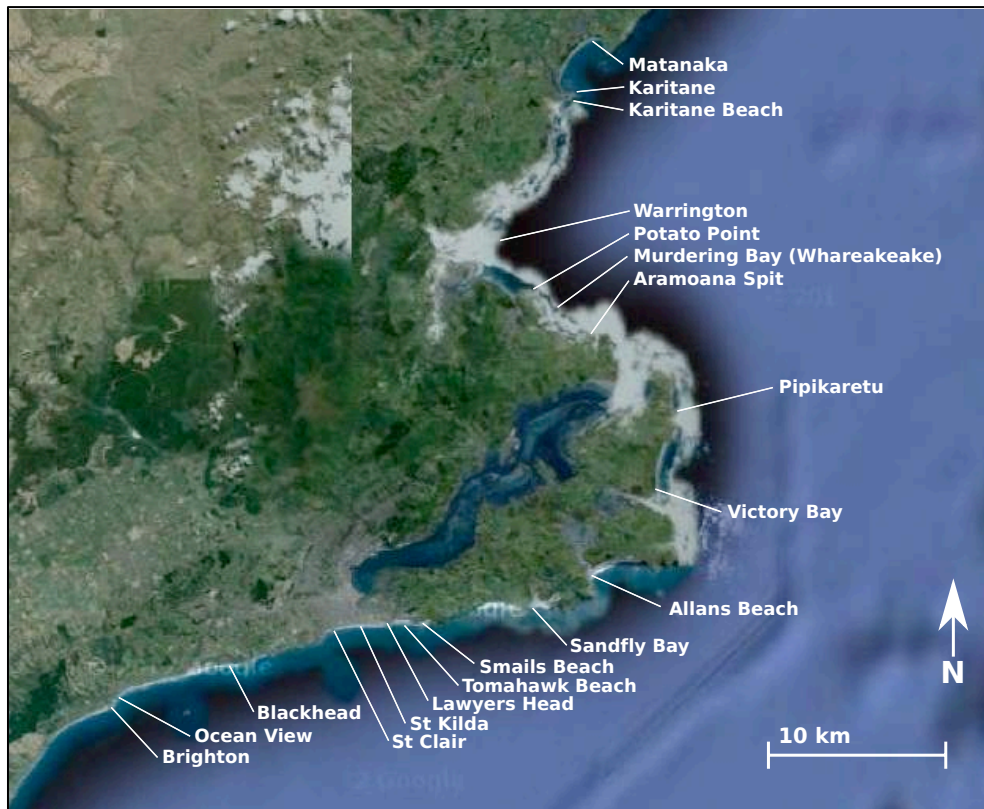
Figure 4.5: Surf breaks in the Dunedin area included in the Wavetrack New Zealand Surfing Guide (Morse and Brunskill, 2004) (base image source: http://maps.google.com/)

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The Otago Region had a resident population of 193,803 according to 2006 census figures (Statistics New Zealand, n.d.-b). The coastal city of Dunedin is the largest in the Otago Region with a population of just over 118,500 (Statistics New Zealand, n.d.-c). Oamaru is the other major urban coastal area with a 2006 census population of 11,424 (Waitaki District Council, n.d.). The rest of the coast is sparsely populated. Kaka Point in the Catlins area, for example, is the largest coastal settlement in the Clutha District with a population of just over 200 (Statistics New Zealand, n.d.-d).

Dunedin is the main surfing area in the Otago Region. Dunedin surfing centres around the main town beach at St. Clair, hosting regular local, regional and national level surfing competitions. Dunedin is home to the South Coast Boardriders Association based at St. Clair Beach, Big Rock Boardriders Club based in the Brighton Surf Lifesaving Club at Brighton Beach, and the Esplanade Surf School operating at St. Clair Beach. Five surf lifesaving clubs are located throughout the Otago Region. Surfing is an important recreational activity for residents and visitors alike, with the Dunedin City Council website identifying Dunedin's surf breaks as *"delivering some of the best surf in the South Island"* (Dunedin City Council, n.d.). Dunedin is noted for having a high proportion of young people, with tertiary education a major sector for the local economy (Day and Donaldson, 2009). The University of Otago and Otago Polytechnic host a tertiary student population of over 22,000, with people aged between 15-24 making up 21.6% of the population compared to 14.3% nationally (Day and Donaldson, 2009). The student population is well-known for adding to the character of the city, with surfing and the quality of surf promoted by both the University and Polytechnic in attracting students to Dunedin (Otago Polytechnic, n.d.; University of Otago, n.d.-b).

Nationally Significant Surf Breaks

The Otago Region is home to four surf breaks listed in the NZCPS (2010) as nationally significant: Karitane, Whareakeake, The Spit, and Papatowai. The first three surf breaks combine to rate 28 out of 30 in the Wavetrack New Zealand Surfing Guide, whilst recent exposure of Papatowai as a high-performance big wave surfing location led to its inclusion (Peryman, 2011b). The Spit, Whareakeake, and Karitane are all situated within relatively close proximity to each other on Dunedin's northern facing coastline (Fig. 4.5). The breaks are open to swells from the northeast through to the east, although large southeast swells will also wrap into the coastline.

Karitane

Karitane is small coastal community of 345 located at the mouth of the Waikouaiti River (Statistics New Zealand, n.d.-e). The surf break of national significance at Karitane features two high quality breaks with a right-hand rivermouth bar break that produces long peeling waves and a right-hand point break that features powerful heavy waves breaking over kelp covered rocks (Fig. 4.6; Fig. 4.7) (Bhana, 1996; Morse and Brunskill, 2004).

Figure 4.6:   **Location of the Karitane Rivermouth Bar and Karitane Point breaking next to the Huriawa Peninsula (base image source: http://maps.google.com/)**

Both breaks hug the Huriawa Peninsula at Karitane, an important site for local iwi. Huriawa was returned to Ngāi Tahu as part of the settlement of the Ngāi Tahu Claims in 1998, vesting the land under a Protected Private Land (PPL) Agreement:

> The values for which Huriawa is protected, as outlined in the PPL, are:
> • Cultural values, including wāhi tapu and mahika kai
> • Conservation values
> • Indigenous flora and fauna values
> • Landscape values
>
> Under this Agreement public access to Huriawa for these purposes is guaranteed, unless temporally closed for safety or for other similar considerations. The PPL Agreement outlines the co-management of Huriawa by Te Rūnanga o Ngāi Tahu and the Department of Conservation/Te Papa Atawhai (Kāti Huirapa Rūnaka ki Puketeraki, n.d.).

Figure 4.7:   The Karitane Rivermouth Bar, Otago (source: Author, 2012)

Whareakeake

Whareakeake, commonly referred to as Murdering Bay, is a high quality right-hand point break producing long peeling waves when conditions are right (Fig. 4.8) (Morse and Brunskill, 2004). The break is surrounded by farmland, with access via a steep gravel road suitable for dry weather conditions only.

Figure 4.8:   Whareakeake (Murdering Bay), Otago (source: Author, 2012).

The Spit

The Spit, or Aramoana, is recognised as one of New Zealand's finest beach breaks, producing powerful high-performance waves when conditions are right (Fig. 4.9; 4.10) (Morse and Brunskill, 2004). Aramoana is a small coastal community of 264 located at the mouth of the Otago Harbour (Statistics New Zealand, n.d.-f). The break is separated from the mouth of the Otago Harbour by an artificial rock-rubble breakwater extending just over one kilometre seaward (Port Otago Limited, 2011). The harbour channel is regularly dredged for maintenance, with the dredge spoil deposited at three offshore disposal sites located at Heyward Point, Aramoana Beach and Shelly Beach (Port Otago Limited, 2011). Surfing conditions at Aramoana have been studied by two university research projects (Kilpatrick, 2005; Scarfe, 2008), as well as by MetOcean Solutions Ltd (2011) in a report commissioned by Port Otago Ltd as part of a current resource consent application to continue the disposal of dredge material for another three years. As part of the consent application process, Port Otago Ltd is exploring future management options for the disposal of dredge material in relation to the impact on surfing wave dynamics at Aramoana Beach (MetOcean Solutions Ltd, 2011).
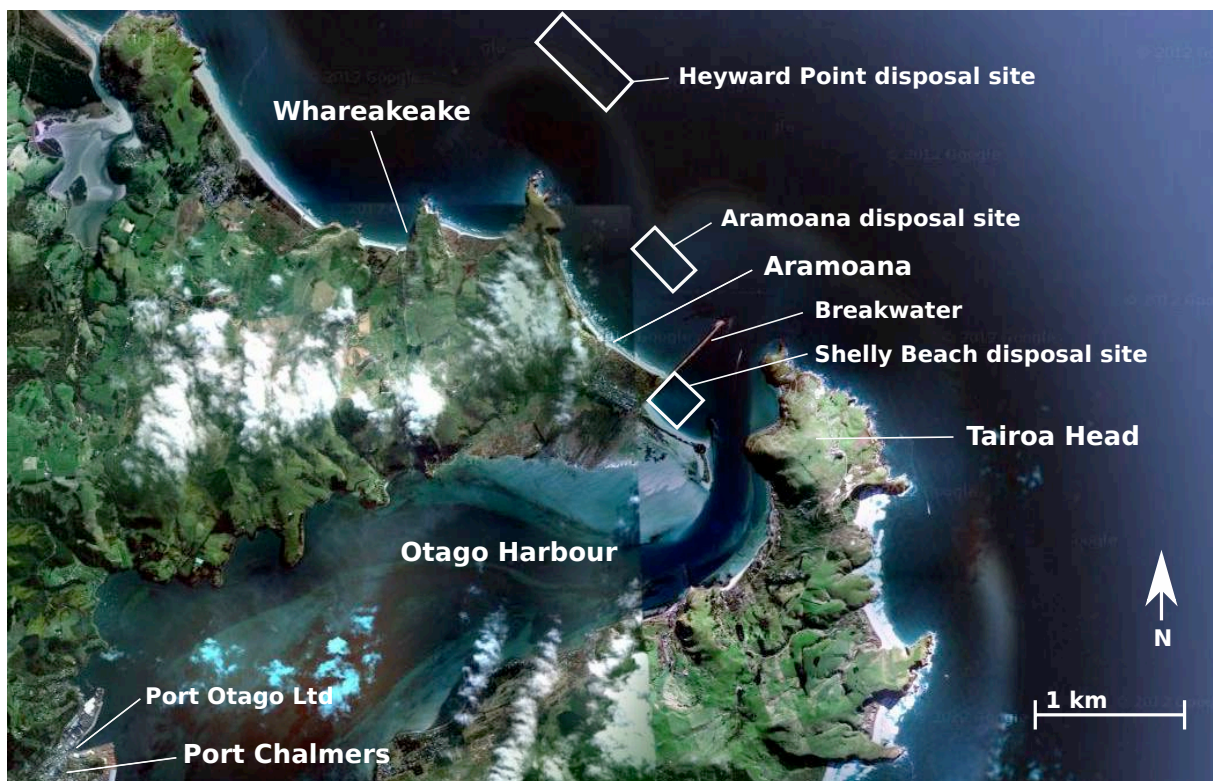
Figure 4.9: Satellite image of Aramoana showing the approximate location of existing dredge spoil disposal sites (base image source: http://maps.google.com/)

Figure 4.10:   Aramoana, Otago (source: Author, 2012).

Papatowai

Papatowai is a small coastal community in the Catlins area. With a permanent population of around 30, it is popular during summer months when tourists and holiday homes owners frequent the area (Tourism Catlins, 2009). Papatowai features a right-hand reef break fully exposed to southern swells and is the centre for big wave surfing in New Zealand (Fig. 4.11) (Morse and Brunskill, 2004). A serious expert-only big-wave spot, the reef needs an open ocean swell of over five metres in order to start breaking and is capable of holding swells of eight metres and beyond (Morse and Brunskill, 2004). Situated at the foot of a steep cliff on private property, the break is typically accessed on jet skis via the Takahopa River mouth.

Figure 4.11:   Papatowai, Otago (© Copyright Cory Scott; source: http://www.surfersvillage.com/ surfing-news/22513#.UHEBPRjfirh)

4.3.2 Council Involvement in Surfing

The Otago coastline is administered by the Otago Regional Council and three territorial authorities; Clutha District Council, Dunedin City Council, and the Waitaki District Council. Councils in the Otago Region are yet to make any formal steps toward implementing surf break policy under the NZCPS (2010). The Otago Regional Council submitted in opposition to the Proposed NZCPS (2008) inclusion of Policy 20 – Surf breaks of national significance commenting that: *"It seems odd that particular surf breaks are the only features identified as being nationally significant in the coastal environment that require protection from inappropriate use and development"* (Otago Regional Council, 2008:9). The Council suggested that surf breaks could be more generally covered under the proposed Policy 19 - Amenity values (Otago Regional Council, 2008).

4.3.3 Surf Break Issues in Otago

Surf break issues in the Otago Region identified through an internet based search include concerns relating to coastal protection works, dredging and dredge spoil disposal, and water quality. It is noted that surfer concerns about water quality in the past have contributed to community pressure to upgrade wastewater discharge in Dunedin (Auckland Regional Council, 2010). Since 1991 the Dunedin City Council (DCC) has been working toward implementing the Dunedin Wastewater Upgrade Strategy, removing all sewage discharges into the harbour and Taieri River, separating stormwater flows from sewage flows, and upgrading treatment facility systems (Dunedin City Council, 2009).

Current surf break issues include the dredging of the Otago Harbour channel and subsequent dumping of dredge spoil at offshore disposal sites. Some surf break users are concerned that the dumping of spoil negatively impacts on wave quality at Aramoana and other surf breaks along the northern coast (Morris, 2011). In 2011 Port Otago Limited successfully applied for resource consent to deepen the Otago Harbour channel over a 20-year period as part of its Next Generation project (Morris, 2011). The decision has since been appealed by a local resident group and a number of fisheries groups (Fox, 2012). An Environment Court hearing is scheduled for November 2012 (Fox, 2012).

Another key issue is the impact of the sea wall at St. Clair Beach. St. Clair is part of Ocean Beach, which stretches nearly four kilometres from St. Clair to Lawyers Head (Fig. 4.12). Ocean Beach is a high-energy coast periodically exposed to large swells and associated erosion events (Tonkin and Taylor Ltd, 2011). A new sea wall was built in front of an existing sea wall in 2003/4. The new sea wall has compromised wave quality particularly at high tide

where wave energy is reflected from the wall directly into incoming waves (Fig. 4.13) (Scarfe *et al.*, 2009a).

Figure 4.12: Satellite image of Ocean Beach, Dunedin (base image source: http://maps.google. com/)
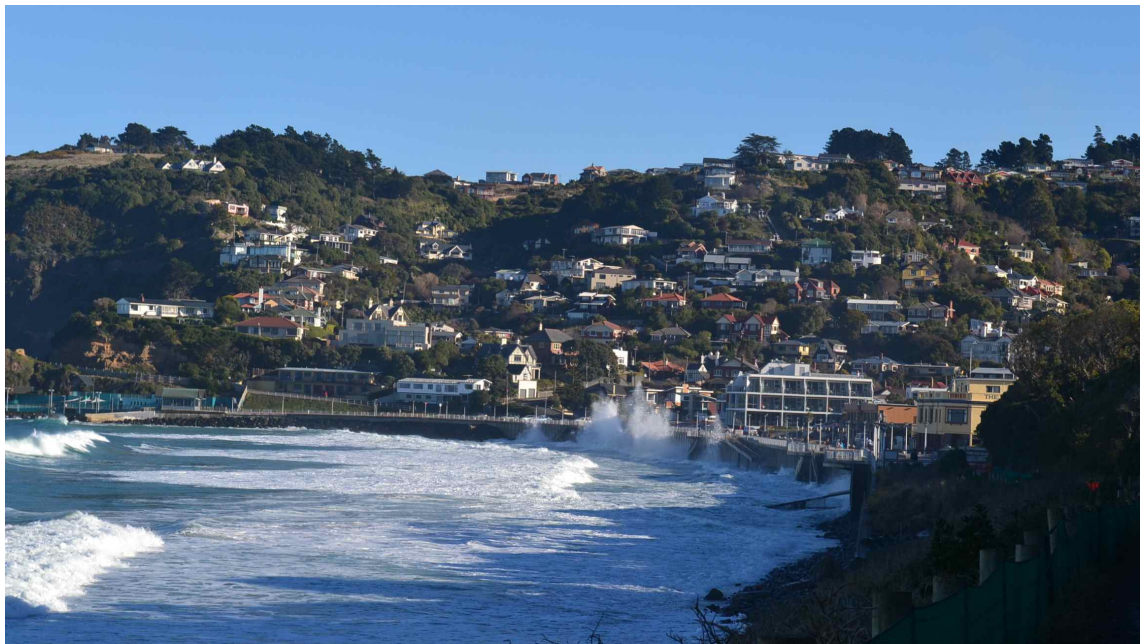
Figure 4.13: The sea wall at St. Clair taken at high tide, 21 August 2012 (source: Author, 2012)

There are wider concerns from surfers as to the impact of the wall on sand cycles along the coast. A report by Tonkin and Taylor Ltd (Tonkin and Taylor Ltd, 2011:1) commented that: "*The existing seawall at St Clair encroaches into the natural beach system and is therefore affected by and influences local coastal processes*". The report was commissioned by the DCC in response to a storm event in 2007 to inform a draft management plan to address shoreline erosion along Ocean Beach (Tonkin and Taylor Ltd, 2011). The previous management plan, the Ocean Beach Domain Local Purpose (Coastal Protection) Reserve

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Management Plan (1992), firmly established the management purpose of the reserve as that of coastal protection under the Reserves Act (1977) (Dunedin City Council, 1992). The Plan (1992:5) stated that the City administration is:

> … resolute that the prime function of the area is one of coastal protection… It will subsequently be recognised, through the mechanism of this management plan, that recreation is the secondary purpose of the reserve, and it will be managed accordingly.

The area immediately landward of Ocean Beach is predominantly Council reserve and is an important buffer between the coast and urban areas (Tonkin and Taylor Ltd, 2011). Part of the reserve area was used as a landfill site for industrial wastes, with the Tonkin and Taylor Ltd report (2011:16) identifying the *"exposure and erosion of localised deposits of industrial waste"* as a specific risk that *"could increase with increasing sea levels, requiring some response to manage these risks"*.

4.4   Conclusion

The Auckland and Otago regions provide contrasting case studies for exploring surf break management options. Surfing is an important recreational activity in both regions, offering a diverse range of surf breaks and coastlines. As New Zealand's most populous region Auckland is home to a large surfing population. Whilst there are no nationally significant surf breaks there are a number of popular surf breaks on both the West Coast and East Coast, including Piha, Muriwai, Te Arai and the breaks of Great Barrier Island. The Auckland Council is working toward the inclusion of surf break policy in its draft Unitary Plan. Key issues of concern for surf breaks in the Auckland area include sand mining, over-crowding, water quality, and coastal development pressures, particularly the proposed development at Te Arai Beach on the East Coast.

The Otago Region features a range of high quality surf breaks and is home to four surf breaks of national significance; Karitane, Whareakeake, The Spit, and Papatowai. Councils in the Otago Region are yet to formally address surf break policy under the NZCPS (2010). Key issues of concern include the impact of the sea wall at St. Clair on wave quality, sand cycles and subsequent erosion issues along Ocean Beach and the impact of dredge spoil dumping at Aramoana on the surf breaks along the northern coast, including The Spit and Whareakeake. The next chapter provides a document analysis of relevant coastal management and surf break related policy documents at regional and local levels for the Auckland and Otago regions.

5 Document Analysis

5.1 Introduction

This chapter analyses key planning documents relating to surf break management within the Auckland and Otago regions. Analysis follows on from the national level framework created by the Resource Management Act (RMA) (1991) and the New Zealand Coastal Policy Statement (NZCPS) (2010) as outlined in Chapter 2. As surf breaks are a relatively new area of coastal management, specific reference to surf breaks in planning documents is limited. The purpose of this chapter is to explore how general provisions within planning documents provide for surf breaks and to explore options for the inclusion of surf breaks within integrated management frameworks.

5.2 Auckland Region

5.2.1 Hauraki Gulf Marine Park Act (2000)

The Hauraki Gulf Marine Park Act (HGMPA) (2000) operates in the Auckland Region as a national policy statement under the RMA (1991). A key purpose of the HGMPA (2000) is to achieve integrated management, bringing together 21 statutes including the RMA, Conservation Act (1987) and Fisheries Act (1996) (Quality Planning, n.d.). The HGMPA (2000) effectively provides scope for the inclusion of surf break interests in integrated management approaches as key stakeholders in the Hauraki Gulf. The HGMPA (2000) establishes the Hauraki Gulf Forum to operate as *"a statutory body which promotes and facilitates integrated management, and the protection and enhancement of the Hauraki Gulf"* (Auckland Council, 2010). The Forum involves the Minister of Conservation, Minister of Fisheries, Minister of Maori Affairs, council representatives and Tangata Whenua representatives. The Forum is required to release a State of the Environment report every three years, with the 2011 report concluding that *"the gulf is experiencing ongoing environmental degradation"* (Hauraki Gulf Forum, 2011:10). The report highlighted the need to bridge the gap between current and desired environmental conditions and to further integrate management across the Hauraki Gulf (Hauraki Gulf Forum, 2011).

5.2.2 Auckland Council Policy Framework

In 2010 all councils within the Auckland Region were merged to form the unitary Auckland Council. The move replaced the Auckland Regional Council and seven territorial councils: Auckland City Council, Franklin District Council, Manukau City Council, North Shore City

Council, Papakura District Council, Rodney District Council, and Waitakere City Council. The merger established a new policy framework for the Auckland Region (Figure 5.1). The Auckland Council is currently in the process of preparing its draft Unitary Plan as a single resource management plan to replace all existing district and regional policies and plans of the former councils (Auckland Council, 2012d). Developing combined plans within one authority is recognised as a means to achieve integrated coastal management (Quality Planning, n.d.). All policies and plans remain operative until the Unitary Plan is prepared, with a discussion draft set for public release mid 2013 (Auckland Council, 2012d). The function of the HGMPA (2000) will not change once the Unitary Plan becomes operative.
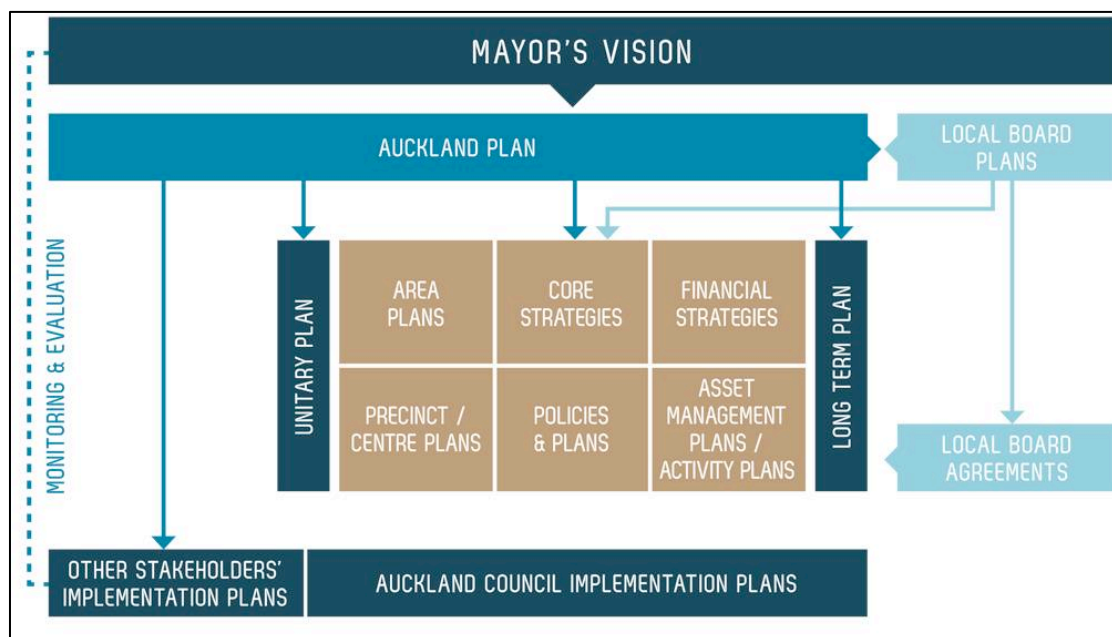
Figure 5.1:   Auckland Council Policy Framework (Auckland Council, 2012c)

5.2.3   The Auckland Plan

The Auckland Plan provides strategic direction for the Auckland Region out to 2040. The Plan:

> … outlines a high-level development strategy to give direction and enable coherent, co-ordinated decision-making by Auckland Council and other parties… (and) identifies the policies, priorities, land allocations, programmes and investments to implement the strategic direction (Auckland Council, 2012d:11).

Direction for surfing as an activity is given in Chapter Five Auckland's Recreation and Sport:

> Our coastlines, harbours and rivers provide an ideal environment for a wide range of water sports, including swimming, **surfing**, sailing, waka ama, dragon boating, kite activities, kayaking and windsurfing. Continuing to participate in these activities and retaining access to our waterways will be balanced with the need to protect and manage them (*my emphasis*) (Auckland Council, 2012c:140).

Surfing is further recognised on Map 7.2 Significant Recreational and Open Space Areas, showing surfing as an activity along the West Coast, the north east coast, and Great Barrier Island.

5.2.4 The Unitary Plan

Once operative the Unitary Plan will function as the principal regulatory tool to implement the Auckland Plan (Auckland Council, 2012d). The Council is working toward the inclusion of surf break policy in the Unitary Plan to give effect to the NZCPS (2010) (Auckland Council, 2012a). The Unitary Plan will effectively become the key planning document for surf break management in the Auckland Region.

Preparation of the Unitary Plan involves a review of all current plans although the Council notes that: *"Many of the outcomes and approaches included in the existing district plans will be reflected in the Auckland Unitary Plan"* (Auckland Council, 2012d). In this regard it is of value to assess surf breaks within current planning documents as a guide to likely provisions within the Unitary Plan.

5.2.5 Auckland Council Regional Policy Statement (1999)

The Auckland Council Regional Policy Statement (ACRPS) (1999) sets out the direction and framework for resource management in the Auckland Region. It was initially prepared by the ARC and subsequently adopted by the Auckland Council. The Unitary Plan will replace the ACRPS (1999) once it becomes operative.

Chapter 7 sets out policy direction for the coastal environment, with a stated objective: *"To achieve integrated management of land and water areas in the coastal environment both within the Auckland Region and between adjacent regions"* (Auckland Regional Council, 1999:7.5). The integrated management of surf breaks can be considered in relation to recreational activities:

> Recreational users of the coast most often depend on elements of both land and sea for their enjoyment. Therefore, it is important that integrated management of recreation across the land/sea boundary is achieved. The ARC and TAs must work closely to co-ordinate the management of coastal recreation (Auckland Regional Council, 1999:7.14).

Table 5.1 outlines key policy provisions from Chapter 7 in relation to surf breaks.

