Policy and Planning Committee

Tuesday 17 October 2017
10.30am
Taranaki Regional Council, Stratford

Agenda for the meeting of the Policy and Planning Committee to be held in the Taranaki Regional Council chambers, 47 Cloten Road, Stratford, on Tuesday 17 October commencing at 10.30am.

Members	Councillor N W Walker	(Committee Chairperson)
	Councillor M P Joyce	
	Councillor C L Littlewood	
	Councillor D H McIntyre	
	Councillor B K Raine	
	Councillor D L Lean	(ex officio)
	Councillor D N MacLeod	(ex officio)
Representative Members	Ms E Bailey	(Iwi Representative)
	Councillor G Boyde	(Stratford District Council)
	Mr J Hooker	(Iwi Representative)
	Councillor R Jordan	(New Plymouth District Council)
	Mrs B Muir	(Taranaki Federated Farmers)
	Mr M Ritai	(Iwi Representative)
Apologies	Councillor C S Williamson	
	Councillor P Nixon	(South Taranaki District Council)
	Councillor C Coxhead	(South Taranaki District Council)

Notification of Late Items

Agenda Memorandum

Date 17 October 2017

Memorandum to
Chairperson and Members
Policy and Planning Committee

Subject: Confirmation of Minutes – 29 August 2017

Approved by: A D McLay, Director-Resource Management

B G Chamberlain, Chief Executive

Document: 1945306

Resolve

That the Policy and Planning Committee of the Taranaki Regional Council:

1. takes as read and confirms the minutes of the Policy and Planning Committee meeting of the Taranaki Regional Council held in the Taranaki Regional Council chambers, 47 Cloten Road, Stratford, on Tuesday 29 August 2017 at 10.30am
2. notes the recommendations therein were adopted by the Taranaki Regional Council on 18 September 2017.

Matters arising

Appendices

Document #1922442 – Minutes Policy and Planning Committee

Minutes of the Policy and Planning Committee Meeting of the Taranaki Regional Council, held in the Taranaki Regional Council Chambers, 47 Cloten Road, Stratford, on Tuesday 29 August 2017 at 10.30 am.

Members	Councillors	N W Walker	(Committee Chairperson)
		M P Joyce	
		C L Littlewood	
		D H McIntyre	
		B K Raine	
		C S Williamson	
		D L Lean	(ex officio)
		D N MacLeod	(ex officio)
Representative Members	Ms	E Bailey	(Iwi Representative)
	Councillor	G Boyde	(Stratford District Council)
	Mr	J Hooker	(Iwi Representative)
	Councillor	R Jordan	(New Plymouth District Council) *from 10.50am*
	Councillor	P Nixon	(South Taranaki District Council)
	Mr	M Ritai	(Iwi Representative)
Attending	Councillor	M J McDonald	
	Messrs	B G Chamberlain	(Chief Executive)
		A D McLay	(Director-Resource Management)
		G K Bedford	(Director-Environment Quality)
		M J Nield	(Director-Corporate Services)
		S R Hall	(Director-Operations)
		R Ritchie	(Communications Officer)
	Mrs	K van Gameren	(Committee Administrator)
	Mrs	N West	(Policy Analyst)
	Mrs	H Gerrard	(Science Manager)
	Mr	R Phipps	(Science Manager)
	Mr	H Eriwata	(Iwi Representative)
	Mr	J Clough	(Wrightson Consulting)

Four Members of the public.
One Member of the media.

Apologies

The apology from Mrs B Muir (Taranaki Federated Farmers) was received and sustained.

Notification of Late Items

There were no late items of business.

Opening Karakia Mr M Ritai (Iwi Representative) gave the opening Karakia to the Policy and Planning Committee.

1. Confirmation of Minutes – 25 July 2017

Resolved

THAT the Policy and Planning Committee of the Taranaki Regional Council

1. takes as read and confirms the minutes of the Policy and Planning Committee meeting of the Taranaki Regional Council held in the Taranaki Regional Council chambers, 47 Cloten Road, Stratford, on Tuesday 25 July 2017 at 10.30am
2. notes that the recommendations therein were adopted by the Taranaki Regional Council on 15 August 2017.

Littlewood/Raine

Matters Arising

There were no matters arising.

2. Recent changes to the National Policy Statement for Freshwater Management

2.1 Mr G K Bedford, Director-Environment Quality, spoke to the memorandum (and presentation) on the recent changes made to the National Policy Statement for Freshwater Management (NPS-FM).

Recommendations

That the Taranaki Regional Council:

1. receives the memorandum *Recent changes to the National Policy Statement for Freshwater Management*
2. notes the ongoing uncertainty around a number of the provisions of the NPS-FM
3. notes the significant social and economic impacts the new requirements will have for Taranaki and other regions and the lack of awareness of this in central government.

McIntyre/Raine

3. National Policy Statement for Freshwater Management Implementation Review

3.1 Mr A D McLay, Director-Resource Management, spoke to the memoarndum introducing the National Policy Statement for Freshwater Management Implementation Review report and a report on progress in Taranaki in implementing the National Policy Statement.

Recommended

That the Taranaki Regional Council:

1. receives the memorandum *National Policy Statement for Freshwater Management Implementation Review*.

Williamson/Raine

4. Addressing New Zealand's Biodiversity Challenge – a regional council thinkpiece

4.1 Mr S R Hall, Director-Operations, spoke to the memorandum presenting for information a regional council thinkpiece on the future of biodiversity management in New Zealand entitled *Addressing New Zealand's Biodiversity Challenge*.

Recommended

That the Taranaki Regional Council:

1. receives the memorandum and the report *Addressing New Zealand's Biodiversity Challenge*
2. notes that the Report highlights five required shifts in biodiversity management to support regional council efforts in maintaining biodiversity – stronger leadership and clearer lines of accountability, building on existing programmes, better information, better collaboration, and a coherent legislative framework
3. notes that the Council is already giving effect to many of the actions identified in the Report through its recently reviewed and adopted *Biodiversity Strategy for the Taranaki Regional Council*.

Lean/Joyce

5. Environmental Protection Authority grants marine consent for sand mining in part of South Taranaki Bight

5.1 Mr A D McLay, Director-Resource Management, spoke to the memorandum informing the Committee that the Environmental Protection Authority (EPA) has granted consents to Trans-Tasman Resources Limited (TTR) to extract iron sand within the South Taranaki Bight and to outline the Council's ongoing role in relation to this project.

5.2 The Council noted within its submission that, if approval was given, a collaborative approach between the EPA and Council should be undertaken for monitoring and enforcement of activities to address the environmental effects felt within the coastal marine area where Council has jurisdiction. Condition 61 provides for the establishment of a Technical Review Group, which will provide technical advice to TTR. The Council is invited to provide a representative on this group. The costs for members of the Group will be met by TTR. It is also noted that the Council is likely to have to respond to public complaints within the project area not knowing whether the complaints are related to TTR and that this will impose unnecessary costs on

ratepayers. There has been no response from the EPA to this concern. The EPA, as consent authority, will be responsible for responding to any public complaints.

Recommended

That the Taranaki Regional Council:

1. receives the memorandum *Environmental Protection Authority grants consents to Trans-Tasman Resources Ltd to extract iron sand within the South Taranaki Bight*
2. notes the Environmental Protection Authority's decision to grant consent to Trans-Tasman Resources Ltd to extract iron sand within the South Taranaki Bight
3. notes Council's ongoing role in relation to this project.

Joyce/Raine

6. National Environmental Standard for Plantation Forestry

6.1 Mr A D McLay, Director-Resource Management, spoke to the memorandum introducing the final gazetted *National Environmental Standard for Plantation Forestry* (NES-PF) and to outline the Council's requirements relating to its implementation.

Recommended

That the Taranaki Regional Council:

1. receives the memorandum on the *National Environmental Standard for Plantation Forestry*
2. notes the promulgation of the NES-PF occurred on 3 August 2017 and commences on 1 May 2018
3. notes that the Council will be reviewing its plans and advisory, monitoring, and compliance programmes relating to forestry activities in the region.

Littlewood/Williamson

7. Havelock North Drinking Water Inquiry

7.1 Mr A D McLay, Director-Resource Management, spoke to the memorandum outlining the main findings from Stage 1 of the Havelock North Drinking Water Inquiry, particularly from the point of view of regional council responsibilities, and to advice the Committee of the joint work underway between the Council, water supply authorities and drinking water assessors in Taranaki to review systems and processes in regard to the findings of the Inquiry.

Recommended

That the Taranaki Regional Council:

1. receives the memorandum on the Havelock North Drinking Water Inquiry

2. notes the joint work underway with this Council, water supply authorities and drinking water assessors in the region to review systems and processes in regard to the findings of the Inquiry.

Joyce/Jordan

8. Report on Advocacy and Response activities for the 2016/2017 year

8.1 The memorandum reporting to the Committee on the Council's advocacy and response activities for the 2016/2017 year was received and noted.

Recommended

That the Taranaki Regional Council:

1. receives the memorandum on *Advocacy and Response activities for the 2016/2017 year*
2. notes that thirty-one (31) submissions were made during the year on the policy initiatives of other agencies
3. notes that senior staff were also involved in various working parties or other fora on central government policy development and review projects.

Raine/McIntyre

Closing Karakia Mr M Ritai (Iwi Representative) gave the closing Karakia to the Policy and Planning Committee and Karakia for kai (lunch).

There being no further business, the Committee Chairperson Councillor N W Walker, declared the Policy and Planning Committee meeting closed at 12.30pm.

Confirmed

Chairperson _____

N W Walker

Date **17 October 2017**

Agenda Memorandum

Date 17 October 2017

Memorandum to
Chairperson and Members
Policy and Planning Committee

Subject: State of the Environment Monitoring of Lake Rotorangi water quality and biological programme Annual Report 2015-2016

Approved by: G K Bedford, Director-Environment Quality

B G Chamberlain, Chief Executive

Document: 1925104

Purpose

The purpose of this memorandum is to present a report prepared by staff, on the ecological and physico-chemical state of Lake Rotorangi as determined in the 2015-2016 programme monitoring the state of the lake, and trends in that quality since monitoring first began in 1984. The Executive Summary of the report '*State of the Environment Monitoring of Lake Rotorangi water quality and biological programme Annual report 2015-2016, Technical report 2016-82*' is attached to this memorandum, and the full report is available upon request and on the Council's website. Lake Rotorangi, the region's largest, is monitored for both consent compliance and for state of the environment monitoring purposes, through a programme financed in part by TrustPower, the consent holder for the Patea Hydroelectric Scheme.

Executive summary

The Council's 'Regional Freshwater Plan for Taranaki' (October 2001) states as two of its objectives for the regional community, 'to maintain and enhance the quality of the surface water resources of Taranaki by avoiding, remedying or mitigating the adverse effects of contaminants discharged to land and water from point-sources.... and diffuse sources' (Objectives 6.2.1 and 6.3.1). In doing so, the Council and community seek to provide for the values associated with surface water, and to ensure the maintenance of aquatic ecosystems (Environmental Results Anticipated ER1).

In order to ascertain the successful adoption and application or otherwise of the Council's policies and methods of implementation, the Council conducts 'state of the environment' (SEM) monitoring to obtain up to date robust information for parameters that characterise the region's environment and resources. The results and findings of the SEM programme for the region's freshwater systems can be interrogated to determine trends and changes in trends in the quality of the region's freshwater resources, alongside the information on the current 'state' of the region's physicochemical parameters that SEM generates.

The state of Lake Rotorangi is determined each year, through four water quality monitoring surveys and through phytoplankton surveys (conducted simultaneously with the water quality surveys). A previous benthic invertebrate survey and a three-yearly macrophyte (aquatic weeds) survey conducted in autumn 2015 are also reported, for completeness.

Based on these surveys and studies, the lake's condition continues to be classified as mesotrophic, with a very slow and insignificant rate of increase in trophic level. If the trend continues, then in the very long term future the lake might become more eutrophic ie mildly nutrient enriched, but this is considered unlikely given the lake displays only moderate levels of chlorophyll. Phytoplankton densities continue to be low, restricted by lack of nutrients and by freshes (which shorten residence times and flush existing communities). Phytoplankton was non-existent after the June 2015 floods.

It can be noted that the Council has released its 'omnibus' 'state of the environment' report in 2015. The report being presented today updates the data presented therein. The report's recommendation is that the programme continues as currently designed, including the incorporation of elements that are implemented on an occasional basis.

Recommendations

That the Taranaki Regional Council:

1. receives this memorandum noting the preparation of a report into the state of the water quality and biological programme of Lake Rotorangi as determined in monitoring during 2015-2016
2. notes the findings of the SEM programme
3. adopts the specific recommendation therein.

Background

This Committee has been regularly informed of the findings that emerge from the Council's various freshwater 'state of the environment' monitoring programmes. These programmes are important as indicators of the effectiveness of the Council's and community's interventions and resource management initiatives addressing freshwater quality in the region. Members will be aware that there is a high level of interest nationally in the state and management of the country's fresh water resources (in both rivers and lakes).

The Council's 'Regional Freshwater Plan for Taranaki' deals with lake and river water quality jointly as 'surface water' quality. The three objectives most relevant are as follows:

> 'Objective 6.1.1: To promote the sustainable management of the surface waters of Taranaki while avoiding, remedying or mitigating any actual or potential adverse effects from the taking, use, damming or diversion of surface water;
>
> Objective 6.2.1: To maintain and enhance the quality of the surface water resources of Taranaki by avoiding, remedying or mitigating the adverse effects of contaminants discharged to land and water from point sources;
>
> Objective 6.3.1: To maintain and enhance the quality of the surface water resources of Taranaki by avoiding, remedying or mitigating the adverse effects of contaminants discharged to land and water from diffuse sources.'

Under 'levels of service' in the Resource Management section within the Council's 2015-2025 Long Term Plan, item 3 ('*maintenance and enhancement of overall water quality in our rivers and lakes, groundwater and coastal waters*') includes:-

> **Measure**: physicochemical and biological parameters for quality of Lake Rotorangi
>
> **Target** (years 1-10): the trophic state (an indication of the ecological condition as affected by nutrient enrichment) of Lake Rotorangi to remain as it was in 1988 (mesotrophic/mildly eutrophic, or the middle category of trophic states).
>
> **Baseline**: the current life-supporting capacity of the lake is stable and relatively healthy (better than almost 2/3 of lakes monitored nationally.). State of lake shown to continue to be mesotrophic/mildly eutrophic.

Lake Rotorangi is an artificial lake (as are four of the region's other significant lakes- Mangamahoe, Ratapiko, Opunake, and Rotomanu), and the Council's management of its quality is in part through the conditions imposed within consents held by TrustPower. Because of their use for generation purposes, most of these lakes tend to have a relatively high through-flow and are therefore less susceptible to potential water quality issues than might otherwise be the case.

The Committee has previously (2007) received information on the state of New Zealand's lakes, together with information about how Lake Rotorangi compares. For comparative purposes (to the extent that comparisons are meaningful for lakes of varying hydrological, geological, and meteorological function and character), that data is re-produced below.

Of the 134 lakes assessed for trophic status in 2007, their categorisation is shown in the table below, along with the state of Lake Rotorangi.

State	More impacted <- - -				- - >more pristine	
	Hyper-trophic	Super-trophic	Eutrophic	Meso-trophic	Oligo-trophic	Micro-trophic
Taranaki (L. Rotorangi)				Yes		
All NZ	18 (13%)	13 (10%)	44 (33%)	21 (16%)	25 (19%)	13 (10%)

Discussion

One of the Council's 'State of the Environment' monitoring programmes measures the ecological and water quality state of Lake Rotorangi, as an example of the state of lakes in the region. Monitoring of the lake has been undertaken since its construction in 1984, with reporting to the Council since 1988. Reporting was initially by way of consent compliance reporting, up until 2010-2011, with subsequent lake monitoring being reported as a state of the environment annual report, partially financed by TrustPower.

Staff have now reported the data for the 2015-2016 year, including an analysis of trends in the trophic state of the lake over the period 1984-2016.

Changes in thermal stratification (layers of distinct water quality within the lake, typified by low oxygen and low temperature at depth during warmer months) during the year were largely similar to that typically recorded in previous surveys of this reservoir-type lake.

Thermal stratification was beginning to form at both sites during the spring survey, and was well developed during late summer - autumn at the mid and lower lake sites, with dissolved oxygen depletion measured in the lower waters of the hypolimnion at both sites. The 2015 winter survey had recorded no oxygen depletion at the mid site in winter, while only minimal depletion was noted at the lower lake site at this time. This is an atypical result, and was caused by the significant flooding and consequent turbulent mixing (June 2015) that preceded this survey. Overturn was apparent at the mid lake site in winter.

This process re-oxygenates the deeper parts of the lake, and also brings minor amounts of phosphorus solubilised from sediment under anaerobic conditions to the surface, potentially promoting algal growth in spring. Despite mild nutrient enrichment in the lake overall, during the monitoring year phytoplankton richnesses (diversity) were low to moderate, coincident with low to moderate chlorophyll-a levels. The main limiting factors for communities within the lake probably continue to be plant nutrient availability and frequency of river freshes. A very sparse macroinvertebrate fauna has been found amongst the fine sediments of the deeper lake sites where only those taxa able to tolerate lengthy periods of very low dissolved oxygen levels have been recorded. This component of the programme has been reduced in frequency for future monitoring purposes.

The lake biologically continues to exhibit mesotrophic conditions, bordering on eutrophic, rather than having become eutrophic as was originally predicted during the process associated with granting the original water rights (consents), in spite of high turbidity (due to river silt) and associated elevated nutrients (which are primarily present in total, but not in dissolved, forms).

