

# Mapping the Values of New Zealand's Coastal Waters.

## 3. Social Values

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Prepared for MAF BNZ Policy and Risk Directorate  
by Will Allen, Landcare Research, Ibrahim Elmetri, Cawthron Institute,  
Sara Clarke and June Gibbons, URS New Zealand Limited, and Kim  
Clark, Jim Sinner, Weimin Jiang and Michael Taylor, Cawthron  
Institute

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Requests for further copies should be directed to:

Policy and Risk Directorate  
MAF Biosecurity New Zealand  
Pastoral House,  
25 The Terrace  
PO Box 2526  
WELLINGTON

Tel: 04 894 4100  
Fax: 04 894 4227

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# Abstract

Introduced species are recognised as one of the greatest threats to natural environments worldwide. New Zealand's ability to assess and manage these risks is significantly hampered by a lack of detailed information on the resources that should be protected: Which species are of greatest concern? What values are at risk? Where should surveillance monies be concentrated? Which incursion can or should be responded to?

To help address these questions and thereby improve risk management in the marine environment, MAF Biosecurity New Zealand (MAFBNZ) commissioned research to map the economic, environmental, social and cultural values associated with New Zealand's coastal and marine environments. In this study, a 'social value' refers to human activity that occurs in, the coastal and marine environment that adds value to the social well-being of New Zealanders, without already being captured as a economic, cultural (Māori) or environmental activity.

Information about the social value of the New Zealand coastal environment was developed through an interactive approach involving a number of steps. The study began with an initial scoping exercise that looked at social science approaches to characterising value, and specifically social value, around the New Zealand coastline. The sub-components of social value documented in this project were developed through an iterative process that involved an expert group of social researchers. Subsequently data were collected on the agreed sub-components of value, and these data were ground-truthed with an expert group of key stakeholders.

Indicators were compiled for two categories of "social value" and one overarching theme. The first category covers use and utility value, arising from how people use (e.g. recreation) and gather resources from (e.g. via fishing) the coast. The second covers "meaning" or identity value (e.g. from iconic landscapes). The overarching theme is stakeholder engagement, which was included because of the important way in which this influences value perceptions and articulations.

Seven sub-components of social value were identified and mapped onto a Geographic Information System (GIS):

1. Beaches (as a proxy for a number of land-based activities)
2. Surfing
3. Diving
4. Boating (split by activity into yachting & cruising, and kayaking)
5. Seafood gathering (Shellfish gathering and recreational fishing)
6. Iconic landscapes
7. Archaeological

The importance of stakeholder engagement, the eighth sub-component, was graphically presented via the use of social network maps for key contacts.

With the exception of one indicator, beaches, all datasets were developed by the project team from primary sources. This collection exercise highlighted a lack of published information on New Zealand coastal social values in general, and of non-commercial fishing activity in particular. Key features of all mapped indicators of social value were their emergent and changeable nature, as well as their variability between stakeholders. This emphasises the

importance of maintaining strong stakeholder networks in order to keep abreast of the changing social value associated with the coast.

## Keywords

Social value

Marine environment

Marine value mapping



# 1 Introduction

New Zealand, as a consequence of its geographic isolation, geology and oceanic position, has a great diversity of marine habitats inhabited by an estimated 65,000 species, many unique to New Zealand (Arnold 2004, Gordon in press). This geographic isolation also means that more than 98 percent of imported and exported goods are transported by shipping (Statistics New Zealand 2006), which leaves New Zealand's marine environment potentially vulnerable to the arrival of non-indigenous species.

Introduced species are now recognised as one of the greatest threats to natural environments worldwide (Wilcove et al. 1998, Mack et al 2000, Gordon in press). The extent of the threat imposed by an actual or potential incursion of an alien marine species will vary depending on the species, available habitat(s) and the environment(s) that are threatened. New Zealand's ability to assess and manage these risks is significantly hampered by a lack of detailed information on the resources that should be protected.

MAF Biosecurity New Zealand (MAFBNZ), the agency charged with the management of introduced species across New Zealand, has established a programme to develop a multi-disciplinary Marine Biosecurity Decision Support Tool. The tool will be used for preventive purposes, i.e. risk management and contingency processes, as well as incursion responses.

The first stage of this programme, marine value mapping, aims to understand the range of elements that are at risk. Four core values have been identified and mapped: environmental; economic; social; and cultural values. This report documents the findings of the project to map components of **social** value of New Zealand's marine environment, such as beaches, surfing locations and recognised recreational fishing spots. A key feature of the mapping project is that the values are to be spatially displayed using a geographic information system (GIS), providing a visual representation of the underlying database of information.

Although this project has a focus on marine biosecurity, it will also provide opportunities for broader applications, by establishing a comprehensive database of marine resources and their values that can be applied to a variety of coastal zone impacts, enabling better integration of coastal zone management.

## 1.1 OVERALL OBJECTIVES

The overall objective of this project was to determine the perceived social value of New Zealand's marine environment.

### 1.1.1 Specific objectives

1. To identify the sub-components of social value for New Zealand's marine systems.
2. To determine the data holdings for the sub-components of social value, and purchase and/or collate selected data.
3. Use a Delphic process to value the sub-components for which data was collected.

## 1.2 SUB-COMPONENTS OF SOCIAL VALUE

New Zealand is an island nation, and the coastline is an integral part of most New Zealanders lives. Determining the actual or perceived value of the coast, and utilising this information to prioritise management, can be an effective method to aid biosecurity management and decision-making (Derous et al. 2007). Traditional approaches have focussed on value from

natural resources from both an economic and ecological perspective (Stenekes et al. 2008). However, in recent years there has been a growing recognition that human interaction with the coastal environment is informed by a wide array of perspectives, which not only include economic and ecological but also encompass social aspects (Rockloff & Lockie 2004).

While there is no definitive set of social values that relate to the natural environment, there are some commonalities across social value sets suggested by reviewers. For example Kilvington & Wilkinson (2001) categorise some consistently expressed values as being: use value (including recreation, and aesthetics), physiological and psychological (such as walking on the beach), societal (such as iconic value and value to future generations), and familiarity and proximity. In their review of values Stenekes et al. (2008) suggest that social value can include the following sets: recreational/leisure, wilderness, aesthetic, cultural heritage, sense of place/belonging, spiritual, and indigenous (as a special case of cultural values).

However while a number of these values are relatively easily observable, for example use values such as recreation, others are notoriously difficult to observe. A key feature of many aspects of social value is that they are emergent (Hebel 1999). That is, they are not in existence until some event triggers them. This is particularly true of societal, spiritual and emotional values. For example, people may not express strong feelings about a particular beach or other coastal feature so long as they perceive that it is not under threat, but should a threat arise they may become very vocal in their expression of how important it is to them and their wider community.

A further complicating factor in assessing the importance of social value within natural resource management is that how people are engaged in decision-making will influence how they feel about and articulate those values, particularly those perspectives that emerge in response to a real or perceived threat. As Stenekes et al. (2008) acknowledge, this means that community perspectives will often reflect the different kinds of institutions and structures through which natural resources are governed.

To take account of this, this project selected two categories of “social value” and one overarching theme. The first covers “use and utility value”, which includes how people use (e.g. recreation) and gather resources from (e.g. via fishing) the coast. The second covers “meaning” or identity value (e.g. from iconic landscapes). Both of these two types of “social value” are considered to be non-market values; that is they are not sold or traded in a commercial sense. Overarching these values is stakeholder engagement, which is important as this influences value perceptions and articulations. Access to stakeholder networks was provided by providing direct introductions to network gatekeepers.

## 2. Methods

### 2.1 EXTENT OF STUDY AREA

The study area for the wider values mapping project suite includes the entire coastline and estuarine region of New Zealand, including the North, South and Stewart Islands, as well as the Three Kings, Kermadec, Chatham and sub-Antarctic Islands.

Within this area, no specific geographical boundary, either on-shore or offshore was set for this project. This is because social value is a social construct which may occur on the coast or which may occur elsewhere but still be associated with the coast. For example, meaning and identity values may be attached to physical locations at the coastline, but the act of experiencing that meaning or identity may be felt at any location, not just in its vicinity.

However, generalisations may be made about the inshore and off shore boundary. Human activities off-shore extend almost without limit, but most human activities occur inside 12 nautical miles (the territorial sea) and/or the edge of the continental shelf (to a depth profile of 250 m which is the outer boundary used in the environmental values mapping projects). The marine habitats most likely to be impacted by incursion events are the coastal and shelf systems. Generally, recreational activities in the water occur within this boundary, activities and interaction on-shore occur within view of the sea, while non-use values may be felt in a much wider geographic space. Offshore islands including the Three Kings, Kermadec, Chatham and sub-Antarctic Islands were excluded from the areas assessed for this project. This is not because their marine environments do not contribute to social value, but rather due to their sparse human population and resulting paucity of data.

### 2.2 SUBCOMPONENT SELECTION

A Delphi process was used to identify subcomponents, associated datasets and suitable data analysis methods for use in the project. A Delphi process is a method for structuring a group communication process to allow a group of individuals, as a whole, to reach a considered view on a complex problem or question. The structured communication typically involves some degree of anonymity for the individual responses, feedback on individual contributions of information and knowledge, an opportunity for individuals to raise views, and some assessment of the group judgement or view (Linstone & Turoff 1975).

The project began with a scoping exercise consisting of a brief literature review and a series of semi-structured interviews with key coastal stakeholders in order to help define what could be meant by social value. Two sets of stakeholders were interviewed: experts in social value research and experts on the issues associated with the New Zealand coast. An initial list of social subcomponents was developed via triangulation of interview and literature search results.

This list from the literature review and interviews was discussed at an expert focus group workshop with social scientists in October 2006. Discussion highlighted that few good datasets exist and they were unlikely to be available at a national scale, or in a form which could be easily spatially mapped. Rather the data are likely to be found in qualitative forms (often at a regional level) and as knowledge held by various “experts”, particularly people who use the resources.

As a result of this paucity of data, a pilot study of the Tasman area was carried out to trial methods to identify and map beaches, surfing activity and stakeholder engagement as examples of potential subcomponents. This was done mostly by talking to individuals and reviewing diverse sources because there was little information held in dataset form. The Tasman pilot confirmed that, although locations for social values can be identified, it is challenging to rank their comparative importance given the highly subjective responses.

Following the Tasman pilot, a second social science expert focus group workshop was held in October 2007. The workshop confirmed that data collection would focus on the identification of sources of data and/or subcomponents that would provide a national coverage. In consultation with MAFBNZ, eight subcomponents were selected based on their significance and their suitability for national mapping (Table 1). Subcomponents can be distinguished between those values which are use/utility based and those which are meaning based. Contributors to social value specifically associated with or of interest to Māori culture were excluded from consideration because they are covered within the cultural value mapping project.

**Table 1 Subcomponents of social value selected for this study and selection rationale**

Value category	Mapped Subcomponent	Selection Rationale
Use/Utility Values	Beaches	Beaches are used for a range of activities including walking, swimming, bird-watching, and social gatherings, as well as providing access for water-based activities such as boating and fishing. Beaches are often more accessible than other parts of the coast and are therefore more highly used.
	Surfing	Surfing is a valued activity occurring at popular accessible places and highly-valued remote places. These locations overlap with beaches, but also include reefs and rocky areas.
	Diving	Diving is a valued activity with a spatial distribution centred in the water rather than on the land. Activities generally occur close to the shoreline but also in remote offshore locations.
	Boating (split by activity into yachting & power boats, and kayaking)	Boating is a very significant social activity in New Zealand; one which is widely recognised for example by Auckland promoting itself as the “City of Sails”. Boating is a varied spatial activity, the distribution of which is different for each of the three classes of craft looked at in this study. Kayaking is strictly an inshore activity, while yachting and power boat cruising tends to occur either within harbours or bays for small yachts and boats, or more widely for large vessels. Movements of larger ocean-going yachts are a particular risk source for marine incursions.
	Seafood gathering	Recreational fishing and shellfish gathering are highly significant activities in New Zealand, with a large proportion of the population able to access fishing and gathering sites. Recreational fishing and shellfish gathering have different spatial attributes depending on the method of fishing and type of fish sought.
Meaning	Landscape/sense of place (at national and international levels)	Sense of place is a source of social value attached to a specific location which engenders a strong sense of identity in both locals and in some cases also visitors. The spatial distribution therefore varies depending on the mapping scale (who is “local”?) and on the life world of the perceiver.

**Table 1 Subcomponents of social value selected for this study and selection rationale (cont'd)**

Value category	Mapped Subcomponent	Selection Rationale
Meaning (cont'd)	Archaeological/historical	Archaeological sites are a source of social value and a special subset of meaning. Coastal sites are distributed around the country, associated with historical events. Most sites are well documented.
Stakeholder engagement	Coastal user networks	This sub-component is an overarching theme across the seven spatial subcomponents. Involvement in coastal management is itself a source of social value. It recognises the importance of the users of the coast, as well as the places of the coast.

## 2.3 DATA COLLECTION AND VALUATION METHODS

The subcomponents listed in Table 1 were selected on the basis of their significance and suitability for national mapping. From the sources identified by the pilot work, and the additional information gained in the social science expert workshops (October 2006 and 2007), information on the locations and other qualitative characteristics were gathered for the selected subcomponents. Building on the guidance from those expert workshops, the project team placed an emphasis on the identification of sources of data and/or subcomponents that would provide a national coverage.