Table 5.1: **Key policy provisions from the Auckland Regional Policy Statement (1999) in relation to surf breaks**

Objectives, Policies and Methods	Implications for Surf Breaks
7.4.4 Policies: Natural character of the coastal environment 1. The natural character of the coastal environment shall be preserved, and protected from inappropriate subdivision, use and development…	As part of the natural character of the coast surf breaks are protected from inappropriate activities.
7.4.13 Policies: Public access 1. Public access shall be maintained and enhanced to and along the CMA and to publicly owned land in the coastal environment. 2. Particular regard shall be had to enhancing public access to and along the CMA and to publicly owned land in the coastal environment where: (i) areas are of high amenity or recreational value; or (ii) … **7.4.14 Methods** 1. Local authorities will, in conjunction with DoC, identify areas in which public access to or along the CMA is poor or unavailable, and in which enhancement of public access is desirable… In the areas so identified, the local authorities will consult with landowners and other interest groups to, where possible, improve access.	The maintenance and enhancement of access to surf breaks is provided for as areas of recreational value. Local authorities and DoC are required to identify access issues and work with landowners and interest groups, including surf break users, to improve access.
7.4.16 Policies: Recreation 1. Recreational activities shall be provided for in appropriate locations and forms… ensuring that the adverse effects on the environment are avoided, remedied, or mitigated. 2. Coastal areas of special recreational value shall be identified and provision made for their maintenance or enhancement. **7.4.17 Methods** 3. Local authorities, in consultation with DoC, Iwi authorities, interested agencies and groups, will, where it is necessary in order to assess the effects of recreation, or the impact on recreation of other activities and uses, survey and subsequently monitor recreational resources, pressures and conflicts in the coastal environment.	Surf breaks are provided for as recreational resources. A contributing factor in the identification of regionally significant surf breaks could be on the basis of their special recreational value, providing for breaks to be maintained or enhanced. Requires that key stakeholders, including surf break users, are involved in the monitoring of recreational resources.

The ACRPS (1999) identifies the role of joint projects between local authorities, government agencies, Iwi authorities and interest groups as beneficial in promoting integrated resource management. The ACRPS (1999) effectively provides direction for the involvement of surf break interest groups as key stakeholders in integrated management approaches to the coast.

5.2.6 The Regional Coastal Plan for Auckland (2004)

The Regional Coastal Plan for Auckland (RCPA) (2004) was prepared by the ARC and has since been adopted by the Auckland Council as its current regional coastal plan. The Unitary Plan will replace the RCPA (2004) once it becomes operative. The policies of the NZCPS

(1994), HGMPA (2000), and the ACRPS (1999) provided a framework for the development of the RCPA (2004). The RCPA (2004) largely reflects the policy directives of the ACRPS (1999). The RCPA (2004) essentially provides for the involvement of surf break interest groups in issues as they arise.

> The ARC will continue to consult, where practicable and appropriate, with a range of groups when relevant issues or questions concerning the sustainable management of the natural and physical resources of the coastal marine area arise (Auckland Council, 2004:39.2).

5.2.7 Territorial Authority Planning Documents

The current Auckland Council District Plan combines the seven district plans of the former Auckland territorial authorities. As noted, the Unitary Plan will replace these plans as a single planning document. The District Plan has not been updated to reflect changes in line with the NZCPS (2010) and is not discussed here for the purposes of this research.

At a local level, the former Rodney District Council (RDC) adopted management plans to address coastal issues. Of particular interest is the Omaha Coastal Compartment Management Plan (2003), as surfing is a popular activity along Omaha Beach. The Plan identifies issues and stated actions plans, including dune stability and management, public involvement in the care of the coast, and the provision of public access. The report identifies surfing as a recreational use but does not specifically refer to surf breaks in relation to issues. The Plan highlights the potential role for community care groups in coastal management, with a stated action as follows: *"RDC will support (and facilitate where necessary) the formation and operation of care groups in the Omaha Compartment in accordance with existing policies"* (Rodney District Council, 2003:44). The Plan presents a clear course of action at a local coastal level and is considered an example of how surf break interest groups, as a community care group, could be involved in coastal management.

5.2.8 Summary of the Auckland Region

The Auckland Region is effectively a work in progress with regard to policy providing for surf breaks. The Unitary Plan represents the key planning document based on the assumption that it includes surf break policy and identifies regionally significant surf breaks. Existing policy documents provide for the recognition of surfing as a recreational activity and the inclusion of surf break interests in issues as they arise. It could be expected that as a result of the Unitary Plan surfing interests will be strengthened in coastal decision-making processes.

5.3 Document Analysis – Otago Region

The Otago Region is administered by the Otago Regional Council and five territorial councils: Central Otago District Council, Clutha District Council (CDC), Dunedin City Council (DCC), Queenstown-Lakes District Council and Waitaki District Council (WDC).

5.3.1 Otago Regional Policy Statement (1998)

The Otago Regional Policy Statement (ORPS) (1998) establishes the policy framework for the Otago Region, setting objectives, policies and methods for the integrated management of the Region's resources (Otago Regional Council, 1998). Whilst there is no specific reference to surf breaks or surfing in the ORPS (1998), policy directives broadly provide scope for the integrated management of surf breaks (Table 5.2).

Table 5.2: **Key policy provisions from the Otago Regional Policy Statement (1998) in relation to surf breaks**

Objectives, Policies and Methods	Implications for Surf Breaks
Chapter 8 Coast **Objective 8.4.4** To seek to maintain existing water quality within Otago's coastal waters and where water quality is degraded, to seek to achieve water quality suitable for contact recreation and the eating of shellfish.	Water quality at surf breaks in the Otago Region is an identified issue. Requires that water quality at surf breaks is maintained to a high standard.
Objective 8.4.5 To protect areas of natural character, outstanding natural features and landscapes and their associated values within the coastal environment.	Provides for the protection of surf breaks as part of the natural character of the coast. Surf breaks of national significance could further be regarded as outstanding natural features.
Objective 8.4.6 To maintain and enhance public access to and along Otago's coastal marine area.	Provides for public access to surf breaks except where access may negatively impact on the public or coastal environment.
Method 8.6.22 Recognise and encourage the role of community groups that promote sustainable management of the coast and associated resources.	Surf break interest groups, actively encouraged by local authorities, could play a valuable role along the coast.
Chapter 15 Cross Boundary Issues **Objective 15.4.1** To ensure that cross boundary issues are identified, agreed to and are dealt with in an efficient and effective manner.	Provides for integrated management across jurisdictional boundaries. Requires relevant authorities to recognise and provide for surf breaks within the wider coastal environment, including the impacts of land-based activities.
Method 15.6.1 Promote and encourage the development of protocols with adjacent territorial local authorities and regional councils for resolving cross boundary issues.	Methods focus toward integration between councils and agencies.
Method 15.6.3 Promote and encourage joint working groups, joint council committees and other joint approaches between appropriate territorial local authorities and regional councils to consider cross boundary issues.	

The ORPS (1998) has not yet been updated to give effect to surf break policy in the NZCPS (2010). The ORPS (1998) was due for full review in October 2008 but remains current. A review process is expected to begin in 2013 (Key Informant 9).

The Statement provides general protection for surf breaks as natural features in the coastal environment and seeks to maintain and enhance water quality and access to the coast. Policies further promote integration between councils and agencies and recognise the potential role for community interest groups. Surf break interest groups could be supported to participate in integrated coastal management approaches in the Region, although integration is focused more between councils and agencies than community interest groups.

5.3.2   Regional Plan: Coast for Otago (2001)

The Regional Plan: Coast for Otago (RPCO) (2001) provides a *"framework for the integrated and sustainable management of Otago's coastal marine area"* (Otago Regional Council, 2001:2). The RPCO (2001) has not yet been updated to give effect to surf break policy in the NZCPS (2010). Surf breaks are not specifically identified in the RPCO (2001), although surfing is recognised as a recreational activity along the Otago coast. The RPCO (2001) largely reflects ORPS (1999) policy directives, providing a broad framework for the integrated management of surf breaks within the Region. Policy provisions provide for surf breaks as natural features in the coastal environment and seek to maintain access and high water quality.

The RCPO (2001) establishes four different categories to recognise and provide for different values in the coastal marine area:

> 1. Coastal Protection Areas (CPA)
>
> 2. Coastal Development Areas
>
> 3. Coastal Recreation Areas (CRA)
>
> 4. Coastal Harbourside Areas

A number of these coastal areas feature surf breaks. CPAs include Karitane Headland, Aramoana, and Brighton, with Policy 5.4.2 providing priority to these areas in avoiding adverse effects associated with uses and activities. CRAs include Warrington Beach, Potato Point and Long Beach, Spit Beach, St Clair Beach to St Kilda Beach, and Kaka Point. Policy 5.4.6 gives priority to these areas to provide for and protect recreation values when considering the use, development and protection of the coastal marine area. There is scope for the further inclusion of surf breaks as protection and recreation areas.

5.3.3 Territorial Authority Planning Documents

The Otago Region features three coastal local authorities, with the Clutha District Plan (1998), Dunedin City District Plan (2006) and the Waitaki District Plan (2004) setting out the rules and regulations for each district. Focused toward the management of land use and development, none of the plans refer to surfing or surf breaks. All three plans acknowledge cross boundary issues and the need to work with the ORC and neighbouring territorial authorities to address issues.

Council management plans provide for local scale management approaches. Of particular interest to surf breaks in the Otago Region is the Ocean Beach Domain Local Purpose (Coastal Protection) Reserve Management Plan (1992) (Dunedin City Council, 1992) and the Coastal Dune Reserves Management Plan (CDRMP) (2010) (Dunedin City Council, 2010). The Ocean Beach Plan was discussed in Chapter 4, noting that the DCC is currently working toward producing a new management plan. There are no CDC or WDC management plans deemed to be of interest to this research.

Dunedin City Council Coastal Dune Reserves Management Plan (2010)

The CDRMP (2010) covers a range of DCC coastal reserves managed for the purposes of coastal protection and recreation. A number of the reserves are adjacent to surf breaks, including: Brighton, Island Park (which includes Blackhead), Karitane, Long Beach, Ocean Grove, Ocean View, Waikouaiti and Warrington. Surfing is acknowledged through its inclusion as an activity in the RPCO (2001). Policies promote recreational use provided they are *"consistent with the reserves primary function of coastal protection"* (Dunedin City Council, 2010:23).

Community engagement and participation is promoted through policy provisions and is considered key to the success of the Plan:

> **4.2.2 Policies**
>
> 1. Promote and provide opportunities for individuals and groups to work in partnership with the Council on activities that are consistent with the management of coastal dune reserves.
>
> …
>
> 4. Encourage and facilitate agreements with individuals and groups wishing to carry out projects on a reserve.
>
> 5. Any major development plans proposed for coastal dune reserves will be prepared in consultation with local communities.

The Plan provides the opportunity for surf break interest groups to be involved in the management of coastal reserves, but the focus is primarily toward dune management:

> This Management Plan is a land-based plan under the Reserves Act (1977), and cannot address issues related to the coastal marine area, including the foreshore, seabed and water, as these are not within the Council's jurisdiction. This Plan does not provide policy for wider management or issues of the coast, as this approach is more appropriate for a strategic document that can consider all aspects of the coastal environment. (Dunedin City Council, 2010:4).

The Plan effectively provides for aspects of the management of surf breaks and the involvement of community groups. Its focus toward coastal protection and dune management, however, does not provide for a holistic approach to coastal management.

5.3.4 Kāi Tahu ki Otago Natural Resource Management Plan (2005)

The Kāi Tahu ki Otago Natural Resource Management Plan (2005) sets out the resource management philosophy for the four Rūnaka of the Otago Region. The Plan philosophy of *Ki Uta Ki Tai* (Mountains to the Sea) emphasises a collaborative approach to the holistic management of elements within and between catchment areas. The Plan does not specifically refer to surfing or surf breaks nor does it address recreational activities. The Plan does, however, indirectly address a number of core surfing values, promoting water quality and preservation of the coastal environment through environmental monitoring. In the Otago Harbour catchment area, for example, policies include:

> 6. To encourage research and monitoring into sediment deposition at Blueskin Bay and Pūrakaunui.
>
> 13. To encourage the dumping of all dredging material beyond the continental shelf (Kāi Tahu ki Otago, 2005:113).

These policies are consistent with approaches advocated by surfers in relation to concerns about the dumping of dredge spoil at Aramoana.

Overall there is a significant degree of overlap in the policies of the Plan and approaches to the protection of surf breaks as natural features within the coastal environment. As such, the Plan provides a platform for the inclusion of surf breaks within a holistic and integrated approach to coastal management in the Otago Region.

5.3.5 Summary of the Otago Region

The Otago Region is yet to make progress toward the inclusion of surf break policy in planning documents. A regional policy statement review process is set to begin in 2013, at which point surf break policy may be addressed. The current framework provides broadly for surf breaks as a recreational activity. The potential role of the community is recognised in

planning documents, although the focus of integrated management is between local authorities and agencies rather than extending toward community involvement.

5.4 Conclusion

Policy documents in the Auckland and Otago regions are yet to give effect to NZCPS (2010) surf break policy directives. The Auckland Council is working toward the inclusion of surf break policy in its draft Unitary Plan. Once operative, the Unitary Plan will create a single integrated planning document for the Auckland Region and become the key planning document for the management of surf breaks. The Otago Regional Council is set to begin a regional policy statement review process in 2013, which will be required to give effect to NZCPS (2010) policy directives.

Current regional and local level policy documents provide a broad framework for the inclusion of surf breaks in coastal management approaches. Regional plans and policy statements for both regions provide direction to protect surf breaks as part of the natural character of the coast, maintain and enhance public access to the coast, maintain water quality, and provide for surfing as a recreational activity. The need to address cross boundary issues is identified throughout planning documents, with a focus toward integration between councils and relevant organisations. Policy documents provide for recognition and support of the potential role of community interest groups, including surf break interest groups, in coastal management. The next chapter presents results and discussion for Research Question 1, determining surf break user values.

6 Surf Break User Values

6.1 Introduction

This chapter presents results and discussion in relation to the first research question: what do surf break users value about the surf breaks that they use? Surf breaks have significant economic, cultural and social value for surfers and wider communities in general (Scarfe *et al.*, 2003; Lazarow, 2007; Taylor, 2007). In order to protect surf breaks it is first necessary to determine what surf break users value about the breaks they use. Awareness of surf break values enables management strategies to target identified values and to ensure that those values are maintained and enhanced where appropriate. The chapter first identifies surf break user values through an analysis of questionnaire responses and key informant interviews. Specific issues for the Auckland and Otago regions are also explored to further identify surf break values. Results are then discussed in relation to previous research as reviewed in Chapter 2. A profile of questionnaire respondents is provided in Appendix H.

6.2 Surf Break User Values

To determine surf break user values questionnaire respondents were first asked to identify the three surf breaks in the region that they use the most often. Respondents were then asked to rate on a scale of one to five (five being highest) how they value certain factors at each of their three identified surf breaks. Individual responses were then combined to give an average rating for each factor. Results for the most frequented surf breaks for each region are presented in Appendix I.

Table 6.1 presents average respondent ratings for surf break value factors in the Auckland and Otago regions. Results show that respondents highly value factors relating to the quality of the surf, with wave quality, consistency, and suitability as a high performance surf break rating highly for both regions. Scenery and naturalness were also highly valued, particularly in the Auckland Region where respondents rated 'scenery', 'naturalness' and 'significance to the local surfing community' above 'wave quality'. This result may reflect current levels of concern relating to coastal development issues. Opponents to the proposed development at Te Arai have cited concerns relating to the impact on the natural character of the coast and the significance of the break to the surfing community (Thompson, 2012). Distance from home, ease of access and low levels of use were also consistently valued.

Table 6.1: **Surf break user values for the Auckland and Otago regions based on questionnaire responses (out of five).**

What do you value about the surf breaks that you use?	Auckland	Otago	Combined
Wave quality	3.8	4.1	4.0
Scenery	4.2	3.6	3.9
Naturalness	4.0	3.5	3.7
Significance to the local surfing community	3.9	3.3	3.6
Consistency/frequency of surfable days	3.3	3.6	3.4
Suitability as a high performance surf break	3.4	3.4	3.4
Distance from home	3.3	3.3	3.3
Ease of access	3.2	3.3	3.3
Low level of use/popularity	3.2	3.3	3.2
Significance to the local community	3.5	2.7	3.1
Rarity of break type (e.g. beach, reef, point, etc.)	3.1	3.1	3.1
Suitability to all skill levels	2.7	2.9	2.8
Availability of facilities (e.g. toilet, car park etc.)	3.0	2.6	2.8
Significance as a nationally/internationally recognised surf break	2.6	2.7	2.6
Cultural/heritage value	2.7	2.4	2.5
High level of use/popularity	2.6	2.4	2.5
Suitability as a learners spot	2.2	2.4	2.3
Suitability as a contest site	2.3	2.3	2.3
Significance to Tangata Whenua	2.3	1.8	2.1

The least valued factors were 'suitability as a learner spot', 'suitability as a contest site' and 'significance to Tangata Whenua'. The ratings for these factors likely reflect the questionnaire sample demographic, with the majority of respondents experienced recreational surfers (see Appendix H). Tangata Whenua were not asked to identify themselves in the questionnaire but it is likely that only a limited number of respondents were Tangata Whenua. Despite the relative low rating, the significance of surf breaks within the wider coastal environment is considered to be of particular importance to Tangata Whenua and as such an important factor to consider in relation to surf break values.

Table 6.2 compares surf break user values from this study to a similar set of surf break user values identified in a study by Peryman (2011a) of surf breaks in the Gisborne area. Both studies identified the physical characteristics that contribute to the quality of surf breaks as highly valued. 'Scenery' also rated highly for both studies. Of particular note, 'suitability as a learners spot' rated 2.2 and 2.4 for the Auckland and Otago questionnaires respectively compared to 'suitability as a nursery break for breeding surfers' rating 4 for the Gisborne study.

Table 6.2: **Surf break user values for the Auckland and Otago regions compared to surf break user values identified in a study by Peryman (2011a) of Gisborne surf break users.**

Surf break user values for respondents to the Auckland and Otago Region questionnaires	Auckland	Otago	Surf break user values from the Gisborne study by Peryman (2011a)	
Wave quality	3.8	4.1	Wave quality (in optimum conditions)	5
Scenery	4.2	3.6	Wave type (e.g. breaking intensity)	4.5
Naturalness	4.0	3.5	Unique features of a break	4.5
Significance to the local surfing community	3.9	3.3	Rare features of a break	4.5
Consistency/frequency of surfable days	3.3	3.6	Vulnerability to physical change that may threaten a break	4.5
Suitability as a high performance surf break	3.4	3.4	Suitability as a 'nursery' break for 'breeding' surfers	4
Distance from home	3.3	3.3	Scenery	4
Ease of access	3.2	3.3	Consistency	4
Low level of use/popularity	3.2	3.3	Break type (e.g. reef, point, etc.)	3.5
Significance to the local community	3.5	2.7	Water quality (visual aesthetic)	3.5
Rarity of break type (e.g. beach, reef, point, etc.)	3.1	3.1	Social/community interaction	3.5
Suitability to all skill levels	2.7	2.9	Seasonal variations	3
Availability of facilities (e.g. toilet, car park etc.)	3.0	2.6	Heritage/Cultural values	3
Significance as a nationally/ internationally recognised surf break	2.6	2.7	Significance to Tangata Whenua	3
Cultural/heritage value	2.7	2.4	Public access	3
High level of use/popularity	2.6	2.4	Suitability to all skill levels	3
Suitability as a learners spot	2.2	2.4	Services (e.g. public toilets, car park)	2
Suitability as a contest site	2.3	2.3	Level of use / popularity	2
Significance to Tangata Whenua	2.3	1.8	Proximity to settlement	2
-	-	-	Economic influence (e.g. value for surfing industry, professional competition, tourism)	1

As noted questionnaire respondents for this study are primarily considered experienced surfers and as such the relatively low rating for learner surf breaks may reflect personal preference for higher performance waves amongst experienced surfers. It is further considered that the phrasing used by Peryman (2011a) asked respondents to consider the value of learner spots to the wider surfing community, rather than simply on a personal level, and as such rated higher. Learner breaks were identified in Chapter 2 as of particular importance in promoting the next generation of surf break users. The Auckland Council key informant discussed the process of identifying the relative value of surf breaks using the example of the value of learner breaks:

> Given that there is no real guidance out there we are trying to work through what breaks we should be identifying and we have come up with a series of values and we have ranked them against those. Auckland has quite a variety of breaks, so some that rate high on one scale rate low on others and vice versa. Your classic example would be Piha, your iconic Auckland break, arguably the most consistent break and higher

quality waves… The term nursery breaks has come through quite a bit too. In Auckland we have a couple of classics – Orewa is your classic. It frequently receives perfect longboarding waves, perfect for kids, older surfers etc. It's quite unique in that respect so if I am going to rate that in terms of wave quality of course it's going to be low but suitability as a nursery break is really high. Overall it actually rated pretty well and came out in the top 15 of breaks (Key Informant 1).

Summary of Surf Break User Values

Results show similarities in surf break values for each region. Surf break users highly value wave quality, consistency, and natural elements of surf breaks. Surf break users also value factors that contribute to the quality of the surfing experience, including access, low level of use, and the type of surf break. The provision of facilities is identified as a value of secondary importance compared to physical wave elements. Similarly suitability as a learner or contest site, cultural and heritage value, high levels of use and significance to Tangata Whenua are identified as of lesser value to questionnaire respondents. Lower rating factors are still considered of significance to the overall surfing experience, with learner breaks recognised as vital in nurturing future generations of surfers and the position of surf breaks within the wider coastal environment of particular significance to Tangata Whenua.

6.3 Surf Break Issues

To further assess surf break user values respondents were asked if there were any current or future issues of concern for surf breaks in the respective regions. Respondents answered in their own words, with keyword searches performed to identify and quantify common response themes. Findings are discussed below in relation to identified surf break user values and key informant comments.

6.3.1 Auckland Region Surf Break Issues

Table 6.3 shows the main issues of concern for respondents to the Auckland Region questionnaire, with 54% identifying current concerns and 56% future concerns. Issues identified by less than three respondents have not been included.

Table 6.3: **Current and future issues of concern for respondents to the Auckland Region questionnaire**

Current issues	Number of respondents	Future issues	Number of respondents
Crowds	17	Coastal Development	17
Etiquette	14	Sand mining/dredging	9
Coastal Development	9	Increasing crowds	9
Sand mining/dredging	6	Pollution/Litter	5
Loss of sand banks at Piha (impact of dune stabilisation programme)	4	Etiquette	4
Water quality issues at Piha (septic tanks and lagoon water quality)	3	Water Quality	3
Car break-ins	3	Erosion/sand cycles West Coast	3

Increasing crowd numbers was the most identified current issue of concern and a significant future concern for the Auckland Region. A number of respondents specifically referred to crowds at Piha as an issue: *"Crowds at Piha can get to the point where I don't bother and would rather go somewhere else even if the waves aren't as good elsewhere"* (Anon.). Associated with over-crowding were concerns about etiquette, with stand-up paddleboarding (SUP) and learners key areas of concern. Comments reflected a degree of frustration in relation to increasing SUP numbers:

> The advent of SUP has introduced a lot of people into the line up who are perhaps not otherwise surfers and don't really understand the etiquette etc. On trying to talk to some of these people I'm usually greeted with animosity (Anon.).

Auckland boardrider club Key Informants 2 and 4 also expressed concerns about crowds and etiquette:

> Problem now is you get a whole lot of old guys that might have surfed when they were younger. Now they're getting longer boards and they can get out there and they haven't got a clue what's going on. I've got two boys, ones 12 and the others 17 and they're pretty good surfers but you get the older guys come out and they just hassle and drop in – what are you hassling kids for? But that's Piha you know – you've got Auckland City and there's not a lot you can do about it (Key Informant 4).

Coastal development was by far the main area of future concern and was also identified by Key Informants 1, 2, 3, and 15 as a key issue. Most respondents concerned with coastal development specifically referred to the proposed future development at Te Arai:

> Coastal development up around Forestry/Te Arai is a very contentious issue right now with the Auckland Council delaying their decision on the proposed housing development probably so they can push it through to make a quick buck despite the overwhelming opposition. If this development goes ahead it will have a huge negative effect on the whole area including the surf breaks (Anon.).

> The threat of coastal housing developments is of major concern. Not only would this destroy the natural beauty of the beach itself, but would almost certainly have a negative effect on the surf - in the same way it has at Piha (Anon.).

Key Informant 12 questioned the physical impact on wave quality from the proposed development at Te Arai:

> In all honesty I don't know that the quality of the surf and the changing of the seabed would happen. At the moment the area that they're looking at is a cloned pine forest planted on dunes – that has its own issues. Would that compared to a light urban lifestyle development change the dynamics of the beach in a physical sense? I don't think that land change has a lot to do with the break, access perhaps may be better… so what's actually going to happen to the waves? There are the aesthetic things and I know that's a big part of planning, looking at landscapes and the intrinsic values of those things, but as far as riding the waves… I'm not sure that that is as big an issue as what it's being played out to be.

Further concerns were raised in relation to sand mining and dredging activity, particularly along the East Coast: *"With the dredging/sand mining at Te Arai there is no way that it doesn't affect our waves. It is generally happening at Mangawhai or Forestry/Pakiri, but it affects the coast as a whole"* (Anon.). As East Coast based surfers, Key Informants 2 and 3 also commented that sand mining was an on-going issue for East Coast surf breaks.

Piha was specifically referred to in relation to all of the issues identified in Table 6.3. Comments included:

> Crowding at Piha can be an issue, along with septic tank run off during periods of high rain. Also the sand dune anti-erosion project 15 years back has greatly impacted on the quality of the waves at Piha (Anon.).

> At Piha there has been a massive influx of sand build-up over last few years. South Piha is pretty much just a closeout now, except on the smallest swells. I don't know the reason, but suspect it has something to do with the sand dunes (Anon.).

The President of the Piha Boardriders also cited concerns about the build up of sand:

> Our biggest concern used to be to save the dunes and we managed to build our sand up, but now huge amounts of sand are coming up from the Manukau. So it doesn't really matter what they do on the beach anymore. The bar at South Piha used to be very good and we used to have what was called the reform, but they're just about all gone now... The whole beach must have built up by about a metre and a half or so now. It's just changed everything (Key Informant 4).

Summary of Key Issues in the Auckland Region

In general, issues of concern for respondents to the Auckland Region questionnaire reflect surf break values identified earlier in Table 6.1. Respondents were especially concerned by the impact of coastal development on natural elements and wave quality. Concerns about increasing crowd numbers and etiquette represent an on-going issue for Auckland surfers as the Region continues to grow. As Auckland's most popular West Coast beach, Piha reflects the range of issues concerning Auckland surf break users, including maintaining wave quality, coastal development impacts, water quality, and over-crowding.

6.3.2   Otago Region Surf Break Issues

Table 6.4 shows the main issues of concern for respondents to the Otago Region questionnaire, with 47% identifying current concerns and 49% future concerns. Issues identified by less than three respondents have not been included.