As has also been the case in previous years, there were no phytoplankton blooms in the lake during the period under review. Phytoplankton community composition tends to reflect environmental conditions prevailing at the time of each survey, rather than showing any long-term trends. Any proliferation tends to be opportunistic and short-lived.

The highly invasive weed hornwort was found in a lake survey in April 2012. It was found again in the survey of macrophyte (lake weeds) undertaken in autumn 2015. While hornwort is considered unlikely to significantly adversely affect the hydroelectric power scheme or the lake's ecology, its presence raises the risk of transfer to other lakes where it could pose a greater threat. A further survey is scheduled for 2018 after which the Council can evaluate the situation and consider further investigations or interventions. Signs are up along the lake reminding users of their responsibilities to prevent transfer of weeds. Oxygen weed (*Egeria densa*) is the dominant weed within the lake.

Macroinvertebrate surveys indicate very sparse populations within the lake sediments, which is consistent with oxygen depletion. This component of the monitoring programmes has been reduced in frequency.

The report concludes by recommending:-

That the Lake Rotorangi physicochemical and biological water quality monitoring programme continue on an annual basis as a component of the TRC State of the Environment Monitoring programme, with every third year of the programme also undertaken in conjunction with the Patea Hydro Electric Power Scheme- aquatic monitoring plan (next in 2017-2018), and that the requisite macrophyte and benthic macroinvertebrate surveys be components of the 2017-2018 programme.

Financial considerations—LTP/Annual Plan

This memorandum and the associated recommendations are consistent with the Council's adopted Long-Term Plan and estimates. Any financial information included in this memorandum has been prepared in accordance with generally accepted accounting practice.

Policy considerations

This memorandum and the associated recommendations are consistent with the policy documents and positions adopted by this Council under various legislative frameworks including, but not restricted to, the *Local Government Act 2002*, the *Resource Management Act 1991* and the *Local Government Official Information and Meetings Act 1987*.

Legal considerations

This memorandum and the associated recommendations comply with the appropriate statutory requirements imposed upon the Council.

Attachments

Document 1918814 (excerpt): State of the Environment Monitoring of Lake Rotorangi Water Quality and Biological Programme Annual Report 2015-2016, Technical Report 2016-82 (Executive Summary and Recommendations).

State of the Environment Monitoring of Lake Rotorangi Water Quality and Biological Programme Annual Report 2015-2016, Technical Report 2016-82

Executive summary

Lake Rotorangi was formed in May 1984 by the construction of an earth fill dam on the Patea River. During the process of obtaining planning consents, it was recognised that although a regionally significant recreational resource would be formed, considerable environmental impacts might also occur. Consequently, a comprehensive monitoring programme was developed and implemented for the lake. This report presents the results of the twenty-sixth year of this monitoring.

Four water quality sampling surveys were performed at two sites during the 2015-2016 period. The first of the two sites surveyed is located in the mid reaches of the lake, while the second site is located nearer to the dam.

Changes in thermal stratification during the year were largely similar to that typically recorded in previous surveys of this reservoir-type lake. Thermal stratification was beginning to form at both sites during the spring survey, and was well developed during the late summer - autumn at both the mid and lower lake sites, with dissolved oxygen depletion measured in the lower waters of the hypolimnion at both sites. Oxygen depletion remained evident in winter at the lower lake site. Lake overturn had not occurred completely at the lower lake site by the time of the winter survey, although water temperatures were uniform throughout the water column. These conditions have been typical of this reservoir-type lake on most occasions to date.

During the monitoring year phytoplankton richnesses (diversity) were low to moderate, coincident with low to moderate chlorophyll-a levels. The main limiting factors for communities within the lake probably continue to be plant nutrient availability and frequency of river freshes. A very sparse macroinvertebrate fauna has been found amongst the fine sediments of the deeper lake sites where only those taxa able to tolerate lengthy periods of very low dissolved oxygen levels have been recorded. This component of the programme has been reduced in frequency for future monitoring purposes.

An autumn 2015 macrophyte survey identified the oxygen weed *Egeria densa* as the dominant macrophyte throughout the majority of the lake. Only two other species were recorded as dominant in particular areas, being *Lagarosiphon major* and *Ceratophyllum demersum* (hornwort). This is the second record of hornwort in Lake Rotorangi and its distribution had increased markedly since its first record in early 2012. It is expected that hornwort will eventually become dominant, out-competing *E. densa* and *L. major*. While this is not expected to cause significant impacts on the ecology of Lake Rotorangi or on the hydroelectric scheme, there is now greater potential for it to spread to nearby lakes, where such impacts could be much more severe, e.g. Lake Rotokare. The next macrophyte survey of Lake Rotorangi is due to be performed in the 2017-2018 period.

Lake condition, in terms of lake productivity, continued to be within the category of mesotrophic to possibly mildly eutrophic (mildly nutrient enriched). However, taking into account the influence of suspended sediment in this reservoir, and the moderately low chlorophyll levels, the classification is more appropriately mesotrophic. Previous trending of these water quality data over time found a very slow rate of increase in trophic level. An

update of the trend report (for the period 1990-2015) has confirmed this very slow, insignificant rate of increase in trophic level. This also confirmed that the lake would be classified as mesotrophic in terms of its biological condition.

The monitoring programme will continue in its present format for state of the environment reporting purposes with regular (3-yearly) additional biological components (e.g. macrophyte survey) for consent compliance purposes. This report also includes recommendations for the 2016-2017 monitoring year.

5. Recommendation

The following recommendation is based on the results of the 2015-2016 water quality and biological monitoring programme and the contractual requirements of the recently renewed consents held by TrustPower for the Patea Hydro Electric Power Scheme on Lake Rotorangi:

1. THAT the Lake Rotorangi physicochemical and biological water quality monitoring programme continue on an annual basis as a component of the Council's state of the environment monitoring programme, with every third year of the programme also undertaken in conjunction with the Patea Hydro Electric Power Scheme - aquatic monitoring plan (next in 2017-2018), and that the requisite macrophyte and benthic macroinvertebrate surveys be components of the 2017-2018 programme.

Agenda Memorandum

Date 17 October 2017

Memorandum to
Chairperson and Members
Policy and Planning Committee

Subject: State of the Environment Monitoring Groundwater quality report 2016-2017

Approved by: G K Bedford, Director – Environment Quality

B G Chamberlain, Chief Executive

Document: 1942787

Purpose

The purpose of this memorandum is to introduce a report entitled *State of the Environment Monitoring Groundwater Quality Report 2016-2017,* and to provide an assessment of its content and recommendations. There will be a presentation during today's meeting.

The Executive Summary of the report is attached to this memorandum for Members' information. The full report is available on request and via the Council's website.

There will be a presentation on the Report at today's meeting.

Executive summary

In order to ascertain the successful adoption and application or otherwise of the Council's policies and methods of implementation, the Council conducts 'state of the environment' (SEM) monitoring to obtain and report up to date robust information for parameters that characterise the region's environment and resources. The results and findings of the SEM groundwater quality programme can be interrogated to determine the state of and trends in the concentrations of various key constituents and markers of quality, constituents that can be of human health and environmental concern in some circumstances or that provide key information about recharge and use of the groundwater resource in the region.

The full report provides details of the Council's 'state of the environment monitoring' programme in respect of surveys of the concentrations of nitrate, the indicator bacteria *E coli*, ammonia, iron, manganese, and a range of other constituents, together with redox potential and conductivity in groundwater across the region. Following presentation of the last report (to 2012), the groundwater monitoring programmes of the Council were extensively reviewed for content, spatial coverage, and frequency. This resulted in a reduction in the number of sites monitored, re-selection of sites to provide better regional coverage, an increase in sampling frequency, and an increase in the number of analytes to make the programme more informative, rather than just focused on one key parameter of current public interest (nitrate). The report presents the results of the amended programme. It also

presents an analysis of trends at those sites (14) that have been sampled in each survey since 2002. The environmental significance of the data is explained.

The results of the groundwater surveys, including where applicable data from between 2002 to 2016, can be summarised as follows:

- In total 35 sites were sampled in the amended programme, segregated into shallow (32 sites) and deep groundwater (3 sites) monitoring subsets, with 12 individual samples obtained from each well on a quarterly basis from 2013 to 2016. Quarterly samples were collected at five yearly intervals prior to 2013;
- Nitrate concentrations across all samples ranged from <0.01 mg/L to 30.3 mg/L (reported as nitrate-nitrogen);
- Median nitrate concentrations at 94% of wells were below the Maximum Acceptable Value (MAV) for nitrate as set out in the Drinking Water Standards for NZ (2008), and in most cases the median was less than 50% of the MAV;
- The MAV for nitrate in drinking water (11.3 mg/L) was exceeded in 9.4% of the 532 samples, with non-complying samples collected from a total of six separate sites out of 32 shallow groundwater sites monitored for nitrate. Three of the six had a single non-complying sample. Two sites between them had 78% of all non-complying samples;
- These figures are comparable with the national level of compliance for nitrate reported by the Ministry for the Environment in 2017;
- Median *E coli* counts exceeded the MAV (<1 colony/100 mls) at 28% of wells, mainly due to poor wellhead protection or poor well construction. These results are considered to be highly localised rather than representing wider groundwater quality issues; and
- Manganese (a naturally occurring constituent) was above MAV values in 2 wells.

The results of the trend analyses (at the 14 shallow groundwater sites with a longstanding analytical record) indicate:

- Measured nitrate concentrations at 7 of the 14 sites (or 50%) show no trend during the 2002 to 2016 period;
- Applying statistical analysis, 3 sites (or 21%) displayed an increasing trend (deterioration) in nitrate concentrations;
- 4 sites (or 29%) displayed declining trend (improvement) in nitrate concentrations;
- Overall, median nitrate concentrations across these sites have increased year on year between 2011 and 2016, after reducing during surveys undertaken between 2002 and 2011;
- The median nitrate concentration of all samples taken from these sites in the most recent period of monitoring (2015-2016) was 3.4 mg/L; and
- The median for the most recent period (2015-2016) remains below the historical maximum median of 4.1 mg/l recorded during the 2002-2003 period.

Only a few of the wells used in the regional groundwater monitoring programme are actually used for drinking water supply purposes, the Council is following up with well owners, particularly those wells that show elevated nitrate and/or *E coli*, to ensure the requirements of the Council's Regional Fresh Water Plan are satisfied and that there is no threat to groundwater aquifer quality.

The results are overall very encouraging and an endorsement of the policies and actions by the Council and regional community, while showing the value of continuing monitoring and surveillance.

Recommendations

That the Taranaki Regional Council:

1. receives the memorandum *State of the Environment Groundwater Quality Report 2016-2017,* that presents the findings of a report into the state of and trends in the concentrations of nitrate in shallow groundwater resources within the region
2. receives the report *State of the Environment Groundwater Quality Report 2016-2017 Technical report 2017-45*
3. notes the findings of the analysis of state and trend data from the SEM groundwater programme
4. notes that Council officers are following up any elevated results with individual landowners, recognising most of the wells used in the programme are not used for potable supply
5. adopts the specific report recommendations therein.

Background

This Committee has been regularly informed of the findings that are emerging from the Council's various surface and groundwater fresh water 'state of the environment' monitoring programmes. These programmes are important as indicators of the effectiveness of the Council's and community's interventions and resource management initiatives addressing fresh water quality in the region. Members will be aware that there is a high level of interest nationally in the state and management of the country's fresh water resources.

The *Regional Fresh Water Plan for Taranaki* contains objectives to manage the state of the region's shallow groundwater. Objective 6.5.2 requires the Council and region '*to promote the sustainable management of groundwater while avoiding, remedying or mitigating adverse effects on groundwater from the discharge of contaminants*'. Policy 6.5.3 is that '*the Taranaki Regional Council will mange the discharge of contaminants to land and water such that any actual or potential adverse effects on groundwater quality are avoided, remedied, or mitigated*'.

In Section 10.3 of the Plan, the Council commits to continued monitoring, research and investigations related to fresh water quality, to provide information on the state of fresh water in the region and the effectiveness of the Plan.

The Council's 2015-2025 LTP has, under the 'Levels of service' specified for resource management, a commitment to the '*maintenance and enhancement of overall water quality in our rivers and lakes, groundwater and coastal waters*'. The relevant measure for this activity is: '*Nitrate levels in groundwater*. The target for this measure is that there should be '*No sites in the state of the environment monitoring programme consistently above NZ human drinking water standard (NZDWS); improvement (decrease) in nitrate levels on a regional basis*'.

With the groundwater programme well-established, the database is extensive enough to allow robust trend analysis, conducted according to nationally recognised methodologies, for some parameters. The data has also been reviewed for indicative patterns of changes that might be occurring.

Discussion

The current Groundwater Quality Monitoring Programme is an amalgamation of two SEM groundwater monitoring programmes previously run separately by the Council, namely the Groundwater Chemical Quality and Nitrates in Shallow Groundwater monitoring programmes.

Historically, 56 sites were sampled quarterly as part of the Nitrates in Shallow Groundwater Monitoring Programme, at approximately five yearly intervals. The sampling frequency and sites sampled as part of the original Groundwater Chemical Quality programme have remained relatively constant since 1994.

The current programme was initiated during the 2013-2014 monitoring period, following an external review of all groundwater SEM programmes. The review recommended that the Council increase the frequency of all shallow groundwater monitoring surveys to include quarterly sampling, on an annual basis as opposed to every five years. A total of 35 groundwater sites are monitored as part of the current programme.

This is the first report to be published under the revised programme. Sampling sites have been classified into two subsets for the purpose of this report. The subset of sites less than 15 m in depth is collectively referred to as the shallow groundwater monitoring (SGWM) network. Sites sampled as part of the National Groundwater Monitoring Programme are referred to as being part of the NGMP network. Two of the shallow groundwater monitoring sites are included in both networks (GND0508 and GND0827).

Data has been assessed against the MAV (drinking waster standard) where applicable, to evaluate how 'good' or 'bad' the concentrations were. Analysis for evidence of trends was carried out at two levels: rigorous statistical analysis was used to determine whether any of the sites were showing a statistically significant trend (i.e. one that is definite rather than apparent), and then the overall data was reviewed for indications suggesting improvement or deterioration. The latter approach should be considered useful and informative, but not absolute.

In terms of trends in the quality of the groundwater resource in Taranaki, the report notes that the increase observed in median nitrate concentrations coincides with an increase in dairy production across the Taranaki region from 2011, which peaked in the 2014-2015 season. From 1998 to 2016, dairy cow numbers in Taranaki only increased by 1%, from 481,034 to 486,953 and average stocking rates have remained at 2.8 cows per effective hectare. Milk solids production has however increased by 42% over the same period, indicating an increase in farming inputs and/or better utilisation of inputs. There has also been an ongoing increase in the number of consents providing for the discharge of dairy farm effluent to land. While this leads to an improvement in surface water quality, it concurrently can increase nutrient loading on soil and thus groundwater, unless it is carefully managed and loading rates are appropriate and complied with.

Figure 1: Location of sampling sites sampled during the 2012-16 surveys

Results: the state of Taranaki's groundwater

An analysis of the data collected between 2002 and 2016 has been carried out to assess the current state of Taranaki groundwater. Twenty-five different constituents or other measures of quality were analysed for. The NZ drinking water standards have standards for 5 of the analytes, and guideline values for another 9. Key results and observations can be summarised as follows:

- In total 35 sites were sampled, segregated into shallow (32 sites) and deep groundwater (3 sites) monitoring subsets, with 12 individual samples obtained from each well on a quarterly basis from 2013 to 2016. Quarterly samples were collected at five yearly intervals prior to 2013;
- The highest conductivity readings came from sites near the west and south coastlines, corresponding to high deposition rates for sea spray as well as with intensive stocking of sandy soils. Sites inland and to the north had much lower conductivities;
- Iron and manganese concentrations reflect soils of volcanic origin and anoxic conditions that increase the solubility of these elements. 91% of sites have median iron and manganese concentrations below guidance values, while 94% have manganese concentrations below the standard;
- 86% of monitored sites have median concentrations of ammoniacal nitrogen below the guidance value. Ammonia can be present in deeper groundwater as a result of natural geohydrological processes, or in shallower aquifers that are anoxic;
- Nitrate concentrations across all samples ranged from <0.01 mg/L to 30.3 mg/L (reported as nitrate-nitrogen). The leaching of nitrogen from intensive agricultural land use is the main source of nitrate in shallow groundwater systems;
- Median nitrate concentrations at 94% of wells were below the standard (Maximum Acceptable Value) for nitrate as set out in the Drinking Water Standards for NZ (2008), and in most cases the median was less than 50% of the MAV. Concentrations were higher in south Taranaki;
- The MAV for nitrate in drinking water (11.3 mg/L) was exceeded in 9.4% of the 532 samples, with non-complying samples collected from a total of six separate sites out of 35. Three of the six had a single non-complying sample. Two sites between them had 78% of all non-complying samples;
- These figures are comparable with the national level of compliance for nitrate reported by the Ministry for the Environment in 2017; and
- Median *E coli* counts exceeded the MAV (<1 colony/100 mls) at 9 of 32 (28%) of wells, mainly due to poor wellhead protection or poor well construction. These results of some elevated *E coli* and nitrate concentrations are considered to be highly localised rather than representing wider groundwater quality issues e.g. the three wells with highest levels of *E coli* were each unlined.

There was no evidence of any strong spatial pattern in the sites that have the highest nitrate concentrations. While there were more such sites in southern Taranaki, sites in close proximity to these had maximum nitrate concentrations well below half MAV. Therefore high nitrate concentrations, when and where they occur, are a very localised rather than regional issue.