As Section 2.2 indicates, most of the social values were not previously spatially mapped, and in many cases the data required for the project were not available in digital form. Although it was straightforward to gather information on locations where social values existed (at least for use/utility values), and to then map them, it was difficult to gather sufficient quantitative characteristic data to enable objective ranking of the subcomponent. For example diving sites could be ranked on popularity (number of visits), site quality (water clarity) or some other indicator. Even if sufficient quantitative data could be obtained to rank different characteristics within a subcomponent, ranking between subcomponents remains subjective. Therefore qualitative data was collected where possible, however it was not used to rank sites, rather it was used to categorise sites. For example within the beach dataset, those with surf life saving clubs can be identified and grouped, but they are not ranked per se.

Table 2 summarises the selected subcomponents of social value and the datasets that were developed during the project. The third column of the table shows those characteristics that were collected. Sections 2.3.1 – 2.3.8 explain the data collection and valuation method employed for each subcomponent.

**Table 2 Summary of subcomponent datasets: description, sources and characteristics**

Subcomponent	Dataset description and sources	Characteristics (Those which can be mapped are denoted by *)
Beaches	<p><b>Description</b> Locations of beaches around New Zealand.</p> <p><b>Source</b> Surf Lifesaving New Zealand (SLSNZ) (1997).</p>	<p>Location*</p> <p>Beach name*</p> <p>Surf Lifesaving NZ Id key</p> <p>Existence of surf club*</p> <p>Qualitative description of beach</p> <p>Qualitative description of beach uses (bathing, surfing, fishing)</p> <p>Local council</p> <p>Nearest main road</p> <p>Distance to nearest town</p> <p>Nearest surf club</p> <p>Public transport access (Bus, Train, Ferry)*</p> <p>Number of parking spaces*</p> <p>Boat vehicle access*</p> <p>Presence of boat ramp (and boat ramp type)*</p> <p>Number of boat trailer spaces*</p>
	<p><b>See also:</b> Seafood gathering: Sites monitored by local authorities for water quality. This dataset includes sites where water quality is monitored for bathing purposes as well as for seafood gathering.</p>	
Surfing	<p><b>Description</b> Locations of surfing spots around New Zealand.</p> <p><b>Source</b> Morse &amp; Brunskill (2004), Surf Forecast<sup>1</sup>, and Surfing New Zealand<sup>2</sup>.</p>	<p>Location*</p> <p>Site name*</p> <p>Qualitative description</p> <p>Substrate type*</p> <p>Usage level (popularity/value)*</p> <p>Competition breaks*</p> <p>Break type (beach, point, reef)*</p>
Diving	<p><b>Description</b> Locations of diving sites around New Zealand.</p> <p><b>Source</b> New Zealand's Information Network website<sup>3</sup>, and New Zealand Underwater Association<sup>4</sup>.</p>	<p>Location*</p> <p>Site name*</p> <p>Qualitative description (where available)</p> <p>Stakeholders (where available)</p>
Boating - yachting & cruising	<p><b>Description</b> Sailing destinations: Marinas and harbours where yachts can berth or moor overnight.</p> <p><b>Source</b> NIWA<sup>5</sup>, New Zealand Marina Operators Association<sup>6</sup>, and individual marina websites.</p>	<p>Location*</p> <p>Site name*</p> <p>Qualitative description</p> <p>Site type (harbour or marina)*</p> <p>No of days visited – international*</p> <p>No of days visited – domestic*</p> <p>Marina website URL (where available)</p>
	<p><b>Description</b> Yacht clubs: Locations of yachting and boating clubs in New Zealand.</p> <p><b>Source</b> New Zealand Search<sup>7</sup>, and New Zealand Yachting<sup>8</sup>.</p>	<p>Location*</p> <p>Club name*</p> <p>Qualitative description</p> <p>Yacht club website URL (where available)</p>

<sup>1</sup> Surf Forecast [www.surf-forecast.com](http://www.surf-forecast.com)

<sup>2</sup> pers. comm. Gregg Townsend, CEO, Surfing New Zealand

<sup>3</sup> New Zealand's Information Network website [www.newzealandnz.co.nz/scuba-diving-snorkelling](http://www.newzealandnz.co.nz/scuba-diving-snorkelling)

<sup>4</sup> pers.comm. Peter Crabb, Environmental Manager, New Zealand Underwater Association

<sup>5</sup> Oliver Floerl provided the yacht movements data from NIWA Project NPDA035 and NPDA045, which was manipulated to provide ranking information. NIWA sourced their domestic yachting data from Yachting New Zealand.

<sup>6</sup> New Zealand Marina Operators Association [www.bayswater.co.nz/moa/home.asp](http://www.bayswater.co.nz/moa/home.asp)

<sup>7</sup> New Zealand Search, yachting clubs [www.nzs.com/recreation/sports/yachting/clubs](http://www.nzs.com/recreation/sports/yachting/clubs)

<sup>8</sup> New Zealand Yachting [www.yachtingnz.org.nz](http://www.yachtingnz.org.nz)

Table 2 Summary of subcomponent datasets: description, sources and characteristics (cont'd)

Subcomponent	Dataset description and sources	Characteristics (Those which can be mapped are denoted by *)
Boating – kayaking	<p><b>Description</b> Locations of sea kayak hire companies.</p> <p><b>Source</b> Sea Kayak Operators Association of New Zealand<sup>9</sup>, and The Definitive Guide to Sea Kayaking<sup>10</sup>.</p>	<p>Location*</p> <p>Site name*</p> <p>Qualitative description of kayaking area</p> <p>Sea kayaking company website URL (where available)</p>
Seafood gathering	<p><b>Description</b> Fishing clubs affiliated to New Zealand Big Game Fishing Council.</p> <p><b>Source</b> New Zealand Big Game Fishing Council<sup>11</sup>, and individual club websites.</p>	<p>Location*</p> <p>Club name*</p>
	<p><b>Description</b> Surveys of recreational fishing</p> <p><b>Source</b> Ministry of Fisheries surveys of recreational fishing data on MARLIN database.</p> <p><b>Note</b> This database is not mapped into the GIS and is only provided in the accompanying Excel spreadsheets due to lack of spatial data.</p>	<p>Survey dataset name</p> <p>Year of survey</p> <p>Mfish dataset ID</p>
	<p><b>Description</b> Water quality monitoring: sites monitored by local authorities for water quality</p> <p><b>Source</b> Regional council and district council websites and databases.</p>	<p>Location*</p> <p>Site name*</p> <p>Reason for monitoring (Swimming or shellfish gathering)*</p> <p>Qualitative description (where available)</p> <p>Site reference number (where available)</p>
	<p><b>Description</b> Locations of four types of seafood gathering: line fishing, set and drag netting, whitebaiting and shellfish gathering</p> <p><b>Source</b> New Zealand fishing experts<sup>12</sup></p> <p><b>Note</b> This database has been mapped into the GIS database at a high level. There is no accompanying Excel spreadsheet due to the data being in graphic rather than quantitative form.</p>	<p>Areas of the New Zealand coast used for different types of seafood gathering (low resolution).</p>
Landscape/sense of place (at national and international levels)	<p><b>Description</b> Sites considered an iconic part of the NZ coast because of their natural beauty or history.</p> <p><b>Source</b> AA Travel<sup>13</sup>, and New Zealand Tourism Board<sup>14</sup>.</p>	<p>Location*</p> <p>Site name*</p> <p>Ranking (minor/major)*</p> <p>Qualitative description (where available)</p> <p>Source</p>

<sup>9</sup> Sea Kayak Operators Association of New Zealand <http://nzsouth.co.nz/seakayak/>

<sup>10</sup> The Definitive Guide to Sea Kayaking <http://adventure.thedefinitiveguide.co.nz/kayaking-sea.html>

<sup>11</sup> New Zealand Big Game Fishing Council [www.nzbfgc.org.nz](http://www.nzbfgc.org.nz)

<sup>12</sup> Fishing methods distribution maps were provided by New Zealand experts Geoff Rowling (NZ Recreational Fishing Council) and Bob Meikle.

<sup>13</sup> AA Travel, 101 Must-dos [www.aatravel.co.nz/101](http://www.aatravel.co.nz/101)

Table 2 Summary of subcomponent datasets: description, sources and characteristics (cont'd)

Subcomponent	Dataset description and sources	Characteristics (Those which can be mapped are denoted by *)
Archaeological	<p>Description Archaeological sites.</p> <p>Source New Zealand Archaeological Association<sup>15</sup> website list of sites to visit for the 'cultural tourist'</p>	<p>Location*</p> <p>Site name*</p> <p>Qualitative description (where available)</p> <p>Site category (Māori and/or colonial)</p>
Stakeholder Involvement	This sub-component is not a discrete set of spatial data points, but rather a graphical representation mapping the key contacts and social networks that are held by a small number of coastal users.	

### 2.3.1 Beaches

Information on beaches was obtained from Surf Life Saving New Zealand (SLSNZ) who undertook a survey of beaches in 1997, which included mapping areas and collecting data on a range of characteristics as listed in Table 2 (Surf Life Saving New Zealand Coastline Survey 1997). There are 347 beaches listed in this dataset. Each beach is listed by name, latitude, longitude and description.

### 2.3.2 Surfing

Information was obtained from Internet sites, particularly Surf Forecast and the New Zealand Surfing Guide (Morse & Brunskill 2004), and cross checked by Surfing New Zealand<sup>16</sup>.

Two hundred and seventy one recognised surfing spots were classified. Each location is listed by name, latitude, longitude and description. This list is not necessarily exhaustive, as surfing can be undertaken at almost any coastal location, however it does cover the most recognised places.

### 2.3.3 Diving

An internet search resulted in identification of a dive site listing at New Zealand's Information Network<sup>17</sup>. This source provided the locations and descriptions of eighty-two diving locations. The list was cross-checked with the New Zealand Underwater Association<sup>18</sup>. As per surfing, the list is not exhaustive as diving can be undertaken at almost any coastal or near-shore location, but it does show those which are recognised as spectacular or popular sites.

### 2.3.4 Boating

Boating in New Zealand is a popular activity around the coastline, with an estimated 350,000 pleasure boats in New Zealand and 1.5 million people who go out in a boat at least once a year (Maritime New Zealand 2008). The spatial distribution of the activity varies depending on the type of vessel. Boating was therefore split into two main categories: yachting/power boats and kayaking.

<sup>14</sup> New Zealand Tourism Board, 100% Pure official website, list of scenic highlights - coastal <http://www.newzealand.com/travel/sights-activities/scenic-highlights/coastal-highlights/scenic-highlight-listing.cfm>

<sup>15</sup> New Zealand Archaeological Association, Sites to Visit [www.nzarchaeology.org](http://www.nzarchaeology.org)

<sup>16</sup> pers. comm. Greg Townsend, CEO, Surfing New Zealand

<sup>17</sup> New Zealand Information Network, Diving locations <http://www.newzealandnz.co.nz/scuba-diving-snorkelling/>

<sup>18</sup> pers. comm. Peter Crabb, Environmental Manager, New Zealand Underwater Association



### ***Yachting and power boats***

Marinas and yacht clubs were used as general proxies to map the amount of sailing and power boat cruising in New Zealand.

Marinas were found by undertaking an internet search of the New Zealand Marina Operators Association<sup>19</sup>. Specific descriptions were found through individual marina websites sites. This list was increased by a number of ‘harbours’ identified during a NIWA project investigating yacht movements around New Zealand<sup>20</sup>. The yachts movement data provides a proxy for the most used marinas and the type of traffic. The NIWA data was taken from a survey of 300 internationally registered yachts showing where they had moored overnight during their stay in 2003, and 900 domestically registered yachts showing where they had visited in the 12 months over 2003/04.

A list of yacht clubs is also provided. This list was developed from New Zealand Search<sup>21</sup> and New Zealand Yachting<sup>22</sup> websites. Yacht clubs do not usually restrict membership to only yacht owners, therefore this indicator may cover other types of watercraft.

### ***Kayaking***

Kayaking information was gathered through the internet. A search showed no specific information on numbers or locations of people who kayak or the numbers of kayaking days. Therefore, a proxy was developed by gathering lists of kayaking companies advertising on the internet. An internet search of 'kayak hire' yielded Sea Kayak Operators Association of New Zealand<sup>23</sup> and The Definitive Guide to Sea Kayaking<sup>24</sup>. Names and locations of operators were taken from these sites.

### **2.3.5 Seafood gathering**

The data search found that very little data on shellfish gathering and recreational fishing was available at the national level on the internet or via organisations. This spatially patchy data is a major limitation for the project.

As a result of a lack of national seafood gathering datasets, two recreational fishing experts were asked to develop maps of where recreational fishing occurs around New Zealand. Two experts affiliated with the New Zealand Recreational Fishing Council provided qualitative data on recreational fishing methods and by indicating known fishing locations on maps<sup>25</sup>. This information was entered into GIS layers. The maps drawn by the experts show the main areas where shellfish gathering, whitebaiting, line fishing and set and drag netting occur. The shellfish gathering data includes the location of key collection areas for mussels, paua, scallops and toheroa. The line-fishing map covers methods rather than species. It maps river-mouth fishing, as well as main areas for surf-casting, off-shore fishing and in-shore line fishing. The set and drag netting map is categorised by method because the method is associated with target species. This map provides information on the main areas for set netting and drag netting, for catching flatfish in approved areas, in kelp beds for greenbone and moki, and off beaches and boats for rig and elephant fish.