Table 6.4: **Current and future issues of concern for respondents to the Otago Region questionnaire**

Current issues	Number of respondents	Future issues	Number of respondents
Dredging	17	Dredging	18
Crowds	13	Quarry impacts at Blackhead	10
Water quality	12	Water quality	9
St Clair sea wall and wider impacts on sand cycles	11	St Clair sea wall and wider impacts on sand cycles	8
Quarry impacts at Blackhead	9	Access	7
Etiquette	8	Crowds	6
Lack of facilities/toilets	6	Coastal Development	5
Access issues	4	-	-
Parking at St Clair	3	-	-
Coastal development	3	-	-

Dredging and the dumping of dredge spoil at Aramoana and its impact on surf breaks along the northern coastline was the main issue of current and future concern. The majority of comments cited concerns that the dumping could reduce wave quality, although some respondents stated they were unsure if it would have a positive or negative impact:

> Pretty concerned about the proposal to drastically increase the amount of spoil at the near shore site to Aramoana, especially as this may have a flow on effect to the other North Coast breaks. But it's difficult to envisage how this might impact on them, and dredging (albeit on a much more limited scale) makes some other breaks better (Anon.).

> Dredging the harbour and dumping it out to sea is a classic 'out of sight, out of mind' scenario. If this silt was dumped on DoC land or native bush, people would be up in arms, but the silt that will cover and kill reefs, spoil surf breaks etc., is out of sight, so they can get away with it (Anon.).

All Otago based key informants also identified the dumping of dredge spoil as a major issue for surfers in the Otago Region:

> Probably the biggest issues we are dealing with at the moment is channel dredging, harbour improvement, harbour access improvement and the disposal of dredge material… That's been the biggest push by a long way for us in Otago as far as coastal goes (Key Informant 9 – Otago Regional Council).

> You've got the dumping of dredge spoil by Port Otago which is owned by the ORC and they've been granted consent to dump 7.2 million cubic metres of silt sand and rock about eight kilometres from that break that will feed into the Blueskin [Bay] gyre which could well end up silting up the area. It's already done it with the accumulation at Warrington, Long Beach and all those… This is a huge amount and could have a major effect on not only this break [Karitane] but also Aramoana and others (Key Informant 8 – Karitane Local).

Key Informant 10 acknowledged the economic significance of port operations but opposed the current dumpsites, advocating instead for the dredge spoil be dumped further out to sea or used more productively to re-nourish other beaches including Ocean Beach.

Crowds were cited as a concern at some of the more popular beaches, most notably St Clair, Blackhead and Murdering Bay. Etiquette issues were also raised at the surf breaks where crowds were a factor:

> Crowds at Blackhead are sometimes a bit mental, with some bad attitudes in the water. This problem seems to disappear when the surf is a good size (overhead+), suggesting the issue is largely coming from intermediate surfers who aren't out on the bigger days (Anon.).

Key Informant 10 commented that whilst crowds are an on-going concern the reality is that it is *"part and parcel of surfing"*. Six questionnaire respondents also commented that the Otago Region remains relatively uncrowded compared to many parts of the world.

Water quality concerns were cited in relation to all current sewage outfall locations, stormwater runoff, nutrient loading from farming activities, and potential contaminant run-off from the quarry at Blackhead. All Otago based key informants acknowledged discharge as a key issue in the Otago Region.

> The health of the river that runs into Karitane can get a bit nasty when we've had a lot of rain, just with runoff. That goes back to those land based practices. It's something that happens 20 or 30 kilometres away and has an effect on aspects of the coast and surf breaks aren't exempt from that... I'd say water quality would be a major issue (Key Informant 8).

Key Informant 7 highlighted the significant improvement in recent years:

> The DCC has done a very good job with cleaning up water quality. There used to be sewage going into the harbour and [the outfall at] Tahuna used to be disgusting. They've put in a lot of money at a huge cost to the taxpayer but we are going to reap the benefits of that.

Concerns about the sea wall at St Clair included public safety, the reflection of wave energy and the subsequent loss of wave quality at high tide and the wall's wider impacts on sand cycles and erosion along the coast. The wall was also linked to concerns as to the effects of sand mining at Tomahawk and a reduction in coastal sediment supply from the damming of major waterways (including the Clutha River):

> The St Clair sea wall design creates large movements of sand, coupled with sand removal from Tomahawk Beach expediting erosion of shoreline sand volumes (Anon.).

> Changes to St Clair beaches need to be consulted with the surfing community. There are some experts in the community that need to be heard instead of the Council wasting money pouring sand down the bank (Anon.).

Key Informant 10 from the South Coast Boardriders Association cited negative impacts on wave quality and safety concerns in relation to the wall, commenting that *"one of New Zealand's most famous beaches has been destroyed"*. Key Informant 10 further commented that the negative impacts on surf conditions at high tide have compromised St. Clair's ability to host major competitions and benefit from associated tourism opportunities. Key Informants 6 and 7 also commented on the negative impact of the wall in relation to the effects of backwash on wave quality and the exposure of landfill material, as discussed in section 4.3.3, as safety hazards.

The impact of the quarry at Blackhead was raised in relation to wind patterns (due to the reduction in size of the headland), water quality issues, and the loss of amenity and natural character values. The lack of toilet facilities and the state of car parking at Blackhead and other areas was also raised:

> There is a severe lack of facilities at all Otago beaches. Not just for surfers but for the public in general i.e. rubbish bins, toilets/changing facilities, decent car parking (Anon.).

Access issues included concerns about local authorities or agencies closing beach access to protect wildlife:

> I'm concerned about how DoC can close public access to a beach for penguins. In my experience a few surfers in the line-up does not interfere with normal penguin behaviour. Surfers are very respectful of the local wildlife. Hopefully in the future we aren't locked out of more beaches during breeding season (Anon.).

Maintaining access through private property was also an issue, with concerns that poor etiquette threatens future access:

> A farmer has kindly granted access to the beach to prevent us having to walk five kilometres along the beach. However some people don't put money in the donation box and drive recklessly on the farm, which could be a concern to the livestock and the soil/life-supporting capacity of the land (Anon.).

Key Informant 10 compared access to this same surf break and another break where the farmer has developed easy access and had no problems. Key Informant 10 suggested that the problems at the fore-mentioned surf break are largely due to non-locals who are not familiar with local protocols, advocating the need for better education and respect to maintain access into the future.

Summary of Key Issues in the Otago Region

Issues of concern for respondents to the Otago Region questionnaire largely reflect those surf break values identified in Table 6.1. Respondents were especially concerned by physical threats to wave quality, with the dumping of dredge spoil at Aramoana and the impacts of the sea wall at St. Clair key concerns. Water quality was strongly identified as an on-going area of concern although significant improvements have been made in the last twenty years. Respondents were also concerned by factors that impact on the quality of the surfing experience including crowds, access, and the impacts of the quarry at Blackhead.

6.4 Discussion

Key review findings from Chapter 2 relating to surf break user values included:

- Surf breaks provide economic, social, cultural and spiritual value to surfers and the wider community

- Surf break users value physical characteristics contributing to wave quality

- Surfing has evolved its own unique culture and rules of etiquette that remain at the core of surfing today

- Surf breaks can be degraded in a number of ways that impact on core surfing values.

Overall results are consistent with these key findings. Studies have identified surf break users as valuing physical characteristics contributing to wave quality (Phillips and House, 2009; Peryman, 2011a) as well as cultural aspects (Farmer and Short, 2007; Taylor, 2007). Research into the relative weighting given to surf break user values is limited although Peryman (2011a) found wave quality to be highly valued, similar to results for the Auckland and Otago regions (see Table 6.2). A combination of factors are necessary to produce high-quality surf breaks and hence their value to surfers as a limited resource (Scarfe *et al.*, 2003; Scarfe, 2008; Corne, 2009; Peryman, 2011a). It could be expected that surf break users would consistently value factors relating to wave quality as a reflection of their limited nature and core value to surfing.

Frampton (2010) highlighted understanding perceived amenity values as an important step in the management of beach amenity to enable targeted management responses. Different beach user groups value different factors (James, 2000; Phillips and House, 2009; Frampton, 2010), with Phillips and House (2009) identifying surfers as valuing physical characteristics. Results showed that surf break users primarily value natural factors (physical characteristics and elements of naturalness) suggesting that management approaches should primarily focus on

retaining surf breaks as natural features. Management approaches are further discussed in Chapter 7.

A number of issues were identified in Chapter 2 as threats to surf breaks. Researchers have mostly described the physical impact of activities on surf breaks: the loss wave quality at Mundaka, Spain, due to increased dredging (Liria *et al.*, 2009); the loss of Killer Dana, USA, replaced by a boat harbour (Oram and Valverde, 1994). Results for the Auckland and Otago regions identified a range of impacts and potential issues. Of particular interest from the research findings is the suggestion that overall surf break user values reflect local issues of concern. Results showed that for Auckland respondents elements of naturalness were highly valued reflecting coastal development concerns whilst water quality values were of high concern for Otago respondents. The implications of these findings suggest that management responses designed to protect surf break user values need to consider local scale issues and concerns, with appropriate responses tailored to address local circumstances. This brings into question the effectiveness of the NZCPS (2010) as a national level document. Whilst the NZCPS (2010) creates a framework for an integrated approach to surf break management, operating in isolation it is unable to address local scale issues. For surf break policy to be effective requires local authorities to give effect to surf break policies in local planning documents. The effectiveness of the NZCPS (2010) is further discussed in section 8.7 in relation to identified surf break co-management options.

6.5 Conclusion

Overall results showed similarity in identified surf break values for each region, with respondents primarily valuing surf break wave quality and elements of naturalness. Results were consistent with previous research showing physical characteristics as highly valued. It could be expected that surf break users would consistently value wave quality as a reflection of the limited nature of quality surf breaks and their core value to surfing. Additional factors that are important in contributing to the quality of the surfing experience, including the provision of facilities, ease of access, and low level of use, were considered secondary to the quality of the actual breaking waves.

Key issues in Auckland included crowding, sand mining, and coastal development. For the Otago Region, key issues included the disposal of dredge material, the impact of the seawall at St. Clair, and water quality. Surf break values for questionnaire respondents reflected identified issues of concern for each of the regions. Coastal development concerns and the potential impact on natural character values were reflected in the Auckland questionnaire results with 'naturalness' and 'scenery' rating higher in terms of value than 'wave quality'.

Otago questionnaire respondents highly valued water and wave quality, with respondent and key informant comments strongly identifying physical threats to surf break quality in the form of dredging and the St. Clair sea wall as of concern. Results suggest that management approaches designed to protect surf break values need to consider local issues and local surf break user values. The NZCPS (2010) is unable to provide for surf breaks at local scales and requires local authorities to give effect to surf break policy in local planning documents. The next chapter addresses Research Question 2, considering the purpose of surf break management.

7 The Purpose of Surf Break Management

7.1 Introduction

This chapter presents results and discussion for the second research question: what are the desired outcomes for surf break users in the management of surf breaks? Chapter 2 identified the aim of surf break management as to broadly provide for the general protection of surf breaks. Research findings build upon providing for general protection to considering specific outcomes and management responses. Efforts to protect surf breaks have largely been driven by surfing communities, with the highlighting of the value of surf breaks considered an effective method to increase recognition of surfing in decision-making processes (Lazarow, 2007; Scarfe *et al.*, 2009a). Results from Chapter 6 suggested that management approaches need to reflect local issues in order to protect local surf break values. Given the potential role of local surfing communities in management processes, it is of value to determine desired management outcomes for local surf break users. The chapter presents questionnaire respondent perceptions regarding past and future involvement of local authorities and their own personal ability to engage in surf break decision-making processes. The overall purpose of surf break management is then explored, with results discussed in relation to previous research reviewed in Chapter 2.

7.2 Local Authority Decision-Making Processes

Respondents were asked to consider the effectiveness of local authorities in past decision-making processes in relation to surf breaks and their personal ability to engage in council processes. Figure 7.1 shows that 67% of respondents to the Auckland Region questionnaire and 53% of Otago respondents considered that the inclusion of surf breaks in local authority decision-making processes had been poor or very poor. Figure 7.2 shows that respondents were mixed in their opinions of their ability to engage in council decision-making processes. Otago respondents identified a lower level of confidence, with 49% considering their ability as ineffective or very ineffective compared to 33% for Auckland respondents. The results suggest questionnaire respondents generally have relatively low levels of confidence in council decision-making processes. Similar confidence levels are further reflected in the following results and discussion as to the future involvement of local authorities and the overall purpose of surf break management.

How well do you think local authorities have incorporated surfing into past decision making processes?
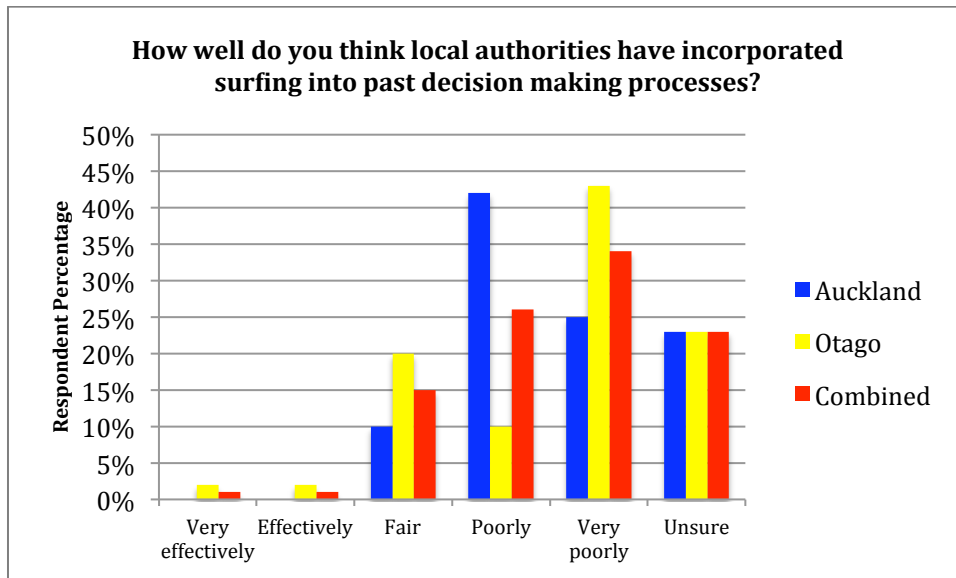
Figure 7.1: Respondent opinions as to how local authorities have incorporated surfing into past decision-making processes

How would you rate your ability to engage in council decision making processes relating to surf breaks?
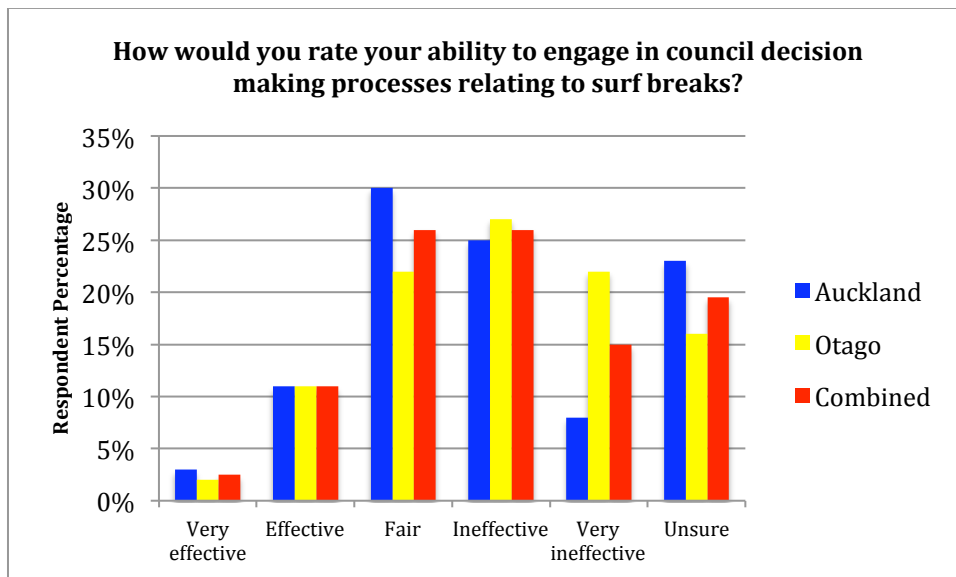
Figure 7.2: Respondent perceptions as to their personal ability to engage in council decision-making processes relating to surf breaks

7.3 Potential Local Authority Involvement in Surf Break Management

Questionnaire respondents were asked to consider local authority involvement in a range of different management actions. Table 7.1 outlines Auckland respondent opinions, showing strong support for a policy response, with 84% agreeing or strongly agreeing to the provision of surf breaks within policy documents.

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Table 7.1: Auckland questionnaire respondent opinions as to the potential involvement of local authorities in a range of surf break management actions

Response	How should local authorities be involved in the management of surf breaks?	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Policy	Provide for surf breaks in policy documents (Regional and District Plans)	0%	0%	16%	30%	54%
	Produce surf break management plans	2%	3%	19%	39%	37%
	Establish surf break management committees with key stakeholder groups	6%	8%	14%	40%	32%
	Create surfing reserves	2%	2%	14%	26%	56%
Physical Management	Provide access to surf breaks	7%	13%	31%	30%	19%
	Maintain access to surf breaks	2%	11%	11%	39%	37%
	Provide surf break facilities	9%	15%	28%	31%	17%
	Maintain surf break facilities	8%	12%	19%	40%	21%
	Monitor surf break conditions	11%	20%	20%	23%	26%
	Monitor water quality	0%	0%	2%	26%	72%
	Organise beach clean ups	2%	0%	7%	30%	61%
Education	Inform surf break users how they can be involved in council processes	4%	2%	8%	43%	43%
	Provide signage detailing surf break information	21%	21%	23%	23%	12%
	Provide signage detailing surf break rules	15%	20%	20%	28%	17%
	Initiate surf break education programmes	20%	11%	20%	43%	6%
	Promote the recreational benefits of surfing	19%	12%	21%	40%	8%
Regulation	Improve surf break safety	17%	27%	30%	13%	13%
	Establish different zones for different surf break users	39%	26%	15%	15%	5%
	Limit access to crowded surf breaks	41%	30%	13%	13%	3%
	Issue permits for surf break users	69%	22%	3%	6%	0%
	Police the 'on the water' use of surf breaks	58%	23%	13%	6%	0%

There was general support for local authorities to be involved in physical management actions, with 76% agreeing or strongly agreeing that surf break access should be provided for, 98% in support of water quality monitoring, and 91% agreeing or strongly agreeing that councils should organise beach clean ups. Support for education actions was mixed, although there was 86% support for local authorities to inform surf break users how they can be involved in the management of surf breaks. As an education initiative, providing surf break information signage found 35% in support compared to 42% in opposition. There was slightly more support for providing signage detailing surfing rules, with 45% in support and 35% against. Regulatory actions drew the least support with 91% against the issuing of permits for surf break users, 81% against the 'on the water' policing of surf breaks, and 71% against limiting access to crowded breaks.

Table 7.2 shows respondent opinions for the Otago Region as to the involvement of local authorities in the management of surf breaks. Results for the Otago Region largely mirrored the Auckland results, showing strong support for a policy and physical management response and strong opposition to the regulation of surf break use, with 93% opposing surfing permits and 88% opposing 'on the water' policing. Both regions show strong support for surfing reserves although it is noted that the current policy framework in New Zealand does not directly provide for the creation of surfing reserves.

Table 7.2: **Otago questionnaire respondent opinions as to the potential involvement of local authorities in a range of surf break management actions**

Response	How should local authorities be involved in the management of surf breaks?	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Policy	Provide for surf breaks in policy documents (Regional and District Plans)	0%	2%	18%	38%	42%
	Produce surf break management plans	3%	2%	22%	43%	30%
	Establish surf break management committees with key stakeholder groups	4%	7%	9%	45%	33%
	Create surfing reserves	0%	4%	19%	29%	48%
Physical Management	Provide access to surf breaks	7%	9%	25%	32%	27%
	Maintain access to surf breaks	4%	2%	19%	42%	33%
	Provide surf break facilities	5%	22%	22%	36%	15%
	Maintain surf break facilities	5%	15%	18%	44%	18%
	Monitor surf break conditions	9%	30%	28%	22%	11%
	Monitor water quality	5%	0%	7%	20%	68%
	Organise beach clean ups	4%	0%	16%	40%	40%
Education	Inform surf break users how they can be involved in council processes	0%	7%	13%	44%	36%
	Provide signage detailing surf break information	25%	25%	25%	18%	7%
	Provide signage detailing surf break rules	20%	25%	16%	23%	16%
	Initiate surf break education programmes	30%	21%	23%	23%	3%
	Promote the recreational benefits of surfing	20%	21%	20%	29%	10%
Regulation	Improve surf break safety	24%	27%	36%	11%	2%
	Establish different zones for different surf break users	39%	30%	16%	11%	4%
	Limit access to crowded surf breaks	54%	32%	5%	5%	4%
	Issue permits for surf break users	82%	11%	2%	3%	2%
	Police the 'on the water' use of surf breaks	75%	13%	4%	4%	4%

Overall, respondents identified strong support for local authorities to provide for a policy response supported by physical management actions designed to maintain and enhance the quality of the surfing experience. There was mixed support for local authorities to implement

education initiatives, although there was strong support for authorities to better inform surf break users regarding council processes. Respondents were strongly against hands-on regulatory actions that try to control the use of surf breaks. Key Informants 2, 4 and 10 also expressed strong opposition to regulatory approaches.

7.4 Purpose of Surf Break Management

Respondents were asked to state in their own words what the overall purpose of surf break management should be. Keyword searches were performed to identify and quantify common themes. Purposes identified by less than two respondents were not included. Tables 7.3 and 7.4 outline opinions for each of the Auckland and Otago regions respectively. Forty-five percent of Auckland questionnaire respondents and 40% of Otago respondents answered the question.

General Protection

Results from both questionnaires show that respondents considered that the main purpose of surf break management is to provide general protection to wave quality and the value of surf breaks within the wider natural coastal environment. Respondent comments generally supported broad approaches:

> To maintain wave quality, maintain water quality and access to breaks. Be aware of any proposed works or activities that have the potential to adversely impact upon a surf break, including the enjoyment associated with surfing a break. Keep involved with relative council officers, consents, policy, and parks. Promote appropriate usage of the break (Anon.).

Key Informant 8 discussed the purpose of surf break management at Karitane as an example of a management approach to a surf break of national significance (SBNS):

> I think the long-term vision is for it to be recognised and to be classed as such [as a SBNS]. I was hoping that it might get more protection in terms of land-based practice and in terms of dredging the harbour for instance. If that was going to have an impact then give it another layer of protection, a bit like what has happened on Huriawa [Peninsula where there is a Private Protected Land Agreement in place] where the break is. It's been registered as a wahi tapu. The idea is to not have it monkeyed with really.

Key Informant 12 stressed the need to measure breaks to underpin management approaches:

> If you don't measure it you cant manage it – that's the mantra. If there's no measurement, beach profiles or sediment budgets then what's traditionally been done [in terms of management] doesn't really cut it. I think that's what's really been exposed with the Whangamata Bar and the consent work that's been done on there. The level of surveying there doesn't match the spatial and temporal scale of what the surf break really is… It's not until you've got that baseline data that you can really say what's going on.

Table 7.3: **Themed responses as to the purpose of surf break management for respondents to the Auckland Region questionnaire**

	Overall, what should the management of surf breaks seek to achieve?	Number of responses
General Protection	Protect and maintain wave quality	16
	Protect surf breaks within the wider coastal environment	11
	Protect natural character values	11
	Maintain water quality	4
	Minimize coastal development	4
	Protect surf breaks from adverse effects of other activities	3
	Create surfing reserves	3
Physical Management	Enhance or create more breaks	5
	Monitor wave and water quality	3
	Provide, maintain and improve facilities	3
	Ensure access	3
	Protect dunes	2
Education	Educate and promote to beach users and the wider community about the use and value of surf breaks within the coastal environment	4
	Educate surfers and the wider public to promote beach safety	3
	Organise activities for kids and families to get involved in surfing, surf lifesaving, and environmental guardianship	3
Management Approach	Do not over-manage or provide too much information, especially for lesser-known surf breaks. Take a 'backroom' approach.	10
	Local government should stay out of surfing	5
	Promote appropriate use of breaks	2
	Create awareness of the possible impacts of activities on surf breaks	2

Table 7.4: **Themed responses as to the purpose of surf break management for respondents to the Otago Region questionnaire**

	Purpose of surf break management	Number of responses
General Protection	Maintain water quality	16
	Protect surf breaks from adverse effects of other activities	12
	Protect surf breaks within the wider coastal environment	11
	Leave/maintain/protect surf breaks as natural as possible	11
	Protect and maintain wave quality	6
Physical Management	Ensure access	8
	Provide, maintain and improve facilities (especially at popular breaks)	5
	Manage litter	4
	Enhance or create breaks with infrastructure	2
Education	Educate and promote to beach users and the wider community about the use and value of surf breaks within the coastal environment	6
	Provide beach signage and information (about surfing, rips, dogs, vegetation and wildlife, and water quality)	6
	Educate surfers and the wider public to promote beach safety	3
Management Approach	Do not over-manage or provide too much information, especially for lesser-known surf breaks. Take a 'backroom' approach.	8
	Local government should stay out of surfing	7
	Do not interfere with the act of surfing	2
	Consult/involve beach users	2

Issues specific to each region were reflected in comments. Ensuring water quality was a strongly identified purpose in the Otago Region, with 16 respondents commenting on water quality:

> Monitor water pollutants around the main and surrounding surf breaks (especially town beaches and Blackhead) and have signs clearly stating the water quality. For example also monitor the pollutants and rocks coming from the Blackhead quarry into the ocean (Anon.).

For the Auckland Region, responses reflected coastal development concerns, with 11 respondents identifying the need to protect natural character values and four suggesting that surf break management should seek to minimise coastal development:

> Surf break management should protect surf breaks from pollution, rock walls and groynes, unsuitable developments like mariners etc. Protect the hinterland of beaches from inappropriate development. Recognize people enjoy untouched coastal areas (Anon.).

Physical Management

Physical management actions were identified as a secondary purpose to providing for general protection. Eight Otago respondents and three Auckland respondents referred to ensuring access whilst five Otago respondents and three Auckland respondents stated that the provision of facilities should be a key purpose. Seven respondents stated that surf break management should aim to create or enhance surf breaks. Key Informant 3, the Chairman of the Orewa Reef Charitable Trust, championed support for the construction of the Orewa Reef as an example of the potential for artificial reef development as *"an overall integrated approach to beach management"*.

Education

Specific reference to education initiatives were generally included in wider comments relating to the general protection of surf breaks. Ten respondents and Key Informants 1, 2, 3, 4, 8, 10, 14 and 15 referred to the need to promote recognition of the value of surf breaks to the wider community.