Results: the trends in Taranaki's groundwater nitrate concentrations

In summary, a statistically rigorous trend analysis found:

- Measured nitrate concentrations at 7 of the 14 sites (or 50%) showed no trend during the 2002 to 2016 period (despite the intensification of dairying and discharges to land during the same period as described above);
- A statistically significant increasing trend in nitrate concentration was detected at 3 sites;
- 4 of the 14 sites displayed declining trend (improvement) in nitrate concentrations;
- The highest number of sites recorded either their peak median or maximum nitrate concentration in the 2002-2003 monitoring period, before reducing through to the 2011-2012 period. Since 2011-2012, the number of sites recording peaks in either measure has increased; and
- The annual median nitrate concentrations across all the 14 sites used in the trend analysis has increased steadily from 2.67 mg/L in 2011 to 3.40 mg/L at the end of 2016, but remains below the peak median of 4.11 mg/L recorded in the 2002-2003 period.

Conclusions

Groundwater quality across Taranaki is driven by both natural and anthropogenic influences. The observed composition of groundwater varies in response to the occurrence and magnitude of these influences, both spatially and with depth. These influences may be diffuse (widespread) or highly localised in some cases.

The analysis of the nitrates data set indicates that nitrate concentrations found around the region are generally low, but there are indications of land use impacts at some sites, particularly in wells intersecting highly oxidised groundwater. A recent increase in median nitrate concentrations, after a period of reductions, coincides with an increase in dairy production across the Taranaki region from 2011, which peaked in the 2014-2015 season.

In terms of potential environmental effects, median nitrate concentrations at each site have also been compared against the nitrate toxicity attribute set out in the National Policy Statement- Freshwater Management (2014). Median concentrations at 28 monitored sites (87%) are below (better than) the national bottom line for nitrate toxicity. Given that groundwater will generally only contribute a portion of flow to surface waters, and allowing for the attenuation and dilution of nitrate along the groundwater flow path and within the stream itself, it is not expected that the concentrations of nitrate generally seen across the region present a significant toxicity risk to sensitive instream species.

The owners of wells monitored through this programme, which are utilised for private supply purposes, are advised of sampling results after each sampling event. This includes advising well owners of any MAV exceedances, noting however that very few of these wells are actually utilised for potable supply. The Council continues to offer a water quality testing service for well owners concerned about nitrate levels, in conjunction with the TDHB.

A programme of work is underway to address well head security and isolation issues at sites monitored through this programme that consistently exceed the MAV for *E.coli*. Investigations are planned to assess *E.coli* transport and survival in vicinity of shallow dug wells to determine the radius of contamination potentially arising from poorly sealed or inadequately isolated wells. More generally, the Council is updating its register of wells, and

an assessment of well head security and isolation will be carried out at each site as part of these surveys.

The report includes proposals and accompanying recommendations to amend the groundwater monitoring programme to make it more suitable for state and trend analysis purposes.

Decision-making considerations

Part 6 (Planning, decision-making and accountability) of the *Local Government Act 2002* has been considered and documented in the preparation of this agenda item. The recommendations made in this item comply with the decision-making obligations of the *Act*.

Financial considerations—LTP/Annual Plan

This memorandum and the associated recommendations are consistent with the Council's adopted Long-Term Plan and estimates. Any financial information included in this memorandum has been prepared in accordance with generally accepted accounting practice.

Policy considerations

This memorandum and the associated recommendations are consistent with the policy documents and positions adopted by this Council under various legislative frameworks including, but not restricted to, the *Local Government Act 2002*, the *Resource Management Act 1991* and the *Biosecurity Act 1993*.

Legal considerations

This memorandum and the associated recommendations comply with the appropriate statutory requirements imposed upon the Council.

Attachments

Document 1886724: *State of the Environment Groundwater Quality Report 2016-2017* (Executive summary and recommendations)

Excerpts from *State of the Environment Groundwater Quality Report 2016-2017* (Executive summary and recommendations).

Executive summary

Regional councils have responsibilities under the Resource Management Act (1991) to monitor the state of the environment within their region. The Taranaki Regional Council (The Council) monitors the state and trends across the region's groundwater resource using a number of measures, including chemical and microbial water quality, groundwater levels and usage. The focus of this report is regional groundwater quality, and incorporates data collected across the regional groundwater quality monitoring network between 1 July 2002 and 30 June 2016. The regional groundwater monitoring network is comprised 35 sites, predominately located across the region's shallow, unconfined groundwater systems, with sites generally located in areas of relatively intensive land use.

The data collected through this programme show that the composition of groundwater across Taranaki is influenced by both natural processes and impacts associated with land use activities. The composition of groundwater varies in response to the occurrence and magnitude of these influences, both spatially and with depth.

The most significant natural influences on groundwater composition observed at monitored locations are those related to reduction and oxidation (redox) processes. These processes have a direct control over the concentration of iron, manganese, ammoniacal nitrogen and nitrate observed in groundwater at monitored locations. Groundwater composition of groundwater is also influenced by water-rock interaction, mineral dissolution and proximity to the coast.

The influence of land use activities on groundwater composition are seen at some monitoring sites, most notably in areas underlying intensive agricultural land use. Overall, median nitrate concentrations at 94% of monitored sites are below the Maximum Acceptable Value (MAV) for nitrate of 11.3 mg/L (as NO_3-N) set out in the Drinking Water Standards for New Zealand (2008) (DWSNZ). Of these sites, 84% have a median nitrate concentration below 50% of the MAV.

A total of 14 shallow groundwater monitoring sites have nitrate datasets suitable for trend analysis (minimum seven year data record). Four of these sites (29%) are displaying improvements (reduction) in nitrate concentrations, while three (21%) show deterioration (increase). Overall, median nitrate concentrations across these sites have increased year on year between 2011 and 2016, after reducing during surveys undertaken between 2002 and 2011. The increase observed in median nitrate concentrations coincides with an increase in dairy production across the Taranaki region from 2011, which peaked in the 2014-2015 season. The median nitrate value recorded across the most recent period (2015-2016) of 3.4 mg/L remains below the historic maximum of 4.1 mg/L recorded during the 2002-2003 monitoring period.

Comparisons of the regional nitrate dataset against those collected by other regional councils are difficult to make, given that most monitoring networks are not specifically designed to focus on shallow groundwater, as is the case in Taranaki. For context however, 13% of sites monitored as part of the National Groundwater Monitoring Programme (NGMP) had nitrate results that exceeded the MAV on more than one occasion between 2012 and 2014, as reported in the '*Our Freshwater 2017 Report*' (MfE, 2017). The NGMP network is comprised of

a mixture of shallow and deep monitoring wells located across the Country. In comparison, six sites in the Council's dedicated 32 site shallow groundwater monitoring network (19%) recorded a MAV exceedance between 2002 and 2016. Three of the six sites recorded a single exceedance. Overall, this represents an encouraging result, given the relatively similarity in exceedance numbers when taking into account the dampening effect of results from deeper sites on the NGMP exceedance rate.

Median *E.coli* concentrations have been found to exceed the MAV at 28% of monitored sites. The main factor influencing *E.coli* concentrations measured across the network is well construction, and inadequate wellhead protection or isolation at some monitored locations. Drilled and screened wells installed specifically for monitoring purposes recorded significantly lower numbers of *E.coli* detections and MAV exceedances in comparison to dug and/or unlined wells. These results are indicative of differing *E.coli* transport pathways by well type. It is believed that data from drilled and screened monitoring wells is more representative of *E.coli* concentrations in the region's shallow groundwater, with some dug and/or unlined wells being influenced by surface run off or shallow soil water throughflow.

Overall, raw water sampled from 13 of 35 monitored sites (37%) is potentially unsuitable for potable supply, as a result of both natural and anthropogenic influences. The greatest proportions of sites exceeding a MAV value did so based on their *E.coli* concentration, although it is important to note that the majority of dug and/or unlined wells are not utilised for potable supply. Exceedances of MAV values were also recorded for nitrate and manganese at two sites.

The Council continues to undertake investigations to increase the current understanding of the factors influencing groundwater quality across the region and the potential impact of these on both water users and the wider environment. The addition of parameters to the SGWM programme is an example of this. The Council also actively regulates all activities with potential to have adverse effects on groundwater quality, while promoting land use practices that reduce this risk.

7. Recommendations

It is recommended:

1. THAT any of the planned responses outlined in Section 7.0 be implemented as proposed, where not already completed;

2. THAT dug and/or unlined monitoring sites currently included in the programme be replaced with drilled and screened monitoring wells in similar locations as existing wells (noting recommendation below). Where possible, publically accessible locations should be preferred to private land in order to ensure long-term access to sampling sites;

3. THAT any replacement of wells at one of the fourteen sites with long term (7 year) data records be made at the same location as existing wells, with the intention of continuing long term data collection at these sites in order to facilitate ongoing trend analysis; and

4. THAT the range of analyses currently carried out on samples from the SGWM network wells be extended in forthcoming sampling events to include bicarbonate, sodium, chloride and dissolved reactive phosphate.

Agenda Memorandum

Date 17 October 2017

Memorandum to
Chairperson and Members
Policy and Planning Committee

Subject: State of the Environment Rocky Shore Monitoring Report 2015-2017

Approved by: G K Bedford, Director – Environment Quality

B G Chamberlain, Chief Executive

Document: 1943551

Purpose

The purpose of this memorandum is to present an update to the Committee on the latest results of the Council's state of the environment monitoring programme for rocky coastal environments. Current and long-term trends are set out for Members' information.

The full report (*State of the Environment Rocky Shore Monitoring Report 2015-2017 Technical Report 2017-79*) is available upon request. It provides full details of the Council's monitoring of the ecological condition of the region's rocky and reef foreshore environs, including analysis of trends in this data since 1994. The Executive summary and recommendation of the report are attached to this memorandum.

Executive summary

In order to ascertain the successful adoption and application or otherwise of the Council's policies and methods of implementation, the Council conducts 'state of the environment' (SEM) monitoring to obtain and report up to date robust information for parameters that characterise the region's environment and resources.

The latest results and findings describing the state of and long-term trends in the state of ecological data from the report are summarised and presented herein for Members' information. Results that are statistically and environmentally significant are identified.

Of the six sites surveyed over the 21 year period the intertidal communities at Manihi (on the west Taranaki coastline), were the most species rich and diverse. This is due to the low supply of sand and the presence of pools that provided a stable environment with many ecological niches.

The intertidal communities at Waihi (south Taranaki) were the least species rich and diverse, while periodic sand deposition has been shown to have a profound effect particularly on the reef sites at Mangati and Greenwood Road (north Taranaki). Trend analysis indicates that there has been a significant decrease in species richness and diversity at these latter sites. These sites are closest to and down current from streams and rivers converging high eroded

sediment loads from Mt Taranaki, and the decline in reef ecology appears to have been caused by an increased sand supply from the mountain, combined with oceanographic conditions that shift this sand onshore.

Natural environmental factors, including sand cover, wave exposure and reef geomorphology, appear to be the dominant divers of species richness and diversity at the six regional SEM reef sites surveyed. Each site is considered to show an ecological state typical of those elsewhere exposed to similar conditions.

Recommendations

That the Taranaki Regional Council:

1. receives this memorandum noting the preparation of a report into the state of and trends in regional rocky coastal ecological quality data for Taranaki, for 2015-2017
2. receives the report *State of the Environment Rocky Shore Monitoring Report 2015-2017 Technical Report 2017-79*
3. notes the findings of the trend analysis of data from the SEM coastal ecological programme
4. notes the findings of the analysis of state data from the SEM coastal ecological programme
5. adopts the specific report recommendations therein.

Background

Section 35 of the Resource Management Act 1991 requires local authorities to undertake monitoring of the region's environment, including land, air, marine and freshwater. The rocky shore component of the State of the Environment Monitoring (SEM) programme for Taranaki was initiated by the Taranaki Regional Council in the 1994-1995 monitoring year and has subsequently continued each year.

The purpose of this monitoring is to determine the state of and track any trends in the ecological condition of Taranaki's rocky and reef coastlines. There is a separate but companion programme monitoring those parts of the region's coastline that are sandy in nature.

The *Regional Coastal Plan for Taranaki* (RCP) includes the following objectives:-

OBJ 2(a) To maintain biodiversity and protect ecologically viable populations of species of indigenous marine and diadromous aquatic life and birdlife.

OBJ 2(b) To maintain a representation of each of the existing types of marine habitat found in the Taranaki coastal marine area.

The RCP includes the following policies:-

Use, development and protection of all parts of the coastal marine area (areas A, B, C and D) should:

(a) safeguard the life-supporting capacity of coastal ecosystems by:

(i) avoiding the release of contaminants that have significant adverse effects on marine life;

(ii) where it is not practicable to avoid the discharge of contaminants, remedying or mitigating the effects of that discharge;

(iii) avoiding the release of hazardous substances;

(iv) avoiding, remedying or mitigating smothering of marine ecosystems, such as reef systems, that are not adapted to frequent or large-scale sediment disturbance;

(v) avoiding, remedying or mitigating long-term or significant short-term adverse effects on spawning and nursery areas of marine life, feeding and roosting areas of birdlife, and seal haul-out areas;

(vi) ensuring that where an area of any particular habitat type is under pressure from resource use and development, appropriate areas of such habitat remain undisturbed elsewhere in the region;

(vii) maintaining natural biodiversity.

(b) not (either on its own or in combination with other uses and developments of the coastal marine area):

(i) risk a significant regional or national decline of an indigenous species by adversely affecting populations (particularly breeding populations) of that species; nor

(ii) cause a regionally or inter-regionally significant decline in fish or shellfish population numbers, species diversity or quality for human consumption.

The RCP goes on to note:-

Safeguarding the life-supporting capacity of ecosystems means maintaining the existence of the physical and biological components of ecosystems. The Taranaki Regional Council considers that species loss causes irreversible effects on the environment. A significant reduction in a population (particularly a breeding population) of one species may also unbalance marine ecosystems and measures should be taken to ensure that such reduction does not have irreversible effects.

The RCP commits the Council as follows:-

The Taranaki Regional Council is required by Section 35 of the Act to undertake monitoring and keep records. The Council must monitor:

- *the state of the regional environment (to the extent necessary to carry out the Taranaki Regional Council's functions under the Act);*
- *the suitability and effectiveness of this plan;*
- *the exercise of any transferred functions, powers or duties; and*
- *the exercise of coastal permits;*

and take any action that is appropriate in the circumstances.

The monitoring of the effectiveness of this plan will be carried out in conjunction with monitoring of the Regional Policy Statement for Taranaki and other regional plans. The following methods will be used to monitor the coastal marine area and the effectiveness of this plan.

1. ***Consideration*** *of results of monitoring undertaken as part of the* ***Regional Monitoring Strategy*** *for Taranaki. The strategy contains methods to monitor the overall state of the environment of the Taranaki region. Monitoring programmes will be extended or adjusted over time as appropriate.*

2. ***...***

4. *Continuation of* ***marine ecological monitoring*** *at hard and soft substrata sites around the coast.*

The results and findings of the SEM programme for the region's coastal environs can be interrogated to determine trends and changes in trends in the quality of marine and coastal parameters, alongside the information on the current 'state' of the region's coastal resources that SEM generates. With SEM established in 1994, the database is now extensive enough to allow regular robust trend analysis, conducted according to nationally recognised methodologies, for such reviews.

Discussion

Six representative intertidal reef sites around the coastline of Taranaki are monitored twice a year (spring and summer surveys) using standard ecological monitoring practices. For each survey, substrate cover, algal cover, and animal cover/abundance in quadrats selected at random were quantified, as a measure or index of the ecological state at each site. Changes in the number of species per quadrat (species richness) and Shannon-Wiener index per quadrat (diversity) were assessed at the six reef sites over the 23 years of the SEM programme (spring 1994 to summer 2017), to identify and determine trends at each site. Between 41 and 50 surveys have now been conducted on each reef.

Of the six sites surveyed over the 23 year period the intertidal communities at Manihi Reef (on the west Taranaki coastline), were the most species rich (abundant) and diverse. This is due to the low supply of sand and the presence of pools that provided a stable environment with many ecological niches. The intertidal communities at Waihi Reef (south Taranaki) were the least species rich and diverse, due to the high energy wave environment, lack of stable habitat, and periodic sand inundation. These findings continue the pattern observed and reported in previous years.

Sand deposition has been consistently shown to have a profound effect on intertidal communities in Taranaki (see Figure 1 below). The reef sites at Mangati and Greenwood Road reefs (north Taranaki) were particularly prone to periodic sand inundation, and trend analysis indicates that there has been a significant decrease in both species richness (abundance) and diversity at these sites. These effects appear to have been caused by an increased sand supply from erosion events on the mountain, combined with oceanographic conditions that shift this sand laterally and onshore. These sites are closest to and down current from streams and rivers conveying high eroded sediment loads from Mt Taranaki. Once sand inundation was taken into account, there was no longer any evidence of a trend in ecological condition on these reefs.

Natural environmental factors, including sand cover, wave exposure (which varies according to prevailing weather and climatic patterns) and reef geomorphology, appear to be the dominant divers of species richness and diversity at the six regional SEM reef sites surveyed.