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<sup>19</sup> New Zealand Marina Operators Association <http://www.bayswater.co.nz/moa/home.asp>

<sup>20</sup> Oliver Floerl provided data funded from NIWA Projects NPDA035 and NPDA045. NIWA sourced data on domestic yachting from Yachting New Zealand

<sup>21</sup> New Zealand Search, yachting clubs <http://www.nzs.com/recreation/sports/yachting/clubs/>

<sup>22</sup> New Zealand Yachting <http://www.yachtingnz.org.nz/>

<sup>23</sup> Sea Kayak Operators Association of New Zealand <http://nzsouth.co.nz/seakayak>

<sup>24</sup> Definitive Guide to Sea Kayaking <http://adventure.thedefinitiveguide.co.nz/kayaking-sea.html>

<sup>25</sup> pers. comm. Geoff Rowling and Bob Meikle of New Zealand Recreational Fishing Council

It should be noted that there is no accompanying Excel worksheet for this dataset because the data was obtained solely in graphic form with no accompanying quantitative data. For example while the two experts will have a familiarity with the fishing methods and areas upon which the maps were drawn, there is no explicit definition of, for example, inshore fishing and offshore fishing.

The Ministry of Fisheries undertakes ad hoc surveys at boat ramps on catch rates and trip duration. This data is collected in their MARLIN database, however the survey data are not currently linked to specific locations and hence were not able to be mapped on the GIS. The data submitted with this report simply document the survey information that was collected; the Excel database shows there are 59 surveys around the country.

Recreational fishing activity can also be measured using the existence of fishing clubs as a proxy. Members of fishing clubs are likely to live in the local area however they may fish elsewhere. As a result, this proxy is skewed towards population centres rather than showing a true picture of the locations where recreational fishing takes place. Fishing clubs affiliated to New Zealand Big Game Fishing Council are shown on their website<sup>26</sup>. Locations for these clubs were either found on the website, or via an internet search.

Regional councils monitor water quality at a number of sites around the coast. In general, these sites are measured against recreational water quality standards. In some cases sites are chosen specifically for their status as a popular seafood gathering site; in other cases the site is monitored due to its popularity as a bathing site. All 15 regional councils and unitary authorities maintain data, as well as an additional four city or district councils. A list of monitoring sites was compiled from these sources. The type of monitoring or reason for monitoring was unavailable from some councils (Auckland Regional Council, Canterbury Regional Council, West Coast Regional Council, and Otago Regional Council), in which case a default category of swimming was chosen.

### 2.3.6 Iconic landscapes

Iconic landscapes were limited to those of national significance. Travel guides were used as an “independent” filter to select outstanding sites based on tourist perceptions over many years. The sites chosen as iconic were compiled from the AA Travel 101 must-see-sites website<sup>27</sup> and the coastal highlights section of the official tourism website of New Zealand<sup>28</sup>. Sites were categorised as major or minor based on their status as an international tourist destinations. Categorisation was undertaken by a panel of experts as part of the Delphi process. The choice of landscapes and their categorisation is not intended to disregard the importance of local landscapes, but rather to provide some kind of objective evaluation by “outsiders”. Sixty-eight iconic landscape sites around the New Zealand coastline were identified.

### 2.3.7 Archaeological

Archaeological sites are a sub-set of features that provide meaning or identify value. A number of organisations maintain records on archaeological sites including New Zealand Archaeological Association (NZAA) and Historic Places Trust. NZAA maintains the Central Index of New Zealand Archaeological Sites (CINZAS) which contains over 55,000 records. However, because this record is not yet fully digitised, it was not searched to recover coastal

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<sup>26</sup> New Zealand Big Game Fishing Club <http://www.nzbgfc.org.nz/>

<sup>27</sup> AA Travel, 101 Must-sees [www.aatravel.co.nz/101](http://www.aatravel.co.nz/101)

<sup>28</sup> New Zealand Tourism Board, 100% Pure website [www.newzealand.com](http://www.newzealand.com)

based records. Local authority plans often contain information on archaeological sites, however this data was not searched given the level of effort required, and the variability of reporting and categorisation.

In line with the approach used for iconic landscapes, sites were filtered using a ‘visitors’ lens to objectively determine the most important sites. NZAA maintains a list of sites to visit for the ‘cultural tourist’<sup>29</sup>. This includes coastal sites in Northland, Auckland, Thames/Coromandel and Bay of Plenty and to a lesser extent Canterbury, Otago and Southland. There is only one shipwreck mentioned, as generally shipwrecks were specifically excluded by NZAA because there is little visible evidence. Additional sources included the New Zealand Tourism Guide<sup>30</sup> and New Zealand Historic Places Trust<sup>31</sup>. Sites on or about the coastline were determined visually using the site links to Google Maps. Thirty-three sites were identified.

### 2.3.8 Stakeholder involvement

The importance of involving stakeholders in the management of an incursion was highlighted by all of the different groups contacted during the scoping exercise, as well as the subsequent pilot study and information gathering exercise. This work also showed that MAFBNZ already had useful links with Territorial Authorities, and that gathering names would be unlikely to add to the relationships and networks that already existed. There was a growing awareness that the “right contacts” for any particular incursion were always going to need to be individually tailored to the incursion, and the area in question. Other lessons also emerged. For example, it is easier to start with contacts already known to you, and it is easier to make use of the networks that already exist and create synergies.

Key contact people from each phase of the project were identified by the researchers. Key contacts were not mapped spatially as, although they are geographically dispersed, their importance is not a function of their location. Key entry points into already existing stakeholder networks were identified as gatekeepers. Diagrams of these networks were developed to illustrate their significance (see Section 4.3).

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<sup>29</sup> New Zealand Archaeological Association, sites for the cultural tourist [http://www.nzarchaeology.org/cultural\\_tourist.htm](http://www.nzarchaeology.org/cultural_tourist.htm)

<sup>30</sup> New Zealand Tourism Guide <http://www.tourism.net.nz/new-zealand/about-new-zealand/attractions/history-and-culture/captain-cooks-landing-site.html>

<sup>31</sup> New Zealand Historic Places Trust <http://www.historicplaces.org.nz/placesToVisit/lowerNorthIsland/PencarrowLighthouse.aspx>

## 3 Results

For each dataset, maps were created using GIS to spatially illustrate the distribution of the subcomponent. Representative examples are shown in Figures 1-10 and the results discussed in the following Sections 3.1 – 3.7.

### 3.1 BEACHES

Beaches contained in the SLSNZ dataset are shown in Figure 1. It can be seen that they are located predominantly in the North Island. Beach popularity tends to be based on proximity to population centres and then on physical characteristics e.g. sandy beaches. This is clearly shown on Figure 1, where clusters of named beaches exist around Christchurch and Dunedin. The inset to Figure 1, of the top of the South Island, is drawn from another dataset, which contains sites where water quality is monitored by local authorities for swimming (i.e. against standards for contact recreation). The inset shows that there are many swimming areas not covered in the primary dataset, which is based on the 1997 survey by Surf Lifesaving NZ. Thus, these two layers should be looked at in combination to get a more complete picture of coastal areas used for swimming. It should also be noted that these layers do not show the presumably large number of beaches (e.g. throughout the South Island) that were not identified in the 1997 SLSNZ survey. Many of these, however, lack road access and thus do not make a major contribution to social value.

Beach value is not necessarily a function of beach amenities or visitor numbers. However, some amenities such as the existence of boat ramps may help identify locations of greater interest for MAFBNZ and were therefore mapped. Beach popularity can be gauged by the presence of surf lifesaving clubs (Figure 1), or using the number of visitor car parks as a proxy. Figure 2 shows a subset of this data from the Auckland and Coromandel area.

### 3.2 SURFING

Figure 3 shows the surfing locations identified in the dataset. In the North Island, surfing locations are generally widespread but tend to cluster around the upper North Island east coast and the lower North Island west coast. In the South Island, east coast locations are more common. Figure 3 also shows locations where surfing competitions take place throughout both islands. This map does not provide an indication of why each surfing location is valued, however further information, e.g. on the type of surf break, is available in the database.

### 3.3 DIVING

Diving occurs at both near-shore and offshore coastal locations as shown in Figure 4. Most sites are clustered on the east coast north of Tauranga, however other ‘hotspots’ occur about Taranaki, Cook Strait, Fiordland and Stewart Island. The type of diving occurring at each site is not mapped, however the purpose of diving in New Zealand now tends to be weighted towards recreational diving rather than food gathering.

### 3.4 BOATING

Figure 5 shows the location of ‘yachting clubs’ in the upper North Island. It can be seen that clubs are concentrated north of Tauranga and generally on the east coast of the North Island.

The category yachting clubs includes boating clubs, and often members of a club will participate in different boating activities. Most clubs are associated with population centres.

Figure 6 shows areas where commercial kayaking companies operate in New Zealand. This provides a proxy indicator for popular kayaking areas. Locations of sea kayaking hire companies are distributed all over New Zealand but are concentrated in the upper North Island and the top of South Island.

### **3.5 SEAFOOD GATHERING**

Seafood gathering locations are not well documented in New Zealand. Figure 7 and Figure 8 overlay the recreational fishing method and target species maps created by several fishing experts, with the locations of proxy indicators. Figure 7 shows shellfish gathering locations identified by the fishing experts, overlaid with regional council water quality monitoring sites monitored for shellfish gathering. In comparison to monitoring for bathing purposes, few regional councils test water specifically for shellfish gathering, and only in East Cape are these sites correlated with the identified shellfish gathering sites.

Figure 8 shows recreational line fishing locations identified by the fishing expert, overlaid with the locations of fishing clubs.

### **3.6 ICONIC LANDSCAPES**

Over the years the top iconic landscapes sited around the New Zealand coastline become identified by the numbers of tourists they attract. In turn tourist guidebooks target their descriptions to places that tourists express a preference for visiting. Figure 9 shows iconic coastal landscapes compiled from guidebooks and other resources.

### **3.7 ARCHAEOLOGY**

Figure 10 shows archaeological sites along the New Zealand coastline, as compiled from tourist resources. The GIS layer differentiates between sites from European history and Māori history, and also notes those relevant to both. As would be expected given the history of both Māori and European settlement, the vast majority of identified sites are in the upper North Island.

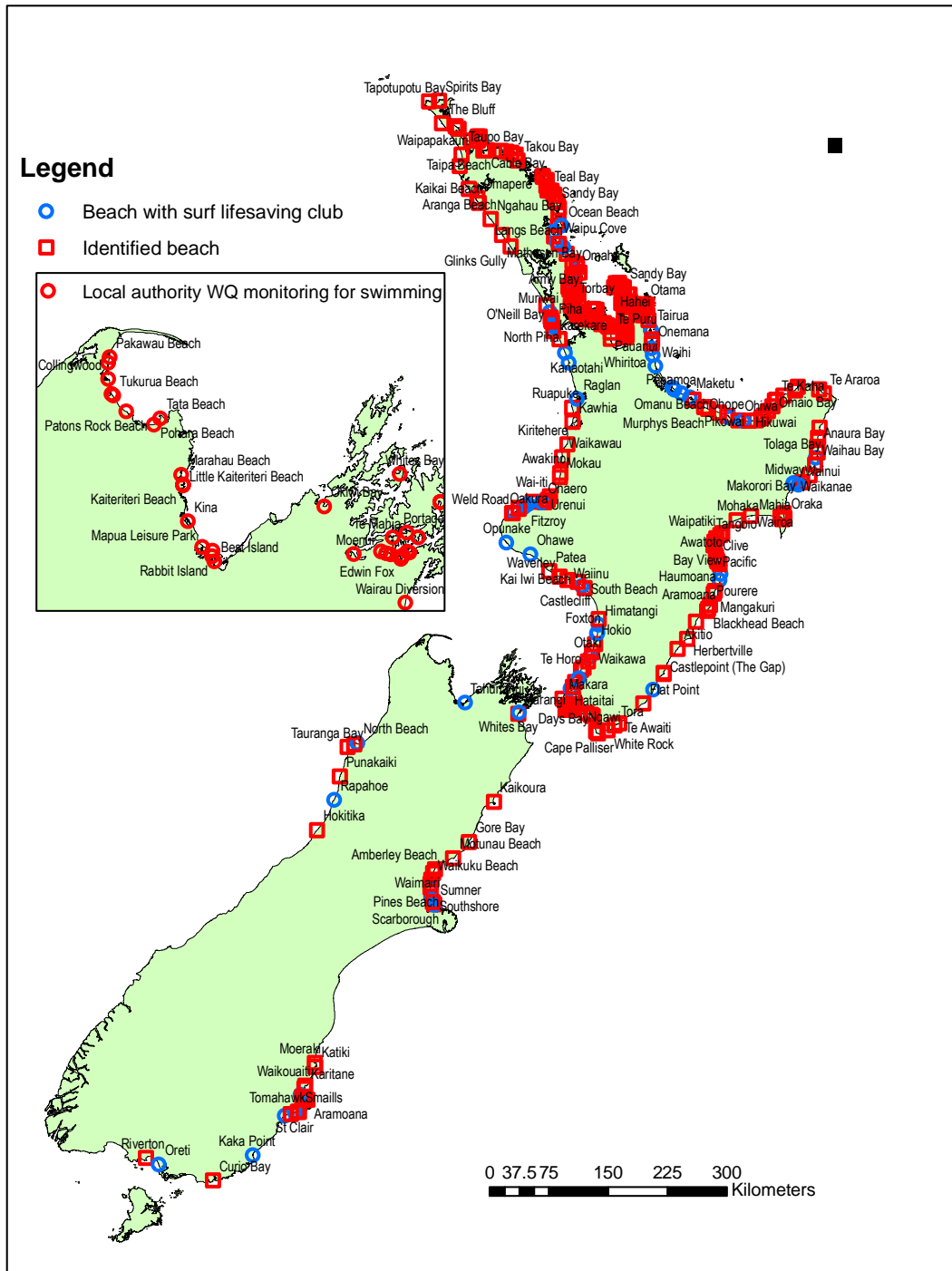


Figure 1 Beaches of New Zealand identified by SLSNZ in 1997 showing those that have lifesaving clubs (Inset: sites in Golden Bay/Tasman where water quality is monitored for swimming but where no beaches were identified in the primary dataset)