> Surfing is one of the few things that don't have any negative impact after you've left it. Maybe that's why some of these places are undervalued. Councils don't actually see people there when they go out on a screaming southerly onshore day and don't realise how popular they really are. I guess reasons for management would be education in that sort of way, to non-users about the value of it (Key Informant 8).

The provision of signage detailing surf break rules and coastal information drew polarizing support from both questionnaire respondents and key informants. Key Informant 10 supported the provision of etiquette and coastal education signs at a few key breaks, such as St. Clair and Aramoana. Similarly Key Informant 4 supported signage at Piha:

> I think it would be a good idea. You've been down to Raglan and they've got all the rules there. It wouldn't be a silly thing to do. The problem is a lot of guys just don't understand the rules, which is unfortunate. I suppose it's just about education isn't it. I think that would help.

Key Informant 8 felt signs were unnecessary at the majority of surf breaks, advocating the traditional self-policing of etiquette by local surfers:

> I think the less signs the better in terms of rules. I think Australia is a different culture altogether. I mean surfing is a kind of national sport whereas in New Zealand, [whilst] it's a bit more mainstream now, it's still got a bit of an underground element that people really like… To my mind locals sort of manage etiquette and I think that's the way it should be.

The majority of comments advocating the provision of educational signage supported selective use at popular surf breaks only. Key Informant 1 from the Auckland Council discussed the likelihood of signage in the Auckland Region:

> In Australia you see those signs that have the rules and quite a lot of people here identified that we should have those rules. I know that one of the park managers from up north he surfs and he's mentioned to me before 'I wonder if we should put up some of these signs at Te Arai, Omaha or Pakiri'. You don't want them everywhere of course... but at some point some signage might go up.

Five of the six respondents referring to education initiatives targeting beach user safety also identified themselves as being involved in surf lifesaving. In this regard, Key Informant 5 from Surf Lifesaving New Zealand commented on the need to better educate surfers about the risk they pose to swimmers, acknowledging signage as an important tool.

Management Approaches

Respondents identified two main streams of opinion in relation to management approaches – 18 supported management to take a 'back room' approach whilst 12 advocated for local government to stay out of surfing:

> Take a back room approach: don't be heavy handed and don't make surfers think there are rules. We already have self-policed etiquette in the water designed to keep us safe and share the waves. It mostly works, but putting signs everywhere? Groms [youths] will just tag them (Anon.).

> In some ways I'd much rather see local government stay out of the management of surfing all together. I have absolutely no confidence in them not to tie surfers up with a whole bunch of red tape and rules (Anon.).

Comments show strong opposition to the regulation of surf breaks and support for local authorities to play a supporting role. Comments in opposition to the involvement of local authorities reflect questionnaire results showing over 50% of respondents consider past local authority involvement in surfing related decision-making processes as poor. Key informants

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further highlighted poor relationships and low levels of trust between surf break user groups and local authorities, particularly in the Otago Region (Key Informant 8, 10, 15). Key Informant 10 expressed a desire for local authorities to better engage and consult with surfing interest groups, whilst Key Informant 8 commented that the Council's *"idea of consultation is quite different from community ideas of consultation"*. Key Informant 8 further discussed the role of local authorities in providing for surf breaks:

> I would like to see them recognise the break here [at Karitane] as a SBNS that needs to be incorporated with any activity that they are going to do that could potentially impact on it… I'd like to see the plans give effect to it rather than take account – I think those are the words they use. They need to be seen to be serious about protecting some of these things. They are not going to be around if some activities carry on or are allowed to develop. That goes with quite a number of breaks here that don't have that status.

7.5 Discussion

Key review findings as identified in Chapter 2 included:

- The ultimate aim of surf break management is to protect surf breaks

- Increasing recognition of the value of surf breaks is seen as a crucial step in promoting the protection of surf breaks

- Protect not only world-class surf breaks but also a range of surf breaks suited to all ability levels.

Overall results reflected the identified purpose of surf break management from Chapter 2: to provide for the general protection of surf breaks. Research participants typically referred to surf break management in general terms of providing for the protection of surf breaks. The purpose of surf break management is effectively not well defined. The ambiguity perhaps reflects the relatively recent emergence of surf break management as an academic field of research. Whilst researchers have commented on the growing recognition of surf break protection within coastal management, practical application remains limited (Oram and Valverde, 1994; Buckley, 2002a; Lazarow, 2007; Scarfe, 2008; Scarfe *et al.*, 2009a; Fletcher *et al.*, 2011; Peryman and Skellern, 2011). There is no clear set of established management approaches or outcomes other than to provide general protection.

Lazarow (2007; 2009) and Scarfe *et al.* (2009a; 2009b) highlighted the importance of promoting the value of surfing to the wider community to increase consideration of surf breaks in decision-making processes. Farmer and Short (2007) commented on the value of the NSR approach in this regard. Ten questionnaire respondents compared to eight key informants specifically referred to promoting wider recognition of the value of surf breaks as

a desired purpose for surf break management. These result suggest that the general surfing population may not be as aware of the value of promoting surfing to the wider community as those directly engaged in surf break decision-making processes. Indeed promoting surfing goes against some its core values - protecting surf spots from becoming over-crowded and maintaining an underground element (Young, 2000; Lanagan, 2002; Peryman, 2011a). Any efforts to promote surfing need to reflect the desires of the surfing community (Scarfe *et al.*, 2009a; Peryman, 2011a) and as such educating surf break users as to the value of promoting surf breaks represents a potentially important initial challenge to surf break management.

Buckley (2002b), Martin (2010) and Peryman (2011a) commented on the growing awareness of the need to protect all kinds of waves and not just expert level waves. This issue was an aspect of the NZCPS (2010) submissions process and recognised as an important consideration in the Board of Inquiry report into the Proposed NZCPS (2008) (Department of Conservation, 2009a). Research results here did not specifically highlight providing for all kinds of surf breaks as a key consideration in surf break management. It is assumed, however, that in referring to the general protection of surf breaks respondents consider such protection to apply to a range of surf breaks. Key Informants 1, 13 and 15, all directly involved with formal surf break decision-making processes, commented on the need to protect a range of surf breaks including learner waves. It was noted in Chapter 6 that Peryman (2011a) identified a higher value rating for suitability of a surf break to learner surfers than for this study, although it was considered that the Peryman (2011a) study asked respondents to consider the wider value of learner breaks rather than on a personal level as for this study. As such, it is considered that results from this study are consistent with previous research recognising the need to protect a range of wave types.

7.6 Conclusion

Surf break users generally consider that the overall purpose of surf break management is to provide general protection to wave quality and to recognise the value of surf breaks within the wider natural coastal environment. Results were consistent with previous research, identifying providing for the general protection of surf breaks, increasing recognition of the value of surf breaks, and providing for a range of surf breaks as key outcomes for the management of surf breaks. Overall findings show that specific surf break management outcomes are not yet well defined, reflecting the relatively recent emergence of surf break protection initiatives. Results also suggest that the general surfing population may not be as aware of the value of promoting surfing to the wider community as those directly engaged in surf break decision-making processes. Promoting surfing arguably goes against core elements of surfing culture. Raising

support to promote the value of surfing represents a potential challenge to surf break management initiatives.

Results from both the Auckland and Otago regions show respondents were similar in support for local authorities to take an overall 'back room' management approach. There was strong support from questionnaire respondents for local authorities to provide a policy response supported by physical management actions that maintain and enhance the quality of the surfing experience, including ensuring water quality and organising beach clean ups. There was mixed support for local authorities to implement surf break related education initiatives, although there was strong support for authorities to better inform surf break users regarding council processes. Respondents and surf break interest group key informants were strongly against hands-on regulatory actions that try to control the use of surf breaks. Results show respondents generally have relatively low levels of confidence in their ability to engage in formal decision-making processes. Results also show equally low levels of confidence from respondents in council decision-making processes and potential local authority involvement in surf break management. The next chapter presents results and discussion for co-management options as guided by Research Question 3.

8 Surf Break Co-Management Options

8.1 Introduction

This chapter presents results and discussion in relation to the final research question: is co-management a viable option for the management of surf breaks? The participation of all key stakeholders within the wider community is recognised as a fundamental component of integrated coastal management (Cicin-Sain and Knecht, 1998). Co-management represents a potentially effective means to involve surf break users as key stakeholders in the preservation of surfing resources. Surfers possess an accumulated knowledge of surfing and an inherent interest in the preservation of surf breaks (Peryman, 2011a). The involvement of surf break users provides local authorities with an opportunity to effectively manage surfing resources in line with New Zealand Coastal Policy Statement (NZCPS) (2010) policy directives, bridge potential knowledge and funding gaps and to increase community interest and ownership (Peryman, 2011a).

Two potential co-management options for surf breaks were identified in Chapter 2: adopting a designated surf break focused management approach similar to the National Surfing Reserves (NSR) movement in Australia; and supporting the inclusion of surf break interest groups and individuals as key stakeholders in wider integrated coastal management approaches, such as demonstrated by the Kaikoura Marine Guardians (KMG). These two options are discussed in relation to findings from relevant literature, questionnaire results and key informant interviews. This chapter explores policy frameworks to support co-management initiatives, considers surf break user involvement in management functions and examines co-management options for surf breaks in the Auckland and Otago regions. Finally consideration is given to the application of research findings to other areas in New Zealand and in relation to previous research.

8.2 Supporting Policy Framework

The first consideration for the management of surf breaks is the supporting policy framework. Chapter 5 outlined the policy framework for each of the Auckland and Otago regions. Whilst there is no specific precedent for establishing surf break management programmes in New Zealand, providing for surf breaks is recognised as consistent with achieving the purpose of the Resource Management Act (RMA) (1991) (Auckland Regional Council, 2010; Peryman, 2011a; Peryman and Skellern, 2011). Key Informant 13 discussed the RMA (1991) in relation to surf breaks:

> I'd say that the RMA is a key means by which to manage the effects of activities that impact on surf breaks. That's primarily going to be the responsibility of regional councils and district councils because of their implementation roles under the RMA. In terms of having regulatory effect it's going to be the district and regional councils from what they put in their regional policy statements and plans. That's going to be the thing that really determines what happens in relation to those individual surf breaks.

Following on from the NZCPS (2010), Key Informants 1, 12, 13, and 15 considered that the identification of significant surf breaks and the provision of supporting policy in regional policy documents, combined with the establishment of monitoring regimes, are crucial next steps to underpin efforts to protect surf breaks. These actions - surf break identification, policy provision and monitoring - provide the framework for surf break management approaches (Scarfe *et al.*, 2009a). Key Informant 15 discussed the potential progression from identifying significant surf breaks to community-based surf break management approaches:

> Right now our primary driver is to make sure that regional coastal policy statements have surf breaks embedded in them that recognise the NZCPS (2010) but secondly we build upon the process to map and identify surf breaks within areas regionally that can be documented as being surf breaks of some significance... This has nothing to do with monitoring, the next big piece of work, but no one has really identified how to do this... We need to have proof that activities will damage the surf break, and so where do you get that info? If it isn't scientific then you're just going to get consultants arguing with one another, those on the council side, developer side, environmental side etc. Thirdly is the concept of bottom up and the surfing reserve kind of approach... There's the work that's been done in Gisborne around Makarori, where the locals got right in behind it to change a barrier fence and replant it. They embraced it, had working bees and all that kind of stuff. That's the next wave, the next 10 years or so.

8.2.1   Supporting Policy Framework for the Auckland Region

As discussed in Chapter 4, the Auckland Council is working toward the inclusion of surf break policy into its draft Unitary Plan. Key Informant 1 discussed the current and future direction for surf break protection under the Auckland Council:

> In terms of driving the process, the NZCPS has been a major part of it as well as parts of the RMA of course in terms of recreational amenity and those types of values... Also the ARC report has guided work here, so it won't be too different to what's in the ARC report in terms of the reasons under the RMA and the Hauraki Gulf Marine Park Act. It kind of falls out of the NZCPS in terms of identifying and looking at providing policy for protecting surf breaks in the region. We are looking to map and identify significant surf breaks and have created a list of 35 breaks in the region. Next is policy... We've tried to think of all types of activities that might affect breaks. So in terms of provisions for marinas, dredging, sand extraction or disposal, reclamation, structure installation. We've tried to put in some wording around 'consider the potential effects on significant surf breaks'. We are also mapping big areas of high natural character and outstanding natural character areas and outstanding natural features. With the NZCPS (2010) policy 13 natural character

mentioning surf breaks there is a bit of overlap and so under the natural character policy there is some reference to surf breaks.

The Unitary Plan will effectively provide for surf break identification and policy provision. Key Informant 1 was asked to consider the next steps in relation to monitoring and integrated management approaches:

> I guess at this stage it hasn't been thought about. In terms of political support some politicians have been quite supportive of this [the inclusion of surf break policy] but it hasn't been put up formally for their direction on it. In terms of community monitoring… ideally you could have members of the Piha community monitoring water quality or changes in wave conditions or beach profiles, similar to Whangamata. Get the locals to record information and get a bit of rough raw data informally. Because we are coming to the first hurdle of just getting something in there, I guess it's something for the future and I can't say too much about it really.

Based on the assumption that surf breaks are included in the Unitary Plan, it is considered that the Auckland Region policy framework is well positioned to support future surf break management initiatives.

8.2.2   Supporting Policy Framework for the Otago Region

As noted in Chapter 4 there has been no progress made in the Otago Region towards implementing NZCPS (2010) surf break policy. Key Informant 9 discussed Otago Regional Council (ORC) policy development and review timeframes for the immediate future:

> The Regional Policy Statement is in the work programme due to start next financial year. Currently it's a bit out of date, but we've had other priorities – water quality and water management – and the Coastal Plan is also a bit dated, becoming operative in 2000. A new Coastal Plan is in the schedule of work in the future but it's not in the immediate future. It's in the four or five year time frame as to when it will get started. We did do a plan change to the Coastal Plan as a result of the NZCPS (2010) where we took out the restricted coastal activities – a straight admin task, took them out and that was it. It [the Regional Plan Coast] is a document that as you can see is still quite pristine and virtually every copy of it is – our coastal area is not one that's got a lot of activity in it, so it's not an area that we prioritise our planning efforts on.

Key Informant 9 was then asked whether the ORC had specifically looked at or set priorities relating to Policy 16 of the NZCPS (2010):

> No, to be brutally honest about it. The Council hasn't done anything other than pick up the policy statements and consider what do we need to do straight away and done that and parked it again and will slot it in with the rest of the admin programme processing these things in time. The surf break bit of it was a bit of a surprise to us I suppose – none of us are surfers obviously – we didn't see it as a priority to hare off and go and do a lot of work. Neither did we respond to the aquaculture plan changes that required aquaculture management areas to go into plans – we didn't do any of that either – so it's not like we are picking on surfers it's just not a priority in this area for us to do something – we will keep an eye on this sort of stuff but we have limited resources and we target them.

Work toward surf break identification and policy provision appears some distance away and as identified in Chapter 4 the current policy framework for the Otago Region does not provide for surf breaks other than in general terms as natural features within the coastal environment. As such, it is considered that the Otago Region is not currently well positioned to support surf break management initiatives.

8.3 Community-Based Management Approaches

Within the coastal policy framework key informants discussed the potential for community involvement in surf break management:

> Looking at the bigger picture there is the opportunity for integrated management across the RMA and other responsibilities as well. Community groups working with councils to improve access, for example, working through those issues to protect existing access and to enhance it in certain situations. In terms of local government, that's going to involve a lot of other non-RMA responsibilities, particularly under the Local Government Act [2002] and the Reserves Act [1977] (Key Informant 13).

> Communities can bring some real passion and grunt to it – you've only got to look at the Yellow-eyed Penguin Trust, they are keen, enthusiastic and have had a real positive impact (Key Informant 9).

Getting community 'buy-in' and developing a sense of stewardship are recognised as key components in the success of community-based management approaches (Christie and White, 1997; Cicin-Sain and Knecht, 1998). Key Informant 13 further discussed the benefits of community involvement in resource management approaches:

> From the Department's [DoC] perspective, we are saying something that has the broader involvement of the community is going to be more successful. At the end of the day the community is going to appreciate the values that are there and want to feel involved in decision-making about the future management of it.

Key Informant 15 also advocated support for community-based management but highlighted the challenge in motivating the surfing community:

> I think the bottom-up approach is best but how do you bring the community together when they're often quite apathetic? There has to be a call to action of some kind, and quite often it's like a breaking point. Recent examples in New Zealand include Te Arai, Aramoana and Whangamata… We need the communities to get in behind and embrace it, drive it within their own communities.

Motivating volunteer participants is recognised as a key challenge to any community-based management approach (Christie and White, 1997). Ryan *et al.* (2001) highlighted the success of volunteer programmes that consider participant motivations and look to build on opportunities to recognise and reward participant efforts. Key informants from Sustainable Coastlines and the Yellow-eyed Penguin Trust, both non-profit organisations involved in coastal volunteer work, similarly addressed participant motivations:

> It's always a challenge to motivate people to do something similar over and over again. It's a major problem that's really hard to make a difference on. One of the ways that we have managed to motivate people is by running events that are fun. So we will often include a bit of adventure element in the event and put together a bit of a feed [sic] and some music often as well (Key Informant 14).

> We do put an emphasis on looking after them. If people are volunteering… and show that they've got the right stuff and commitment then if we've got an opportunity to give them development in something such as nest searching and penguin work itself we will be looking at that to enhance their experience. We also recognise what they do and we try to put on a barbeque every year or you do this and that and look after these guys because they do do [sic] good work (Key Informant 11).

Key Informant 10 highlighted South Coast Boardriders Association's (SCBRA) involvement in organising coastal clean up events, finding particular success in combining such work with surfing events. The club was also heavily involved in a campaign to protect the Blackhead surf break and wider area from the adverse effects of the Blackhead quarry. Key Informant 10 commented that the campaign suffered from a lack of results, with a general feeling amongst members of the surfing community that they were not being listened to by the Council. In this respect, Key Informant 10 stressed the importance of positive outcomes in motivating participant involvement.

8.3.1 Potential Surf Break User Involvement

Key to the success of surf break co-management initiatives would be the continued involvement of surf break users in the management of breaks. The majority of such work would likely rely on volunteer efforts to co-ordinate and carry out management actions, particularly physical management actions such as beach clean ups and dune restoration. To gauge possible surf break user participation levels, questionnaire respondents were asked to consider their personal involvement on a volunteer basis in surf break management processes.

Table 8.1 presents results for the Auckland questionnaire, showing that 70% or more of respondents stated they would possibly be willing to be involved in different management processes. Fifty-six percent indicated they would be likely or highly likely to join a boardrider or surf lifesaving club on the basis of the club's involvement in surf break management. Table 8.2 shows similar support for club involvement from Otago questionnaire respondents, with 48% indicating they would likely join a club. Comparing potential involvement in management committees and meetings shows a higher potential level of support from Auckland respondents, with 32% likely to be involved in surf break management committees compared to 17% for Otago respondents and 43% likely to attend Auckland surf break management meetings compared to 23% for Otago respondents.

Table 8.1: **Potential voluntary involvement in the management of surf breaks for respondents to the Auckland Region questionnaire**

In what manner would you be prepared to be involved on a voluntary basis in the management of surf breaks?		Very unlikely	Unlikely	Neutral	Possibly	Likely	Highly likely
Management Processes	Join a local boardrider/surf club (on the basis of their involvement in the management of surf breaks)	9%	8%	8%	19%	28%	28%
	Be involved in a surf break management committee	8%	13%	9%	38%	15%	17%
	Attend surf break management meetings	7%	13%	9%	28%	28%	15%
Physical Processes	Participate in beach clean ups	3%	0%	4%	17%	33%	43%
	Participate in surf break 'working bees' to improve the surrounding area (e.g. dune plantings, build facilities etc.)	11%	2%	7%	26%	28%	26%
	Organise beach clean ups or 'working bees'	15%	18%	9%	36%	11%	11%
	Be involved in beach monitoring programmes	9%	13%	12%	31%	22%	13%
	Be involved in surf break education programmes	14%	24%	19%	19%	13%	11%
Funding	Fundraise for the purposes of surf break management (e.g. new toilet facilities, signage etc.)	21%	19%	19%	26%	13%	2%
	Pay an annual surf break management contribution fee	35%	13%	17%	22%	9%	4%

Table 8.2: **Potential voluntary involvement in the management of surf breaks for respondents to the Otago Region questionnaire**

In what manner would you be prepared to be involved on a voluntary basis in the management of surf breaks?		Very unlikely	Unlikely	Neutral	Possibly	Likely	Highly likely
Management Processes	Join a local boardrider/surf club (on the basis of their involvement in the management of surf breaks)	6%	15%	10%	21%	23%	25%
	Be involved in a surf break management committee	12%	26%	15%	30%	15%	2%
	Attend surf break management meetings	8%	15%	16%	38%	21%	2%
Physical Processes	Participate in beach clean ups	2%	7%	7%	25%	28%	31%
	Participate in surf break 'working bees' to improve the surrounding area (e.g. dune plantings, build facilities etc.)	4%	15%	9%	19%	33%	20%
	Organise beach clean ups or 'working bees'	8%	28%	24%	21%	13%	6%
	Be involved in beach monitoring programmes	12%	10%	21%	38%	13%	6%
	Be involved in surf break education programmes	9%	30%	35%	9%	11%	6%
Funding	Fundraise for the purposes of surf break management (e.g. new toilet facilities, signage etc.)	15%	26%	9%	35%	9%	6%
	Pay an annual surf break management contribution fee	30%	33%	9%	15%	7%	6%

Results show strong potential support for surf break user involvement in beach clean ups and working bee events, with 93% and 84% possible participation rates for beach clean ups for Auckland and Otago respondents respectively, and similarly 84% and 72% for possible working bee participation rates. Education initiatives drew stronger support from Auckland respondents with 43% indicating possible involvement in surf break education programmes compared to 26% for Otago respondents. Funding initiatives drew the least support with 48% of Auckland respondents and 63% of Otago respondents unlikely or highly unlikely to pay annual surf break management fees. Overall questionnaire results suggest that there is potential for a proportion of surf break users to become involved in surf break management actions.

8.3.2   Actual Surf Break User Involvement

Converting potential involvement to actual involvement would be a key challenge to the success of any given surf break management programme. Questionnaire results reflect the range of different viewpoints and potential interest levels amongst participants. The reality is that not all surf break users or surf break user groups will be interested in participating in surf break management initiatives. Key Informant 15 highlighted the challenge for their organisation (Surfbreak Protection Society) in motivating surf break user involvement:

> If you ask someone 'would you like a surfing reserve set up, would you like councils to do something' they go 'yes' as opposed to the detail which goes 'which do you think works best – a bottom up approach where the community gets together', at which point you realize you have to put a lot of energy into it, 'or do think that that's just too hard and that the councils should protect it all the way across...' and then in terms of the management of them, which is another thing altogether, 'how would you best do that and can you give examples?' The biggest problem we've got is when we ask people they go 'yeah, that would be good, just do it and tell us when you've done it – we really like it but we don't want to get involved in it – we're just going to go surfing', which is a real frustration… If it's not parochialism it's apathy. We need to break that cycle.

Key Informant 9 identified the requirement for any formal approach to surf break management to undertake some form of official recognition as a potential barrier in the progression of surf break management interests:

> If it's going to go far you need to somehow formalise the community group in a way to give it the authority or ability to be able to do what it wants to do. It's got to have some way of advocating for it on behalf of the surf break for a start – I don't want to suggest start a trust or something – but there needs to be some way that the formal system can see that this group have got integrity and permanence and a truth about them that we need to listen to because these people here will do this block of work and they can do it better than we can because they are dedicated to this task. So it's about building that relationship but at the moment the legislation will not let it happen, in all honestly, short of creating some sort of structured organisation.

> Whereas I think people go surfing to get away from that sort of world. If there were some kind of way that it could be done then that would be great.

The challenge for surf break management initiatives will be to motivate those individuals who are possibly interested in participating. Developing leadership is considered an important step in this regard.

8.3.3 The Need For Strong Leadership

Key Informants 4, 15, and 16 stressed the need for strong leadership to really drive the process. Farmer and Short (2007) discussed the process of establishing the NSR movement in Australia as being driven in large part through the community by a handful of dedicated individuals. Similarly in New Zealand the inclusion of surf breaks in the NZCPS (2010) was a result of a community led initiative supported by surfing interest groups and individuals (Peryman, 2011a). Community-based surf break management programmes would arguably benefit from similarly strong leadership. Key Informant 4 highlighted the role of leadership:

> We [Piha Boardriders Club] would definitely be interested in being involved as we have in the past in environmental work with plantings and working bees and things. It's just getting that push. Organising it all is a lot of commitment and I suppose it comes down to peoples time and that's the hardest thing isn't it – dedicating time to it. Everyone's got to pay the bills unfortunately. We used to have [a member] heavily involved in our boardrider club and she was very good at that sort of thing. She would get an idea and go with it and doesn't stop until she sees it right through to the end. She's now involved heavily with the Surfbreak Protection Society, which is great but a bit detrimental to us because we've lost her now.

Questionnaire and key informant results suggest that this leadership should come from within the surfing community itself. Studies by Peryman (2011a; 2011b) highlighted the level of enthusiasm of local surfing communities within the Gisborne and Bay of Plenty areas to be involved in and take ownership of surf break protection initiatives. In this regard boardrider clubs and surf lifesaving clubs could play an important leadership role and is further discussed below. In terms of council leadership, results and discussion for Research Question 1 showed general support for local authorities to provide a supporting policy framework and to take a 'back-room' management approach. There is, however, opportunity for councils to effectively take a leadership role in adopting a proactive approach to surf break management to initially drive the process. This potential role is discussed further in section 8.6.2 of this chapter.

8.3.4 The Role of Boardrider and Surf Lifesaving Clubs

In considering the potential role of boardrider clubs in the management of surf breaks, Key Informant 1 discussed the future participation of clubs on the basis of their involvement in the Auckland Council Unitary Plan process:

> We've had a little bit of a reaction and involvement from boardrider clubs in the process and it's always supportive, but whether clubs are stable enough long term is another question. The Keyhole Boardriders is long established and Kariotahi was quite involved in the NZCPS submissions process but… we've had a number of clubs come and go in Auckland.

Key Informant 9 commented on the need to ensure the long-term stability of those involved in surf break management:

> This group of surfers needs to hand it on to the next group of surfers… There's no point getting 50 surfers really keen on a surf break and as they get old, pass on, or move on, that the young ones don't pick it up. Suddenly here's this surf break with no one looking after it – it's in a worse position than it was.

Similar to individual participation rates, the level of potential boardrider club involvement or otherwise would likely vary from club to club. In the case of the Orewa Long Board Club (OLBC), Key Informant 2 commented that:

> We are environmentally responsible, leave only footprints, but for the club, it's not in the constitution and it's not one of our goals to do that kind of work… We support in principle people who are fighting sewage outfalls etc., but you have to pick your battles. We can't look at everything. Your stereotypical surfers quite selfless and individualistic, he's environmental but he or she is generally not going to invest too much of their own time into those sorts of causes… With 115 members, we had one guy volunteer to help with disabled surfers and we've got probably 10% of the club maybe environmentally active.