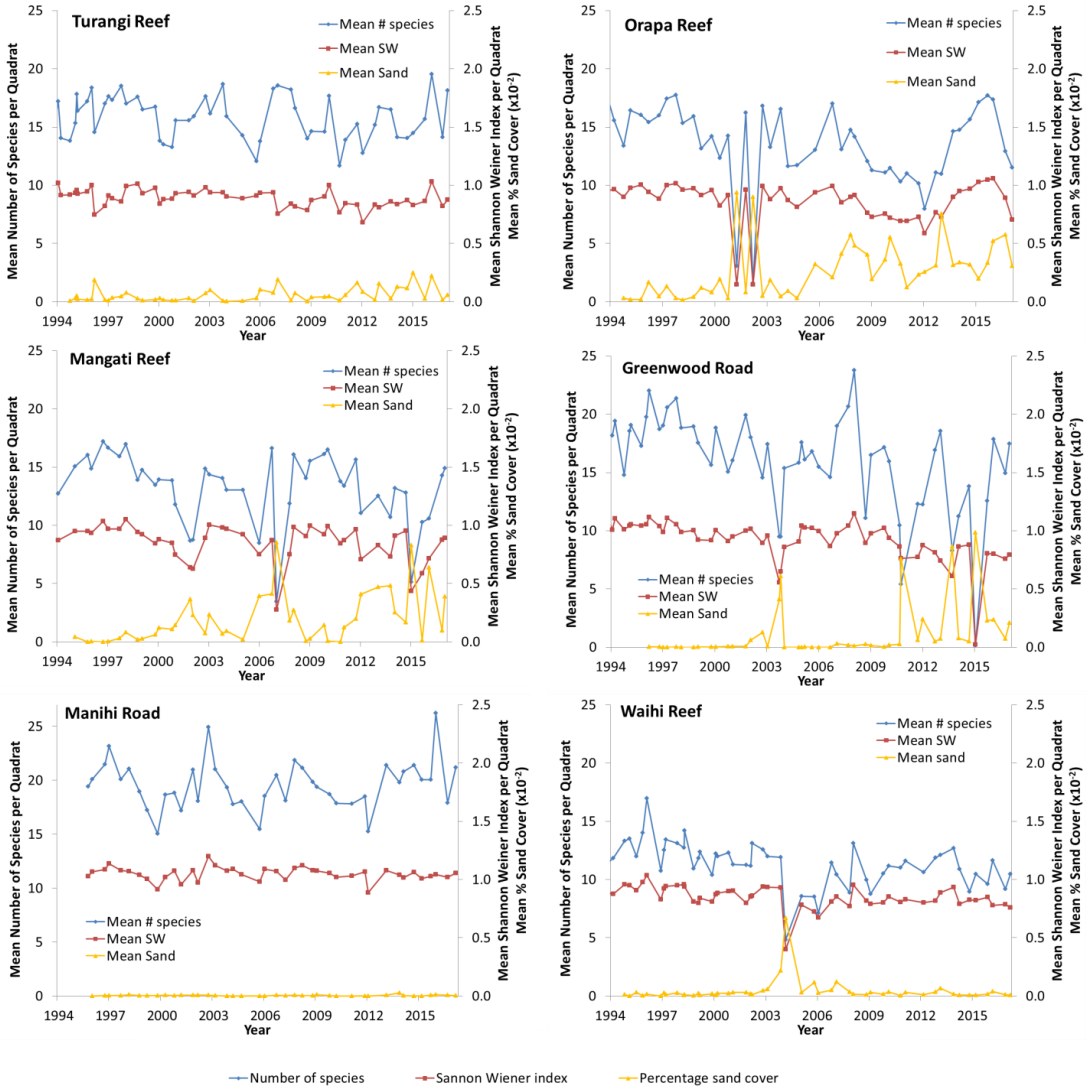

Figure 1 (Figure 5 in report): Number of species, Shannon-Wiener index and percentage sand cover at the six reef sites from spring 1994 to summer 2017

Mangati Reef on 23 January 2015 (left) and on 14 September 2015 (right)

In 1998, a scarp at the headwaters of the Stony River collapsed, leading to a massive input of sand and gravel down the river and into the coastal system. Erosion has been ongoing since this event, including a number of other large erosion events. Prior to 1998, the coastline extending from Cape Egmont to Oakura was described as 'sand starved' being mainly comprised of cobble and boulder beaches and reefs. Since 1998, this influx of black sand derived from Mount Taranaki has been transported along the coast in a north easterly direction resulting in beach sediment nourishment. What were previously cobble and boulder beaches have now changed to sandy beaches (Cowie, 2009).

Decision-making considerations

Part 6 (Planning, decision-making and accountability) of the *Local Government Act 2002* has been considered and documented in the preparation of this agenda item. The recommendations made in this item comply with the decision-making obligations of the *Act*.

Financial considerations—LTP/Annual Plan

This memorandum and the associated recommendations are consistent with the Council's adopted Long-Term Plan and estimates. Any financial information included in this memorandum has been prepared in accordance with generally accepted accounting practice.

Policy considerations

This memorandum and the associated recommendations are consistent with the policy documents and positions adopted by this Council under various legislative frameworks including, but not restricted to, the *Local Government Act 2002*, the *Resource Management Act 1991* and the *Biosecurity Act 1993*.

Legal considerations

This memorandum and the associated recommendations comply with the appropriate statutory requirements imposed upon the Council.

Appendices/Attachments

Document 1845984: State of the Environment Rocky Shore Monitoring Report 2015-2017, Technical Report 2017-79 (Executive summary and Recommendation)

Executive summary

Section 35 of the Resource Management Act 1991 requires local authorities to undertake monitoring of the region's environment, including land, air, marine and freshwater. The rocky shore component of the State of the Environment Monitoring (SEM) programme for Taranaki was initiated by the Taranaki Regional Council in the 1994-1995 monitoring year and has subsequently continued each year. This report covers the state and trends of intertidal hard shore communities in Taranaki.

As part of the SEM programme, six representative reef sites were monitored twice a year (spring and summer surveys) using a fixed transect, random quadrat survey design. For each survey, a 50 m transect was laid parallel to the shore and substrate cover, algal cover and animal cover/abundance in 25 x 0.25 m^2 random quadrats were quantified. Changes in the number of species per quadrat (species richness) and Shannon-Wiener index per quadrat (diversity) were assessed at the six reef sites over the 23 years of the SEM programme (spring 1994 to summer 2017).

Of the six sites surveyed, the intertidal communities at Manihi (west Taranaki) were the most species rich (median = 19.4 species per quadrat) and diverse (median Shannon Wiener index = 1.05 per quadrat) due to the low supply of sand and the presence of pools that provided a stable environment with many ecological niches. The intertidal communities at Waihi (south Taranaki) were the least species rich (median = 11.5 species per quadrat) and diverse (median Shannon Wiener index = 0.84 per quadrat) due to the high energy wave environment, lack of stable habitat and periodic sand inundation.

Sand deposition has been shown to have a profound effect on intertidal communities in Taranaki. The reef sites at Mangati and Greenwood Road (north Taranaki) were particularly prone to periodic sand inundation. Years of high sand accumulation at these sites resulted in lowered species richness and diversity. Trend analysis indicates that there has been a significant decrease in species richness and diversity at the Mangati and Greenwood Road reef sites, which appears to have been caused by an increased sand supply from the mountain, combined with oceanographic conditions that shift this sand onshore.

Natural environmental factors, including sand cover, wave exposure and reef geomorphology, appear to be the dominant divers of species richness and diversity at the six SEM reef sites surveyed.

Recommendation

1. THAT monitoring of the six SEM reef sites continue at the same level as in 2016-2017.

Agenda Memorandum

Date 17 October 2017

Memorandum to
Chairperson and Members
Policy and Planning Committee

Subject: Regionally significant surf breaks

Approved by: A D McLay, Director – Resource Management

B G Chamberlain, Chief Executive

Document: 1940793

Purpose

The purpose of this memorandum is to present for Members' consideration the findings of the online Wave Survey and the attached reports relating to the identification of regionally significant surf breaks.

The first report, *Regional significance criteria for the assessment of surf breaks, Orchard, 2017* was written by a consultant and presents attributes and a methodology for assessing the 'regional significance' of surf breaks in Taranaki. The second report, *Online Wave Survey data analysis and proposed regionally significant surf breaks,* was prepared by Council staff. It details the results of the online Wave Survey, which was based on the attributes from the consultants report, and proposes a list of regionally significant surf breaks for further consultation with the community as part of the *Proposed Coastal Plan for Taranaki* (Proposed Plan). Together these two reports will inform the section 32 evaluation prepared to support the Proposed Plan.

Executive summary

- The Taranaki coastline is unique for its numerous high quality surf breaks. These are currently protected through the *Regional Policy Statement for Taranaki 2010* (RPS) and the *New Zealand Coastal Policy Statement* (NZCPS).
- The Council is in the process of reviewing the *Regional Coastal Plan for Taranaki* and released a *draft Coastal Plan for Taranaki* (draft Plan) for consultation in September 2016.
- Policies proposed for the protection of surf breaks will provide a tiered level of protection to all of the 140 surf breaks identified by Council. Currently the RPS provides protection to 80 surf breaks.
- The highest level of protection is applied to Nationally Significant Surf Breaks and all regionally significant surf breaks within the Significant Surfing Area. Regionally significant and locally significant surf breaks are provided with very high, but slightly lesser, levels of protection.
- To inform its decision making around surf breaks and their relative significance the Council has undertaken or commissioned additional work.

- Council commissioned a report to identify criteria for determining regional significance, *Regional significance criteria for the assessment of surf breaks*, *Orchard, 2017.* This report identified 10 attributes that contribute to a surf break being considered important.
- Council then undertook an online Wave Survey to assess community views on the attributes and relative merits of 140 identified surf breaks. Questions within the survey were based around the 10 important attributes. The survey generated significant public input with 338 survey respondents providing very important information on what surf breaks in Taranaki were important to them and why.
- This type of survey has not been undertaken in New Zealand before.
- Based on the regional significance methodology outlined within *Orchard, 2017,* and the findings of the online Wave Survey, an officer's report was prepared to identify those surf breaks determined to be regional significant (elevated importance, superior examples).
- Based on the 5 point scale used for assessing regional significance it could reasonably be expected that the 'cut off' for regionally significant surf breaks, as per Council's planning context (elevated importance, superior examples), would have an attribute average somewhere around the high category, or a score of 4.0. However, the officers' report recommend Council adopting a conservative approach to assessing significance and to ensure that all applicable surf breaks are captured.
- For the purposes of the Plan review, the officer's report recommends that Council adopt a cut-off value of 3.4 for at least one attribute average to produce its list of regionally significant surf breaks. This recommendation produces a list of 81 (out of 140) surf breaks that are considered to have an elevated status and are superior examples when compared to others within the Taranaki region. Of these 81 proposed surf breaks 62 were included in the Regional Policy Statement and 19 are new additions.
- These 81 surf breaks will be listed and mapped in the *Proposed Coastal Plan for Taranaki* and provided with a very high level of protection. The remainder of the 140 identified surf breaks will be listed as 'locally significant' within the Plan, which means a high but slightly lesser level of protection.
- Further community consultation on the list of regionally significant surf breaks will be undertaken when the Plan is formally notified which is anticipated to be late January 2018.

Recommendations

That the Taranaki Regional Council:

1. receives this memorandum
2. receives the consultant's report *Regional significance criteria for the assessment of surf breaks, Orchard, 2017,* and notes the findings of this report
3. receives the officer's report *Online Wave Survey data analysis and proposed regionally significant surf breaks,* and notes the findings of this report
4. notes that these reports will inform the section 32 evaluation for the *Proposed Coastal Plan for Taranaki*
5. notes the online survey is the first such survey undertaken in New Zealand
6. approves the inclusion of the 81 proposed regionally significant surf breaks in the *Proposed Coastal Plan for Taranaki* for further consultation with the community.

Background

Taranaki's coastline is unique for its numerous high quality surf breaks. These breaks are currently protected through the *Regional Policy Statement for Taranaki 2010* (RPS). The RPS broke new ground nationally by identifying and protecting 80 *'high quality or high value surf breaks'* within the statutory document.

The surf breaks are identified in Appendix II '*High quality or high value areas of the coastal environment*' of the RPS and are most directly protected by CNC Policy 4 which recognises that certain parts of the coastal environment are important to the region for their particular values, including recreational values, and are deserving of added protection.

"CNC Policy 4
Areas within the coastal environment of importance to the region will be identified and priority given to protection of the natural character, ecological and amenity values of such areas from any adverse effects arising from inappropriate subdivision, use and development. In the assessment of areas of importance, matters to be considered will include:
…
(d) scenic sites and recreational sites of outstanding or regional or national significance."

The surf breaks mapped within the RPS were identified by a small number of local surfers and consulted on through the public review process for the RPS. All surf breaks identified at that time were included and no further information on their characteristics or other rationale for regional significance was considered necessary at the time. Subsequent to the adoption of the RPS there has been further policy development of import that necessitates Council undertaking further work and investigations on surf breaks.

New Zealand Coastal Policy Statement

The *New Zealand Coastal Policy Statement 2010* (NZCPS) took effect shortly after the RPS became operative. The NZCPS identified four surf breaks in Taranaki (and which were already included in the RPS) as *'surf breaks of national significance'* and provided for their protection through Policy 16 of the NZCPS:

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.*

These nationally significant surf breaks have been provided with the highest level of protection possible, i.e. "*do not adversely affect*" and "*avoiding adverse effects*".

Coastal plan review

As Members are aware, Council is currently reviewing its *Regional Coastal Plan for Taranaki*. As part of that review, in September 2016 the *draft Coastal Plan for Taranaki* (draft Plan) was released for targeted consultation. The Resource Management Act 1991 requires that regional coastal plans give effect to both the RPS and the NZCPS. The draft Plan proposes to do this through *Policy 16: Surf breaks and Nationally Significant Surfing Area.*

Policy 16: Surf breaks and Nationally Significant Surfing Area

To protect surf breaks and their use and enjoyment from adverse effects of other activities by:

(a) avoiding adverse effects on:

(i) all nationally significant surf breaks as identified in Schedule 4; and

(ii) all nationally and regionally significant surf breaks within the designated Nationally Significant Surfing Area as identified in Schedule 4;

(b) giving priority to avoiding adverse effects on all regionally significant surf breaks, identified in Schedule 4, that are outside the Nationally Significant Surfing Area;

(c) within the Nationally Significant Surfing Area giving priority to:

(i) avoiding adverse effects on seascape, including development which would have an adverse effect on the remote feel of the area;

(ii) maintaining and enhancing public access in accordance with Policy 14; and

(iii) maintaining and enhancing amenity values in accordance with Policy 15

(d) in managing adverse effects in accordance with clauses (a), (b) and (c), having regard to:

(i) effects on the quality or consistency of the surf break by considering the extent to which the activity may: change or interrupt coastal sediment dynamics; change or interrupt swell within the swell corridor including through the reflection, refraction or diffraction of wave energy; or change the morphology of the foreshore or seabed; and

(ii) the effects on access to surf breaks and other qualities of surf breaks, including natural character, water quality and amenity values.

Nationally significant surf breaks are provided with the highest level of protection '*avoid*', as required by the NZCPS, as are all regionally significant surf breaks within the Nationally Significant Surfing Area. The draft policy also provides other regionally significant surf breaks with a very high, but slightly lesser, level of protection '*priority to avoid*'. The surf breaks identified in the draft Plan were those already adopted in the RPS.

Workshops

As part of the development of the draft Plan and prior to finalising surf break related policy, the Taranaki Regional Council (the Council) commissioned Dr McComb to prepare a report to assess the types of activities that may directly or indirectly have an impact on surf breaks, *Taranaki Surf Breaks of National Significance, McComb, 2016*. One of the recommendations from this report was for Council to hold workshops to confirm the location and discuss the unique aspects of the regionally significant surf breaks.

Several workshops and one-on-one meetings with local surfers were subsequently undertaken. As well as confirming the location of the 80 breaks already mapped, these meetings identified an additional 60 surf breaks in the region bringing the total number of surf breaks identified by name and mapped by Council to 140.

Feedback on draft Plan

Feedback on regionally significant surf breaks was received from a number of submitters as part of the draft Plan consultation. Some respondents suggested additional surf breaks they considered should be added as regionally significant while others considered that some surf breaks included did not warrant inclusion. A small number of submitters also questioned what criteria was used to determine whether a surf break was regionally significant.

As previously noted, the draft Plan provides regionally significant surf breaks with a very high level of protection and an increased level of protection compared with those that would be considered 'locally significant'. Because of this high level of protection, certain types of

activities would necessarily need to be restricted in the vicinity of these breaks. Accordingly, it is essential that Council ensure that those breaks identified as regionally significant do in fact warrant this classification and level of protection. At the Policy and Planning Committee meeting of 14 March 2017, Members agreed to the Council undertaking further work and investigations as part of a robust process for gathering information and determining the significance of surf breaks around the region. This work addressed feedback received on the draft coastal Plan questioning the criteria used to determine regional significance and allowed the 60 additional surf breaks to be assessed and incorporated into the policy framework.

Council subsequently commissioned consultant Shane Orchard, of Christchurch, to prepare a report identifying criteria for determining regional significance and developed and undertook an online survey to enable community input into the process of determining regionally significant surf breaks, and has reviewed the findings of the consultant's report and survey information. A summary of that work, including key findings is presented below.

Regional significance criteria for the assessment of surf breaks, Orchard 2017

Consultant Shane Orchard was commissioned to prepare a report identifying criteria for determining regional significance, *Regional significance criteria for the assessment of surf breaks*, *Orchard, 2017.* He has worked for a number of councils on surfing assessments and policy development. His report identified 10 attributes that contribute to a surf break being considered important, as shown in Table 1 below.

Table 1: Attribute typology for surf break significance assessment.