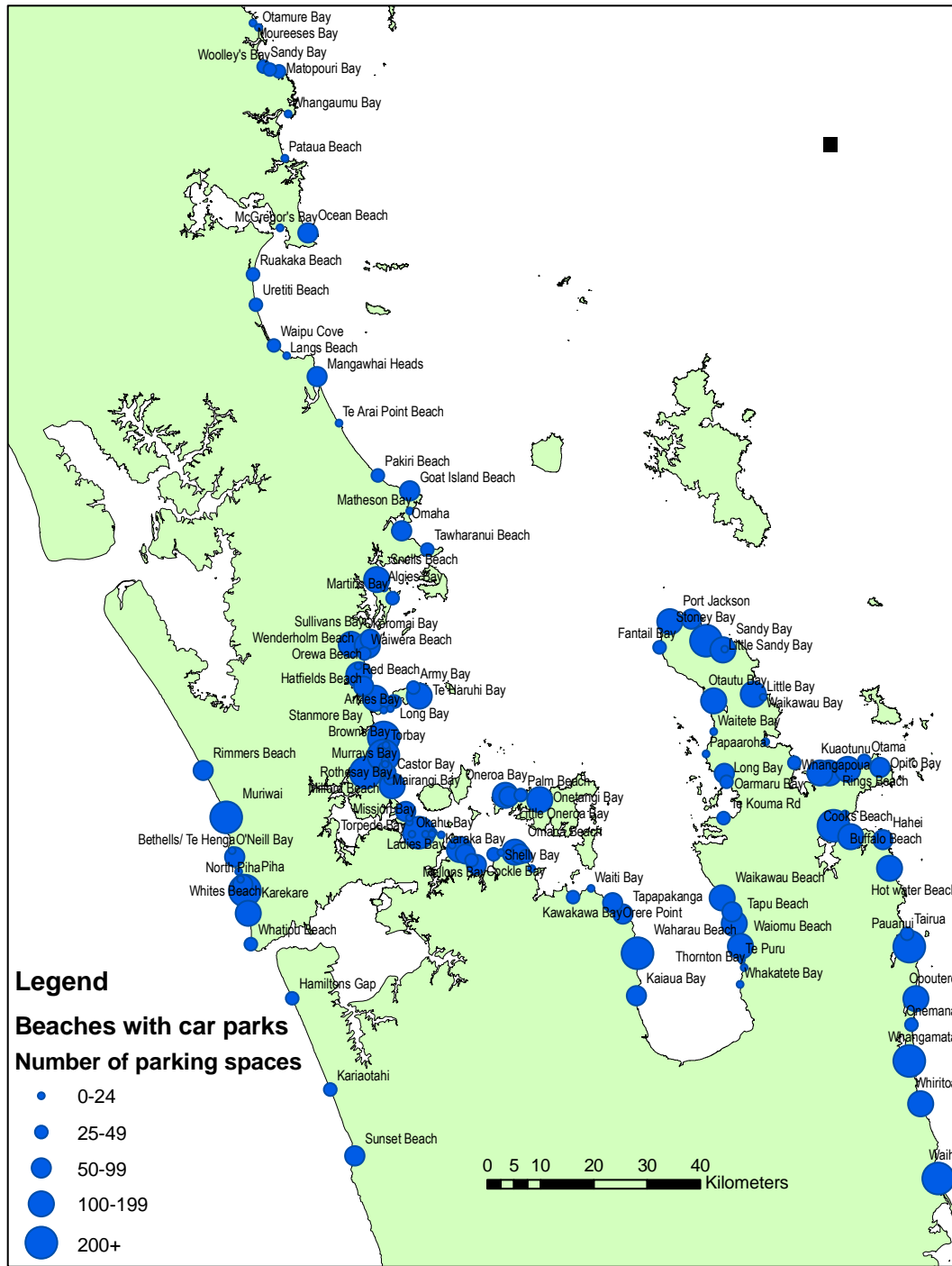


Figure 2 Beaches of Auckland & Coromandel showing number of car parking spaces based on data from SLSNZ 1997 survey