Key Informants 2 and 12 commented on the relatively small numbers involved in clubs and their potential ability to represent the general surfing population:

> Members of boardrider clubs are probably only about a percent [sic] or two of the total recreational surfing population. Auckland, with 1.5 million people, only has five boardrider clubs or something like that, with a total membership of say 400. So what does that work out to? 0.10% of the population if that. Surfers generally don't join boardrider clubs. It goes against the idea of it you know? Then again people maybe don't join clubs as much as they used to anyway (Key Informant 2).

> The boardrider clubs in New Zealand have about 2-3000 members, which come in at about 5% of what the Hilary Commission numbers are for surfers in New Zealand – 95% of people surfing don't have anything to do with that. There is a massive disconnect between these groups and the general public (Key Informant 12).

As an important feature at many beaches throughout New Zealand, Surf Lifesaving Clubs were also identified in Chapter 3 as potential key stakeholders in the management of surf breaks. Key Informant 5 from Surf Lifesaving New Zealand (SLNZ) was asked about the relationship between surf lifesaving clubs and boardrider clubs and whether clubs could potentially work together in surf break management initiatives:

> Some of the clubs have quite close relationships, like Orewa. I'm the club captain for the Orewa club and we've got the OLBC working out of the bar as well. They have

their meetings at the Surf Lifesaving clubrooms and a lot of them are joint members, so they're members of the surf club and the OLBC, which is a great relationship to have at the end of the day. We're all there because we all love the water and love being involved. A lot of us are surfers and quite often your not out there with a rescue tube, your out there with a surfboard and helping people anyway.

Similarly Key Informant 10 from SCBRA, with its clubrooms directly opposite the St. Clair Surf Lifesaving Club, highlighted its strong relationship with local surf lifesaving clubs. Key Informant 4 commented on the history between surf lifesavers and surfers as a possible barrier: *"There's always a bit of animosity between the surf lifesavers and surfers in the past. It's slowly changing though"*. Surf lifesavers and surfers have at times been at odds over the use of beaches, particularly when swimming areas coincide with surf breaks:

> We have some issues with surfers entering swimming zones. I mean it's surfers endangering swimmers... We try to keep people safe and out of the way of surfers as best we can but the safe place sometimes happens to be in the centre of the wave peak because there is not much current happening there, but that's the nature of the beast (Key Informant 5).

Key Informant 4 further discussed their club's efforts to build relations with surf lifesaving clubs: *"We are trying to get a few of the surf lifesaving nippers* (youths) *over to our club as well but it's quite hard because a lot of them are actually from Auckland, so it's just getting them interested. It'll happen eventually"*.

Boardrider clubs and surf lifesaving clubs are typically not set up to focus on environmental management (Key Informants 2 and 5). Surf lifesaving clubs are primarily focused toward beach safety whilst boardrider clubs provide for social interaction, balanced with competitions, beach education, youth development, and environmental work to varying degrees. Of the boardrider clubs involved in this research, the Piha Boardriders Club is focused toward youth development, the OLBC social events and competition, and the SCBRA social events and competition as well as promoting safety and family involvement. Focusing on environmental management may detract from the core values of the club and impact on membership although questionnaire results showed that 75% of Auckland respondents (Table 8.1) and 68% of Otago respondents (Table 8.2) would consider joining a boardrider club or surf lifesaving club on the basis of their involvement in surf break management. The results suggest that surf break users could be influenced by club involvement in surf break management to join clubs or participate in club activities. Any involvement would need to represent the aims and objectives of the club and its members (Key Informant 2).

Overall, the involvement of boardrider clubs and surf lifesaving clubs would likely vary on a case-by-case basis. There is potential for clubs to operate in a joint manner, with key

informants generally identifying positive relationships between surf lifesaving and boardrider clubs. Questionnaire results suggest that a proportion of surf break users could join clubs on the basis of their involvement in surf break management. Any potential surf break management approach would likely benefit from positive relations between clubs and it is considered that any integrated management approach should build upon these relationships.

8.4   Option 1: Dedicated Surf Break Management Approach

Establishing a community-based dedicated surf break management approach, based on the NSR movement in Australia, was identified in Chapter 2 as a potential option for surf break management in New Zealand. Key Informant 15 discussed the potential benefits of adopting such an approach supported by the NZCPS (2010) framework:

> The NZCPS has been good because it's brought planners and councils to bear that they have to recognise that there are significant surf breaks that need to be identified and considered through the planning process, but that is a very top-down kind of approach. The NSR programme is more of a bottom-up approach where effectively communities get together and go 'We love our surf break, we're a community, it brings us economic benefit through tourism and what not, we'd like to make sure that it is not damaged, destroyed or changed in any way by humans. So let's take this NSR process and we'll get the mayor involved and get the businesses involved and get everybody involved'. That'll come from the bottom, from the community, and they'll recognise it and embrace it and they'll commemorate it by putting up a plaque and advertising. The money's coming from the community as opposed to a purely top-down process where you just try to enshrine the protection in law but only a few people have bought into it.

Key Informant 1 was asked whether a NSR approach, including the establishment of management committees, would be a desired long-term outcome for regionally significant surf breaks in the Auckland Region:

> I guess that's something to consider into the future. I'm interested in that too, having been to a few in Australia, but you wonder what you're getting out of it. It's a great publicity thing of course, but what's tangible out of it? If some activity threatens waves I guess it adds weight to the decision.

A key aspect of the NSR approach in Australia is the use of signage, plaques, and formal dedication ceremonies to promote the value of the surf break to the local and wider community (Farmer and Short, 2007). In considering whether this approach is appropriate for surf breaks in the Auckland and Otago regions it was noted in Chapter 7 that the provision of signage drew mixed support from questionnaire respondents and key informants. Respondents also highlighted a desire not to promote lesser-known surf breaks:

> Too much information ruins the hunt. Provide facilities at popular well know breaks but leave the little known spots well alone. There is nothing like discovering a break and having a secluded session with just your mates and some local wildlife (Anon.).

> As surfing becomes more popular, the existence of hard to access, little known or out-of-the way surf breaks is a good thing, so that those who don't like crowds and are willing to do the research and spend them time finding them, can get away from the crowds (Anon.).

Key Informant 8 was asked his opinion about promoting Karitane as a SBNS via related signage or a formal dedication ceremony:

> I don't really think it would be appropriate. I think that it doesn't really need it or warrant it. When we are talking about this wave it's not that consistent. It's not like it *goes off* [produces high-quality surfing waves] everyday at 3 pm like some places do. It's kind of like one of those little gems that only happens every now and then.

Key Informant 8 further discussed the balance of protecting the break versus promoting it:

> It's a trade-off of sorts. I'm not sure how people read the NZCPS… or whether that feeds into other publications and that, but in terms of having it nationally significant I don't think that necessarily means that it's high quality or anything. I mean Karitane is not consistent compared to spots on the South Coast [of Otago], it just means that when it is good it's good, and so why not look after it and protect it from other influences. Maybe as a consequence more people will surf it but that's the trade-off.

Karitane provides a good example of the challenge to decision-makers in providing for surf breaks. The relative consistency of the Karitane area means that on most days throughout the year the nationally significant river bar and point break do not produce suitable surfing conditions. As such it is unlikely that management approaches at Karitane would require day-to-day attention. Although not a SBNS, St. Clair on the other hand is used by surfers regularly throughout the year and potentially would require a stronger management response. Similar comparisons can be drawn in the Auckland Region with Piha, as arguably the most popular and consistent break in the Region, compared to some of the East Coast reefs which are capable of producing high-quality surfing conditions but on less frequent basis. Key Informant 8 commented on the NSR approach at a popular town beach like St. Clair: *"It could be more appropriate there but I think it's up to the local users to make that decision - those that live there and use it regularly should make that call"*. This comment was reflected by Key Informants 1, 3, 9, 10, 13, and 15 who all advocated that the best approach for each break needs to reflect the needs of the surf break and the desires of the local surfing and wider communities.

8.5   Option 2: Integrated Coastal Management Approach

Involving surf break user interest groups and individuals as key stakeholders in wider integrated coastal management approaches was identified in Chapter 2 as a potential option for surf break management in New Zealand. The example of the Kaikoura Marine Guardians (KMG) process was discussed in Chapter 2 and further offered as an example by Key

Informant 13 (DoC National Office Senior Planner) in advocating the benefits of integrated co-management approaches:

> Co-management can be such a great way to achieve integration… It's an opportunity to really increase understanding about the facts but also the perceptions and the different perspectives of the various people that are involved in the process. Consider the Kaikoura Marine Guardians – for the people that have been involved in that process it's one where everybody who had an interest in the marine environment in Kaikoura was round the table but they had very little understanding of what everybody else in the room thought. There were a lot of assumptions made and everyone that I've talked to in relation to that process have said that it's been an amazing way to actually find out and get to know everybody else and actually to appreciate where they are all coming from. Getting that shared understanding has been really important to provide that foundation for any on-going co-management and integrating the responsibilities of DoC, Environment Canterbury, Kaikoura District Council and also all the Iwi interests. In terms of co-management there is the opportunity to address some really big issues that are absolutely fundamental to people's thinking about a resource and how they work together.

As a KMG Rununga representative, Key Informant 16 was asked whether the approach in Kaikoura could be applied to different areas and scales within New Zealand:

> I think it can work in other areas, in fact I don't see why you would want to do things in a different way… I think in New Zealand we are so used to being directed by government whereas with this process the community decides something. We still need support from the agencies, but who is more passionate about the area than the people of Kaikoura? So it has its merits, but I could see that if it is not managed well and you don't have a wide range of members on the committee then you could have a small group of people who have their own agendas leading a community off into a direction that may not necessarily be good for the whole community… There will be other communities who can use this approach but can do things better from who we can all learn from. I think our process was really good but I think there are always ways in which you could do this better.

Achieving positive management outcomes for surf breaks is very much dependent on the scale of issues (Key Informants 7 and 9). Christie and White (1997) commented that the success of integrated management approaches was typically most evident at local scales where communities are able to see direct impacts. For the surfing community, can their involvement in wider coastal management processes produce positive outcomes for specific surfing issues? There is the potential that surfing specific issues, access and etiquette for example, would get lost in addressing wider coastal issues such as over-fishing and mineral extraction. Key Informant 16 was asked how the KMG process ensures that larger interests do not dominate minor groups and issues:

> I suppose that is what we have found through the submission process is that people do already think that we are dominated. People think that the Rununga dominate, recreational fisherman think that commercial fisherman are dominating, commercial fisherman think that the greenies are dominating etc. etc. I think that's where you've

really got to have everyone at the table to just try. You've got to have people who will voice their opinion… I think it's just one of those things, I don't have an answer. You just have to strive to get a balance... We have to make sure that everyone has a say.

Key Informant 9 further cautioned the scale of focus for integrated coastal management approaches:

> At that level [coastal wide] it becomes a bit nebulous and too general, too generic and very hard to focus onto. I think that for things that you can isolate quite clearly - like this surf break and the 'Friends of Murdering Bay' for example - if you can isolate that out to an area those people will do more to look after that than we [council] could ever afford to do because the ratepayers are going to fund it. A dozen people with a common interest in the area will do more to look after it than 12 FTEs [full-time equivalents] going in there and we are not going to be able to put even 5 FTEs in there. So for those sorts of things I think community-based approaches are great but for that overall coastal environment high order approach there's nothing there that the community can really grab onto.

In considering approaches to the Otago Region, Key Informant 7 felt that an integrated approach would be an effective means to address a number of coastal issues, many of which impact on a range of coastal user groups including surfers:

> Personally I'd probably go integrated because you get them all sitting down together in the same room with your fishers, Ngai Tahu, boaties, divers etc. and like I said a lot of the issues are in common – water quality, even dredging and dumping spoil – it's all still the divers and fishers as well as surfers… With a lot of the issues down here, I mean I'm crystal ball gazing, but I don't see some of the threats to surf breaks down here that I do for the breaks up north. Something like marine farming probably won't happen down here. There was a proposal about 10 years ago for a mussel farm up this way [along Dunedin's northern coast] and people got pretty worried about swell corridors and things like that... but it wasn't viable… My feeling is that the swells going to keep on coming in here. The threats offshore wouldn't be like the Coromandel. Petro-chemical developments are happening way out to sea. There is a lot of seismic surveying going on but it's way out - 60 km - in managing that you wouldn't focus on surf breaks as such, it would be the whole coast region wide.

In contrast, Key Informant 8 expressed doubts as to the viability of a holistic integrated approach in the Otago Region:

> It would be very difficult I think. Part of the thing is that divers, fishers and surfers would rather be out there than meeting with the Council and stuff. We [the surfing community] probably don't have the best relationship or much trust with the [Otago] Regional Council at the moment. I can see in some situations it would be beneficial, particularly with these issues, but it'd be very difficult. Overall I'd have to say no – it'd be great but in reality it couldn't happen, not with us anyway.

Key Informant 6 offered the Port Otago Next Generation project, as discussed in Chapter 4, as an example of the potential for integrated approaches:

> When you look at the Port Otago Next Generation project and the different people who were involved in that from Iwi through to cockle harvesters to surfers… Compare the difference from 10 years ago to now when they've had to re-new that consent. They've had to engage and consult with surfers and from what we've seen engaging very positively – recognising with surfing that these waves are resources enjoyed by a section of the community and we want to work together to ensure that it's protected and enhanced.

Whilst the Port Otago case arguably provides an example of improved consideration of surfing interests in the decision-making process it still remains a product of the reactive consent process rather than a proactive management approach. Peryman (2011a:34) highlighted support within the Gisborne surfing community for community driven initiatives:

> Respondents supported a collaborative approach with the community for further policy development and implementation. This is as opposed to maintaining the status quo that relies on costly challenges to ad hoc decisions made through the consenting process where surf breaks are not provided for in plans.

As identified in results and discussion for Research Question 2, 60% of questionnaire respondents considered that the past performance of local authorities in providing for surf breaks had been poor. These results suggest that surf break users consider that the consent-based approach does not effectively provide for the protection of surf breaks and that there is a need to consider other approaches. In this respect, Key Informant 9 discussed the relative pros and cons of the consent approach and integrated coastal management approaches:

> They've all got their merits. The community-based integrated approach is really good around easily described and identified matters and issues. The Fiordland example [The Fiordland Marine Guardians] was a whole lot of people ready to have it out in the streets of Te Anau that got together and worked out that they were all probably talking about the same thing, just using different language. I think that a collaborative community approach to things where you can get common understanding and agreement on the values that are being looked after and how that will all happen is great. The down side of that approach is that who is responsible if it all goes wrong? Whereas on the other side of it, which is the more formal RMA regime, there's a clear responsibility and accountability that goes with it but there is also a distancing of the community - that passion for it isn't there as much and so going the extra bit doesn't really happen out of that formalized regime. So there are positives and negatives for both of them.

8.6 Which Approach for Surf Breaks in the Auckland and Otago Regions?

Adopting a local scale dedicated surf break management approach on a case-by-case basis is considered the most appropriate option to provide for the management of surf breaks in both the Auckland and Otago regions. This approach is consistent with findings from Chapter 6 suggesting that management responses designed to protect local surf break user values need to tailor responses to address local circumstances. Opportunity also exists for surf break interest groups to be involved in integrated coastal management approaches but there is equally

opportunity for surf break issues to be lost amongst wider coastal issues. There are still lessons that can be learnt from integrated approaches. Engaging with local authorities and key stakeholders around the table in an integrated approach, through management committees for example, is considered a potentially effective management response. Overall an integrated approach targeted toward local surf breaks is considered the most beneficial to protect and enhance surf breaks. As such it is recommended that the primary focus of surf break management in the Auckland and Otago regions should be to create local scale surf break co-management programmes similar to NSR in Australia.

Establishing a policy framework that identifies surf breaks of significance, provides policy recognition of surf breaks in regional and territorial planning documents, and sets out monitoring regimes is a necessary step to support co-management initiatives. The future inclusion of surf break policy in the Unitary Plan will potentially establish the Auckland Region as the most proactive region in New Zealand in providing for surf breaks. Within this policy framework, surf break management plans and management committees could function as key planning tools to give formal recognition to surf break co-management approaches. For the Otago Region, the current lack of progress in providing for surf break policy is considered a barrier to any possible future implementation of co-management programmes. Community-led initiatives could still be implemented, but the lack of formal surf break recognition within decision-making processes could undermine management efforts.

The specific approach to each management area would depend on local circumstances. Key Informant 13 discussed the role of DoC in the management of surf breaks, reflecting the need for an individual response to each management area:

> DoC's involvement for individual surf breaks is going to depend very much on the individual case and the other values that are present as well, particularly in terms of biodiversity values and the opportunities for community involvement in the protection of both the surf break and the biodiversity values that are there as well. From one extreme it could be a great opportunity to really bring together the experience of a particular place - protect and preserve the biodiversity values and protect and preserve recreational experiences at a surf break. It's going to depend very much upon the case.

As such, there is no 'one size fits all' approach to surf break co-management in the Auckland and Otago regions. There are, however, observations that can be made as to the general approach for surf break management. The following discussion considers aspects relating to the size of management areas, community and council roles, and the wider application of research findings within New Zealand.

8.6.1   The Size of Management Areas

Management programmes could be established on an individual surf break basis or extended to include a number of breaks in close proximity, as in the case of the Gold Coast NSR in Australia. For some surf breaks in the Auckland and Otago regions there are clearly defined boundaries that form likely management areas. Many of the Auckland West Coast beaches are situated between rocky headlands and provide obvious boundaries. A single West Coast focus could be considered, but many of the breaks are isolated and have their own local communities and issues. Bethells Beach and O'Neill Bay provides an example of two breaks relatively isolated and in close proximity to each other that would logically be paired together in a management programme (Fig 8.1). Similarly South Piha and North Piha are an obvious area, although Anawhata, Whites, Piha and Karekare could also be incorporated into a single programme.
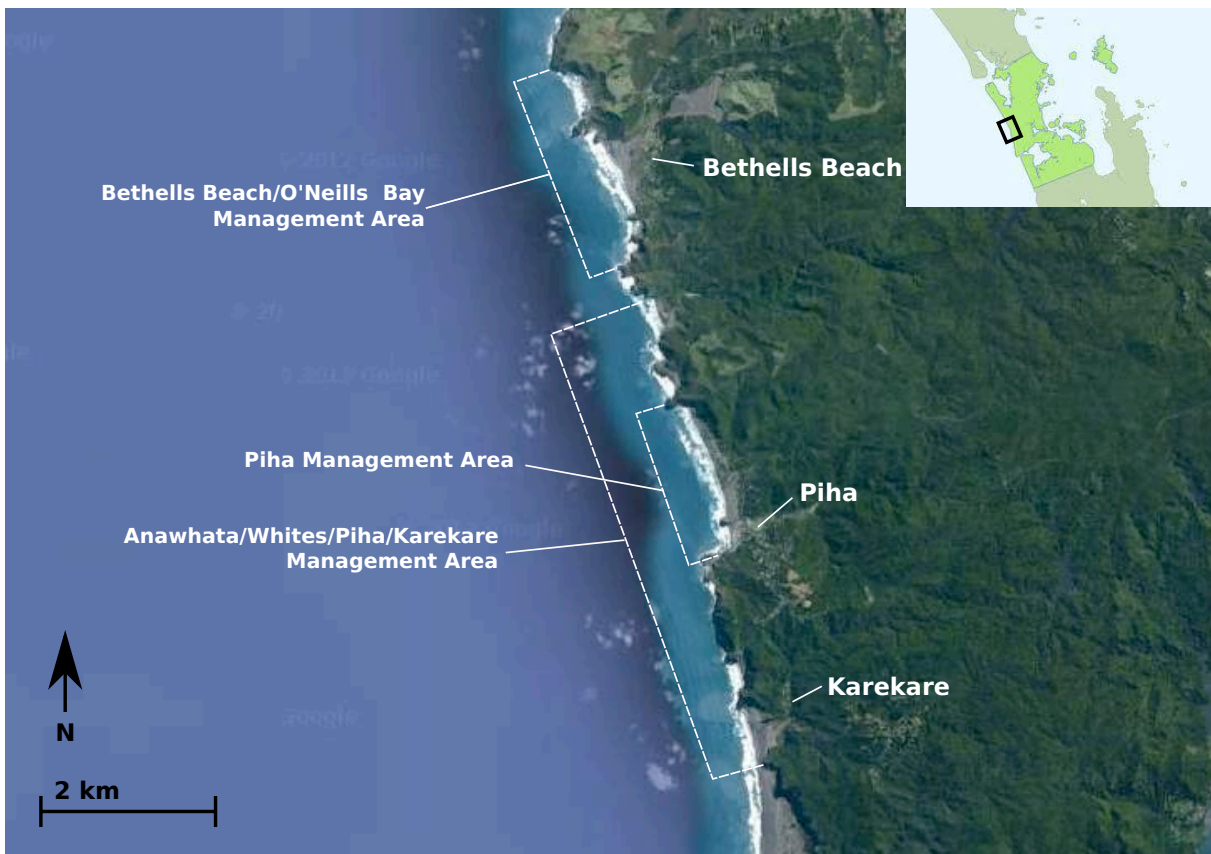
Figure 8.1:   **Potential management areas for the West Coast, Auckland. Management areas shown are indicative of the general location and do not represent actual boundaries (base image sources: http://maps.google.com/; http://en.wikipedia.org/wiki/Auckland_Region)**

In the Otago Region, Ocean Beach provides a natural management boundary incorporating the surf breaks of St. Clair and St. Kilda, although Tomahawk and Smails Beach could equally be included (Fig. 8.2). The SBNS along the North Coast provide the opportunity to create a quasi-surfing reserve that features the breaks of Karitane, Whareakeake, Aramoana,

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as well as other breaks in between including Long Beach and Warrington. The scale of approach in selecting the size of management areas needs to reflect both local and wider coastal issues and the vision of the community.
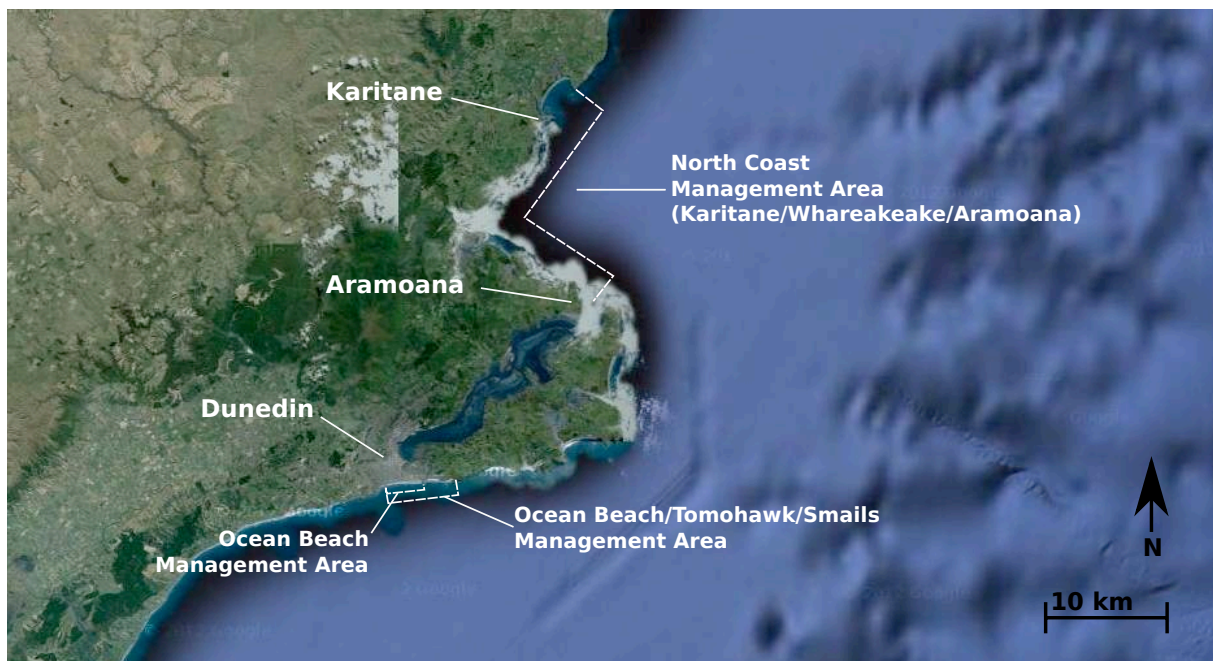
Figure 8.2: Potential management areas for the Dunedin area. Management areas shown are indicative of the general location and do not represent actual boundaries (base image source: http://maps.google.com/)

8.6.2 Community and Council Roles

A key theme that emerged throughout the research was the desire for surf break management approaches to reflect the needs and vision of the local surfing community. Results showed that there is strong interest from some surf break users to be involved in surf break management but there is equally a lack of interest from others. A key task for co-management approaches would be to harness the potential involvement of surf break users. In this regard councils have an important role to play as a facilitator in the management process. Some research participants from both the Auckland and Otago regions expressed reservations about the involvement of local authorities in surfing. There were comments from key informants (3, 4, 8, 10, and 15) and questionnaire respondents reflecting a desire for local authorities to engage more positively and productively with surf break users.

Management committees present an opportunity to directly involve local authorities and surf break users in addressing aspects of surf break management. Local authorities could effectively act as a facilitator by initiating a management response and actively engaging with the surfing community to identify potential management representation. Berkes (2009) commented that power sharing in co-management should ultimately be the result rather than the starting point for co-management. In this respect, local authorities could adopt a

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leadership role to begin with by acting as an initial 'driver' to co-management and over time look to further enable the community to develop its involvement. Research results showed strong support for local authorities to provide for surf breaks through a low-key approach. Facilitating the formation of management committees is considered consistent with this approach. Key Informant 16 stressed the importance of independence in community-based management but also the need for support from relevant agencies. Once established, local authorities could foreseeably play more of a support role and allow for the local community to drive the process, although continued support by local authorities in a co-management arrangement is considered the best approach to facilitate integrated management.

8.6.3 Surf Break Committee Involvement in Decision-Making Processes

As well as addressing specific surf break issues, establishing surf break management committees could strengthen surfing interests in wider decision-making processes. During the interview process Key Informant 11 asked who from the surfing community would be the best to engage with in relation to surf break issues in the Otago Region. The question underlined the fact that there is often no clear surf break user representation to engage with. Whilst boardrider clubs represent a proportion of the local surfing community and are an important stakeholder they are not specifically focused toward the management of surf breaks. Key Informant 9 stressed the need for any approach to gain a sense of permanence to effectively engage in the formal decision-making process in New Zealand, to which management committees represent an effective mechanism. Australian NSR management committees typically include a range of interests, including surf break users, coastal experts and council representatives, and establish formal representation of surfing interests (Farmer and Short, 2007). For the Auckland and Otago regions, the formation of management committees would establish a clear representation of surfing interests and add weight to the consideration of surf breaks in decision-making processes.