Primary attributes	Explanation	Secondary attributes (examples only)
Rarity	Recognises the rarity of the type of surf break, in the sense of being uncommon. 'Type' refers to physical characteristics of the waves produced by different surf breaks and this may be distinguished in various ways. To apply this criterion it is recommended that the types to be considered are first defined by a classification that addresses the characteristics thought to be important. An example classification is provided in Appendix 1. This recognises both types of surf breaks that are suitable for different activities (include both skill level considerations and various recreational pursuits) and geomorphic distinctions that may be used to categorise surf breaks such as those described by Mead (2000), Mead & Black (2001b) and Hutt et al. (2001). At the primary attribute level the rarity criterion describes whether the surf break is a rare type for any of the types considered.	Surf break types as defined by suitability for different activities, e.g. beginner surfers, big wave surfing, body-boarding, wind assisted wave riding etc. Surf break types as defined by geomorphic characteristics, e.g. beach break, reef break, point break, river bar break.
Wave quality	Recognises the quality of the waves at surf break for the wave riding activities practiced there. Assessed on the basis of the wave quality under near optimum conditions e.g. as used by Morse & Brunskill (2004).	- length of ride - wave shape characteristics - wave power characteristics - wave height range - performance aspects under optimum conditions
Wave consistency	Recognises the consistency of the surf break for producing surfable waves.	- surfable days / year or season - consistency of good quality surf
Uniqueness of the surf break in relation to favourable conditions	Recognises the importance of the location to the regional surf break resource in conditions when other breaks are not favourable	- relationships with other surf breaks in different weather & swell conditions
Naturalness	Recognises the degree to which the surf break is free from modifications to the natural environment which may be influenced by factors such as the presence of particular ecosystems, vegetation types, or wildlife, and absence of man-made structures and pollutants.	- proximity and design of structures or other modifications to the natural environment - occurrence of particular ecosystems, vegetation types, or wildlife - condition and legibility of landforms and/or formative coastal processes

		- water quality parameters / pollutants e.g. plastics - sounds and smells
Wilderness values	The key distinction from naturalness relates to wilderness being a human construction associated with the experience of wild nature. As applied to surf breaks it is primarily associated with the environmental context e.g. the level of remoteness or exposure to the elements the location offers.	- perception of wildness, as influenced by level of exposure to the elements, difficulty of human access or commitment required to reach the location
Amenity values	Recognises the importance of amenity values associated with the surf break. These are aspects that contribute to the pleasantness of the location. These aspects may be important to a range of associations with the surf break that do not necessarily involve wave riding. They include aesthetic aspects the influence the perception of beauty or memorability of the location, and others such as the ease of access and the presence of facilities.	- presence of services and facilities - proximity to home - scenic qualities and other aesthetics - memorability
Level of use	Recognises the popularity of the surf break in terms of the frequency of use and number of people who derive value from it.	- frequency of use - diversity of uses or associations with the surf break - numbers of people involved
Economic value to the community	Recognises the level of economic importance of the surf break for local communities and/or the wider regional community	- Promotional value for visitors to the local area or region, including as a component of international appeal - Economic activity associated with visitation modes - Contributions associated with events or contest venues
Historic, heritage, and cultural associations	Recognises the contribution of the surf break to historical and heritage values, including the importance of the site for historical events and the development of coastal and surf riding culture, and specific associations important to tangata whenua	Characteristics in relation to: - importance of the site for historical events - heritage aspects of the local or regional coastal culture e.g. long standing boardriding or surf lifesaving clubs - importance to contemporary coastal culture - contribution to the local sense of place - tangata whenua values associated with the surf break

The report recommended adopting a 5-point scale (Table 2) in any assessment of regional significance for surf breaks. A surf break would be assessed as 'regional significant' where it achieves a score of greater than three for any one of the primary attributes shown in Table 1.

Table 2: Assessment scale for regional significance assessment.

Score	**Importance of the surf break for the attribute on a regional basis**
1	very low
2	low
3	moderate
4	high
5	very high

Online Wave Survey

Following the Consultant's report and identification of surfing attributes of significance, Council worked with consultant Shane Orchard to develop an online survey to enable community input into the process of determining regionally significant surf breaks. Survey participants were asked to identify which surf breaks are important to them and to answer a number of questions to explain why. Question were based around the 10 attributes identified as being important for surf breaks.

The survey sought to capture the views of anyone in the community who values the 'waves' (including swimmers, photographers, surf life savers, picnickers and of course surfers).

Council considered it essential that the community as a whole was involved with this process and given the opportunity to inform Council which of the 140 identified surf breaks were important and why.

Although initially it was intended that an 'expert panel' would also be surveyed this was not undertaken due to the negative feedback received regarding this approach. It was decided that undertaking a single community wide survey was the most inclusive, objective and transparent option.

The appended report *Online wave survey data analysis and proposed regionally significant surf breaks* (the Report) prepared by Council staff, outlines the survey methodology used, responses received and the data analysis undertaken to inform the development of a list of regionally significant surf breaks.

The survey ran for eight weeks from 28 April 2017 and was widely promoted through Council's website, social media, in local newspapers and on Stuff, Surf2Surf and Swellmap websites.

The survey received 338 valid responses. Although not all respondents completed the demographic questions those who did were primarily Taranaki residents (88%), had enjoyed Taranaki surf breaks for more than 10 years (76%) and enjoyed surf breaks for a range of activities including kayak surfing, swimming, photography and surfing.

The number of responses for each surf break varied between 0 and 110, however only two breaks, Montgomery Beach and Cliffs, had no responses and the average response rate was approximately 24, which was considered a very good response rate overall.

At least 5 responses was considered necessary to reflect a community view, further discussion on this is included within the Report. Surf breaks which received less than 5 responses were considered 'data deficient' and not included any further in the analysis. This does not mean these breaks could never be considered regionally significant, just that at this point in time there is not enough information to make an informed assessment regarding regional significance.

Calculations of attribute average were undertaken for nine of the 10 attributes these were wave quality, wave consistency, wave uniqueness, wilderness, naturalness, amenity, level of use, economic value and historic and cultural value.

The rarity attribute was analysed differently as the questions related to use and type both contribute to rarity. In order to determine how rare a break is for a certain use the average for each use was calculated across all of the use data and then the relevant uses selected for each surf break.

In order to determine rarity based on type it was the consultant's view that only river bar breaks qualify as rare in Taranaki. Accordingly, those surf breaks that are river bar breaks were also identified as 'regionally significant'.

Officer's report - Online Wave Survey data analysis and proposed regionally significant surf breaks

The methodology outlined within *Orchard, 2017* identified that 'regional significance' could be based around achieving at least one average attribute value of greater than 3. The

challenge in providing for appropriate use, development and protection within the coastal marine area and creating a list of surf breaks consistent with Council's regional significance policy position (elevated importance, superior examples) was determining how far above 3 is appropriate for the cut-off point for determining significance.

The attached officer's report evaluated the findings of the Online survey based on the consultant's attributes of significance. As part of determining regional significance, the report examined what surfing attributes should be considered essential. Wave quality stood out as being an essential attribute for regional significance. Without at least average wave quality it was considered that a surf break should not be eligible for regional significance otherwise areas with low, or very low wave quality could theoretically qualify for regional significance based on attributes like amenity or naturalness alone, which is not consistent with identifying superior surf breaks.

The officer's report further examines and presents options on what might be an appropriate Cut-off point for regional significance. Based on the consultant's 5 point scale used for assessing regional significance (refer Table 2 above) the report suggests that it could reasonably be expected that regionally significant surf breaks, as per Council's planning context (elevated importance, superior examples), would have an attribute average somewhere around the high category, or a score of 4.0.

The officer's report recommends taking a conservative approach to assessing significance and to ensure that all applicable surf breaks are captured, cut-off levels of at least 3.4, 3.5, 3.6 and 4.0, for at least one attribute average, were applied to the community data collected. This enabled comparison of which surf breaks would be included at differing cut-off levels.

The results of these comparisons are summarised in Table 2 of the officer's report and further analysis is included Appendix 3 of the report.

For the purposes of the Coastal Plan review, the officer's report recommends that Council adopt a cut-off value of 3.4 for at least one attribute average to produce a list of regionally significant surf breaks. Surf breaks with a mean score of 3.4 or higher are considered to best reflect those surf breaks that have an elevated status and are superior examples when compared to others within the Taranaki region. Eighty-one out of 140 known surf breaks are thereby identified as regionally significant. This is similar in number to the surf breaks currently included in the Regional Policy Statement as 'high quality' or 'high value'. Of the 81 proposed surf breaks 62 of these were included in the Regional Policy Statement and 19 are new additions. A list of the 81 surf breaks is appended.

Next Step

It is proposed that the 81 surf breaks produced from using a 3.4 cut-off be listed and mapped in the *Proposed Coastal Plan for Taranaki* and provided with a very high level of protection as per proposed Policy 18 below. The remainder of the 140 identified surf breaks will be listed as locally significant within the Plan and also protected but to a slightly lesser extent. Currently the RPS includes 80 surf breaks. Those surf breaks that received fewer than 5 responses will be marked with 'DD'(data deficient)to indicate data was available to fully assess them for regional significance. Further community consultation and opportunity to have input on the list of regionally significant surf breaks will be undertaken when the Plan is formally notified which is anticipated to be late January 2018.

The surf break protection policy to be included in the proposed Plan is set out below:

Policy 18: Surf breaks and Significant Surfing Area

Protect surf breaks and their use and enjoyment from the adverse effects of other activities by:

(a) avoiding adverse effects on:
  (i) all **nationally significant surf breaks** as identified in Schedule 4; and
  (ii) all surf breaks within the **designated Significant Surfing Area** as identified in Schedule 4;

(b) seeking to avoid adverse effects on all **regionally significant surf breaks**, identified in Schedule 4, that are outside of the Significant Surfing Area;

(c) avoiding, remedying or mitigating adverse effects on all **locally significant surf breaks** listed in Schedule 4;

(d) within the Significant Surfing Area seeking to avoid adverse effects on seascape, including development which would have an adverse effect on the remote feel of the area;

(e) in managing adverse effects in accordance with clauses (a), (b) and (c), having regard to:
  (i) effects on the quality or consistency of the surf break by considering the extent to which the activity may: change or interrupt coastal sediment dynamics; change or interrupt swell within the swell corridor including through the reflection, refraction or diffraction of wave energy; or change the morphology of the foreshore or seabed; and
  (ii) the effects on access to surf breaks and other qualities of surf breaks, including natural character, water quality and amenity values.

Decision-making considerations

Part 6 (Planning, decision-making and accountability) of the *Local Government Act 2002* has been considered and documented in the preparation of this agenda item. The recommendations made in this item comply with the decision-making obligations of the *Act*.

Financial considerations—LTP/Annual plan

This memorandum and the associated recommendations are consistent with the Council's adopted Long-Term Plan and estimates. Any financial information included in this memorandum has been prepared in accordance with generally accepted accounting practice.

Policy considerations

This memorandum and the associated recommendations are consistent with the policy documents and positions adopted by this Council under various legislative frameworks including, but not restricted to, the *Local Government Act 2002*, the *Resource Management Act 1991* and the *Local Government Official Information and Meetings Act 1987*.

Legal considerations

This memorandum and the associated recommendations comply with the appropriate statutory requirements imposed upon the Council.

Appendices/Attachments

Document 1944001: Regional significance criteria for the assessment of surf breaks, Orchard, 2017
Document 1943833: Online Wave Survey data analysis and proposed regionally significant surf breaks

Appendix 1 Proposed regionally significant surf breaks

Surf Break Name
Ahu Ahu Multiple Breaks
Arawhata Road Point
Arawhata Road Reef
Arawhata Road Beach
Back Beach Breaks
Back of Stent
Bayly Road Breaks
Bayly Road North
Bell Block Reef
Belt Road Left
Belt Road Right
Bird's Nest
BJ's Left
Boat Ramps
Bog Works
Boilers
Boulters (Boulder Bay)
Brazils
Breakwater
Butlers Reef
Cemetery Point
Crushers
Dread Rock
East Beach
East End
Far Toos (Kina Road North)
Farmhouse
Fin Whaka
Fitzroy Beach
Graveyards
Greenmeadows
Greenmeadows Beach
Inside Fences
Kaupokanui Beach
Kina Point (Kina Road South)
Kina Road
Komene Road Beach
Kumera Patch
Lupins
Manihi Reef
Mangahume Reef
Oakura Beach
Oakura Camp Ground
Oakura River Mouth
Oaonui Beach
Oats
Ohawe Beach
Opunake Reef and Beach
Patea River Beach
Patea River North Side
Patea River South Side
Pohutakawas
Puketapu
Punihos
Rahotu Multiple Beach Breaks
Rifle Range
Rocky Lefts
Rocky Rights

Surf Break Name
Secret Sandy's
Secrets
Sky Williams
Sluggo's
South Point
Spot X
Stent Road
Stepladders Left and Right
Sundays
Tai Road
The Dump (Dumps)
The Gap (at Fitzroy)
The Groyne
The Pipe
The Point (Fences)
The Wedge
Trap Doors
Waiongana Reef
Waitara Bar
Waiwhakaiho Reef
Waiwhakaiho River Mouth
Weld Road Breaks
Wind Wand
Total 81

Surf breaks that are considered 'high quality' or 'high value' in the *Regional Policy Statement for Taranaki, 2010*.

Regional significance criteria for the assessment of surf breaks

Shane Orchard

Prepared for

Taranaki Regional Council

July 2017

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Regional significance criteria for the assessment of surf breaks

Shane Orchard

Prepared for

Taranaki Regional Council
July 2017

Cover photo

Rocky Lefts, one of Taranaki's many well known surf breaks. Photo: Kester Brown.

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1. Introduction

A study in Hawai'i by Kelly (1973) was the first formal attempt to understand the value of surfing to a local community. Since then a range of other studies have demonstrated that surf breaks are the source of a wide range of benefits and substantial socio-economic value (Abell & Mallett, 2008; Buckley, 2002; Dolnicar & Fluker, 2003; Lazarow 2007, 2008; Lazarow et al. 2009; Murphy & Bernal, 2008; Nelsen et al. 2007; Ove Arup & Partners, 200; Peryman & Orchard, 2013; Tourism New South Wales, 2009). Although New Zealand has a considerable surf break resource, changing development, settlement, and resource use patterns are placing increased pressure on coastal margins where surf breaks are found (Scarfe et al., 2009a). Each surf break is a unique natural feature formed by a specific combination of geographical factors. Many of the characteristics may be destroyed or degraded by incompatible human activities as well as by natural events. To protect these resources for the future there is a need for a strategic approach that includes effective policy and planning mechanisms for managing human impacts and providing for community interests in surf breaks.

In Taranaki, surf breaks are an important coastal resource. The region is well known for both the number and quality of its surf breaks. They are an important aspect of the local lifestyle and are drawcards for visitors from throughout New Zealand and overseas (Taranaki Regional Council (TRC), 2016a). Taranaki also produced New Zealand's first example of a regional policy context specifically addressing surf break protection. This involved the identification of 80 'high quality or high value' surf breaks within the Regional Policy Statement for Taranaki 2010 (RPS) (TRC, 2010). This initiative preceded further surf break policy developments that were to come at the national level. Those developments occurred under the NZ Coastal Policy Statement 2010 (NZCPS) and included a definition for surf break in national coastal policy, identification of a schedule of surf breaks of national significance, and policies and objectives that directly referenced surf breaks and the need for their protection (Orchard, 2011; Peryman & Skellern, 2011).

The new NZCPS took effect on 3 December 2010 (DOC, 2010). Since then there have been further developments in both interpretation and means for implementation of the policies, with local government being required to give effect to the NZCPS as soon as practically possible. Due to variations in the timing of regional policy and plan review cycles, the opportunities to implement the NZCPS have in practice, arisen on different timelines around the country. In New Zealand's hierarchical resource management system, each such review provides an important mechanism for giving effect to new national policy and objectives (Memon & Perkins, 2000; Peart, 2008).

Taranaki Regional Council (the Council) is now in the process of reviewing its Regional Coastal Plan. The Coastal Plan is a key policy instrument for implementing the RPS and it also must also give effect to the NZCPS. Despite being an early leader in the field, advances in policy for the protection of surf breaks was one of the notable new developments in national policy under the NZCPS. Since the Taranaki RPS pre-dates the NZCPS, this requires careful consideration. Important steps including reviewing and addressing the contemporary policy context together with current information on the surf break resource and its value to the community. As part of the Coastal Plan review process the Council is identifying all nationally, regionally and locally significant surf breaks. These breaks will have varying levels of policy protection through the Plan.

The purpose of this report is to develop a set of criteria to determine which surf breaks along the Taranaki coast should be considered regionally significant.

2. Methods

The methodology for this study is based on policy analysis and a desktop literature review. The key steps were:

- analysis of the national and international policy context relevant to the concept of regionally significant surf breaks;
- review of the Taranaki RPS to identify additional considerations that may be relevant to the regional policy context;
- review of technical studies that have informed recent regional policy and planning approaches for the management of surf breaks with a focus on those that have identified regional significance criteria for surf breaks;
- evaluation of potential criteria for the assessment of regional significance; and
- development of a set of criteria together with recommendations on how they could be applied to inform the Taranaki Coastal Plan.

Literature reviewed included technical reports on either criteria for regional significance assessment, or the identification of regionally significant surf breaks for the purposes of regional policy and planning in New Zealand. This included all of the known studies dealing with this topic since gazettal of the NZCPS 2010 and also the report of Coombes & Scarfe (2010) that considered the proposed NZCPS in its near-final form. Additionally, approaches to surf break protection at regional level under the National Surfing Reserves programme in Australia were considered for an international comparison.

Potential criteria for the assessment of regional significance were evaluated against the following considerations:

- applicability to the policy context; and
- definition of, and relationships between the potentially relevant criteria.