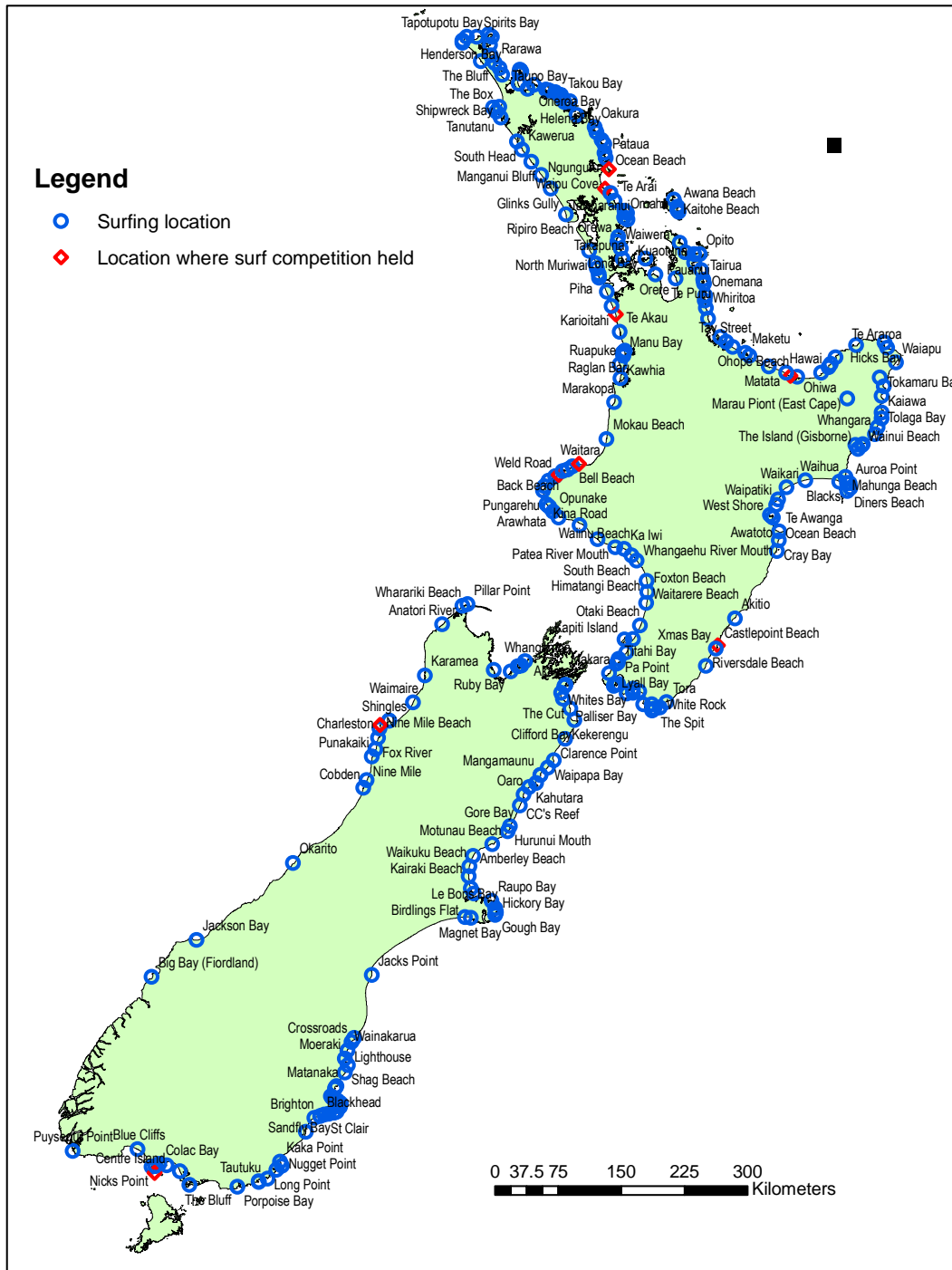


Figure 3 Surfing locations and surf competition sites around New Zealand



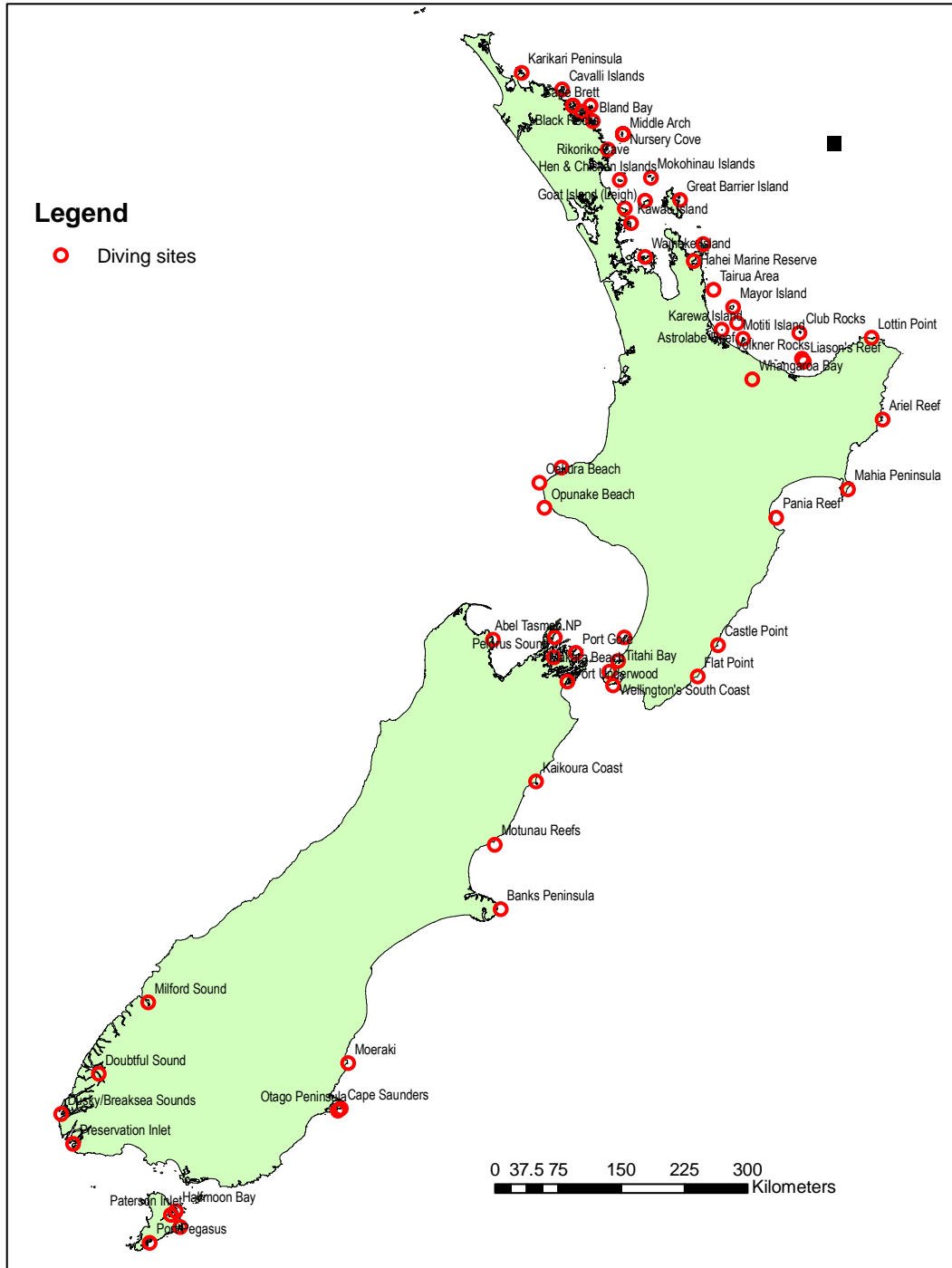


Figure 4 Dive sites around New Zealand

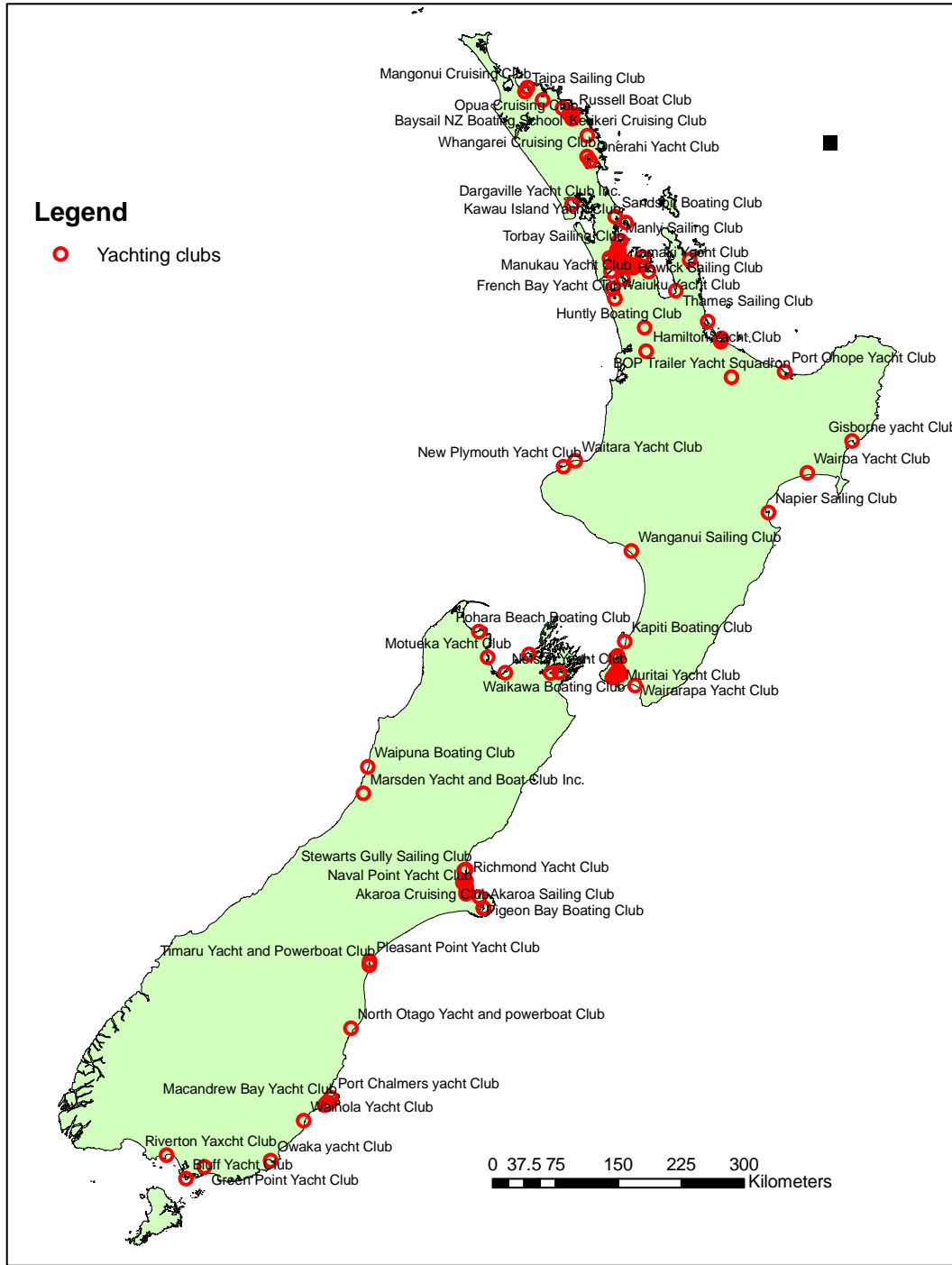


Figure 5 Yacht clubs around New Zealand

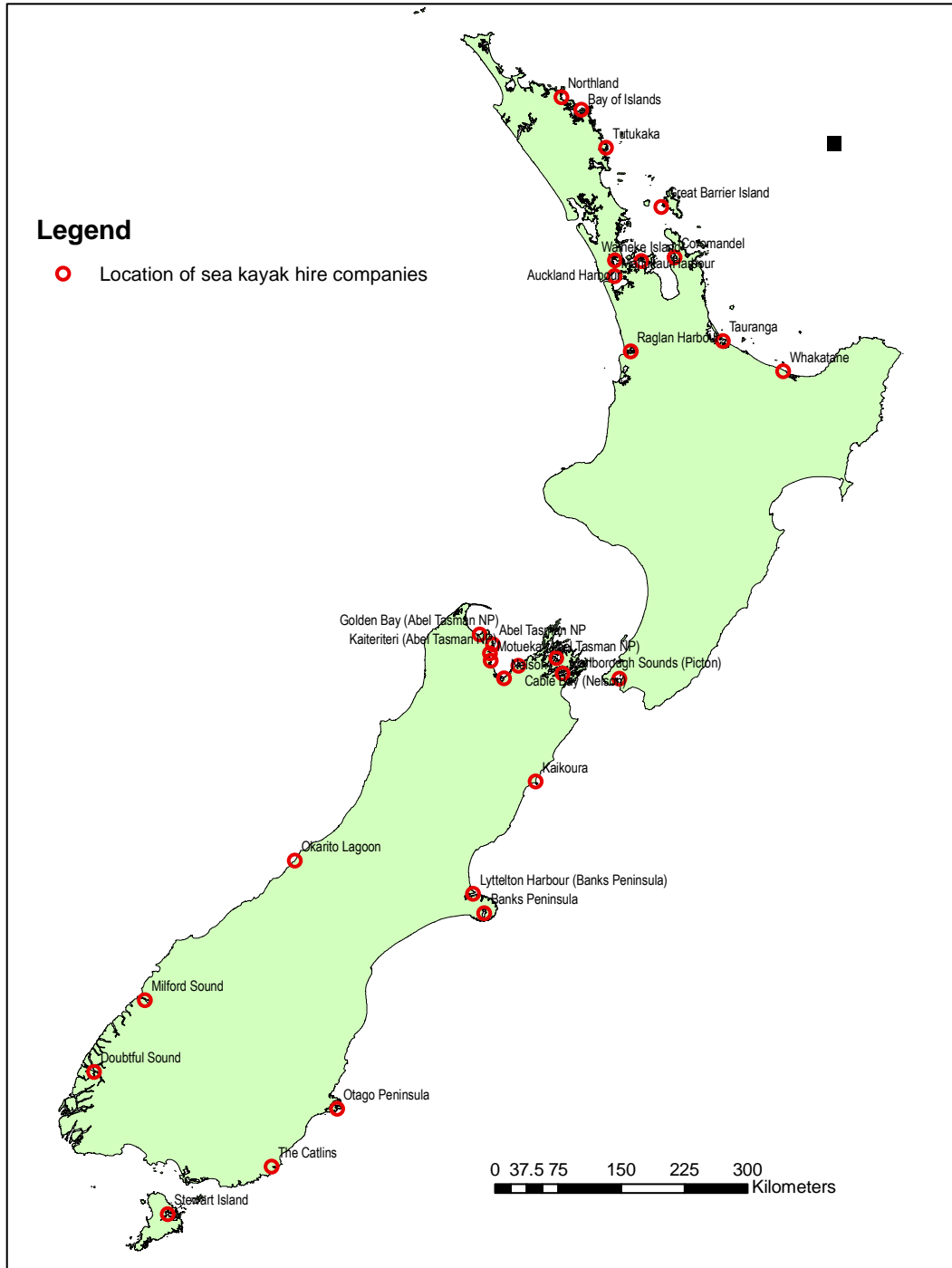


Figure 6 Locations of sea kayak hire companies around New Zealand

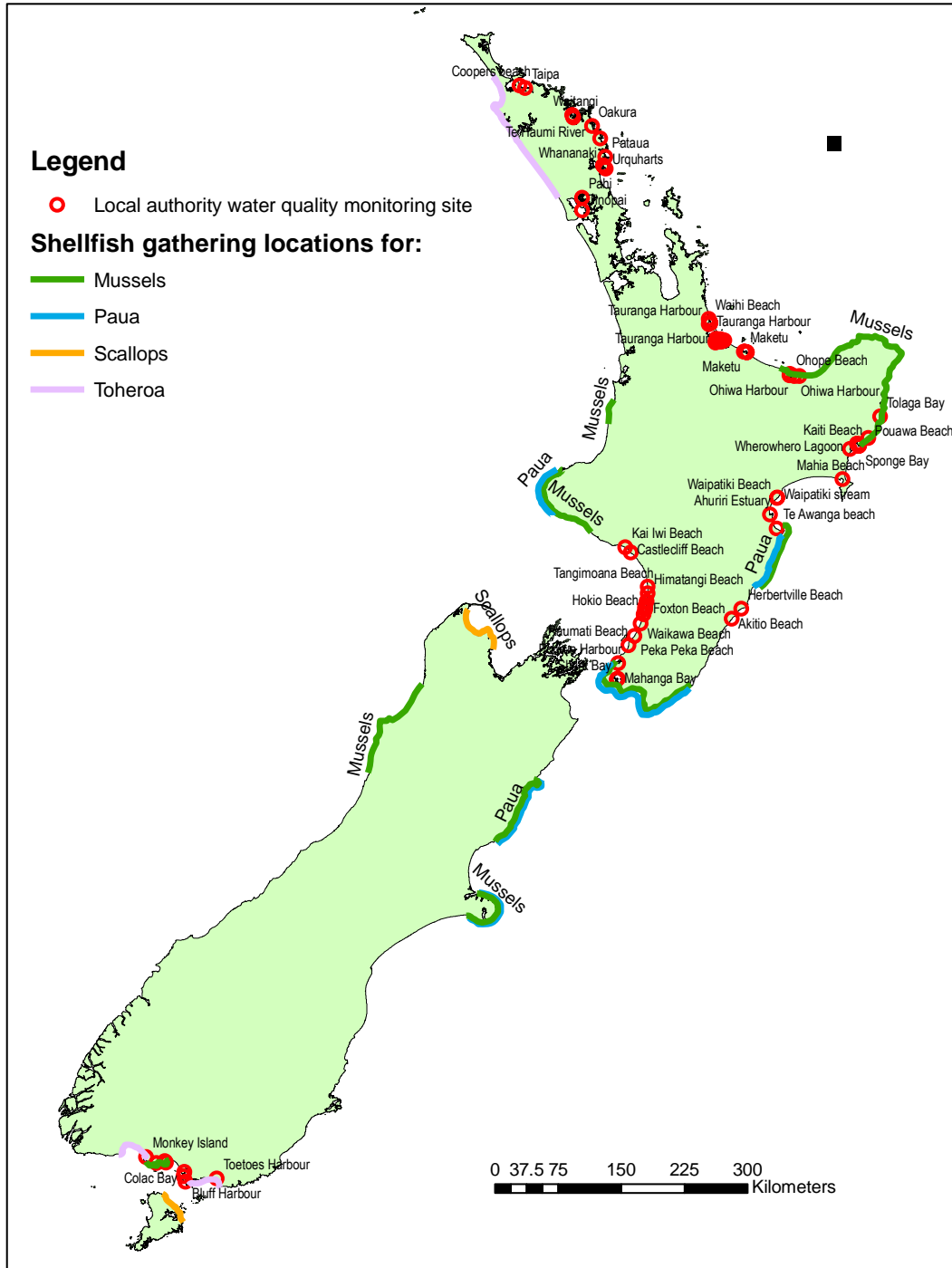


Figure 7 Shellfish gathering locations and local authority monitoring sites around New Zealand