Surf break committees could further provide opportunity for surf break representation as a collective voice on coastal issues and wider integrated coastal management approaches. The role of the Hauraki Gulf Marine Forum was discussed in Chapter 5 as an existing integrated approach to coastal management in the Auckland area and identified as a potential medium for surf break interests to be represented within the Hauraki Gulf. It was noted in section 5.4 that the Hauraki Gulf State of the Environment Report 2011 found that the Gulf was experiencing continued environmental degradation (Hauraki Gulf Forum, 2011). Considering the current state of the Gulf, it is not clear whether surf break interests could adequately be provided for given the scale of key issues including the health of fish stocks. In this regard,

gaining permanent representation of surf break interests on the Hauraki Gulf Marine Forum is not considered a productive outcome for surf breaks at local scales. However, the recognition of surf break users as key stakeholders is still an important consideration. The establishment of a surf break committee within the Hauraki Gulf would establish clear representation of surfing interests and facilitate positive engagement with the Forum. In the Otago Region, the policy framework provides for integration between different levels of local governance but does not specifically extend to community levels. Establishing management committees would facilitate integration between local governance and the community in dealing with surf breaks and wider coastal issues. As noted, however, the current lack of a supporting surf break policy framework in the Region is considered a barrier to the implementation of surf break management initiatives, including management committees.

8.6.4 Application to Other Areas in New Zealand

It is considered that key findings from the Auckland and Otago regions are generally applicable to other areas throughout New Zealand. Whilst local issues of concern may be reflected in surf break user values and opinions as to the purpose of surf break management, the majority of surf break users are highly likely to consistently value wave quality and elements of naturalness. Similarly the purpose of surf break management is likely to centre around the general protection of surf breaks and wave quality.

Findings from the Auckland and Otago regions suggest that any approach to surf break management needs to reflect local issues and community aspirations. Co-management offers the potential to achieve positive outcomes in the protection and enhancement of surf breaks in New Zealand but this needs to be supported by local authority involvement. The NZCPS (2010) provides the impetus for local authorities to take a proactive approach to addressing surf break issues, similar to the Auckland Council in working toward surf break identification and policy provision. Local authorities have an important supporting role to play as facilitators in surf break management. Establishing a supporting policy framework of surf break identification, policy provision, and monitoring should be a priority. Establishing this policy framework is an opportunity for local authorities to actively engage with surf break users to determine community desires and strengthen relationships. Building this relationship is considered vital to support future surf break co-management initiatives.

Similar to the Auckland and Otago regions, adopting dedicated surf break management approaches is considered potentially the most beneficial approach to other areas in New Zealand. Surf break management committees represent a key tool to facilitate positive management outcomes and provide for a stronger voice for surfing interests. It is

recommended that local authorities actively engage with surf break users to determine whether establishing surf break management programmes is a desired response for the local community. Boardrider clubs and surf lifesaving clubs represent a starting point for the engagement of surf break users in potential management structures but their involvement could detract from their core functions – surf safety and social interaction - that need to be maintained to ensure their membership base.

8.7 Discussion

Key review findings specific to surf break co-management from Chapter 2 included:

- Co-management provides opportunity for surf break users to be directly involved in surf break management

- Surf break users possess a wealth of surfing knowledge with a genuine interest in the preservation of surfing resources.

Peryman (2011a) identified surf break co-management as a potentially effective means to involve surf break users as key stakeholders and for local authorities to bridge potential funding barriers. Scarfe *et al.* (2009a) highlighted the role that surfing communities have played in promoting surf break interests and driving protection efforts. Both Peryman (2011a) and Scarfe *et al.* (2009a) commented on the knowledge of surf break users as a valuable resource in providing for surf breaks. Results from this study were consistent with these findings, showing a good level of understanding from surf break users as to surf breaks in their respective regions as well as a level of interest and willingness from some to be involved on a voluntary basis in surf break protection initiatives. In this regard, results for the Auckland and Otago regions were consistent with studies by Peryman (2011a; 2011b) highlighting the level of enthusiasm of local surfing communities within the Gisborne and Bay of Plenty areas to be involved in and take ownership of surf break protection initiatives. The level of support was by no means universal and harnessing potential participant involvement represents a challenge to any community-based management approach (Christie and White, 1997; Cicin-Sain and Knecht, 1998; Clarke, 2008; Berkes, 2009). Results were also consistent with previous studies (Auckland Regional Council, 2010; Peryman, 2011a) identifying the desire for surf break management to reflect the needs and vision of the local surfing community.

Chapter 2 identified two potential scales of approach to surf break management:

- local scale approach focused toward a single beach or area

- wide scale approach focused toward the integrated management of the coastal environment.

Results identified a local scale approach as potentially the most beneficial in addressing surf break specific issues, consistent with previous research that identifies community-based coastal management initiatives as most effective at local scales (Christie and White, 1997; Rivera and Newkirk, 1997; Cicin-Sain and Knecht, 1998; Nickerson-Tietze, 2000; Maliao *et al.*, 2009). Case studies emphasised the value of local scale approaches in targeting management responses: the successful re-generation of the coastal eco-system by community volunteers at Bells Beach (Fox, 2011); the success of Coastcare programmes in increasing community involvement, a sense of ownership and facilitating positive management outcomes (Brookes, 2000; Harvey *et al.*, 2001; Clarke, 2008). In considering a wide scale approach results found the potential for surf break issues to be dominated by other interests. This finding was consistent with research identifying the dominance of government or other interest groups over local communities as a potential weakness of co-management approaches (Christie and White, 1997; Berkes, 2009; Cinner *et al.*, 2012). It has also been noted that wide scale co-management programmes can struggle to effectively engage local community interest or produce noticeable results at a local level, further alienating local interest (Christie and White, 1997; Maliao *et al.*, 2009). Findings from this study do not suggest that the Kaikoura Marine Guardians is an ineffective method but highlight the importance of the scale of approach in addressing coastal issues and involving coastal interest groups. For surf breaks the most appropriate scale of approach is most likely to be at a local scale in order to produce tangible management outcomes and further engage the surfing community.

In the New Zealand context, Makgill and Rennie (2012) advocated the RMA (1991) as a model for integrated coastal management (ICM). Researchers (Brookes, 2000; Peart, 2007; Makgill and Rennie, 2012) have commented that the RMA (1991) framework has not necessarily improved ICM outcomes. Peart (2007) identified differences in approaches to coastal management between agencies as a major barrier to implementing ICM under the RMA (1991). Research results highlighted the difference between the Auckland and Otago regions in terms of developing supporting policy frameworks for surf breaks. Skellern *et al.* (2009) commented that by not making the identification of regionally or locally significant surf breaks mandatory, the NZCPS (2010) may create an uneven approach to surf break protection. As discussed in section 6.4, the NZCPS (2010) does not specifically provide for surf breaks at local scales, establishing instead a framework at a national level for the integrated management of surf breaks. The approach is reliant on local authorities giving

effect to policies in local planning documents. Whilst the NZCPS (2010) is still very new in terms of policy development cycles, differences in priority settings between local authorities creates the potential for uneven development of surf break policy in New Zealand. The Auckland and Otago regions provide an example of the potential for differences. It may be that some regions are playing catch-up into the future.

8.8 Conclusion

Co-management represents a viable option for surf break management in the Auckland and Otago regions. Adopting a local-scale management approach is considered the most appropriate response to provide for surf breaks in both regions. This approach is consistent with results from Chapter 6 suggesting that management approaches designed to protect surf break values need to consider local issues and local surf break user values. Opportunity exists for surf break interest groups to be involved in integrated coastal management approaches but there is equally opportunity for surf break issues to be lost amongst wider coastal issues. As such it is recommended that the primary focus of surf break management should be to create local-scale management programmes similar to National Surfing Reserves in Australia. A key feature of this approach is the establishment of management committees that directly engage local authorities with surf break users and potentially serve to strengthen surfing interests in formal decision-making processes.

The NZCPS (2010) provides impetus for local authorities to recognise and provide for surf breaks within the coastal environment. Establishing a supporting policy framework involving surf break identification, policy provision and monitoring is considered crucial to underpin efforts to protect surf breaks and support co-management initiatives. Based on the assumption that surf break policy is included in the Auckland Council Unitary Plan, the Auckland Region is well positioned to support future surf break management initiatives. In contrast, the lack of progress toward surf break policy implementation in the Otago Region means that the region is not well positioned to support surf break management. The Auckland and Otago regions provide an example of how differences in priority settings between agencies may lead to uneven development of surf break policy in New Zealand.

Research results suggest that there is potential for a proportion of surf break users to become involved in surf break management actions. Findings for the Auckland and Otago regions were consistent with previous studies of the Gisborne and Bay of Plenty regions by Peryman (2011a; 2011b) identifying a level of interest from surf break users to be involved in the management of surfing resources. In terms of voluntary involvement, questionnaire results showed that respondents were most likely to join boardrider clubs and surf lifesaving clubs or

participate in beach clean and working bee events. Results were generally similar between the regions, although Auckland respondents indicated a higher likelihood than Otago respondents in being involved in surf break management committees. Respondents were least likely to be involved in surf break education programmes, fundraising initiatives or pay annual surf break management fees. The challenge for surf break management programmes would be to motivate those individuals who are possibly interested in participating. Developing leadership from within the surfing community is considered an important step in this regard. Local authorities also have an important leadership role to play as a facilitator in the management process. The involvement of boardrider clubs and surf lifesaving clubs would likely vary on a case-by-case basis. There is potential for some clubs to operate in a joint manner, with key informants generally identifying positive relationships between surf lifesaving and boardrider clubs.

A key theme that emerged throughout the research was the desire for surf break management to reflect the needs and vision of the local surfing community. This was consistent with other studies by the Auckland Regional Council (2010) and Peryman (2011a; 2011b). In selecting the size of management areas, for example, the scale of approach needs to reflect the views of the community in relation to local issues as well as considering wider coastal issues. Similarly in some areas surf break management programmes may not be deemed necessary or a desired community outcome. There is effectively no 'one size fits all' approach to surf break management and local authorities need to actively engage with the community to determine management responses.

It is considered that the key findings in relation to the Auckland and Otago regions are generally applicable to other areas throughout New Zealand. Focusing management efforts at a local scale is most likely to address local surf break issues and encourage the involvement of the local surfing community. Management initiatives need to reflect the ambitions of the local community and be supported by a policy framework. Local authorities have a key role in providing for a policy response, facilitating engagement and providing proactive leadership. Local authorities should actively engage with surf break users to determine community aspirations and explore opportunities for the co-management of surf breaks. The following chapter presents overall research conclusions, evaluates research outcomes and considers avenues for future research.

9 Conclusion

The inclusion of surf breaks in the New Zealand Coastal Policy Statement (NZCPS) (2010) provides recognition of the value of surfing resources and establishes New Zealand as a world leader in the protection of surf breaks. As a relatively new area of coastal management research, providing for surf breaks presents challenges to decision-makers that lack experience in dealing with surf break related issues (Peryman, 2011a). Surf break users represent a source of knowledge and expertise in this regard, with a genuine interest in efforts to protect and enhance surfing resources. Involving surf break users in co-management arrangements serves to directly benefit local authorities in providing for surf breaks and allow for surfing communities to take ownership in the management of surf breaks.

This research followed on from the inclusion of surf break policy in the NZCPS (2010) and sought to determine the potential for the involvement of surf break users in the co-management of surf breaks within the coastal environment. The study was guided by the following research objective:

> *To evaluate the suitability of co-management options for the protection and enhancement of surf breaks within New Zealand's current resource management framework.*

The following research questions sought to inform the overall research objective:

> 1. *What do surf break users value about the surf breaks that they use?*
>
> 2. *What are the desired outcomes for surf break users in the management of surf breaks?*
>
> 3. *Is co-management a viable option for the management of surf breaks?*

Research findings were presented in Chapters 6, 7 and 8 in relation to the research questions to inform the overall research objective. A review of relevant literature identified two potential approaches to surf break co-management. The first option considered the Australian National Surfing Reserve (NSR) community-based approach whereby management efforts are focused toward a local-scale approach of a single surf break or surfing area. Key features of the NSR approach include the formation of management committees involving local authorities, surf break users, coastal experts and other key stakeholders, as well as formal dedication ceremonies and the erection of related signage educating beach users and

commemorating the significance of the surfing resource (Farmer and Short, 2007). The second option was to assess the value of establishing surf break user representation on wider integrated coastal management approaches such as the Kaikoura Marine Guardians (KMG). The KMG represents an integrated 'bottom-up' community initiative to sustainably manage the Kaikoura coastal environment. The KMG process involves key stakeholders – regional council, district council, local rununga, Department of Conservation, environmental interest groups, tourism interest groups, recreational and commercial fishing interests - working together to produce a management strategy for the coast (Te Korowai o Te Tai ō Marokura, 2011b). This research sought to consider the effectiveness of each approach in addressing surf break values and related issues in the Auckland and Otago regions. Results were then considered in relation to their wider application throughout New Zealand and review findings. Key findings are presented in relation to each of the research questions, followed by an evaluation of the research process and possible avenues for further research.

9.1 Research Question 1: What do surf break users value about the surf breaks that they use?

Research Question 1 sought to determine surf break user values and key issues of concern for the Auckland and Otago regions. Results were consistent with previous research, identifying surf break users as primarily valuing factors relating to wave quality. It could be expected that surf break users would consistently value wave quality as a reflection of the limited nature of quality surf breaks and their core value to surfing. Results showed similarities in identified surf break user values for each of the Auckland and Otago regions, with questionnaire respondents also highly valuing elements of naturalness. Additional factors that contribute to the quality of the surfing experience, including the provision of facilities, ease of access, and low level of use, were considered secondary to the quality of the actual breaking waves. Overall findings were similar to a study of surf break user values in the Gisborne area by Peryman (2011a) which also found factors relating to wave quality and scenery as highly valued.

Identified surf break user values reflected issues of concern for questionnaire respondents in each of the Auckland and Otago regions. Key issues in Auckland included crowding, sand mining, and coastal development. Concerns as to the potential impact of coastal development on natural character values were reflected in results from the Auckland questionnaire with 'naturalness' and 'scenery' rating higher than 'wave quality'. For the Otago Region, key issues included the disposal of dredge material, the impact of the seawall at St. Clair, and water quality. Otago questionnaire respondent and key informant comments strongly

identified water quality as highly valued. Results suggested that local surf break issues can influence local surf break user values and that management approaches designed to protect surf break values need to consider local issues and values. The NZCPS (2010) is unable to provide for surf breaks at local scales and requires local authorities to give effect to surf break policy in local planning documents.

9.2 Research Question 2: What are the desired outcomes for surf break users in the management of surf breaks?

Research Question 2 sought to determine surf break user opinions as to the overall purpose of surf break management and perceptions toward the involvement of local authorities in surf break management.

9.2.1 Local Authority Role

To determine surf break user opinions as to the role of local authorities in the management of surf breaks, questionnaire respondents were asked to identify their level of support for council involvement in a range of pre-determined surf break management functions. Results were similar for each region. There was strong support for local authorities to provide a policy response supported by physical management actions, including providing and maintaining access, ensuring water quality and organising beach clean ups. There was mixed support for local authorities to implement surf break related education initiatives, although there was strong support for authorities to better inform surf break users regarding council processes. Respondents were strongly against 'hands on' regulatory actions that try to control the use of surf breaks, notably the issuing of permits, limiting access to crowded breaks, and policing the use of surf breaks.

9.2.2 The Purpose of Surf Break Management

Analysis of surf break user responses identified four key themes as to the purpose of surf break management, with respondents discussing management in terms of general protection, physical management, education, and management approach. The majority of respondents commented on the general protection of surf breaks, with comments mostly indicating that the purpose should be to provide general protection to wave quality and to recognise the value of surf breaks within the wider natural coastal environment. Similar to findings for surf break user values, issues of concern specific to each region were reflected in results. For the Otago Region, ensuring water quality was a strongly identified purpose. For the Auckland Region, respondents strongly identified the need to protect natural character values reflecting coastal development concerns.

Physical management actions were identified as a secondary purpose to providing for general protection. Respondents referred to ensuring access, the provision of facilities and the physical creation or enhancement of surf breaks. Education initiatives were generally referred to in wider comments relating to the general protection of surf breaks. The provision of signage detailing surf break rules and coastal information drew polarizing support. The majority of comments that advocated signage supported selective use at popular surf breaks only. Results from both the Auckland and Otago regions found that surf break users were similar in support for local authorities to take an overall 'back room' management approach and strongly against 'hands on' regulatory responses. The 'back-room' approach equated to authorities not over-regulating surfing and allowing the surfing community to continue to self-manage surfing specific issues such as over-crowding and etiquette. A proportion of respondents considered that local authorities should not be involved in the management of surf breaks. Results suggested questionnaire respondents generally have relatively low levels of confidence in council involvement in surf break management and decision-making processes.

Results as to the purpose of surf break management were consistent with review findings, identifying providing for the general protection of surf breaks, increasing recognition of the value of surf breaks and providing for a range of surf breaks as key outcomes for the management of surf breaks. A key theme that emerged throughout the research, consistent with previous research (Scarfe *et al.*, 2009a; Peryman, 2011a), was the desire for surf break management to reflect the needs and vision of the local surfing community. Overall findings showed that specific surf break management outcomes are not yet well defined, reflecting the relatively recent emergence of surf break protection initiatives. Results also suggested that the general surfing population may not be as aware of the value of promoting surfing to the wider community as those directly engaged in surf break decision-making processes. Promoting surfing arguably goes against core elements of surfing culture. Raising support to promote the value of surfing represents a potential challenge to surf break management initiatives.

9.3 Research Question 3: Is co-management a viable option for the management of surf breaks?

In considering surf break co-management options, Research Question 3 addressed supporting policy frameworks, the potential for surf break user involvement and the viability of identified co-management options for surf breaks in the Auckland and Otago regions. Findings were also discussed as to their application to other areas in New Zealand and in relation to previous research as identified in Chapter 2.

9.3.1 Supporting Policy Framework

The NZCPS (2010) provides impetus for local authorities to recognise and provide for surf breaks within the coastal environment. Establishing a supporting policy framework of surf break identification, policy provision and monitoring is necessary to underpin efforts to protect surf breaks and support co-management initiatives. Local authorities also have an important leadership role to play as a facilitator in the management process. Based on the assumption that surf break policy is included in the Auckland Council Unitary Plan, the Auckland Region is well positioned to support future surf break management initiatives. In contrast, the lack of progress toward surf break policy implementation in the Otago Region means that it is currently not well positioned to support surf break management.

9.3.2 Surf Break User Role

To identify the potential role of surf break users in co-management arrangements, questionnaire respondents were asked to indicate the likelihood of their personal involvement in a range of surf break management actions. Results suggested that a proportion of surf break users would likely become involved in voluntary surf break management actions, with questionnaire respondents most likely to join boardrider clubs and surf lifesaving clubs or participate in beach clean and working bee events. Results were generally similar between the regions, although Auckland respondents indicated a higher likelihood than Otago respondents in being involved in surf break management committees. Respondents were least likely to be involved in surf break education programmes, fundraising initiatives or pay annual surf break management fees. Results showed that potential surf break user involvement is by no means universal. The challenge for surf break management initiatives would be to motivate those individuals who are possibly interested in participating. Developing leadership from within the surfing community is considered an important step in this regard.

Findings as to the potential involvement of boardrider clubs and surf lifesaving clubs in surf break management suggested that participation would vary on a case-by-case basis, as environmental management is not typically a primary focus for clubs. Any such involvement would need the support of club members or risk negatively impacting on the membership base. Questionnaire results did, however, find that up to 70% of surf break users would consider joining clubs on the basis of their involvement in surf break management. There is also potential for some surf lifesaving and boardrider clubs to operate in a joint manner, with key informants generally identifying positive relationships between clubs. Any potential surf break management approach would likely benefit from positive relations between clubs and it is considered that any integrated management approach should build upon these relationships.

Option 1: Local Scale Community-Based Management

It is recommended for both regions that the primary focus of surf break co-management should be to create local scale programmes similar to the NSR movement in Australia. Consistent with previous research (Christie and White, 1997; Rivera and Newkirk, 1997; Cicin-Sain and Knecht, 1998; Nickerson-Tietze, 2000; Maliao *et al.*, 2009), focusing efforts toward local scale issues is considered more likely to motivate local community involvement and promote a sense of ownership. Surf break user values identified in Research Question 1 also suggested that management approaches designed to protect surf break values need to consider local issues and values. The establishment of management committees, a key feature of the NSR approach, would function as a key interface between surf break users, local authorities and relevant agencies and serve to strengthen the representation of surf breaks in formal decision-making processes. Surf break management plans also represent a useful planning tool, providing formal recognition of surf breaks and co-management strategies. Another feature of the NSR approach is the use of signage to educate coastal users, display surf break rules and to promote the value of surf breaks. Signage use is likely to depend on individual situations, as at some locations it may not be deemed appropriate. There is effectively no 'one size fits all' approach to surf break management and any initiative needs to reflect the desires of the local surfing community and the needs of the surf break.

Option 2: Wider Scale Integrated Coastal Management

Opportunity exists for surf break interest groups to be involved in wider integrated coastal management (ICM) approaches but there is equally opportunity for surf break issues to be lost amongst wider coastal issues. For the Otago Region, there is currently no such ICM initiative, whereas the Hauraki Gulf Marine Forum represents an existing ICM approach in the Auckland Region. Gaining permanent representation of surf break interests on the Forum is not considered a productive outcome for surf breaks at local scales. However, the recognition of surf break users as key stakeholders in the Hauraki Gulf is still an important consideration. The establishment of a local scale surf break co-management arrangement, complete with its own management committee, would provide clear representation of surfing interests and could facilitate positive engagement with the Forum. In this regard, the establishment of local scale co-management arrangements provides further opportunity for the representation of surf break interests as key stakeholders in the coastal environment.

9.3.3   The Application of Key Findings to other Areas in New Zealand

It is considered that key findings from the Auckland and Otago regions would be generally applicable to other areas throughout New Zealand. Whilst local issues of concern may be

reflected in surf break values and opinions as to the purpose of surf break management, surf break users are highly likely to consistently value wave quality and elements of naturalness. Similarly the purpose of surf break management is likely to centre around the general protection of surf breaks and wave quality.

Consistent with studies by Peryman (2011a; 2011b) for the Gisborne and Bay of Plenty regions, findings from the Auckland and Otago regions suggest that co-management offers the potential to achieve positive outcomes in the protection and enhancement of surf breaks in New Zealand. Any approach needs to be supported by local authority involvement. The NZCPS (2010) provides the impetus for local authorities to take a proactive approach to addressing surf break issues, similar to the Auckland Council in working toward surf break identification and policy provision. The NZCPS (2010) establishes a national level framework for the integrated management of surf breaks but cannot provide for surf breaks at local levels. Local authorities have an important supporting role to play as facilitators in surf break management. Establishing a supporting policy framework of surf break identification, policy provision, and monitoring should be a priority. Developing this policy framework is an opportunity for local authorities to actively engage with surf break users to determine community desires and strengthen relationships. Building this relationship is considered vital to support future surf break co-management initiatives.

Similar to the Auckland and Otago regions, adopting local scale surf break co-management approaches is considered potentially the most beneficial approach to other areas in New Zealand. Surf break management committees represent a key tool within co-management strategies to facilitate positive management outcomes and provide for a stronger voice for surfing interests. It is recommended that local authorities actively engage with surf break users to determine whether establishing surf break management programmes is a desired response for the local community. Boardrider clubs and surf lifesaving clubs represent a starting point for the engagement of surf break users in potential management structures but their involvement could detract from their core functions – surf safety and social interaction - that need to be maintained to ensure their membership base. Overall, there is effectively no 'one size fits all' approach to surf break management and local authorities need to actively engage with the community to determine desired outcomes and appropriate management responses.

9.4 Thesis Evaluation and Opportunities for Further Research

In evaluating the effectiveness of this study it is of interest to consider the current status of surf break research and surf break protection. Surfing is considered a relatively new area of

research within coastal management, with the majority of research undertaken within the last 15 years (Corne, 2009; Scarfe *et al.*, 2009b). Scarfe *et al.* (2009b) identified the need for more research into a number of surfing related research fields, including surf break management. This thesis adds to the body of knowledge in terms of theoretical approaches to surf break management. The lack of specific surfing literature means that findings are largely based on key assumptions that:

- The existing body of knowledge regarding general approaches to coastal management is applicable to surf breaks and surfing as an activity

- NSRs represents an effective means to manage surf breaks

- The NZCPS (2010) is an effective approach to manage and protect surf breaks

- Supporting policy frameworks under the NZCPS (2010) will be developed at regional and local levels.

Key review findings for community-based co-management were not specific to surfing. Whilst there is no obvious reason to consider that surfing is especially different from other coastal uses and activities, assumptions were made throughout the research that findings were directly transferrable. There may be differences in terms of values, but overall it is the opinion of the researcher that surfing is not dissimilar to the extent that findings from other coastal management research are irrelevant. There is opportunity for further research in this regard.

A key research finding was the potential to adopt a NSR style approach to the management of surf breaks in New Zealand. That NSRs are an effective means to manage surf breaks is a key research assumption. As noted in Chapter 2, there is currently no existing body of research as to the success of the NSR programme. With the first reserve established in 2006 the NSR programme is still in its infancy. Whilst the programme provides a practical example of an approach to surf break management, without evaluation its success remains theoretical. In this regard there is opportunity to research the effectiveness of the NSR programme in a range of surf break related aspects, including its impact on formal decision-making processes, the success of management committees, surf break usage and user values, as well as economic and tourism impacts.

Research findings strongly identified the importance of the NZCPS (2010) in establishing a supporting policy framework and providing for formal recognition of surf breaks in New Zealand. A key assumption was that the NZCPS (2010) effectively provides for the protection of surf breaks. The NZCPS (2010) is still very new in terms of policy cycles and its effectiveness remains untested. As noted in Chapter 2, the success of the approach is very

much dependent upon local authorities giving effect to policy directives and this may in turn create an uneven approach to surf break protection (Skellern *et al.*, 2009). The impact of surf break policy on local authority decision-making processes and in the courts of law is another question altogether. There is currently on-going work being undertaken by researchers and local authorities into aspects of the supporting policy framework, notably surf break identification, policy provision, and monitoring. This body of work will likely be the priority for surf break research in New Zealand into the immediate future. As policy provision progresses it could be expected that there will be increased interest in management approaches.

As it stands, formal surf break management approaches under the NZCPS (2010) framework are still some distance away. This research provides theoretical background understanding as to the potential for co-management approaches within this framework. Key findings highlight the need for a supporting policy framework and the importance of scale in determining approaches to surf break management. Following on from this study, there is the opportunity for research into the practical application of surf break co-management programmes at individual surf breaks or surfing areas. Selected study areas would ideally be from a region where a supporting surf break policy framework is in place. In this regard, surf breaks within the Auckland Region represent potential future study areas based on the assumption that surf break policy is included in the Unitary Plan. Similar opportunities exist in the Gisborne Region where the Gisborne District Council is working toward the inclusion of surf break policy in planning documents (Gisborne District Council, 2011).