3. Results

3.1 Policy analysis

International context

In many places around the world surfing has rapidly increased in popularity (Lazarow et al., 2009) and a growing range of wave riding pursuits are becoming mainstream forms of recreation. However, there is also increasing competition for limited coastal space, in part due to an increasing human population on coastal margins (Cicin-Sain & Knecht, 1998; Peart, 2007). In recent decades several world-renowned surf breaks and many other locally important breaks have been destroyed or degraded following coastal management decisions (Corne, 2009; Lazarow 2007; Nelsen et al., 2007; Scarfe, 2008; Scarfe et al., 2009a, 2009b; Skellern et al., 2009).

Although New Zealand was the first country to develop a protection mechanism for surf breaks in national level resource management legislation, this advance was undoubtedly influenced by an international context characterised by growing awareness of the value of surf breaks, and the threats to them (Orchard et al., 2014). This awareness has been largely championed by organisations working in the non-government sector such as Surfers Against Sewage (SAS), the Surfrider Foundation, and Save the Waves Coalition. It has steadily gathered momentum over the years in response to a greater understanding of the pressures on surf breaks as natural resources (e.g. Butt, 2010; SAS, 2009) and has included innovative approaches such as the National and World Surfing Reserves programmes (Farmer & Short, 2007; Short & Farmer, 2012). Likewise, the origins of policy development for surf break management in New Zealand can be traced back to the efforts of community groups such Surfers' Environmental Advocacy (SEA) and the Surfbreak Protection Society (SPS), as well as many individuals with concerns for the growing pressures on surf breaks and the need for an effective response.

Treaty of Waitangi

The Treaty of Waitangi is a unique aspect of the policy context being an agreement made between the Crown and the Māori people of New Zealand. It is directly relevant to resource management because of its influence on relationships between the Treaty partners, and arrangements for the governance of natural resources. Treaty principles are directly connected to contemporary resource management through section 8 of the Resource Management Act 1991 (RMA) as well as via policy instruments required under the Act. These include National Policy Statements, Regional Policy Statements, and statutory plans.

Resource Management Act 1991 (RMA)

The RMA is New Zealand's principal legislation for environmental management outside of the conservation estate. Surf breaks are examples of natural and physical resources relevant to the purposes of the Act under section 5.

> *Section 5 Purpose*
> *(1) The purpose of this Act is to promote the sustainable management of natural and physical resources.*
> *(2) In this Act, sustainable management means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while—*
> *(a) sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and*
> *(b) safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and*
> *(c) avoiding, remedying, or mitigating any adverse effects of activities on the environment.*

Surf breaks are also relevant to matters of national importance under section 6.

Section 6 Matters of national importance
In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall recognise and provide for the following matters of national importance:

- *(a) the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development:*
- *(b) the protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development:*
- *(c) the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:*
- *(d) the maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers:*
- *(e) the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga:*
- *(f) the protection of historic heritage from inappropriate subdivision, use, and development:*
- *(g) the protection of protected customary rights.*

The matters identified in section 6(a), (b), (d) and (e) are all relevant. Surf breaks are natural features that require consideration under 6(b). They are also components of the natural character of the coastal environment as addressed by 6(a). Public access is important to many of activities associated with surf breaks, and they may be important sites for Māori. This may be in connection with the traditional practices of early Māori who are known have utilised a variety of wave riding craft (Skellern et al., 2013), as contemporary sites for wave riding practices, or in relation to other attributes of cultural importance.

Surf breaks are also relevant to other matters identified in section 7.

Section 7 Other matters
In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall have particular regard to—

- *(a) kaitiakitanga:*
- *(aa) the ethic of stewardship:*
- *(b) the efficient use and development of natural and physical resources:*
- *(ba) the efficiency of the end use of energy:*
- *(c) the maintenance and enhancement of amenity values:*
- *(d) intrinsic values of ecosystems:*
- *(e) [Repealed]*
- *(f) maintenance and enhancement of the quality of the environment:*
- *(g) any finite characteristics of natural and physical resources:*
- *(h) the protection of the habitat of trout and salmon:*
- *(i) the effects of climate change:*
- *(j) the benefits to be derived from the use and development of renewable energy.*

The matters identified in section 7(c), (f), (g) and (i) are relevant. The RMA defines amenity value as “those natural or physical qualities and characteristics of an area that contribute to people’s appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes”. Surf breaks can contribute to all of these aspects in various ways and may be important for many sectors of the community over and above those actively involved with riding waves. Surf breaks can contribute to the attractiveness of an area due to their visual qualities, and other experiential aspects such as the sound of breaking waves. Many surf breaks are also popular sites for spectators and other recreational users.

Surf breaks are relevant to 7(f) due to their contribution of to the quality of the environment is relevant to 7(f). As unique natural features surf breaks are a finite resource of particular relevance to 7(g). Experience with attempts to create artificial surf breaks around the world has shown that the qualities of naturally occurring surf breaks are very hard to reproduce. It is therefore important to avoid adverse effects

wherever possible to prevent long term degradation of the resource. The effects of climate change are relevant to the management of surf breaks though are not considered further in this report.

New Zealand Coastal Policy Statement 2010 (NZCPS)

Under Section 56 of the RMA, the purpose of an NZCPS is to state policies to achieve the purpose of the RMA in order to promote the sustainable management of natural and physical resources in relation to New Zealand's coastal environment. Implementation of the NZCPS 2010 requires consideration of all objectives and policies as a whole since many are interlinked. The management of surf breaks is relevant to NZCPS objectives 1, 2, 3, 4 and 6, and to objective 5 in the sense that breaking waves dissipate wave energy that may be a consideration for managing natural hazards. As yet there are no international obligations that require the protection of any New Zealand surf break as would be relevant to objective 7.

NZCPS policies 4, 7, 13, 14, and 15 are particularly relevant.

Policy 4 'Integration' requires the coordination of management activities especially those addressing effects and aspects that cross jurisdictional boundaries. Since most surf breaks are located close to the jurisdictional boundary between regional councils and territorial authorities, an integrated approach is particularly relevant for effective management. Being close to the land-water boundary surf break management requires attention to both landward and seaward aspects.

Policy 7 'Strategic planning' addresses the preparation of regional policy statements and plans. It requires the identification of resources or values that are under threat or at significant risk from adverse cumulative effects. It is clear that this process must be inclusive of surf breaks when policy 7 is read in conjunction with other policies that specifically identify surf breaks among the resources and values to be considered in coastal management. Policy 7 also requires attention to areas where particular activities and forms of subdivision, use and development may be inappropriate, and these areas may include surf breaks. The term 'surf break' is directly defined in the NZCPS glossary thereby supporting the implementation of this policy and others relevant to surf breaks.

Policy 13 'Preservation of natural character' is relevant since policy 13(2)(c) directly identifies surf breaks a component of the natural character concept. In addition, matters under policy 13(2)(a) 'natural elements, processes and patterns' and 13(2)(h) 'experiential attributes, including the sounds and smell of the sea; and their context or setting' are also influenced by surf breaks. However, the degree to which the presence of a surf break, or loss or degradation of it, would be reflected in a natural character assessment is currently unclear as a result of considerable variation in the way that natural character is assessed in practice (DOC, 2011). Some authors suggest that a quantitative basis for understanding natural character is required to consistently address the issue (e.g. Froude, 2011). It is clear that the degree to which a surf break is deemed to contribute to natural character currently depends on the methodology adopted for evaluating its different components, together with the spatial scale of the assessment. Despite these inconsistencies, surf breaks are defined spatial entities that have their own natural character. Adverse effects on the natural character of surf breaks are a relevant consideration under policy 13(1)(a) and (b) in addition to the contributory aspects of surf breaks in the context of larger assessment units.

Policy 14 'Restoration of natural character' is also relevant to surf break management but it is unlikely to be a practical focus for implementation of this policy, in part due to the methodological issues discussed above. Obvious targets for restoration consistent with this policy include reinstatement of natural coastal processes that may affect surf breaks such as sediment supply and exposure to swell where these have been altered by past modifications. However it should be recognised that some surf breaks are currently beneficiaries of modified natural character, such as where groynes and other engineered structures may have improved wave quality. Therefore the implementation of this policy has the potential to impact both positively and negatively on surf breaks with regards to the different attributes of surf breaks that may be valued.

Policy 15 'Natural features and natural landscapes' requires the protection of natural features and natural landscapes from inappropriate subdivision, use, and development. Throughout the policy the wording is clear in its reference to both natural features and natural landscapes as the subjects requiring protection. Although natural features also contribute to the assessment of landscapes, it is the specific focus on protecting both that makes this policy highly relevant to surf break management. The NZCPS specifically defines surf breaks as natural features and also gives a clear definition to guide identification of their spatial extent. Moreover, policy 15(c) requires "identifying and assessing the natural features and natural landscapes of the coastal environment of the region or district". This indicates that surf breaks should be identified and assessed. Topics for assessment are also detailed in the policy. In particular, policy 15(d) requires "ensuring that regional policy statements, and plans, map or otherwise identify areas where the protection of natural features … requires objectives, policies and rules". Assessing the protection requirements of surf breaks directly contributes to implementation of this policy. In addition, policies 15(a) and (b) addressing adverse effects on outstanding natural features and other natural features respectively, each require methods for implementation.

Policy 19 'Walking access' and others including policies 2, 20, 21, 22, 23 and 28 are also relevant to surf break management. However they do not deal with specific considerations for surf breaks and for that reason are not discussed further in this report.

Regional Policy Statement for Taranaki 2010 (RPS)

The approach to surf breaks within the current RPS includes policies relevant to surf breaks, and maps of "high quality or high value areas of the coastal environment" that include surf breaks. The maps found in Appendix 2 provide point locations for 80 high quality or high value surf breaks of regional importance. These were identified from the Council's inventory of coastal areas of local or regional significance (TRC, 2004), Morse & Brunskill (2004), and by consultation with local surfers (TRC, 2010). Appendix 2 also notes that "the coastal areas identified are not necessarily an exhaustive selection and, on occasion, other parts of the coast may have natural, ecological, or cultural values that are regarded as important to the region" (TRC, 2010).

As part of the review of the Coastal Plan the Council is seeking to build on the policy approach adopted in the RPS and improve on its application. RPS policies relevant to protection of surf breaks are found in section 8.1 dealing with "protecting the natural character of our coast". Objectives stated in this section include:

CNC OBJECTIVE 1
To protect the natural character of the coastal environment in the Taranaki region from inappropriate subdivision, use, development and occupation by avoiding, remedying or mitigating the adverse effects of subdivision, use and development in the coastal environment.

CNC OBJECTIVE 2
To provide for appropriate, subdivision, use, development and occupation of the coastal environment in the Taranaki Region.

CNC POLICY 4
Areas in the coastal environment of importance to the region will be identified and priority given to protection of the natural character, ecological and amenity values of such areas from any adverse effects arising from inappropriate subdivision, use and development.

In the assessment of areas of importance, matters to be considered will include:

(a) wetlands, estuaries or coastal lagoons and coastal turf, forest and shrublands of regional, national or international importance;

(b) their importance for marine mammals or birds, invertebrates and lizards for breeding, roosting or feeding, or habitats of threatened indigenous bird species;

(c) *the existence of regionally or nationally outstanding ecosystems or communities or nationally threatened plant or animal species;*
(d) *scenic sites and recreational sites of outstanding or regional or national significance;*
(e) *historic heritage values, including archaeological sites of national or outstanding significance;*
(f) *the existence of nationally significant or outstanding coastal and marine landforms, landscapes, scientific features and associated processes;*
(g) *the cultural and spiritual values of tangata whenua;*
(h) *wāhi tapu and sites of importance to tangata whenua; and*
(i) *the existence of marine protected areas.*

The policy most specific to the protection of surf breaks is CNC Policy 4 addressing the protection of areas in the coastal environment of importance to the region. Because Appendix 2 states that the surf break locations identified are of "regional importance", they would likely be within the scope of CNC Policy 4(d).

More generally, surf breaks may also be considered under CNC Policy 5 since they are natural features.

CNC POLICY 5
Recognition will be given to the protection where appropriate of other areas, features or landscapes in the coastal environment not covered by Policy 4 above, but still important to the region for one or more of the following reasons:
(a) *recognition of the special value of estuaries, including the unique physical processes that occur as a result of the interaction of coastal and river dynamics; and the importance of estuaries in providing spawning areas and nursery areas for juveniles of aquatic species;*
(b) *amenity and scenic values;*
(c) *recreational and historic areas;*
(d) *biodiversity and the functioning of ecosystems;*
(e) *scientific and landscape features; and*
(f) *cultural features of significance to tangata whenua.*

There is a lack of direct reference to the Appendix 2 surf breaks in any of the policy provisions, with the only explicit linkage being in RPS explanations. Furthermore, the term 'surf break' is not defined or used anywhere within the RPS or the glossary section. This creates a potential issue for plan users in relation to determining the spatial extent of the Appendix 2 surf breaks. This could be improved by providing a definition of the spatial extent of the surf breaks to be considered under policy, as is proposed in the Draft Coastal Plan, and additional information on the characteristics of the surf breaks to support assessments of effects, either within the Coastal Plan or in readily accessible guidance material.

3.2 Development of criteria for regional significance

To date, surf breaks of regional significance have been identified in five regions of New Zealand for the purpose of informing policies or plans. With the exception of Gisborne, all of these regions have subsequently included regionally significant surf breaks within their policies or plans (Orchard, 2017). Other studies including Peryman & Orchard (2013), Scarfe et al. (2009a), and Skellern et al. (2013) have also considered the topic in relation to the wider coastal policy and planning context in New Zealand.
As detailed in section 2, the Regional Policy Statement for Taranaki 2010 broke new ground by identifying 80 regionally significant surf breaks within an Appendix to the statutory document. Each surf break is identified as a point location only. No additional information was provided on their characteristics or other rationale for regional significance.

Coombes & Scarfe (2010) were the first to propose explicit criteria for regional significance in a New Zealand planning context. The criteria were applied to rate surf breaks in the Auckland region that were identified from Morse & Brunskill (2004), information from the Surfbreak Protection Society, and the local knowledge of council staff. Subsequently, the Auckland Unitary Plan included most of the surf breaks

assessed by Coombes & Scarfe (2010) but not on the basis of the ratings in that assessment. The reason for the difference is unclear. However, the surf breaks were identified using a schedule (Appendix 4 to the Plan), and policies referencing them were included in relevant sections (Auckland Council, 2016).

The focus of studies by Peryman (2011a, 2011b) in Gisborne and Bay of Plenty included potential criteria for the identification and description of regionally significant surf breaks, as well as characteristics of the nationally significant surf breaks in Gisborne. The studies were run concurrently and both utilised workshops, interviews, and surveys to engage with, and gather information from community members with knowledge of surf breaks in their region. In the Gisborne study, survey respondents were asked to rate the importance of 20 factors for understanding the importance of surf breaks, and identify any other important factors from their perspective. The list of factors was derived from Coombes & Scarfe (2010) and additional considerations identified by the researcher (Peryman, 2011b).

In the Bay of Plenty study survey respondents were presented with 11 suggested assessment criteria and asked to provide a rating against each for all of the surf breaks they had knowledge of within the region. In addition, respondents could provide comments on the surf break assessment criteria (Peryman, 2011a). Results included ten of these criteria being suggested as a criteria set for assessing the characteristics and values of surf breaks in the region, and a similar set was identified from the Gisborne study (Table 1). The difference related to an additional criterion identified in the Gisborne study addressing consistency of high quality wave conditions at or near full potential (Peryman, 2011b).

Table 1. Comparison of surf break assessment criteria used in regional assessments in New Zealand and Australia. Note: Wavetrack refers to Morse & Brunskill (2004).