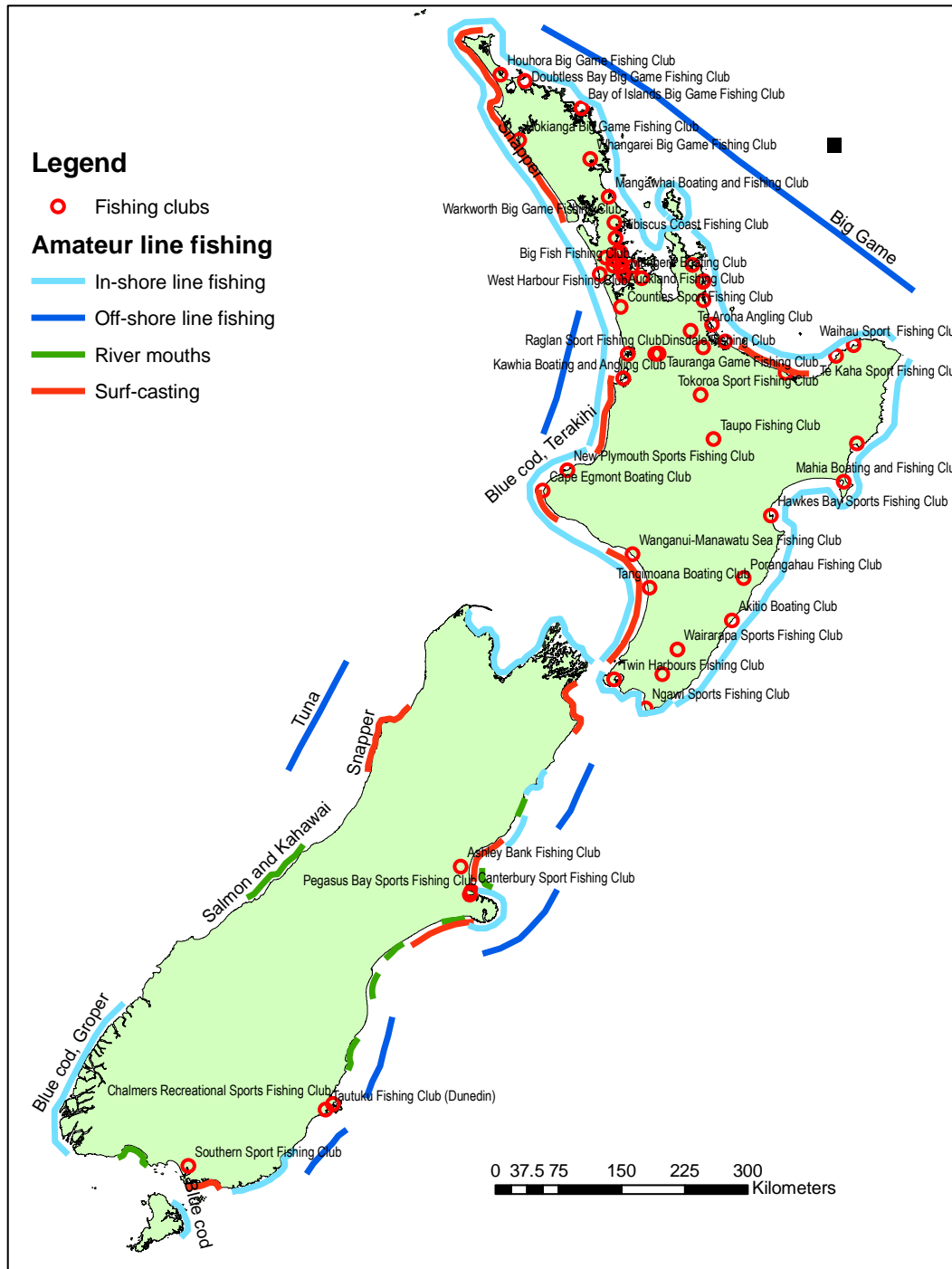


Figure 8 Recreational line fishing locations and fishing clubs in New Zealand



Figure 9 Iconic coastal landscapes of New Zealand as cited in tourist guidebooks

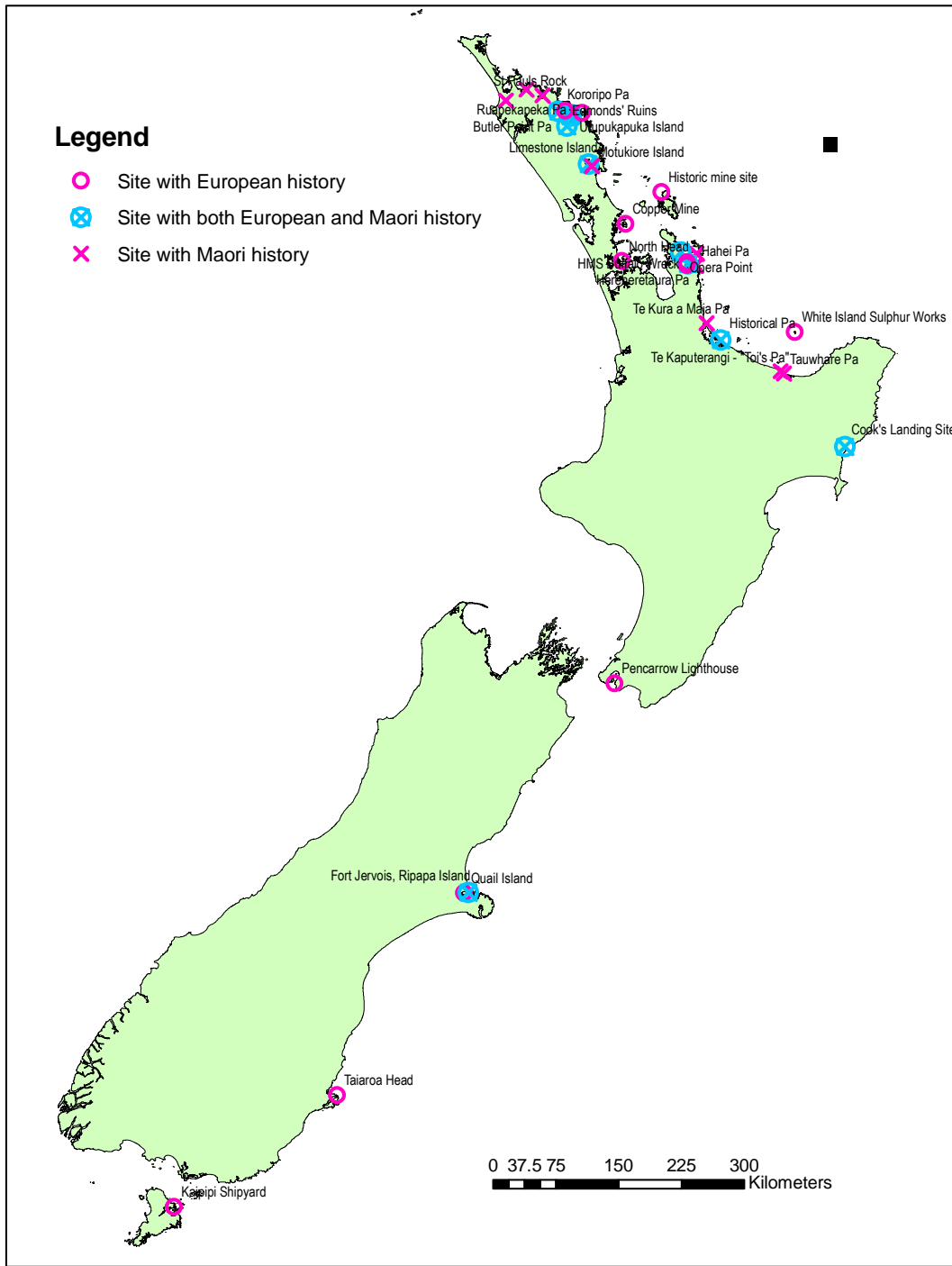


Figure 10 Coastal archaeological sites of New Zealand cited in tourist guidebooks

## 4 Discussion

### 4.1 FOCUS GROUP MEETINGS AND THE DELPHI PROCESS

A Delphi process is a method for structuring a group communication process to allow a group of individuals, as a whole, to reach a considered view on a complex problem or questions. The structured communication typically involves feedback on individual contributions of information and knowledge; an opportunity for individuals to raise views; and some assessment of the group judgements or view (Linstone & Turoff 1975). In this sense the Delphi method provides a means to synthesise information, and is particularly useful where published information is inadequate or non-existent. In these situations Delphi-type approaches provide a means of harnessing the insights and experience of appropriate experts (Jones & Hunter 1995).

In this social mapping exercise a panel of social experts played a major role, through their involvement in three workshops, in articulating and guiding the selection of social value subcomponents. A modified Delphi process was used to identify sub-components, associated datasets, and suitable data analysis methods for use in the project.

Delphi is based on the principle that estimates from a structured group of experts are more accurate than those from unstructured groups or individuals (Rowe & Wright 2001). The Delphi process worked well for the social project as it was an inclusive and flexible process which allowed group discussion by a number of experts rather than reliance on one expert opinion and the process is well suited to the characteristics and availability of social value indicator data.

#### 4.1.1 Valuation methods

It can be difficult to articulate some aspects of social value because they are, to a large extent, intangible. Indicators can be used to highlight what is happening in a system which itself can not be measured, i.e. they are tangible indicators which represent intangible values. For example, the intangible value of popularity can be represented by the tangible indicator of number of users. The choice of indicators depends on the specific purpose that the system is being measured for. There is often no one indicator or characteristic that represents the “value” of the value above all others. As people have different perspectives, they often disagree over indicators when they are, in fact, disagreeing over the way they define the systems they are talking about. To use surfing as an example, different people may prefer different spots depending on their ability (small vs. giant waves), access (near a town, or at White Rock in the Wairarapa), or wave quality (break and consistency).

When “meaning” values are being considered, these distinctions or characteristics become even harder to define in words or numbers. Hence, in this project it was decided that meaning values would be mapped only at a national level such as their recommendations in guide books.

Mapping, measuring and ranking can be thought about in different ways. Based on the discussion at the second expert social science workshop it was clear that mapping “what” and “where” was possible and useful. Furthermore, it would be feasible to either create a basic ranking based on one characteristic or to create a combined ranking of characteristics against



a single social subcomponent. However, it would be very problematic to rank different social subcomponents within one layer, for example: ‘is this reef more valuable to divers or surfers?’ Any approach to ranking should be chosen in conjunction with an appropriate marine expert user.

The expert group recommended that any ranking for general usage should be carried out on quantifiable and transparent characteristics, in such a way that end users are happy with it. This has to be developed on the basis of explicit characteristics. It was recognised that different weightings may be applied to help deliberations in any specific decision-making activity.

## 4.2 DATA LIMITATIONS AND INTELLECTUAL PROPERTY

The datasets developed by this project are subject to a number of limitations and intellectual property (IP) considerations as noted in the sections below. Although only one formal IP agreement was made, in all cases expert knowledge from organisations and individuals was used. These contributors are happy to share this data freely with MAFBNZ, provided it is not on-sold for commercial gain.

In many cases detailed data exists for specific sub-components in specific regions, but there are few comprehensive datasets covering the entire national coastal area. The emergent and changing nature of social values means it is difficult to predict in advance what kinds of data will be most useful to biosecurity risk management. It is imperative to maintain contact with social network gatekeepers in order to identify and fill gaps in data collection.

### 4.2.1 Beaches

A formal IP agreement was made with SLSNZ to supply a subset of their beach data to MAFBNZ for this project, on the basis that the source of the data was acknowledged, and that the data would not be used for commercial gain. The data provided for this project is the full beach site listing, although not all available characteristics were selected. There are some acknowledged gaps, for example Abel Tasman National Park and Golden Bay beaches were not identified although they are nationally known to be popular and water quality at many of the locations is monitored for bathing by local authorities (see Figure 1). SLSNZ is intending to update this database in the near future and has indicated that the updated database could be made available to MAFBNZ.

### 4.2.2 Surfing and diving

Surfing and diving data was obtained from public sources. Multiple physical characteristics such as water clarity, presence of caves or wrecks, or number of big surf days could have been mapped, however their value is subjective. Use values are easier to measure, and were therefore highlighted. Often, popular sites are visited because they are local and close to home (generally clustered around population centres). However, there is a continuum between high use popular locations and low use, high value remote locations for both surfing and diving. This is because many sites are more valued for their meaning or history rather than use, and these sites will not be well represented by data sets focused on level of use. In principle, such sites could be considered iconic and would have been included in the Iconic Landscapes dataset but, as noted, that dataset was limited to sites recognised as tourist destinations and omits sites that have emergent local significance.

### 4.2.3 Boating

There is little data on spatial distribution of small boat owners, or their movements around the coastline. This is an acknowledged data gap. For example, small boat use (e.g. runabouts or jetskis) was not reflected in the categorisation into yachting/power boats and kayaking although it is picked up to some extent within other activities, such as fishing and diving. The data provided on movements of boats registered internationally will be of particular interest to biosecurity efforts as these boats are potential vectors for biological incursions into New Zealand.

Data collected on kayak operators will be weighted towards sites frequented by tourists, rather than the most popular kayaking sites per se. This bias is mitigated by the fact that commercial kayaking sites are likely to be both relatively safe and scenic, characteristics that would encourage kayaking by the general public. It is unknown whether the list of operators is comprehensive, because they are frequently changing and because there is no mandatory registration with a central body.

Some high quality regional spatial information is available, for example Auckland Regional Council published a study of the constraints on aquaculture development in the Hauraki Gulf (McCarthy 2002). This included mapping recreational boating 'cruise routes', boat ramps and mooring areas, as well as popular recreational fishing locations. This dataset was not included because it was only available for a small region. It is possible to undertake this kind of mapping exercise nationally however it would require a large investment of time and resources.

### 4.2.4 Seafood gathering

Seafood gathering locations are determined by the interaction between species, methods, regulations and season (including customary gathering protocols). Favoured locations are further influenced by weather and other conditions on a daily basis.

The lack of national level data on seafood gathering (both recreational fishing and shellfish gathering) is a major limitation of this project. This is surprising given the popularity and importance of this activity in New Zealand. In some places, good regional data exists. For example Duncan (2005) gives detailed maps of seafood gathering sites on the east coast of the North Island, from North Cape to East Cape (approximately 20 percent of the coastline). This book is specifically aimed at popular recreational species such as snapper, kingfish, terakihi and hapuku, but also has some data on john dory, crayfish, baitfish, scallops, and flounder. Some species could be mapped based on these sites (e.g. scallops and crayfish), while for others like snapper, sites are too numerous and cover most of the coastline (i.e. the spatial scale is too detailed). This source was not used for this project because it does not cover the whole of New Zealand, and developing this kind of mapping exercise at a national scale would require a large investment of time and resources.

Ministry of Fisheries' recreational fishing data on the MARLIN database is geographically uneven. Survey locations are not chosen by Ministry of Fisheries to ensure geographical consistency or coverage, but rather as part of overall policy development or ad hoc projects. Furthermore, the database is not fully digitised, and individual results are not linked to locations meaning the contents of the database are unable to be mapped using GIS. A list of the surveys is provided as an Excel worksheet.

The expert maps of recreational fishing were drawn at a broad scale. Fishing methods distribution maps were provided by two New Zealand experts, Geoff Rowling and Bob

Meikle (New Zealand Recreational Fishing Council). This information was provided as locations drawn on a map and these were transferred to GIS layers.

Fishing clubs are only those affiliated to New Zealand Big Game Fishing Council. This tends to capture those who fish from boats capable of offshore trips and these require larger financial investment. These clubs are unlikely to include people who are casual fishers from wharves, beaches, estuaries and rocky coastlines. Compared to the number of people who fish, few people join a fishing club. Fishing clubs tend to act as markers of community or political activities, rather than as popular fishing locations per se.

There is poor correlation between the locations highlighted in the recreational fishing maps and the distribution of fishing clubs. Recreational fishing effort is shown as spread throughout New Zealand while fishing clubs are concentrated in the upper North Island. Two factors may contribute towards this. The first is that fishing clubs are generally located near population centres and these are not always near fishing areas. The second is that the recreational fishing maps only show general areas without distinguishing those with high fishing pressure.

Regional council data on water quality may be skewed towards those sites at risk from contamination rather than the most popular or best shellfish gathering sites. For example, sites near a sewage outfall are more likely to be monitored as part of resource consent conditions even though that may not be a popular gathering site. Consideration was given to various sources however regional council data was preferred compared to Ministry of Health or New Zealand Food Safety Authority data as these agencies only record locations where outbreaks of shellfish borne disease occur rather than general locations of shellfish gathering.

#### 4.2.5 Iconic landscapes

The selection of iconic landscapes is especially subjective. There was clear recognition in the development of this project that people tend to value their local sites. This is because they use them, because they have familiarity with them, and because of the affinity they feel with them. This came out strongly in both the scoping and the literature reviews. Any ranking exercise by local people would put a high rating on their local sites, and conversely ratings by people who are not local would tend to place a lower value on these sites.

Some sites can at least be identified using partially objective criteria: number of visits or inclusion in guide books. The iconic landscapes dataset does not attempt any kind of comparative ranking other than categorising sites as with major or minor.

Places which are considered to be iconic locations vary by person. They are widespread, covering the whole of the country, and vary in scale from specific beaches or rocky headlands such as Castle Point, to large areas such as 90 Mile Beach. The characteristics that define their iconic status also vary widely, for example natural beauty, wildlife, presence of adventure sports, or historical associations. Iconic landscapes are an emergent value, often unexpressed until they are perceived of as at risk or until they are externally recognised as iconic. Because this study relied upon tourist information to identify iconic landscapes, the resulting maps are likely to omit numerous landscapes that are significant to local communities.