9.5 Concluding Remarks

The co-management of surf breaks presents the opportunity for New Zealand to further confirm its status as a world leader in providing for the protection of surf breaks. At the core of any surf break management approach should be the preservation of surfing resources. Co-management could provide for an effective integrated approach that allows for surfing communities to take ownership of local surfing resources. There are equally no guarantees that co-management would necessarily be a desired outcome for local surfing communities. Any such approach needs to reflect the needs of the surf break and the aspirations of the local surfing community. Surf break users do represent a passionate coastal user group with an inherent interest in the preservation of surfing resources. Extending this passion to the preservation of surf breaks is a key challenge to not only local authorities but also to surfing communities themselves.

Despite mixed feelings from some surf break users, increasing recognition of the value of surf breaks to the wider community is crucial to promote the consideration of surfing in decision-making processes. Despite further mixed feelings, local authority involvement is necessary to recognise and provide for surf breaks in formal decision-making processes. Co-management could serve to highlight the value of surf breaks and to strengthen the relationship between surf break users and decision-makers. In doing so, co-management represents a potential mechanism to future-proof surfing resources.

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Appendix A: Surf Break Categories

Surf breaks are generally categorised on the basis of the predominant underlying sea floor characteristics. Hutt *et al.* (2001) identified six geomorphic categories of surf breaks: coral reef, rocky reef, point break, rock ledge, sand bar and sand beach. Although these definitions may assist non-surfers in understanding surf break dynamics the boundaries between the different types is not clear cut, with surf breaks often some combination of the different categories (Scarfe *et al.*, 2009).

Reef Breaks

Waves that break over reefs (coral and rock) typically produce consistent wave breaking patterns and create steep wave profiles often suited to expert-level surfers (Scarfe *et al.*, 2009). Many of the world's top surf breaks are reef breaks, such as Pipeline, Hawaii; Thurso East, Scotland; and Cloudbreak, Fiji.

Point Breaks

Point break waves refract and break around a headland or point, producing long peeling waves suited to intermediate to expert-level surfers (Hutt *et al.*, 2001). Scarfe *et al.* (2009:547) noted that the refraction of waves *"filters out high frequency waves leaving the longer period waves, which are more likely to be surfable"*. Examples include Raglan, New Zealand; Jeffrey's Bay, South Africa; and Kirra, Australia.

Rock Ledge

Ledge breaks create sharp, steeply breaking waves that are typically difficult to surf and best suited to body boarders. Waves move through relatively deep water into shallow water abruptly interrupting wave propagation to create high intensity breaking waves (Scarfe *et al.*, 2009). Examples include Shark Island, Australia, and The Rock, Brazil.

Sand Bar (Rivermouth Break)

Sand bars that form at the entrances of rivers and estuaries may create good surfing waves. Quality rivermouth breaks produce waves similar to point breaks that peel down the bar. The quality of waves is often highly variable depending on the condition of the sand bar. The complex interaction of coastal processes relating to the ebb tidal delta, outward flowing sediments and tidal currents means that changes within the coastal zone can affect surfing conditions for better or worse (Scarfe *et al.*, 2009). Heavy rainfall events and the increase in river sediment outflows is often associated with improved conditions, as are periods of

reduced wave energy that allow the sand bar to '*build-up*' over time (Surfers Against Sewage, 2010). Examples include Whangamata, New Zealand, and Mundaka, Spain.

Sand Beach (Beach Break)

Beach break waves break in peaks along the beach as a result of offshore wave focusing and nearshore sand bars and currents, with consecutive waves tending to break in different locations dependent on the beach state and swell characteristics (Scarfe *et al.*, 2009). Beach breaks are typically suitable for novice through to advanced-level surfers, dependent on the beach state conditions. Nearshore sand bars tend to be highly mobile, frequently changing surfing conditions. Scarfe *et al.* (2009) commented that quality beach breaks often have offshore or nearshore features, such as underlying reefs, that stabilise the position of sandbars or focus waves. Examples of quality beach breaks include Hossegor, France; Puerto Escondido, Mexico; and Aramoana, New Zealand.

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Appendix B: Surfriders Code of Ethics
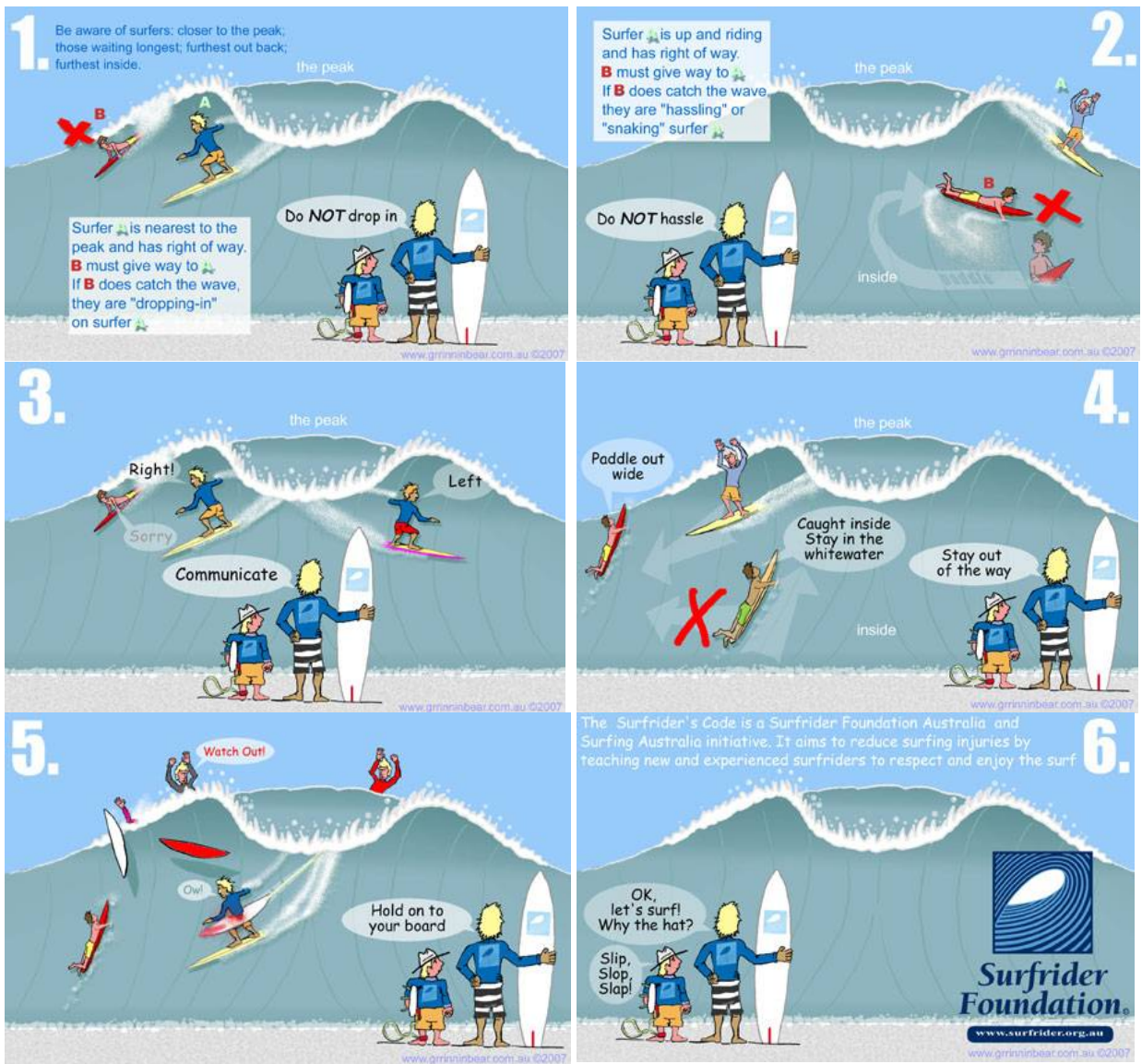
source: http://www.surfrider.org.au/2010/01/the-surfers-code/

Appendix C: Information Sheet for Participants

UNIVERSITY
of
OTAGO

SAPERE AUDE

Te Whare Wānanga o Otāgo

NEW ZEALAND
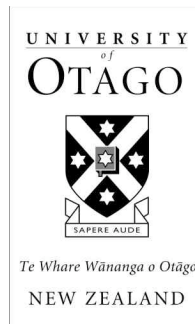
**CO-MANAGEMENT OPTIONS FOR SURF BREAKS
INFORMATION SHEET FOR INTERVIEW PARTICIPANTS**

Thank you for showing an interest in this project. Please read this information sheet carefully before deciding whether or not to participate. If you decide to participate we thank you. If you decide not to take part there will be no disadvantage to you and we thank you for considering our request.

What is the Aim of the Project?
This project is being undertaken as part of the requirements for a Master of Planning within the Department of Geography at the University of Otago.

The aim of the project is to evaluate the suitability of co-management options for the protection and enhancement of surf breaks within New Zealand's current resource management framework. This research seeks to determine appropriate surf break co-management options through a comparative study of approaches to coastal management within the Auckland and Otago regions.

The research objectives for this project are:
• To identify what surf break users value about the surf breaks that they use.
• To identify desired outcomes for surf break users in the management of surf breaks.
• To determine if co-management is a viable option for the management of surf breaks.

What Type of Participants are being sought?
Interviews are sought with staff from the Auckland Council, Otago Regional Council and Dunedin City Council, as well as key stakeholders identified as integral to the management of surf breaks.

What will Participants be Asked to Do?
Should you agree to take part in this project, you will be asked to participate in a semi-structured interview conducted in person that will be recorded for transcribing. It is anticipated that the interview will take approximately half an hour of your time. The questions will ask for the views of your organisation in relation to the above aim. At no point will personal information or opinions be required. Please be aware that you may decide not to take part in the project or terminate the interview at any time without any disadvantage to yourself of any kind.

What Data or Information will be Collected and What Use will be Made of it?
The data collected will be from a combination of an online questionnaire and semi-structured interviews. The semi-structured interviews will make use of the participants' knowledge and opinions in relation to management options for surf breaks. Should participants give consent interviews will be recorded and later transcribed. There will also be the option of written notes should participants not wish to be audiotaped. Once compiled, the data will be thematically assessed to identify key issues, with the results used to inform the consideration of different options for the co-management of surf breaks within the study areas. Access to the data compiled from the questionnaire survey will be limited to the student researcher and the supervisor of the project, Aaron Edwards and Wayne Stephenson.

This project involves an open-questioning technique. The general line of questioning will consider the role of the organisation in relation to surf break management options. The precise nature of the questions that will be asked have not been determined in advance but will depend on the way in which the interview develops. In the event that the line of questioning does develop in such a way that you feel hesitant or uncomfortable you are reminded of your right to decline to answer any particular question(s) and also that you may withdraw from the project at any stage without any disadvantage to yourself of any kind.

The data collected will be securely stored in such a way that only those mentioned below will be able to gain access to it. At the end of the project any personal information will be destroyed immediately except that, as required by the University's research policy, any raw data on which the results of the project depend will be retained in secure storage for five years, after which it will be destroyed. The results of the project may be published and available in the University of Otago Library. You are welcome to request a copy of the results if you wish. Participants will have the opportunity to correct or withdraw the information they provide in the interview before the research is published by contacting the researchers or supervisor.

On the Consent Form you will be given options regarding your anonymity. Please be aware that should you wish we will make every attempt to preserve your anonymity. However, with your consent, there are some cases where it would be preferable to attribute contributions made to individual participants. It is absolutely up to you which of these options you prefer.

Can Participants Change their Mind and Withdraw from the Project?
You may withdraw from participation in the project at any time and without any disadvantage to yourself of any kind.

What if Participants have any Questions?
If you have any questions about the project, either now or in the future, please feel free to contact either:

Aaron Edwards	and/or	Wayne Stephenson
Department of Geography		Department of Geography
Telephone: +64 3 479 4216		Telephone: +64 3 479 8776
Email: edwaa684@student.otago.ac.nz		Email: wjs@geography.otago.ac.nz

This study has been approved by the Department stated above. If you have any concerns about the ethical conduct of the research you may contact the Committee through the Human Ethics Committee Administrator (ph. 03 479-8256). Any issues you raise will be treated in confidence and investigated and you will be informed of the outcome.

Appendix D: Interview Participant Consent Form

CO-MANAGEMENT OPTIONS FOR SURF BREAKS
CONSENT FORM FOR PARTICIPANTS

I have read the Information Sheet concerning this project and understand what it is about. All my questions have been answered to my satisfaction. I understand that I am free to request further information at any stage.

I know that:

1. My participation in the project is entirely voluntary;
2. I am free to withdraw from the project at any time without any disadvantage
3. I am aware of the nature and extent of my involvement in this research project and that the interview process will take approximately 30 minutes of my time;
4. Personal identifying information will be destroyed at the conclusion of the project but any raw data on which the results of the project depend will be retained in secure storage for five years after which it will be destroyed.
5. This project involves an open-questioning technique, where the precise nature of the questions which will be asked have not been determined in advance, but will depend on the way in which the interview develops. In the event that the line of questioning develops in such a way that I feel hesitant or uncomfortable I may decline to answer any particular question(s) and/or may withdraw from the project without any disadvantage of any kind.
6. There are no known or anticipated risks to participating in this study;
7. There is no remuneration for participating in this study;
8. The results of the project will not be published, and will be made available only to the researchers, the academic staff of the Department of Geography, University of Otago, and those participants that request a copy of the research. Every attempt will be made to preserve my anonymity if I choose to remain anonymous.
9. I grant/ do not grant * permission to allow the research audio record my interview
10. I grant/ do not grant * permission to allow the research to use my identity

*Please indicate by circling

I agree to take part in this project:

……………………………   ……………………………
Signature of participant   date

……………………………   ……………………………
Signature of researcher, acknowledging receipt   date

Appendix E: List of Key Informants

Auckland Region

Key Informant 1	Auckland Council *Specialist, Coastal – Air Land Water Coastal Unit* *Environmental Strategy & Policy Department* (surfer)
Key Informant 2	Orewa Longboard Club *President* (surfer)
Key Informant 3	Orewa Reef Charitable Trust *Chairman* (surfer)
Key Informant 4	Piha Boardriders Club *President* (surfer)
Key Informant 5	Surf Lifesaving New Zealand Northern Region *Lifesaving and Club Support Manager* (surfer)

Otago Region

Key Informant 6	Department of Conservation – Coastal Otago *Programme Manager Biodiversity Assets* (surfer)
Key Informant 7	Department of Conservation – Dunedin Service Centre *Permissions Advisor* (surfer)
Key Informant 8	Karitane Local *Brendan Flack* (surfer)
Key Informant 9	Otago Regional Council *Fraser McRae*
Key Informant 10	South Coast Boardriders Association *President* (surfer)
Key Informant 11	Yellow-eyed Penguin Trust *Field Manager*

Other

Key Informant 12	Marine Numerical Modelling Ltd (Former Oceanographer at ASR Ltd) *Managing Director - James Frazerhurst* (surfer)
Key Informant 13	Department of Conservation – National Office *Senior Planner*
Key Informant 14	Sustainable Coastlines *Sam Judd* (surfer)
Key Informant 15	Surf Break Protection Society *Secretary* (surfer)
Key Informant 16	Te Korowai o Te Tai o Marokura (Kaikoura Marine Guardians) *Rununga Representative*

Appendix F: Interview Questions

Background

1. What is your role?

2. What is your involvement with surfing?

3. What is your organisations involvement with surfing?

4. Are you aware of the inclusion of surf break policy in the NZCPS (2010)?

Surf break values

5. What do surf break users value about the surf breaks that they use?

6. What are some of the key issues for surf breaks in the Auckland/Otago Region?

The purpose of surf break management

7. What is the purpose of surf break management?

8. How have surf breaks been managed in the past?

9. How effective have local authorities been in addressing past decision making processes

10. What role should local authorities play in the management of surf breaks?

11. What role could surf break users play in the management of surf breaks?

Co-management

12. Is co-management a viable option for surf breaks in the Region?

13. What role could boardrider/surf lifesaving clubs play in co-management?

14. Which co-management approach do you think would most effective in addressing identified issues in the Region: a local scale approach targeted toward surf breaks (similar to National Surfing Reserves); or a wide scale integrated approach involving key stakeholders (similar to Kaikoura Marine Guardians)?

Appendix G: Questionnaire

Management Options for Surf Breaks: Auckland/Otago Region

Thank you for choosing to take part in this questionnaire. All participants and the information provided will remain anonymous. This questionnaire is part of a research project exploring management options for surf breaks in New Zealand. The purpose of the questionnaire is to identify what surf break users value about the breaks they use and to determine desired outcomes for the management of breaks. The results of this research project will be used to assist local authorities in addressing surf break management.

Section 1: Background Information

Please tell us a little bit about yourself...

1. What is your gender?

- ○ Male
- ○ Female

2. What is your age?

- ○ Under 20
- ○ 21-30
- ○ 31-40
- ○ 41-50
- ○ 51 and over

3. In which region do you normally live?

- ○ Northland
- ○ Auckland
- ○ Waikato
- ○ Bay of Plenty
- ○ Gisborne
- ○ Taranaki
- ○ Hawkes Bay
- ○ Manawatu-Whanganui
- ○ Wellington
- ○ Nelson
- ○ Tasman
- ○ Marlborough
- ○ West Coast
- ○ Canterbury
- ○ Otago
- ○ Southland
- ○ Other, please specify:

  _____

Section 2: Surfing Experience

This section relates to your experience and general involvement in surfing.

4. What do you primarily consider yourself to be?

- ○ Bodyboarder
- ○ Body surfer
- ○ Kayaker
- ○ Longboarder
- ○ Shortboarder
- ○ Stand-up paddle boarder
- ○ Other, please specify:

_____

5. How would you rate your level of ability?

- ○ Beginner
- ○ Intermediate
- ○ Advanced
- ○ Expert

6. How long have you been surfing?

- ○ Less than 5 years
- ○ 5-10 years
- ○ 11-15 years
- ○ More than 15 years

7. How often do you typically surf?

- ○ Less than once a month
- ○ Once a month
- ○ 2-3 times a month
- ○ Once a week
- ○ 2-3 times a week
- ○ 4 or more times a week

8. How are you involved in surfing? (Please select all options that apply).

- ○ As a recreational surfer
- ○ As a competitive surfer
- ○ As a member of a local boardrider club
- ○ As a member of a local surf lifesaving club
- ○ As a member of a surfing environmental group
- ○ Employed in the surfing industry
- ○ Other, please specify:

_____

Section 3: Surf Break Use in the Auckland/Otago Region

This section relates to your experience of surf breaks in the Auckland/Otago region. The definition of surf break for this study includes the swell corridor, the area where waves break, beach zones and features on land that affect breaks.

9. How many different surf breaks in the AUCKLAND/OTAGO region have you used in the past year?

- ○ 0
- ○ 1
- ○ 2-5
- ○ 6-10
- ○ 11-15
- ○ 16 or more

10. Which three surf breaks in the AUCKLAND/OTAGO region do you use the most?
(If you would prefer not to name certain surf breaks then please refer to them as secret').

SURF BREAK 1:
SURF BREAK 2:
SURF BREAK 3:

11. What do you value about SURF BREAK 1? On a scale of one to five (five being the highest), please rate how you value each of the following factors at SURF BREAK 1.

(1) = No significant value ....   (5) = Highly value

	1	2	3	4	5
Wave quality	O	O	O	O	O
Rarity of break type (e.g. reef, point, etc.)	O	O	O	O	O
Consistency/frequency of surfable days	O	O	O	O	O
Naturalness	O	O	O	O	O
Scenery	O	O	O	O	O
High level of use/popularity	O	O	O	O	O
Low level of use/popularity	O	O	O	O	O
Availability of facilities (e.g. toilet, carpark etc.)	O	O	O	O	O
Ease of access	O	O	O	O	O
Distance from home	O	O	O	O	O
Cultural/heritage value	O	O	O	O	O
Significance to tangata whenua	O	O	O	O	O
Suitability as a learners spot	O	O	O	O	O
Suitability to all skill levels	O	O	O	O	O
Suitability as a high performance surf break	O	O	O	O	O
Suitability as a contest site	O	O	O	O	O
Significance to the local community	O	O	O	O	O
Significance to the local surfing community	O	O	O	O	O
Significance as a nationally/ internationally recognised surf break	O	O	O	O	O

12. What do you value about SURF BREAK 2? On a scale of one to five (five being the highest), please rate how you value each of the following factors at SURF BREAK 2.

(1) = No significant value ....   (5) = Highly value

	1	2	3	4	5
Wave quality	O	O	O	O	O
Rarity of break type (e.g. reef, point, etc.)	O	O	O	O	O
Consistency/frequency of surfable days	O	O	O	O	O
Naturalness	O	O	O	O	O
Scenery	O	O	O	O	O
High level of use/popularity	O	O	O	O	O
Low level of use/popularity	O	O	O	O	O
Availability of facilities (e.g. toilet, carpark etc.)	O	O	O	O	O
Ease of access	O	O	O	O	O
Distance from home	O	O	O	O	O
Cultural/heritage value	O	O	O	O	O
Significance to tangata whenua	O	O	O	O	O
Suitability as a learners spot	O	O	O	O	O
Suitability to all skill levels	O	O	O	O	O
Suitability as a high performance surf break	O	O	O	O	O
Suitability as a contest site	O	O	O	O	O
Significance to the local community	O	O	O	O	O
Significance to the local surfing community	O	O	O	O	O
Significance as a nationally/ internationally recognised surf break	O	O	O	O	O

13. What do you value about SURF BREAK 3? On a scale of one to five (five being the highest), please rate how you value each of the following factors at SURF BREAK 3.

(1) = No significant value ....   (5) = Highly value

	1	2	3	4	5
Wave quality	O	O	O	O	O
Rarity of break type (e.g. reef, point, etc.)	O	O	O	O	O
Consistency/frequency of surfable days	O	O	O	O	O
Naturalness	O	O	O	O	O
Scenery	O	O	O	O	O
High level of use/popularity	O	O	O	O	O
Low level of use/popularity					
Availability of facilities (e.g. toilet, carpark etc.)	O	O	O	O	O
Ease of access	O	O	O	O	O
Distance from home	O	O	O	O	O
Cultural/heritage value	O	O	O	O	O
Significance to tangata whenua	O	O	O	O	O
Suitability as a learners spot	O	O	O	O	O
Suitability to all skill levels	O	O	O	O	O
Suitability as a high performance surf break	O	O	O	O	O
Suitability as a contest site	O	O	O	O	O
Significance to the local community	O	O	O	O	O
Significance to the local surfing community	O	O	O	O	O
Significance as a nationally/ internationally recognised surf break	O	O	O	O	O

14. Are there any CURRENT issues that impact on the quality of the surfing experience at any of these surf breaks?

Issues may include, for example, concerns relating to crowds, surf etiquette, safety, water quality, facilities (toilets, car parks etc.), access, coastal development, coastal defence (seawalls, groynes etc.) and activities operating in the coastal environment (aquaculture, dredging, fishing, mining etc.).

15. Are you concerned about any potential FUTURE issues or threats that may impact on the quality of the surfing experience at these surf breaks?

16. Do you have any additional comments about your experiences at these or other surf breaks in the Auckland/Otago region?

Section 4: Surf Break Protection

This section relates to your awareness of surf break protection in New Zealand and statutory processes.

17. Are you aware of the New Zealand Coastal Policy Statement 2010?

- ○ Yes, I have read it
- ○ Yes, I have seen or read parts of it
- ○ Yes, I have heard of it
- ○ No, I have never heard of it

18. Are you aware of the inclusion of surf breaks in the New Zealand Coastal Policy Statement 2010?

- ○ Yes, I was involved in the submissions process
- ○ Yes, I have read the relevant sections
- ○ Yes, I have read or heard about it
- ○ No, I have never heard about it

19. How well do you think local authorities (i.e. councils) have incorporated surfing into past decision making processes in the Auckland/Otago region?

- ○ Very effectively
- ○ Effectively
- ○ Fair
- ○ Poorly
- ○ Very poorly
- ○ Unsure

20. How would you rate your ability to engage in council decision making processes relating to surf breaks?

- ○ Very Effective
- ○ Effective
- ○ Fair
- ○ Ineffective
- ○ Very Ineffective
- ○ Unsure

Section 5: Management Options for Surf Breaks

This section relates to the consideration of surf break management options for local authorities (i.e. councils) and surfers.

21. How do you think local authorities (i.e. councils) should be involved in the management of surf breaks?

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Provide for surf breaks in policy documents (i.e. Regional and District Plans)	O	O	O	O	O
Produce surf break management plans	O	O	O	O	O
Establish surf break management committees with key stakeholders (i.e. boardrider, surf lifesaving clubs, iwi etc.)	O	O	O	O	O
Create surfing reserves	O	O	O	O	O
Provide access to surf breaks	O	O	O	O	O
Maintain access to surf breaks	O	O	O	O	O
Provide surf break facilities	O	O	O	O	O
Maintain surf break facilities	O	O	O	O	O
Monitor surf break conditions	O	O	O	O	O
Monitor water quality	O	O	O	O	O
Provide signage detailing surf break information	O	O	O	O	O
Provide signage detailing surf break rules	O	O	O	O	O
Improve surf break safety	O	O	O	O	O
Establish different zones for different surf break users	O	O	O	O	O
Limit access to crowded surf breaks	O	O	O	O	O
Issue permits for surf break users	O	O	O	O	O
Police the 'on the water' use of surf breaks	O	O	O	O	O
Initiate surf break education programmes	O	O	O	O	O
Promote the recreational benefits of surfing	O	O	O	O	O
Organise beach clean ups	O	O	O	O	O
Inform surf break users how they can be involved in council processes	O	O	O	O	O

22. Are there any other ways in which you think local authorities should be involved in the management of surf breaks?

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23. How would you like to be consulted by local authorities regarding the management of surf breaks? Please select all options that apply.

- O Public meetings (open invitation)
- O Focus group meetings (typically 5-8 people)
- O Individual/paired interviews
- O Drop-in information events/open days
- O Questionnaires and surveys
- O Newsletter, leaflets
- O Websites
- O Email
- O Facebook, Twitter and other social media
- O Other, please specify
  _____

24. In what manner would you be prepared to be involved on a VOLUNTARY basis in the management of surf breaks?

	Very Unlikely	Unlikely	Neutral	Likely	Very Likely
Join a local boardrider/surf club (on the basis of their involvement in the management of surf breaks)	O	O	O	O	O
Be involved in a surf break management committee	O	O	O	O	O
Attend surf break management meetings	O	O	O	O	O
Maintain surf break access	O	O	O	O	O
Maintain surf break facilities	O	O	O	O	O
Participate in beach clean ups	O	O	O	O	O
Organise beach clean ups	O	O	O	O	O
Be involved in beach monitoring programmes	O	O	O	O	O
Be involved in surf break education programmes	O	O	O	O	O
Fundraise for the purposes of surf break management (e.g. for new toilet facilities, signage etc.)	O	O	O	O	O
Pay an annual surf break management contribution fee	O	O	O	O	O

25. Overall, what should the management of surf breaks seek to achieve?

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26. Do you have any other comments regarding the management of surf breaks in the Auckland/Otago region?