Policy context & references	**Auckland Unitary Plan** Coombes & Scarfe (2010)	**Bay of Plenty RCP** Peryman (2011a)	**Gisborne RCEP** Peryman (2011b)	**Greater Wellington RCP** Gunson et al. (2014) Atkin et al. (2015)	**Northland RCP** NRC (2016a, 2016b, 2016c)	**Australian National Surfing Reserves programme** www.surfingreserves.org Short & Farmer (2012)
Physical environment attributes	• Wave quality when optimum conditions are present determined using the Wavetrack 'stoke rating' or determination of an equivalent site when the break is not included in Wavetrack*. • Rarity. Relates to whether the break is a rare type of break for the region. Determined from the average of rarity ratings assessed for geomorphic break type (headland or point, beach, bar, reef or ledge) and surfing skill level (all surfers, competent surfers only, intermediate-expert, experts only). • Frequency/consistency of surfable conditions. • Size of break area. Based on whether the break can accommodate many surfers at once. Larger breaks have a higher rating than smaller breaks. • Naturalness. Indicates the level of naturalness retained and value as a wilderness experience. Sites with a low level of modification of the surroundings rate higher than sites adjacent to urban areas.	• Wave Quality (height, shape and length of ride). Performance of the surf break in optimum conditions – rated out of 10 in comparison to other breaks in the region, 10 being highest. • Break type (reef break, point break, ledge, river mouth or beach break). How representative is the surf break is in terms of its type in the region, i.e. is it a common type of surf break within the region or is it rare. • Consistency of surfable (wave conditions of any quality) and/or high quality (surfable wave conditions at or near full potential) waves – rated out of 10 in comparison to other breaks in the region, 10 being highest. • Size or diversity of break area. How many recreational users the break can accommodate at once and where a break offers several surfable areas at any one time given suitable conditions. • Naturalness/Scenery. The contribution of the surrounding natural landscape toward the enjoyment of the surfing and overall recreational experience.	• Wave Quality (height, shape and length of ride). Performance of the surf break in optimum conditions – rated out of 10 in comparison to other breaks in the region, 10 being highest. • Break type (reef break, point break, ledge, river mouth or beach break). How representative is the surf break is in terms of its type in the region, i.e. is it a common type of surf break within the region or is it rare. • Consistency of surfable wave conditions of any quality – rated out of 10 in comparison to other breaks in the region, 10 being highest. • Consistency of high quality surfable wave conditions at or near full potential – rated out of 10 in comparison to other breaks in the region, 10 being highest. • Line-up accommodation. How many recreational users the break can accommodate at once, including where a break offers several surfable areas at any one time given suitable. • Naturalness/Scenery. The contribution of the surrounding natural landscape toward the enjoyment of the surfing and overall recreational experience.	• Wave Type. • Min Wave Height. • Max Wave Height. • Wave Shape. • Swell Direction. • Wind Direction. • Tide. • Ride Length. • Wavetrack 'stoke rating'.	• Wave quality. Performance of the surf break in optimum conditions i.e. height, shape and length of ride. • Rarity (of break type). How representative is the surf break is in terms of its type in the region i.e. is it a common type of surf break within the region or is it rare (reef break, point break, ledge, river mouth or beach break). • Uniqueness. Is the surf break able to be ridden in wind or swell conditions that are unusual in respect to other breaks in the area. • Consistency. How often does the break have wave conditions that are suitable for surfing. • Water Quality. Is the quality of the water at the site suitable for contact recreation? • Wilderness/ naturalness. Does the break feel remote, lack buildings or is valued because of its uncrowded waves.	• Quality of wave(s). • Consistency of the waves. • Wave variety. • Recognised biodiversity hotspot. • Threatened species present. • Undeveloped area. • Connected to other water resources. • Provides key ecosystem services.
Socio-cultural and economic attributes	• Level of use. Based on a general assessment of how many surfers regularly use the particular break. • Amenity. Reflects proximity to populated areas, ease of access, presence of ancillary services and facilities (e.g. surf	• Level of use. How regularly the break is used for recreation. This applies to the breaks suitability for a range of users from beginner to advanced levels in terms of all activities that use the break, including, but not limited to surfers, surf	• Level of use. How regularly the break is used for recreation. This applies to the breaks suitability for a range of users from beginner to advanced levels in terms of all activities that use the break, including, but not limited to surfers, surf		• Frequency of use / popularity. How regularly the break is used for recreation. This applies to the breaks suitability for a range of users from beginner to advanced levels. • Education. Focus for skills learning, including	• A place considered special by the local surfing community. • Long term usage of the beach and wave environment by local surfing community. • Importance in surf history. • Surf is key part of the local

	clubs, toilets, car parks, shelters, accessways to beach, nearby accommodation and shops). Sites with greater levels of such facilities are rated higher than those with few facilities. • Significance to the local community. Relates to whether the break is a key aspect of the local sense of place or contribution to local economy. • Value as a national / internationally recognised site (i.e. competition site, attracts tourists, frequently cited in surfing guides). Determined from knowledge of locations of surf competitions, frequency of mention in surfing websites and guide books. Sites with frequent competitions and mentions rate higher than those that are only locally known.	life saving, kite boarding, canoeists and paddle boards. • Amenity value and access. Value of the break for its ease-of-access, proximity to a township, associated facilities, services and other amenities (e.g. surf clubs, toilets, car parks, shelters, nearby accommodation and shops). This category also includes the users of surf breaks as a part of the seascape, in providing amenity value for onlookers. • Local community and competition. Influence of a break on the social fabric of the surf community and the health and well-being associated with surf-riding (e.g. family-orientated lifestyle, local economic activity, surf training and competition). Includes the significance of a surf break as a contest venue for surf competition. • Value as a national / internationally recognised break. The significance of a break beyond the region for a wider domestic or international range of users, interests or audience – for general tourism and/or purposes specific to surf-riding. • Cultural values. Consideration of culturally significant values . This includes tikanga Māori (particularly where practiced in the coastal environment); and, the arrival, growth and evolution of 'modern' surf culture from Hawaiian and Californian influences (including surf lifesaving).	life saving, kite boarding, canoeists and paddle boards. • Amenity value and access. Value of the break for its ease-of-access, proximity to a township, associated facilities, services and other amenities (e.g. surf clubs, toilets, car parks, shelters, nearby accommodation and shops). This category also includes the users of surf breaks as a part of the seascape, in providing amenity value for onlookers. • Community values. Influence of a break on the social fabric of the surf community and the health and well-being associated with surf-riding (e.g. family-orientated lifestyle, local economic activity, surf training and competition). • Value as a national / internationally recognised break. The significance of a break beyond the region for a wider domestic or international range of users, interests or audience – for general tourism and / or purposes specific to surf-riding. • Cultural values. Consideration of culturally significant values. This includes tikanga Māori and the arrival, growth and evolution of 'modern' surf culture from Hawaiian and Californian influences that included surf lifesaving.		encouragement of young/learner surfers to participate and socialise.	economy.
Presence of, or susceptibility to threats					• Physical Robustness/ fragility of surf break. This attributes seeks to quantify the risk to a surf break.	• Past/present wave threat likely to be mitigated. • Key issue identified. • Clear avenue for legal protection locally. • Protected designations.

* Wavetrack refers to the Wavetrack New Zealand Surfing Guide (Morse & Brunskill, 2004).

Peryman & Orchard (2013) evaluated the combined data from the surveys, interviews, and focus groups conducted in the Gisborne and the Bay of Plenty studies to identify categories of value that are important to coastal communities in those regions (Table 2). Ten categories of value associated with surf breaks were identified spanning all of the 'four well-beings'. At least 15 aspects of surf breaks contributing to one or more value categories could be identified in the raw data from the combined studies. Many of these aspects can be further subdivided in terms of surf break attributes that contribute to each of the categories of value (Peryman & Orchard, 2013).

Table 2. Categorisation of surf break values and contributing aspects in Gisborne and Bay of Plenty. Adapted from Peryman & Orchard (2013).

Well-being theme	Value categories	Contributing aspects
Social	Physical and mental health benefits	• Surf breaks are host to many user groups who participate in many different forms of recreation with positive qualities for physical and mental health for people of all ages and walks of life
	Educational value	• Surf breaks are venues for skills learning , including encouragement of young / learner surfers to participate, hold contests, and socialise in a supportive environment
	Enabling interactions between community members	• Surf breaks support a diverse range of interactions that contribute to a social fabric that extends into wider communities
	Lifestyle value	• Surf breaks contribute to healthy, family-orientated and community-based lifestyles
	Spiritual value	• Surf breaks are a source of spiritual energy and a place to exercise spirituality important to individual health and community well-being
	Experiential and amenity values	• Surf breaks contribute to scenic and naturalness values important to recreational users, onlookers, coastal inhabitants and visitors • Surf breaks contribute to visual and oral expressions of place – interconnected to wider landscape and seascape values • Surf breaks contribute to the nature and memorability of experiences in the coastal environment • Raw and undeveloped natural landscapes and seascapes contribute to the opportunities for wilderness experiences • Built access and facilities can contribute to surf break amenity though are not always desirable
Cultural	Cultural use and enjoyment	• Access to, use and enjoyment of surf breaks are important aspects of the link between coastal culture and surf break environments
	Places of cultural significance	• Many surf breaks are associated with important cultural or heritage associations and some are considered 'sacred treasures'
Economic	Commercial activities and economic effects associated with surf breaks	• Surf-related tourism and surfing industry activities are important to local, regional and national economies • Surfing is extensively used in the marketing and promotional activities, and contributes to the branding of many commercial products as well as visitor and lifestyle destination. • The contribution of surfing to healthy lifestyles has physical and mental health benefits that contribute to economic considerations
Environmental	Natural features and life-supporting systems	• A range of physical aspects of the both terrestrial and aquatic environment contribute to the existence, character, and uniqueness of surf breaks • The ecology and ecological health of surf breaks, adjacent areas, and upstream catchments can influence use and enjoyment • Surf breaks have environmental educational value as sites for experiencing aspects of the coastal environment

More recently, a total of 17 attributes identified from Coombes & Scarfe (2010), Peryman (2011a), and Skellern et al. (2013) were considered to be potentially useful for an assessment of surf breaks in Northland (Northland Regional Council, 2016b, 2016c). Of these, nine attributes were considered to be 'primary attributes' of greater importance. Eight of these were subsequently applied in the assessment process following a decision to drop the 'water quality' attribute on the grounds that open coast water quality in the region was generally very good. Surf breaks were scored out of 10 for each of the eight attributes using an expert panel approach, with the surf breaks considered being identified from Morse & Brunskill (2004) and discussions with the expert panel (Northland Regional Council (2016b). Scores for each break were summed following a Multi Criteria Analysis approach similar to that of Hughey & Baker (2010). Additional weight was given to the scores for wave quality, consistency, popularity, and education in calculating a final score out of 100 for each surf break. Those scoring a total of 35 or more were identified as being regionally significant although the report notes that the final threshold to be applied will be considered further by the expert panel following public feedback (Northland Regional Council, 2016b).

In the Wellington region a different approach was taken in which there were no criteria explicitly used in identifying a list of regionally significant surf breaks for inclusion in the Proposed Natural Resources Plan (Greater Wellington Regional Council, 2015). Instead, Gunson et al. (2014) prepared updated information on the location and characteristics of the surf breaks identified in Morse & Brunskill (2004), some of which are areas consisting of multiple breaks. This information considered the spatial extent of surfable waves at each location, and the characteristics of wave type, minimum and maximum wave height, wave shape, ride length, best tide, swell direction, and wind direction along with the Wavetrack 'stoke rating'. The information was incorporated in Atkin et al. (2015) along with maps of the swell corridor for each surf break derived from numerical modelling. These were based on a tracing the paths of swell able to reach a given break from a range of simulated offshore wave conditions as described by the model (Atkin et al., 2015).

The National Surfing Reserves programme in Australia was developed as a means of recognising the importance of iconic surfing sites in (Farmer & Short, 2007). Although the philosophy behind the programme and the Australian policy context differ from approaches to surf break protection in New Zealand, it includes the recognition of Regional Surfing Reserves (Short & Farmer, 2012). Criteria for reserve selection have been developed (Table 1) and are used by a reference group who are tasked with assessing nominated sites. However, the programme is not designed to provide a systematic approach to the identification of significant surf break resources. Instead the focus is on bringing people together around a non-statutory method of affording recognition to valued area (Farmer & Short, 2007). The approach has proven successful and has attracted strong support from State government including subsequent statutory recognition of the reserves by various means. The process encourages conflicts between user groups to be resolved by requiring evidence of a high level of community support for reserve status as an aspect of the assessment process (Short & Farmer, 2012).

3.3 Summary

The literature reviewed illustrates that a wide variety of attributes can contribute to the value of surf breaks. Some of these attributes may be perceived as being more relevant to the concept of regional significance than others. However with the exception of Northland, none of the New Zealand planning approaches to date have applied explicit criteria to separate surf breaks of regional significance from other known surf breaks in the region (Table 3).

Table 3. Regional policy statements and plans that have identified surf breaks of regional significance.

Date	Policy instrument	Methodology*	References
2010	Regional Policy Statement for Taranaki 2010	Wavetrack + consultation with local board-riding clubs	TRC (2010)
2015	Proposed Natural Resources Plan for the Wellington Region, July 2015	Wavetrack + local knowledge	Gunson et al. (2014) Atkin et al. (2015) Greater Wellington Regional Council (2015)
2016	Auckland Unitary Plan Operative in Part, Updated 14 December 2016.	Wavetrack + information provided by the Auckland branch of the Surfbreak Protection Society + local knowledge of council staff	Coombes & Scarfe (2010) Auckland Council (2016)
2016	Proposed Bay of Plenty Regional Coastal Environment Plan. Version Number 9.0b, November 2015.	Wavetrack + consultation with local surf community	Peryman (2011a) Bay of Plenty Regional Council (2015)
2016	Draft Regional Plan for Northland, August 2016.	Wavetrack + feedback from expert panel + assessment of overall importance + application of a cut-off score for defining regional significance	Northland Regional Council (2016a) Northland Regional Council (2016b) Northland Regional Council (2016c)

* Wavetrack refers to Morse & Brunskill (2004).

In consideration of the policy analysis and literature review the following matters provide the rationale for the recommended approach for identifying regional significance as set out in section 4:

- The focus of the policy context under the NZCPS is firstly on recognising surf breaks as natural features, and secondly on considering the contribution of those features to a range of matters important to the achievement of policy objectives;
- There is nothing in the policy context that requires the identification of surf breaks of 'regional significance' *per se*. Rather, the policy context requires the consideration of surf breaks in general, with additional considerations for the surf breaks of 'national significance' that are identified directly within the NZCPS;
- Conversely, there is also nothing precluding the identification of surf breaks of 'regional significance'. Where this approach is taken the purpose must be as a component of a method that helps achieve the relevant policy objectives. Under RMA section 32 the effectiveness and efficiency of all such approaches are important considerations;
- Planning approaches based on recognising a list of surf breaks of higher relative importance than others are a potential mechanism for achieving policy objectives, and similar concepts have been applied to the management of other natural resources. The relevant policy objectives clearly require attention to a range of values that may occur in those locations and could be impinged by other activities. The definition and identification of regional significance status cannot be considered to be effective and efficient as a planning tool unless these aspects of the policy context are addressed; and
- It is important to note that the policy context for surf break management is consistent with the overall approach to effects-based management under the RMA. Effects-based management depends on the recognition of current values, and consideration of potential adverse impacts on those values with regards to proposed developments (Rennie et al., 2014).

4. Recommendations

4.1 Assessment framework

Criteria for defining and identifying surf breaks of 'regional significance' reflect attributes that are valued by the community within areas defined as surf breaks. As identified above, the attributes to be considered must be inclusive of multiple values and perspectives. Although only the important attributes need to be considered (i.e. those that are valued and policy-relevant), there is a need to assess their relative importance at the location and provide some evidence or justification on which to base recognition of regional significance status. This suggests that a quantitative assessment of important attributes is a necessary step for the characterisation of surf breaks. Table 4 provides an assessment framework to address these needs.

Table 4. Framework for the assessment of regionally significant surf breaks.

Component	Description
Identify attributes	The surf break resource is assessed against an attribute typology defining the aspects that underpin community values and are relevant to the policy context (see Table 7). The primary attributes form the basis for regional significance assessment. Secondary attributes are defined as contributory aspects and are not directly assessed.
Quantitative attribute assessment	The purpose of this step is to quantify the primary attributes of the surf break resource. Sources of information should be inclusive of multiple values perspectives and a community-based approach is recommended. Each attribute is rated in terms of the degree to which the surf break exhibits that attribute on a regional scale. A 5-point assessment scale is recommended.
Apply significance criteria	Results from the assessment are evaluated against the criteria for regional significance.

4.2 Criteria for the assessment of regional significance

The recommended criteria consist of:

- design criteria that are applied to the assessment process, and
- significance criteria against which each surf break is rated for comparison to the significance threshold.

4.2.1 Design criteria

Spatial delineation

Spatial extent and resolution of the assessment must be stated.

This is an important criterion for interpretation of the overall assessment and is required to ensure that only areas that have been assessed are interpreted as being 'significant' or 'not significant'. Suitable means for applying this criterion in practice include listing, mapping, or otherwise describing the spatial basis and scope of a given assessment process. Where known surf breaks have not been assessed due to local, cultural, or other sensitivities a 'not assessed' (NA) qualifier can added to the assessment result. This provides a mechanism for those areas to be potentially considered in a separate process more appropriate to the sensitivities of the affected community.

Value recognition

Sufficiency of information

To facilitate a credible assessment, information must be available and the sources made transparent. Where information is not available or sufficient to permit a reliable assessment this must be flagged to ensure transparency and comparability of results. This applies to any of the assessment criteria. A 'data deficient' qualifier (DD) may be used to denote situations where the current information is insufficient for a reliable assessment. In general, the degree to which the planning approach enables the future assessment of 'data deficient' and 'not assessed' areas is an important matter for consideration.

Shared value basis

The recognition of values is on a shared value basis since this is the best representation of the wider community perspective. If there are divergent views on the value of an assessment criterion, the assessment result should reflect this. Suitable means for addressing this criterion in practice include taking the average of values assigned by individual assessors, or through use of a consensus-building expert panel approach. To address information sufficiency aspects, the number of assessors required for a reliable assessment is a further consideration. The minimum number is open to interpretation and may be of particular importance for the assessment of lesser known breaks. In these cases local knowledge is likely to be the best information source and could be harnessed through a crowd sourcing approach.

Significance threshold

The significance threshold is the mid-point of a Likert scale as applied to rate the significance criteria.

Following the assessment framework, all surf breaks are rating in terms of the perceived importance of the location for each of the significance criteria on a regional basis. Using the recommended 5-point scale, a surf break will qualify for regional significance where score of >3 is attained for any one of the significance criteria.

Recommended assessment scale

For this assessment context, a 5-point scale is considered to be the most appropriate in striking a balance between simplicity and consistency of application (Table 5).

Alternatives include a 3-point scale as discussed by Hughey (2013), or a 10 point scale as used in other surf break studies and rating systems in New Zealand (e.g. Coombes & Scarfe, 2010; Morse & Brunskill, 2004; Peryman, 2011a, 2011b; Northland Regional Council, 2016b). The 3-point scale is considered insufficient for informing evaluation against the proposed criteria and significance threshold. A higher number of divisions (e.g. a seven or 10 point scale) may complicate the assessment process and analysis of results. The 5-point scale is considered sufficiently detailed to capture the essential information including the calculation of summary statistics where surveys or similar tools are used to collect individual responses. Within this approach, where the cut-off is applied for surf breaks of different value or importance to the region will depend on the particular management objectives and planning approaches developed by the Council in collaboration with surfing stakeholders and the wider community.