Landscapes often encompass large geographic areas but their boundaries are not necessarily well defined and in any case are not available in digital form. Hence, for this project, these landscapes were mapped as point locations rather than as polygons. This needs to be borne in mind when using this GIS layer of the maps.

#### 4.2.6 Archaeological

Sites with historical meaning are widespread around the coast, however archaeological sites are rarer due to physical coastal processes and ongoing land development destroying evidence of their existence. Identified archaeological sites are usually well documented in District Plans under the Resource Management Act, however there is no comprehensive, searchable existing database. The list of cultural tourism sites focuses on places with visual remains rather than those with particular historical significance. For example, all shipwrecks (with one exception) were excluded, as are several significant pre-historic sites such as Wairau Bar where there is nothing for casual visitors to view. As with other components that were mapped, this set should not be seen as comprehensive as there are certain to be other sites known locally that are of significant social value.

### 4.3 LINKAGES WITH OTHER VALUE MAPPING PROJECTS

There are strong links between this project and the economic, environmental and cultural projects. The economic value mapping project broadly divided economic values into market and non-market values. The term ‘non-market values’, as used in economics, encompasses non-commercial direct uses such as recreational activities, indirect uses such as existence value (the value of simply knowing that a certain good or service exists), and bequest value (the value of preserving a resource for future generations). After discussion, the economic and social project teams agreed that non-market economic activities would be mapped qualitatively under the umbrella of this social project due to the limited availability of quantitative data for these values. That is, many of the activities identified in this project have an economic value as well as social value (e.g. purchase of supplies, accommodation, and maintenance of equipment).

The cultural project looked specifically at those values of interest to and associated with Māori culture. These values were therefore excluded from this project, although they are acknowledged to be a part of New Zealand society. Social values which were covered in the cultural project include some seafood gathering and archaeological sites.

The fourth value project, environmental value mapping, was concerned with ecological values. Some of these values could be considered a bequest or existence value from the perspective of the economic project, or could be a Taonga value from the perspective of the Cultural project. Equally, ecological values can have a social component, for example diving sites are often associated with areas of high ecological diversity.

### 4.4 PARTNERSHIPS AND THEIR ROLE IN SOCIAL VALUE

It became clear in the initial scoping exercise undertaken for this project that iwi, agencies and other key stakeholder groups expect to be involved and respected in decision-making with respect to the coastal environment they are involved with. It was acknowledged that the degree of this involvement and respect can influence how people feel about a coastal issue, or area of coastal environment. These feelings directly influence emergent values that manifest in response to a coastal issue. If people are not involved, and not communicated with, they are likely to express their values for the coastline through showing concern, if not anger. If on the other hand they are involved and can see that they are part of the solution, they are likely to channel their felt value for the coastal environment into positive and collaborative channels.

When this project began, it was believed that a list of contacts could be provided to MAFBNZ as a data layer. However, as the project developed, it was decided that simply providing a list of names and addresses would not be helpful for MAFBNZ. For one thing, MAFBNZ staff

collectively have well developed networks. For another, every incursion will be different, and MAFBNZ will need to tailor their contacts appropriately. Clearly, MAFBNZ should continue to work with its contacts within territorial authorities and other regional agencies.

One way to build on that base is to use the power of networks in a more innovative and active way, and capitalise on the fact that a few key people play important gatekeeper and championing roles within networks. This project actively looked for people with those roles across the areas of interest. These people were introduced to MAFBNZ through their role as experts in the social value mapping process. Persons with this gatekeeper role are listed here, along with an indicative illustration of the rich networks that they provide entry to.

The project began by identifying the areas where information was required for this exercise. From this, stakeholders were identified and those that were happy to contribute were contacted. The project particularly looked for stakeholders who were well regarded, not only in their area, but within the wider coastal network generally. A key requirement was people who were able to think widely around coastal values. The significance of this is that MAFBNZ was introduced to a number of additional, and significant, networks in the coastal social sector.

The network maps in Section 4.4.1 to 4.4.5 show networks from the perspective of the key gatekeepers identified. In some cases, the network maps acknowledge where a wider subset of people (within a particular organisation) might also be expected to provide a networking role for MAFBNZ on the basis of their relationship with the identified person. One of the strengths of this type of social networking is the relationships that people have on a one-to-one basis.

The maps illustrate the degree of relationship using lines and boxes. The thick lines in the maps illustrate where the central gatekeeper (and their organisation) link to other key networks. The node is shown with a shaded box where other networks are in the same organisation, and the box is clear if it is another related organisation. Dotted boxes indicate a grouping of related organisations (e.g. industry sectors). Smaller groupings of two-way or one-way arrows illustrate how the networks link with their wider publics. Where there is a reasonable expectation of feedback then two-way arrows are used, where the wider disseminating mechanism is very disperse, or a mass communication medium, then one-way arrows are used.

Some national level organisations are particularly significant as networking points for the wider coastal and water-oriented communities. Water Safety New Zealand (WSNZ) is a case in point. It represents some 36 New Zealand marine and recreational organizations, and provides a forum for key people within those organisations to meet and network (WSNZ n.d.).

#### 4.4.1 New Zealand Underwater Association

The New Zealand Underwater Association is based in Auckland and has three staff. Peter Crabb provided general input and also reviewed the diving dataset to ensure that it provided a good base for the objectives of this project. An indicative illustration of the networks New Zealand Underwater reaches is shown below (Figure 11).

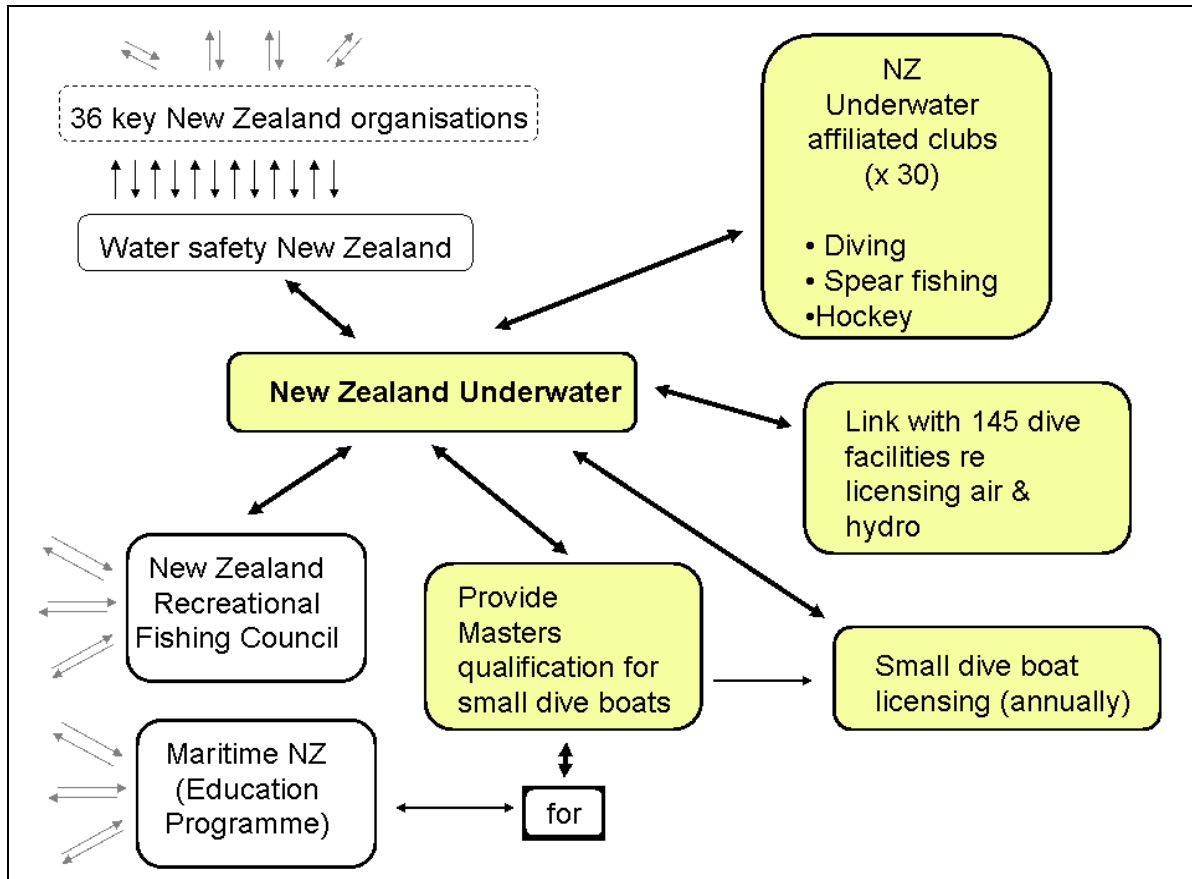


Figure 11 New Zealand Underwater Association social network map

The highlighted boxes in Figure 11 show New Zealand Underwater’s direct constituency. New Zealand Underwater represents around 30 underwater sports groups in New Zealand. It also is directly involved with licensing dive equipment and providing a qualification for small dive boat masters. Both of these endeavours provide wider networks of dive equipment places, and small boat owners. These links also tie closely into Maritime New Zealand. Beyond that, a New Zealand Underwater Association representative is on the Executive of both the New Zealand Recreational Fishing Council and Water Safety New Zealand. These two organisations are umbrellas for a range of community and sporting groups. They also provide high-level networks into these areas.

#### 4.4.2 Surf Life Saving New Zealand

Nathan Hight, Lifesaving Development Manager for Surf Life Saving New Zealand (SLSNZ), provided input into this project. An indicative illustration of the networks that SLSNZ can reach is shown below (Figure 12).

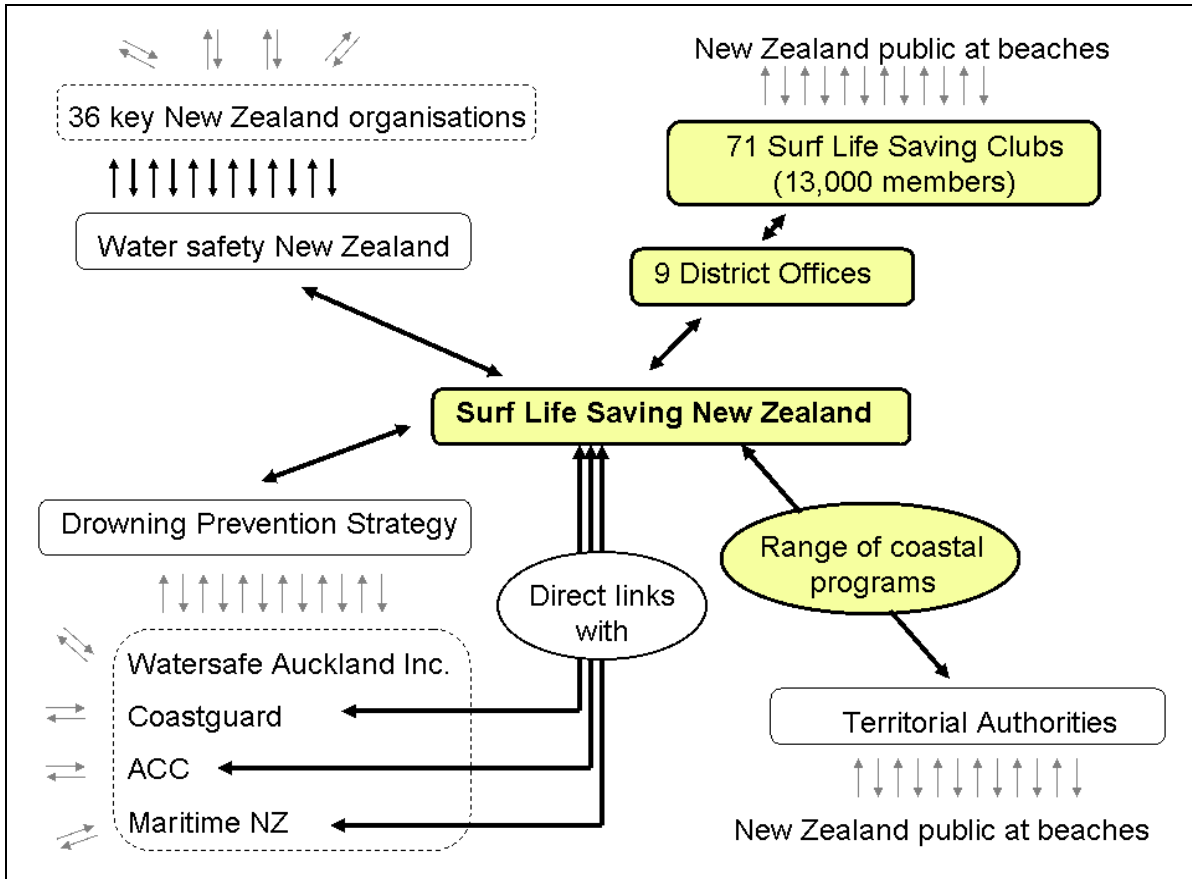


Figure 12 Surf Life Saving New Zealand social network map

The highlighted boxes in Figure 12 show how SLSNZ represents 71 Surf Life Saving Clubs. Nearly 13,000 people are members of SLSNZ through this national structure. SLSNZ also develops coastal programmes in conjunction with different territorial authorities. Through these activities it is directly seen by, and reaches, a large number of New Zealand beach users. SLSNZ is on the executive of both Water Safety New Zealand and the National Drowning Prevention Strategy. These are umbrella organisations for a range of community, sporting and service groups, they also provide high-level networks into these areas. Beyond that, SLSNZ has close links with agencies such as the Coastguard, ACC and Maritime New Zealand.