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Appendix H: Questionnaire Respondent Profiles

Background information was collected from questionnaire respondents to assess the representativeness of the sample. A total of 181 questionnaires were completed, with 85 respondents completing the Auckland Region questionnaire and 96 completing the Otago Region questionnaire. It was noted in Chapter 2 the diverse range of surf break users. Gaining a representative response is important to determine the range of values attached to surf breaks by different surf break users. Key Informant 12 further emphasised the need to recognise the diversity within surf break users and cautioned referring to surf break users as a collective whole: *"The only commonality between surfers is that they are people who ride waves. You can't put people into boxes"*. In determining surf break user values and subsequent results it is acknowledged that the questionnaire results do not necessarily represent the opinions of surf break users as a single group but rather as a representation of a range of surf break user values that may be present.

Gender, Age and Location of Respondents

The gender and age demographic of questionnaire respondents is considered consistent with the general surfing population. Figure 1 shows that the majority of respondents were male with a combined female response rate of 16%. This is consistent with identified female participation rates of 10% in Australia (Surfing Australia, 2006) and 14% in New Zealand (Surfing New Zealand, n.d.). Figure 2 shows respondents for both questionnaires represent a range of age groups. Age group representation was similar for both questionnaires, although the Auckland questionnaire showed a slightly higher return in the 51 and over category, accounting for 19% of respondents compared to 11% for the Otago questionnaire. This difference is not considered significant as a range of age groups is represented.
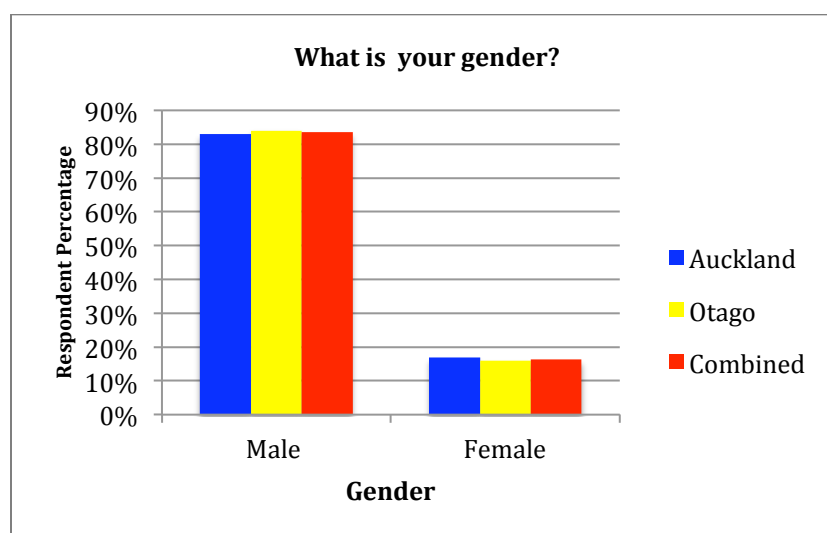

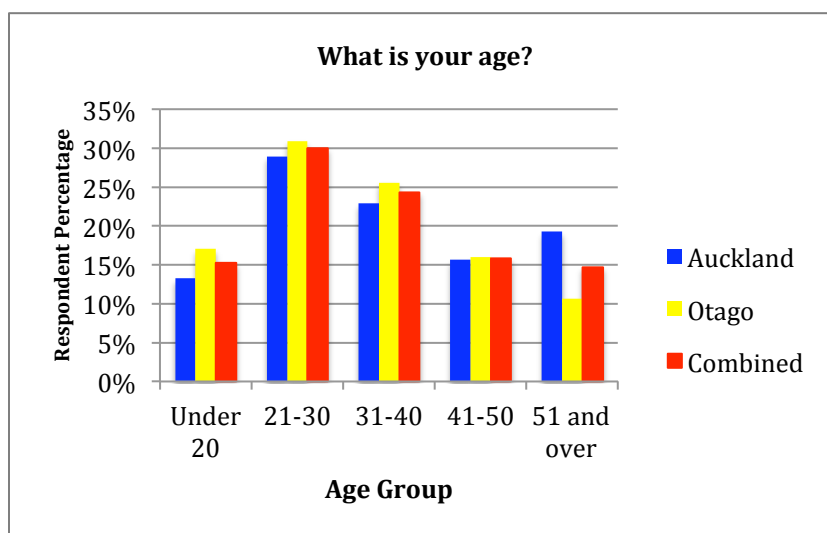**Figure 0.1: Gender of Questionnaire Respondents**

Figure 0.2: Age of Questionnaire Respondents

Respondents were asked to identify in which region they usually reside in (Fig. 3; Fig. 4). Results show that most respondents live in the same region targeted by the questionnaire, suggesting that respondents are likely to be familiar with the surf breaks and related issues in the regions.
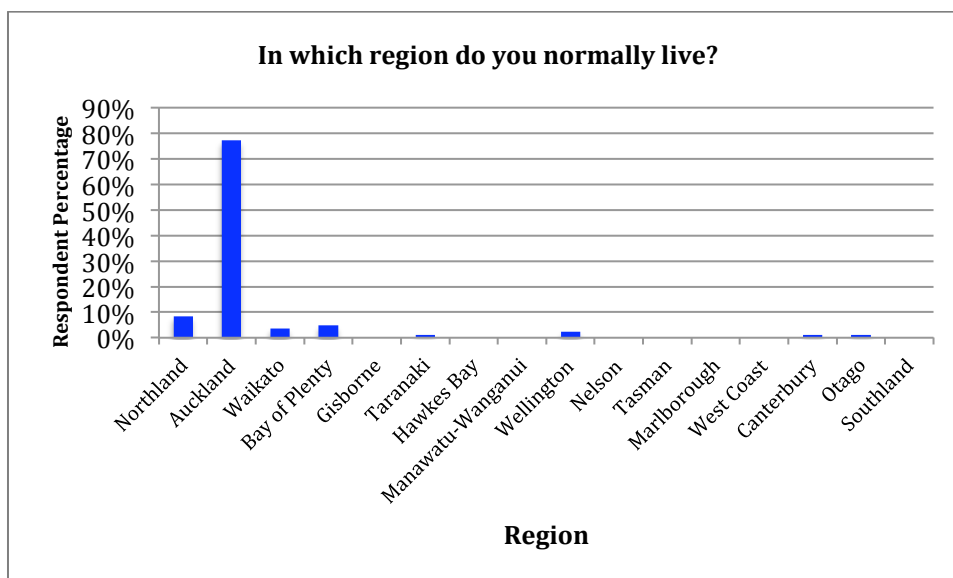

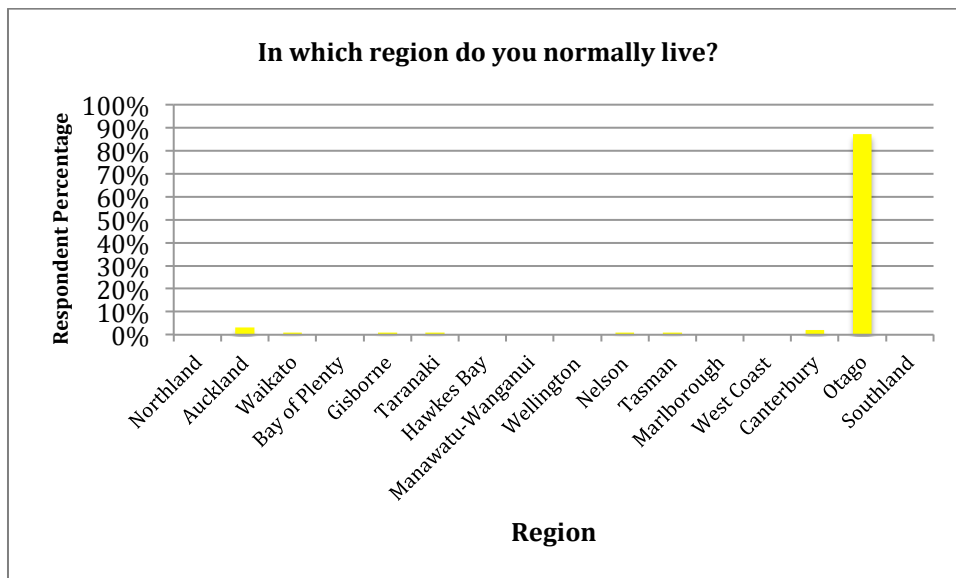**Figure 0.3: Usual place of residence for respondents to the Auckland Region questionnaire**

Figure 0.4: Usual place of residence for respondents to the Otago Region questionnaire

Surfing Background Information

Type of Surf Break Use

Respondents were asked to identify their primary form of surf break use (Fig. 5). The majority of respondents were shortboard surfers followed by longboard surfers. A range of other types of surf break users responded to the questionnaire but each type represented less than 10% of respondents. As respondents were asked to identify their primary type of use it is acknowledged some indicated that they considered themselves to be in more than one category. Another category could have been included, such as a 'waterman' category referring to those who take part in a range of surf break use types, although it is considered that the addition of this category would not significantly change the results. As it stands, shortboard surfing is generally observed to be the most popular form of surf break use in New Zealand. The results are considered representative of the general surf break user population.
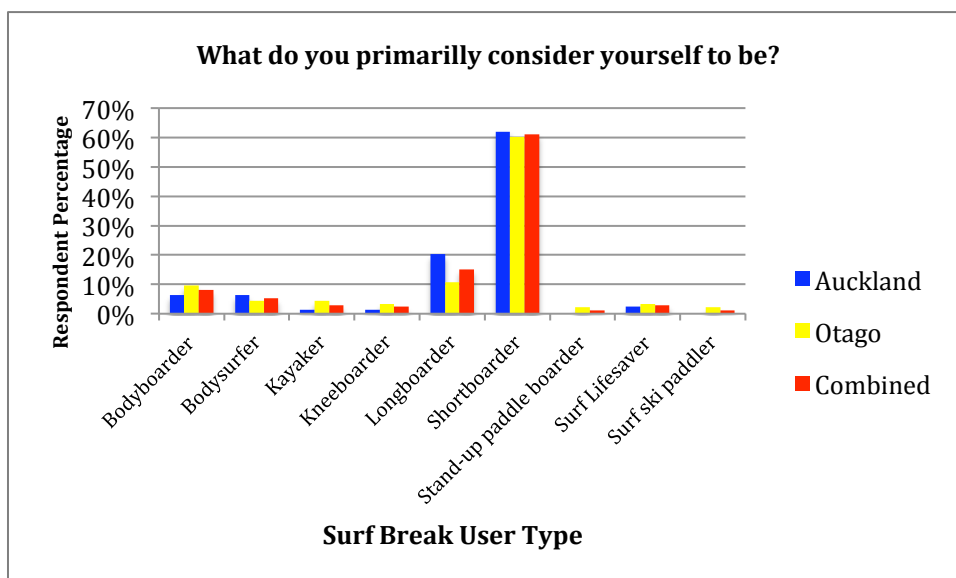

Figure 0.5: Primary form of surf break use for questionnaire respondents

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Experience and Frequency of Use

The majority of respondents are considered experienced surfers, with 94% of respondents identifying themselves as intermediate level surfers or above (Fig. 6). 78% of respondents have been surfing for more than five years, with 44% having surfed for more than 15 years (Fig. 7).
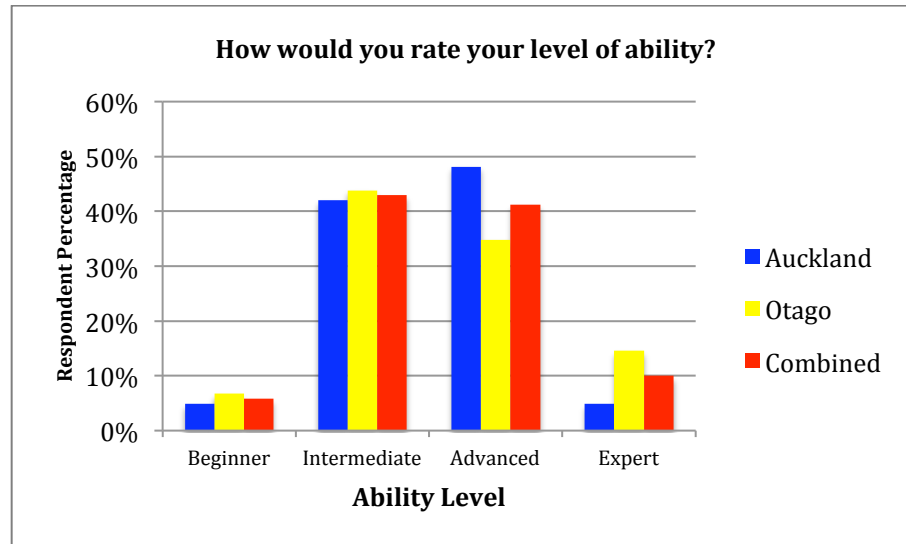

Figure 0.6: Stated ability level as a surf break user for questionnaire respondents
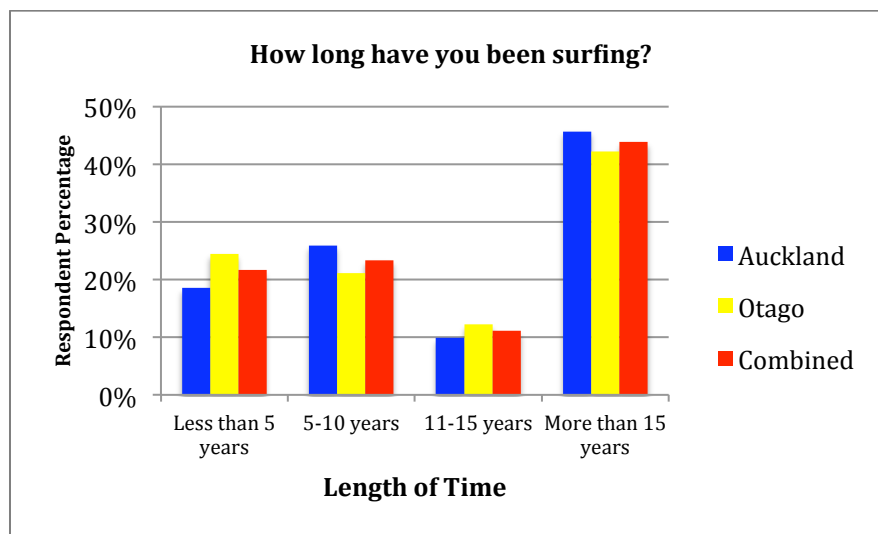

Figure 00.7: Length of time as a surf break user for questionnaire respondents

The majority of respondents surf on a regular basis. 65% of respondents typically surf at least once a week and 93% surf at least once a month (Fig. 8). Respondents to the Otago questionnaire generally surf more regularly than respondents to the Auckland questionnaire, with 75% of Otago respondents surfing at least once a week compared to 55% of Auckland respondents. Table 1 also shows that Otago respondents generally use a wider range of surf breaks than Auckland respondents, with 36% of Otago respondents having surfed 11 or more

different breaks in the past year compared to 7% of Auckland respondents. The results reflect the relative close proximity of surf breaks in the Otago Region compared to the Auckland Region, particularly around the Dunedin area where a range of different breaks are highly accessible and typically within 30 minutes drive of the city centre.
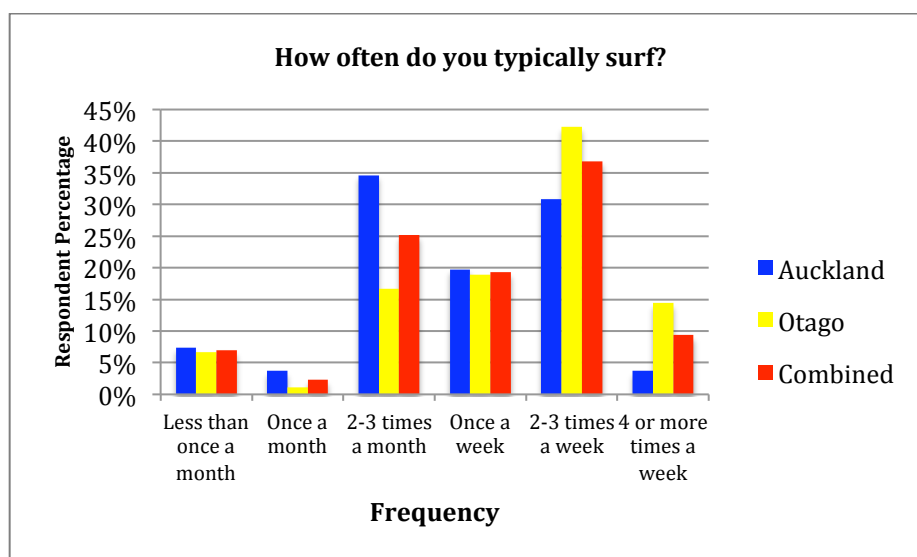

Figure 0.8: Typical surfing frequency for questionnaire respondents

Table 1: Number of surf breaks used by respondents in the past year in the Auckland and Otago regions

Number of surf breaks used in the past year	Auckland	Otago
0	6%	4%
1	3%	0%
2 to 5	48%	28%
6 to 10	37%	32%
11 to 15	5%	14%
16 or more	2%	22%

Overall, the results show that respondents are typically experienced surfers who surf on a regular basis, suggesting that many of the respondents would have a good understanding of surf breaks and surf break issues in the respective regions.

Involvement in Surfing

Respondents were asked how they are involved in surfing with the majority identifying themselves as recreational surfers (Table 2). Respondent involvement in surfing is an important consideration as an over-representation of a particular group may impact on research results. Table 2 shows that aside from recreational involvement there was an even representation of different forms of involvement. As such the response groups are considered representative samples of surf break users.

Table 2: Questionnaire respondent involvement in surfing. Respondents were asked to select all options that apply

Involvement in Surfing	Response Total		
	Auckland	Otago	Combined
Recreational surfer	73	82	155
Competitive surfer	7	13	20
Member of a local boardrider club	17	14	31
Member of a local surf lifesaving club	23	20	43
Member of a surfing environmental group	13	5	18
Employed in the surfing industry	7	3	10

Awareness of Surf Break Protection Initiatives

Respondents identified a range of awareness levels as to the inclusion of surf breaks in the NZCPS (2010). Results show that 39% of respondents had never heard of the NZCPS (2010) (Fig. 9) whilst 45% were not aware of the inclusion of surf breaks in the NZCPS (2010) (Fig. 10). There was a slightly higher level of awareness amongst Auckland respondents, with 60% having at least heard of the inclusion of surf breaks in the NZCPS (2010) compared to 50% for Otago respondents.
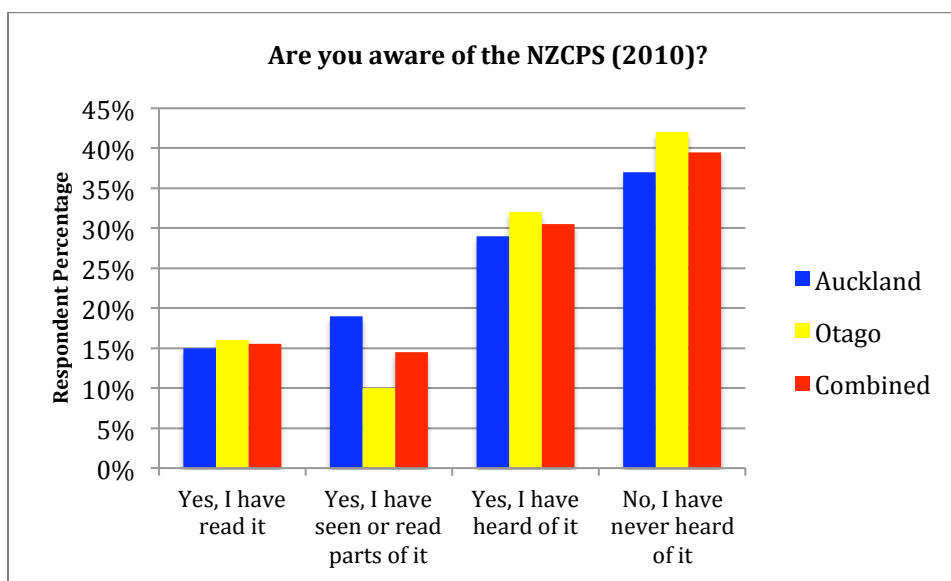

Figure 0.9: Respondent awareness of the New Zealand Coastal Policy Statement (2010)
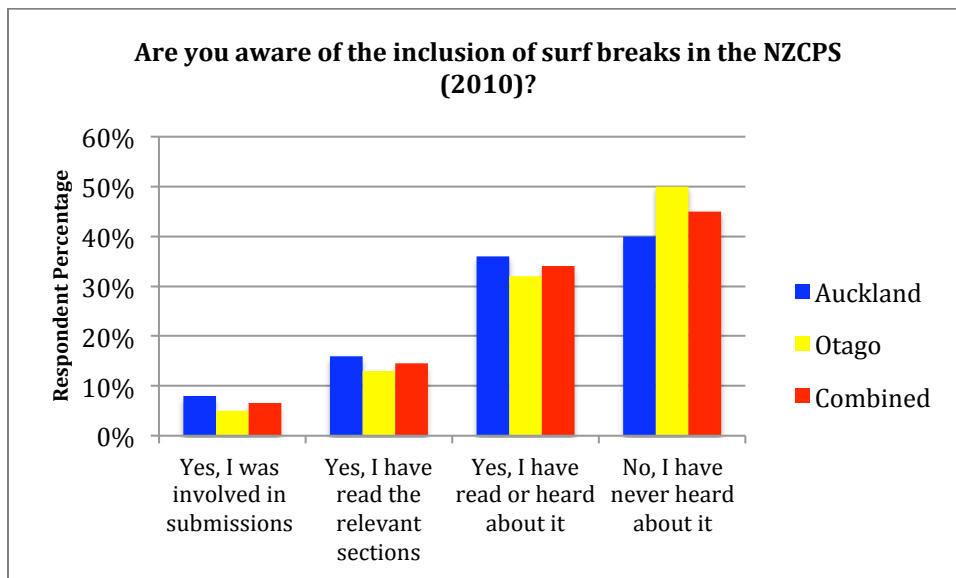
Figure 0.10: Respondent awareness of the inclusion of surf breaks in the New Zealand Coastal Policy Statement (2010)

Summary of Respondent Sample

The respondent group is considered a representative sample of the surfing population in the Auckland and Otago regions in terms of gender, age, and the different types of surf break users. The majority of respondents reside in the respective region for each questionnaire and are considered experienced surfers who surf on a regular basis. Respondents are mixed in terms of their knowledge of the inclusion of surf breaks in the NZCPS (2010). Overall, results suggest that respondents would generally have a level of understanding relating to surf breaks in the study areas.

References

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Appendix I: Most Frequented Surf Breaks

Most Frequented Surf Breaks in the Auckland Region

Table 1 compares results from the Auckland Region questionnaire to findings from the Auckland Council surf break user survey (Auckland Council, 2012b) and the Auckland Regional Council surf break report (Auckland Regional Council, 2010). Piha was identified as the top break for all studies, with similarity between data sets in the other frequented breaks. The most popular breaks, notably Piha, Maori Bay, Muriwai, Te Arai and Pakiri, are generally recognised for producing higher quality surfing conditions on a consistent basis. These breaks are also generally well known and highly accessible.

Table 1: Surf breaks in the Auckland Region most frequented by Auckland questionnaire respondents compared to results from the Auckland Council surf break user survey (Auckland Council, 2012b) and the Auckland Regional Council surf break report (Auckland Regional Council, 2010)

Auckland Region Questionnaire - Which surf breaks in the Auckland region do you use the most?		Top ten surf breaks 'surfed in the last 12 months' from the Auckland Council survey	Top ten 'chosen favourite breaks' from the Auckland Council survey	Top ten surf breaks from the Auckland Regional Council report
Piha	17%	Piha	Piha	Piha
Te Arai	10%	Te Arai Beach	Te Arai Beach	Muriwai
Maori Bay	9%	Pakiri Beach (north - Forestry)	Pakiri Beach (north - Forestry)	Maori Bay
Muriwai	8%	Muriwai Beach (south)	Maori Bay	Karekare
North Piha	8%	Maori Bay	Muriwai Beach (south)	Bethells Beach/ O'Neills
Secret	7%	Tawharanui	Tawharanui	Whangapoua
Bethells	6%	Omaha (beach and bar)	Karekare	Medlands Beach/ Shark Alley
Karekare	6%	Karekare	Leigh (Daniel's Reef)	Pakiri Beach – Forestry
Omaha	6%	Pakiri Beach (south)	Whangapoua (Okiwi)	Te Arai Beach
Pakiri	5%	Bethells Beach	O'Neill's Bay	Omaha Beach - Bar
Forestry	5%	-	-	-
O'Neills Bay	3%	-	-	-
Daniel's Reef	3%	-	-	-
Orewa	2%	-	-	-
Tawharanui	2%	-	-	-

Most Frequented Surf Breaks in the Otago Region

Table 2 shows the most used surf breaks for respondents to the Otago Region questionnaire. Nearly all surf breaks identified lie within the Dunedin City boundaries, suggesting the majority of respondents predominantly reside and surf in and around the Dunedin area. Both the Catlins area and Waitaki coastline north of Karitane feature a range of breaks that are

regularly surfed by local surfers that were not identified. Kaka Point in the Catlins area was the only break identified outside of the Dunedin City boundaries.

Table 2: Surf breaks in the Otago Region most frequented by Otago questionnaire respondents

Which surf breaks in the Otago Region do you use the most?	
Blackhead	20%
St Clair	18%
Aramoana (The Spit)	17%
Secret	12%
Brighton	6%
St Kilda	6%
Smails Beach	4%
Murdering Bay (Whareakeake)	3%
Warrington	3%
Oceanview	3%
Potato Patch	3%
Karitane	2%

It was expected that St. Clair would be identified as the most frequented surf break in the Otago Region as it is regarded as the most popular Dunedin town beach for surfing. Despite this questionnaire respondents identified Blackhead as the most frequently surfed break. As noted, respondents are largely experienced surfers and the results suggest that experienced surfers may have a preference for wave conditions at Blackhead compared to St. Clair. Blackhead is considered more suitable to advanced surfers due to the often steep and challenging wave conditions whereas St. Clair is more suited to all ability levels and consequently is popular with beginner and intermediate surfers.

Table 2 is also notable for the relative low use of Karitane and Murdering Bay (Whareakeake) as nationally significant surf breaks. The results are likely a reflection of the frequency at which these breaks produce suitable surfing conditions. Both breaks rely on less frequent swells from the north through to the east and require more swell than nearby Aramoana to work properly. If the question had asked 'what is your favourite break?' rather than 'which break do you use most often?' it could be expected that both Karitane and Murdering Bay would rate significantly higher. In designing the questionnaire identifying the most frequented breaks was considered more useful as it was thought that choosing favoured breaks would identify only a select few top breaks.