### 4.4.3 Surfing New Zealand

Surfing New Zealand CEO, Greg Townsend, participated in this project, including reviewing the surfing database. An indicative illustration of the networks that Surfing New Zealand reaches is shown below (Figure 13).

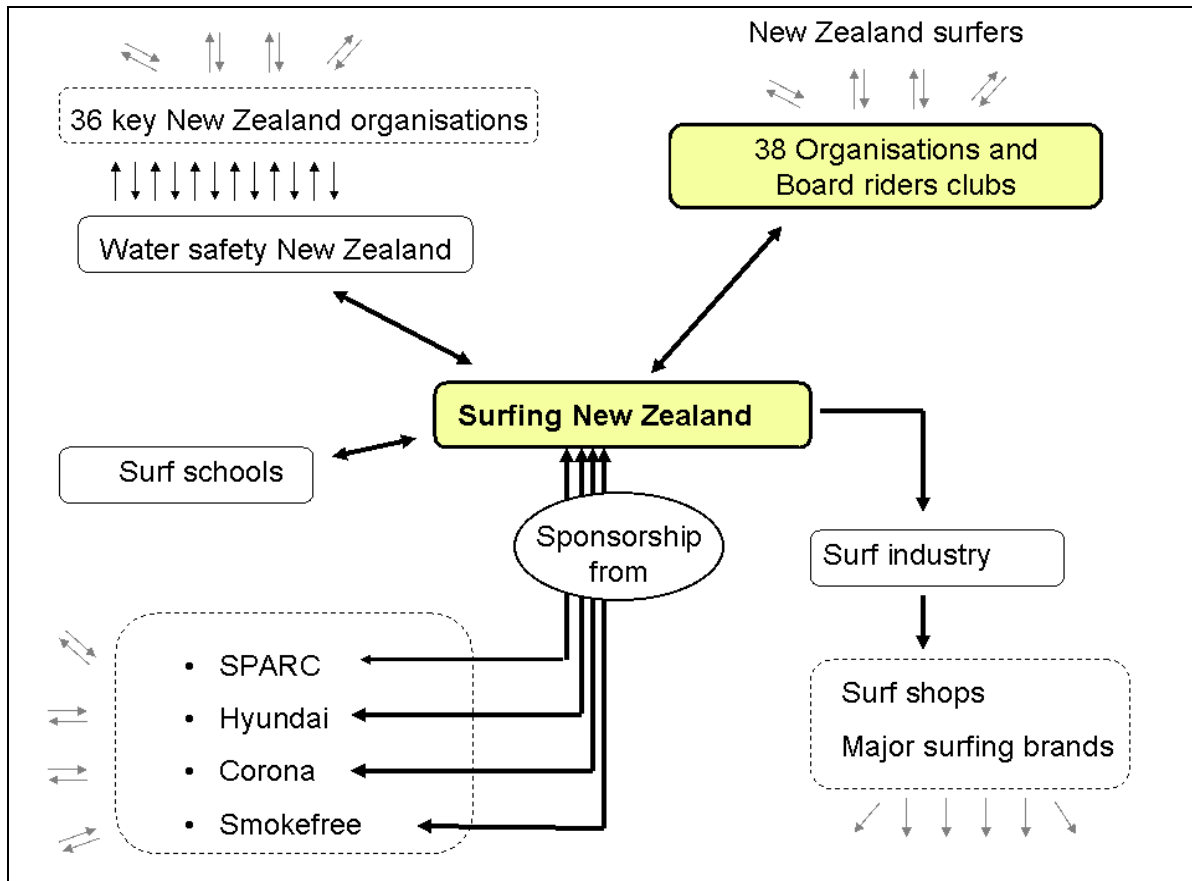


Figure 13 Surfing New Zealand social network map

The highlighted boxes in Figure 13 show how Surfing New Zealand (SNZ) represents 38 organisations and board riding clubs around the country. In addition to different national surfing organisations there is also representation from Bodyboard Surfing NZ, Waveski New Zealand and Kneeboard Surfing New Zealand. The board riding clubs are representative of geographic areas. Surfing New Zealand is closely linked to surf schools, and plays a role in accrediting surf instructors. Beyond that SNZ has close links with the surfing industry and some interested sponsors.



#### 4.4.4 Maritime New Zealand

Jim Lott the Manager of Recreational Boating at Maritime New Zealand participated in this project. Figure 14 below provides an indicative illustration of the networks that the Recreational Boating unit work with on a regular basis.

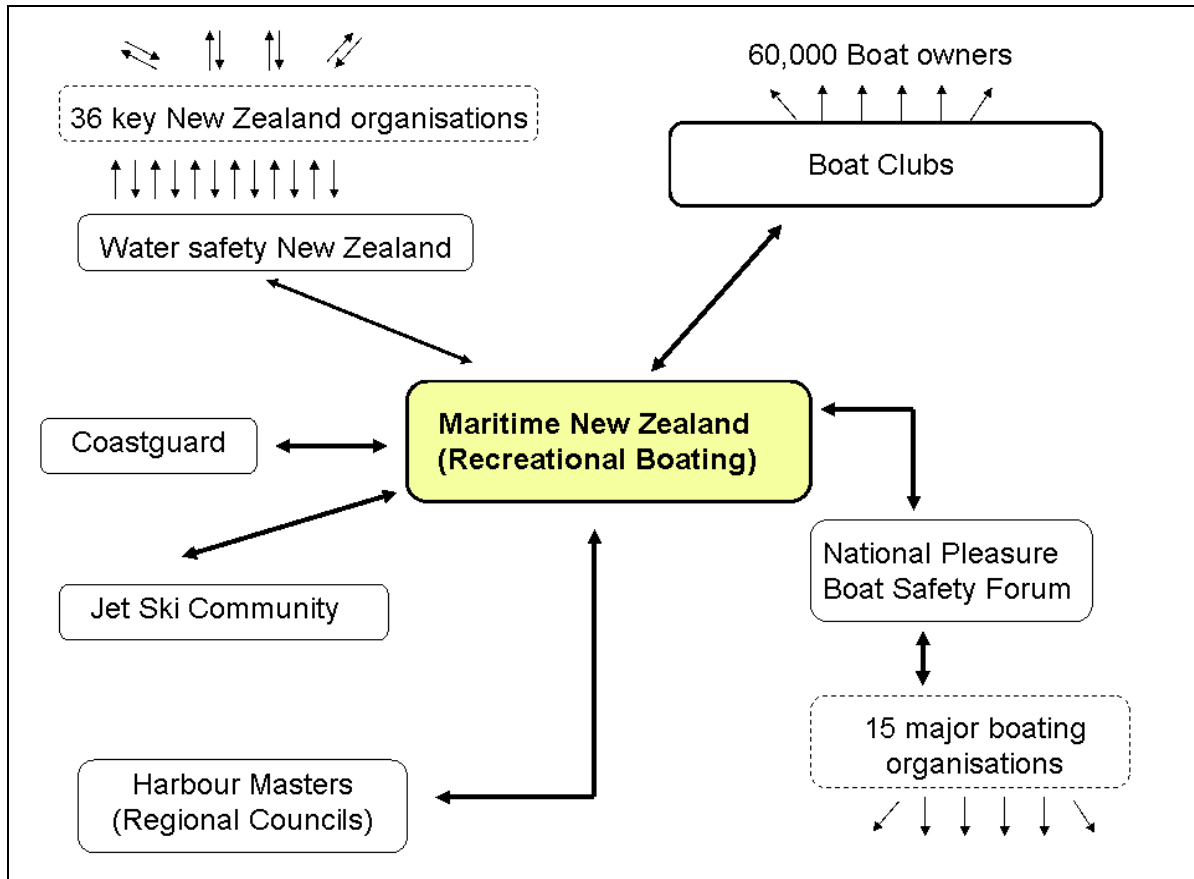


Figure 14 Maritime New Zealand social network map

Figure 14 highlights a number of direct networks that the Recreational Boating unit has with the recreational boating community, including with the jetski community. It directly links with a number of boat clubs to reach an estimated 60,000 boat owners. The team is also represented on the National Pleasure Boat Safety Forum which links them with 15 major boating organisations nationally. Other close links that provide good coverage around the country are with the Coastguard Service and Harbour Masters.

#### 4.4.5 New Zealand Recreational Fishing Council

Geoff Rowling (President, New Zealand Recreational Fishing Council), and Bob Meikle (member – Amateur Fishing Ministerial Advisory committee) provided a high level of input into this project. Figure 15 below provides an indicative illustration of the networks that the New Zealand Recreational Fishing Council (NZRFC) operate with.

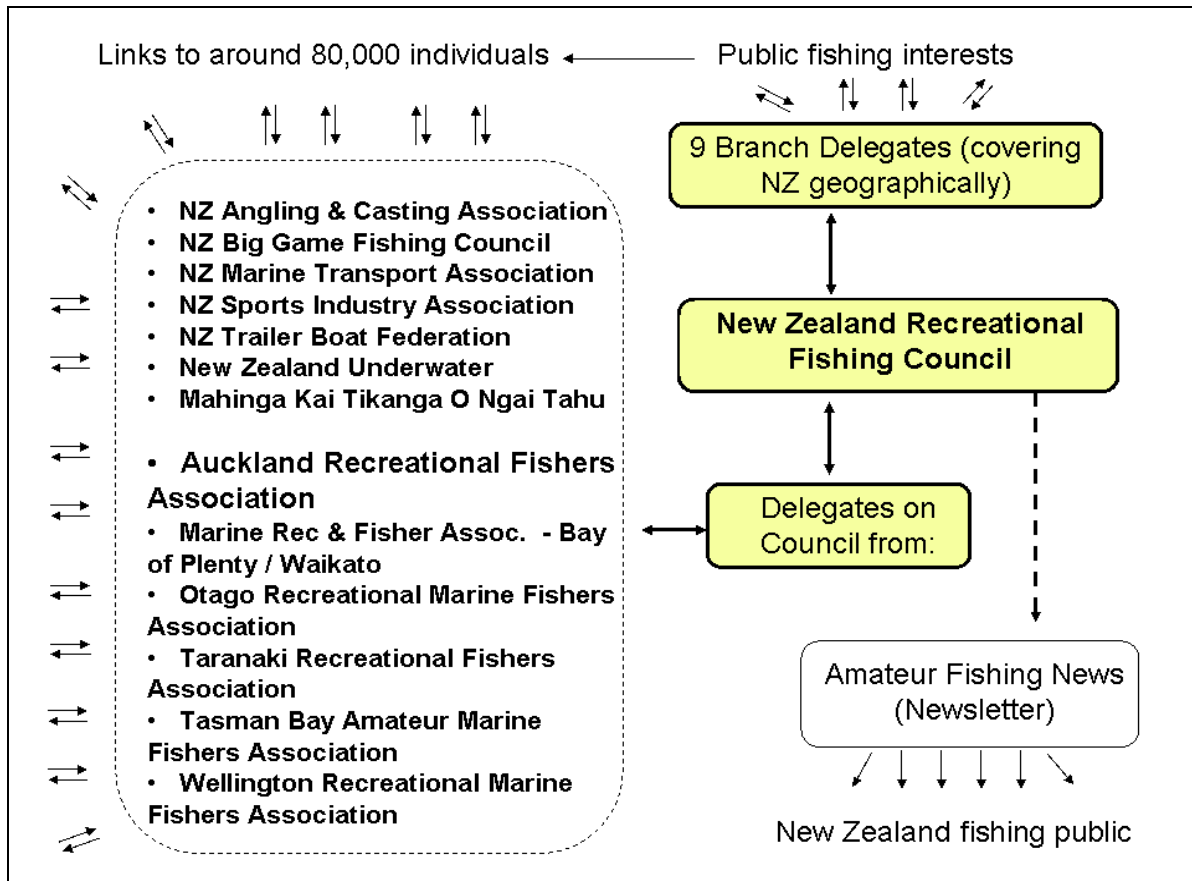


Figure 15 New Zealand Recreational Fishing Council social network map

The NZRFC is a council made up of delegates representing national and regional associations plus club representatives, and nine branch delegates elected to represent public members. Collectively, it is estimated that this reaches some 80,000 individuals with an interest in recreational fishing. NZRFC also has other communication links such as the Amateur Fishing News that go out to members of the New Zealand fishing public.

## 4.5 RECOMMENDATIONS

Planning and execution of this project raised a number of points regarding what is meant by social value. As used in this report, a ‘social value’ refers to a feature of, or a non-commercial human activity in, the coastal and marine environment that adds value to the social well-being of New Zealanders. The emergent and changing nature of social value means that some locations with significant social value were likely to be missed in this report, and others will increase or decrease in significance over time.

In particular, it is recommended that MAFBNZ work with the New Zealand Recreational Fishing Council and agencies such as the Ministry of Fisheries and New Zealand Food Safety Authority to improve data on locations valued for seafood gathering.

The social value project developed contacts with a number of key stakeholders. A relatively small number of people play important gatekeeper and championing roles within social networks, and regular and transparent communication with these individuals can help to moderate unexpected or extreme reactions driven by stakeholders’ anger or frustration at a perceived lack of communication. MAFBNZ should maintain contact with social network gatekeepers to maintain communication and to update social value data at regular intervals. For instance, MAFBNZ could establish a programme of updating two components per year by inviting relevant stakeholder groups to suggest additions or amendments to the existing dataset.

Finally, the methodologies used in this study should be reviewed in five years (2013) to identify any significant new methods, data or technology available to update the recorded components of social value in New Zealand’s coastal and marine environments.

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