Table 5. Assessment scale for regional significance assessment.

Score	Importance of the surf break for the attribute on a regional basis
1	very low
2	low
3	moderate
4	high
5	very high

Following the same approach used for RiVAS assessments some attributes may have no importance at a given location and could be scored a zero (Hughey, 2013). In practice this could be incorporated by requiring assessors to score only the attributes that have some level of importance from their perspective, with all attributes not scored being treated as zeros.

4.2.2 Significance criteria

Ten assessment criteria are recommended. These are summarised in an attribute typology (Table 6). Primary attributes are the recommended attributes for regional significance assessment. Secondary attributes are additional aspects of surf breaks that contribute to the primary attributes. For the latter, examples only are given and others could be recognised.

Variations of the primary attributes may also be considered. This could be useful in different assessment contexts, such as where there is evidence that particular attributes are important to the regional significance concept and deserve recognition at the primary level. As such this typology has been developed for the Taranaki policy context based on the available information. See section 5.2 for further discussion on development of these criteria and consideration of alternatives.

Table 6. Attribute typology for significance assessment.

Primary attributes	**Explanation**	**Secondary attributes (examples only)**
Rarity	Recognises the rarity of the type of surf break, in the sense of being uncommon. 'Type' refers to physical characteristics of the waves produced by different surf breaks and this may be distinguished in various ways. To apply this criterion it is recommended that the types to be considered are first defined by a classification that addresses the characteristics thought to be important. An example classification is provided in Appendix 1. This recognises both types of surf breaks that are suitable for different activities (include both skill level considerations and various recreational pursuits) and geomorphic distinctions that may be used to categorise surf breaks such as those described by Mead (2000), Mead & Black (2001b) and Hutt et al. (2001). At the primary attribute level the rarity criterion describes whether the surf break is a rare type for any of the types considered.	Surf break types as defined by suitability for different activities, e.g. beginner surfers, big wave surfing, body-boarding, wind assisted wave riding etc. Surf break types as defined by geomorphic characteristics, e.g. beach break, reef break, point break, river bar break.
Wave quality	Recognises the quality of the waves at surf break for the wave riding activities practiced there. Assessed on the basis of the wave quality under near optimum conditions e.g. as used by Morse & Brunskill (2004).	- length of ride - wave shape characteristics - wave power characteristics - wave height range - performance aspects under optimum conditions
Wave consistency	Recognises the consistency of the surf break for producing surfable waves.	- surfable days / year or season - consistency of good quality surf
Uniqueness of the surf break in relation to favourable conditions	Recognises the importance of the location to the regional surf break resource in conditions when other breaks are not favourable	- relationships with other surf breaks in different weather & swell conditions
Naturalness	Recognises the degree to which the surf break is free from modifications to the natural environment which may be influenced by factors such as the presence of particular ecosystems, vegetation types, or wildlife, and absence of man-made structures and pollutants.	- proximity and design of structures or other modifications to the natural environment - occurrence of particular ecosystems, vegetation types, or wildlife - condition and legibility of landforms and/or formative coastal processes - water quality parameters / pollutants e.g. plastics - sounds and smells

Wilderness values	The key distinction from naturalness relates to wilderness being a human construction associated with the experience of wild nature. As applied to surf breaks it is primarily associated with the environmental context e.g. the level of remoteness or exposure to the elements the location offers.	- perception of wildness, as influenced by level of exposure to the elements, difficulty of human access or commitment required to reach the location
Amenity values	Recognises the importance of amenity values associated with the surf break. These are aspects that contribute to the pleasantness of the location. These aspects may be important to a range of associations with the surf break that do not necessarily involve wave riding. They include aesthetic aspects the influence the perception of beauty or memorability of the location, and others such as the ease of access and the presence of facilities.	- presence of services and facilities - proximity to home - scenic qualities and other aesthetics - memorability
Level of use	Recognises the popularity of the surf break in terms of the frequency of use and number of people who derive value from it.	- frequency of use - diversity of uses or associations with the surf break - numbers of people involved
Economic value to the community	Recognises the level of economic importance of the surf break for local communities and/or the wider regional community	- Promotional value for visitors to the local area or region, including as a component of international appeal - Economic activity associated with visitation modes - Contributions associated with events or contest venues
Historic, heritage, and cultural associations	Recognises the contribution of the surf break to historical and heritage values, including the importance of the site for historical events and the development of coastal and surf riding culture, and specific associations important to tangata whenua	Characteristics in relation to: - importance of the site for historical events - heritage aspects of the local or regional coastal culture e.g. long standing boardriding or surf lifesaving clubs - importance to contemporary coastal culture - contribution to the local sense of place - tangata whenua values associated with the surf break

4.3 Information sources

Suitable information sources for assessing the primary attributes include the perspectives of community members familiar with the resource and use of expert panel approaches. In some cases quantification of the contributing components (i.e. secondary attributes) could assist the assessment of primary attributes following either of the above approaches. To ensure that multiple perspectives are included community engagement is particularly important. In most cases there is a lack of existing information that could be used to characterise New Zealand surf breaks in terms of these attributes and yet is it important to avoid bias towards particular activities or preferences. Documented information on surf breaks is mostly found in guidebooks such as Morse & Brunskill (2004) and Rainger (2011) or online sources such as Wannasurf (www.wannasurf.org). However the aforementioned sources are not comprehensive in the sense of characterising all of the attributes important to surf break management since they are designed to cater for particular user groups. In addition, the original information sources are not always stated or available creating challenges for verification. To address this, local knowledge is currently the most authoritative source of information on New Zealand surf breaks for the purposes of regional significance assessment. A comprehensive community survey to gather information on the surf breaks in the region is recommended as the best approach to address current information gaps and underpin further assessments.

5. Discussion

5.1 Development of significance criteria

Northland Regional Council (2016b) suggested that the purpose of identifying national or regionally significant resources was to support the provision of levels of protection that may not be justifiable if it was applied across the whole resource. From a technical standpoint, many places have waves that could be ridden if a person paddled out with suitable surf-riding equipment and was so inclined. All such coastal areas and their swell corridors would meet the definition of surf break under the NZCPS. A key reason relates to the policy approach being place-based in the sense that surf breaks are discrete geospatial entities. The NZCPS approach does not discriminate against, or favour, any particular activity for which these areas are valued (Rennie et al., 2014) and instead defines them on the basis of producing surfable waves.

For the above reasons many parts of the New Zealand coastline are within the scope of matters to be considered when managing surf breaks under the NZCPS and it is important to note that all of the examples of the regional significance to date (as described in section 3) differ from the concept of identifying all of the surf breaks in a region. Although assessment criteria may not have been formally stated, it is considered that selection criteria have implicitly been applied to identify the regionally significant surf breaks, for example on the basis of the location being reasonably well known and recognised as a venue for wave riding. The current need is for more rigour and transparency around the basis on which regional significance is defined. Weaknesses of the 'creating a list' approach include a lack of transparency on what has been considered and why, and the likelihood that some wave riding activities or other associations with surf breaks have not been adequately considered, despite that they involve areas that meet the definition of surf break. Contributing factors may include limitations in the extent, or focus of consultation with the community, the composition and knowledge base of expert panels where used, and since the locations covered in the Wavetrack guide are biased towards board riding pursuits as the means of riding waves. A more comprehensive approach would include attention to the full range of community associations with surf breaks.

5.2 Recommended criteria

The criteria identified have been selected on the basis of evidence that links the attribute to values provided by surf breaks. Attributes found in the literature were evaluated and discarded where there was no evidence for their contribution to aspects of surf breaks valued by the community, or where they were adequately accounted for within the definition of other attributes. The result is an attribute typology that reflects a holistic and policy-relevant approach to the assessment of surf breaks in the New Zealand. The following sections discuss key aspects of the recommended significance criteria.

Rarity of surf break types

Rarity of break type was found to be the most inconsistently applied topic in the literature reviewed despite that it is undoubtedly important. As discussed by Coombes & Scarfe (2010), the importance of rarity relates to distinctive wave types. Surf breaks suited to different user groups may be scarce resources and it is appropriate that their importance is specifically recognised. The policy context indicates that is appropriate to consider wave types that are valued by all sectors of the community at the primary attribute level, consistent with an effects-based and non-partisan approach to managing surf breaks. Important distinctions may relate to waves suitable for different surfing skill levels (Hutt et al., 2001; Mead & Black, 2001a, 2001b) and also to different wave riding activities that may utilise a wide range a craft (Skellern et al., 2013)

Oceanographic and geomorphic distinctions between surf breaks appear to be less relevant to the current policy context. However, it could be argued that they are important to protecting surf breaks as finite resources and these aspects are certainly important for other attributes. For example, elements such as sea bed morphology influences wave shape and other aspects of wave quality. The approach applied by Coombes & Scarfe (2010) to derive a 'combined rarity rating' is not supported since it confounds the consideration of skill level with different geomorphic classes of waves whilst not specifically addressing the needs of different user groups. The recommended approach is based on the development of a classification of wave types that acknowledges different user groups and incorporates the concept of skill level within these distinctions where needed.

In practice this requires that the rarity attribute is assessed against a *regional classification of surf break types valued by the community.* It is envisaged that these would be developed with considerable input from the community. For illustrative purposes an example classification is provided in Appendix 1 which could be adapted through consultation. This approach provides a practical basis for identifying different wave types that are valued within a region.

The assessment involves characterising each surf break in terms of these types and rating their importance in comparison to the regional surf break resource (i.e. a score of 1 indicates very low rarity of the type of break and a score of 5 indicates very high rarity). This interpretation is consistent with the concept of less common resources being important due to the scarcity of potential substitutes for the values they support.

Wave quality

High quality waves are a scarce resource. However, the concept of quality can only be defined in light of the uses being considered. The most common perspective considered in wave quality studies is that of high performance short board surfing. However, the concept of performance can be readily applied to a range of wave riding pursuits. Although many surf breaks are likely to be rated similarly in terms of wave quality for different user groups, some may have divergent views on the definition of high quality waves for their chosen activity. For example, a location may be identified by wind surfers as having high wave quality for their purposes. If the same surf break is rated as a low quality wave from other perspectives it is unlikely to meet the significance threshold for the wave quality attribute. Similar considerations may apply to user groups such as learners.

These aspects illustrate the role of the rarity attribute for recognising specific locations important to different user groups. In other respects the most practical basis for assessing wave quality is considered to be the perceived quality under optimum conditions as used in the Wavetrack 'stoke rating' (Morse & Brunskill, 2004). Following the approach of Coombes & Scarfe (2010) and Peryman (2011a), wave quality relative to the regional resource is the appropriate comparative basis.

Wave consistency

The consistency of a surf break in terms of the frequency of surfable waves is widely recognised as an attribute important to community value. Peryman (2011b) recommended an additional attribute related to the consistency of a surf break for delivering high quality waves (Table 1). However this has not been a consideration used elsewhere. Consistency for a variety of user groups as defined above is considered more appropriate for the regional level policy context and also more practical to assess. For example, Australia's National Surfing Reserves programme considers this attribute in relation to surfable days / year.

Uniqueness of the surf break in relation to favourable conditions

This attribute is has been widely recognised as being important to the overall surf break resource of a given area. It recognises that in some conditions, which may be prevailing weather patterns, there may be only a very few surf breaks that are favourable for riding waves. In some case there may be only a single surf break capable of producing good wave riding conditions within a wide radius of a population centre. Examples include Bastion Point in Australia as discussed by Lazarow (2007) and Magnet Bay near

Christchurch. These surf breaks are a scarce and sought after resource in certain weather patterns. They are important to the attractiveness of an area for both locals and visitors to a region due to their influence on the reliability of finding favourable surfing opportunities and practical considerations such as travel times.

Scenic values, aesthetics, and amenity values

There are a number of inter-related components involving these topics, all of which have a solid basis for recognition in policy. Scenic values are considered to be subjective since they depend on the personal perspectives. Therefore, scenery is therefore grouped with other aesthetic considerations since all are related to perceptions of beauty or the appreciation of beauty. Furthermore these aesthetic qualities are grouped with other amenity values in the primary attribute typology. The justification relates to the definition of amenity values under the RMA as being “those natural or physical qualities and characteristics of an area that contribute to people's appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes”. Likewise, aspects such as the presence of facilities or convenience from home may all contribute to this definition. At the primary level of the typology it was considered appropriate to group these within a single class

Naturalness and wilderness values

In comparison to scenic values and other aesthetics the concept of naturalness is considered to have a more objective basis that is not necessarily correlated with people’s perceptions of beauty (s*ensu* Froude et al., 2010). Accordingly, naturalness is identified as a separate environmental attribute that is related to the degree of modification of the site. Intuitively, the concept of wilderness may appear to overlap with naturalness. However, wilderness values refer to experiential qualities associated with the perception of wild. For example the definition of wilderness under the USA’s Wilderness Act includes "...has outstanding opportunities for solitude or a primitive and unconfined type of recreation". Therefore, a location may be a highly natural environment (i.e. largely unmodified) that does not offer a wilderness experience. In addition, locations that are valued for offering a wilderness experience are likely to have very specific management needs. For example they may be valued because of the *difficulty* of access. As with other forms of placed-based resource management (e.g. parks and reserve management) it may be important to protect these values in specific ways to ensure that wilderness experiences remain available.

Level of use

This attribute recognises the popularity of the surf break in terms of the people who derive value from it. It includes aspects such as the number of people, and frequency and duration of use. The attribute is not necessarily correlated with wave consistency and is influenced by a range of factors that include proximity to population centres and whether the location suits a range of uses which may be sought after by different groups. The concept of level of use is applied to the surf break as discrete area and is therefore inclusive of multiple uses and includes those derive their ‘use’ value from a distance. It would be possible to measure levels of use in term of each user group but the total level of use is considered the most appropriate consideration at the primary level of the typology.

Economic importance

As described in Peryman & Orchard (2013), there are a range of commercial activities and economic effects associated with New Zealand surf breaks. They include surf-related tourism and surfing industry activities, the contribution of surfing to healthy lifestyles with associated economic benefits in terms of avoided health care costs, the extensive use of surf related branding in marketing and promotional activities, and contribution of surf breaks to the appeal of locations for settlement. In general, economic considerations have received little attention in New Zealand surf break management studies to date. Peryman (2011b) also found that the economic aspects of surf breaks were perceived as being of lesser importance than other management considerations in the Gisborne region. NRC (2016c) identified a connection between desirable qualities of surf breaks with associated influences on the local culture that include economic activity. Despite this, economic activity associated with surfing in Northland was thought be difficult to attribute to a particular surf break (NRC, 2016c). However, this contrasts with the results of

overseas studies that have quantified economic activity attributable to individual surf breaks (e.g. Nelsen et al., 2007; Murphy & Bernal, 2008) and the localities where several surf breaks are found (e.g. Lazarow, 2008).

More generally, the importance of considering the economic value of surf breaks to the community is strongly supported in the research literature (Lazarow et al., 2009; Butt, 2010; Nelsen et al., 2013). It therefore seems clear that the economic benefits associated with surf breaks may be considerable despite that quantification remains difficult. Therefore a rating of economic importance of a surf break is considered to be appropriate as a primary attribute of value to the community. Importance to particular local economies and the wider regional economy is the appropriate scope for assessment.

Historic, heritage, and cultural associations

This criterion relates to whether the break is a key aspect of the local sense of place, identity or development of local culture. It may include spiritual aspects and in the New Zealand context includes aspects of importance to tangata whenua. Heritage value is a contributing aspect, such as where the break been the location for important historical events (e.g. competitions) or the hub for a particular style of wave riding, equipment development, or other cultural interaction with surf (e.g. the establishment of surf lifesaving clubs). Previous research has confirmed that these aspects are important characteristics of surf breaks for New Zealand communities (Peryman & Orchard, 2013) and in Australia they are a key consideration for the assessment of National Surfing Reserve proposals (Short & Farmer, 2012).

Other potential criteria

Size and diversity of the surf break area
Coombes & Scarfe (2010) identified size of the break area in their list of criteria for assessing surf breaks in the Auckland region. This was based on whether the break can accommodate many surfers at once with larger breaks receiving a higher rating than smaller breaks. A similar concept was adopted by Peryman (2011b) who identified 'line-up accommodation' as an assessment criterion, referring to how many recreational users the break can accommodate at once. In this typology, these characteristics are considered to be contributing factors to the 'level of use' criterion and for that reason adequately accounted for sense at the primary attribute level. Peryman (2011a) and NRC (2016c) also identified diversity of the surf break area as a criterion for consideration, referring to whether a surf break offers several surfable areas at any one time. In this study, the diversity concept was found to have no direct basis in policy as an important consideration at the scale of an individual surf break. This concept is considered to be adequately addressed as a component of the 'level of use' in combination with the 'rarity' criterion in which the focus is on recognising locations important for specific activities on a regional basis.

Vulnerability
NRC (2016c) identified an attribute called 'physical robustness / fragility' that was included to reflect concerns of the expert panel regarding risks to certain types of breaks that were perceived as being more sensitive to degradation. In the assessment, river bar breaks were assumed to be a more sensitive wave type due to their reliance on sediment dynamics that were perceived to be vulnerable to undesirable change (NRC, 2016c). In this study the concept of sensitivity was found to be more generally applicable to a wide range of threat types that may include disruptions to coastal processes but also aspects such as water quality, access issues, visual and other aesthetic impacts, and longer term processes such as sea level rise. The policy context for defining significance was found to be largely concerned with identifying the attributes of surf breaks that underpin community values. Moreover, characterisation of the specific values of a given location is in many ways a pre-requisite for comprehensive risk assessment. Therefore it is considered that the best approach is to decouple sensitivity and risk considerations from the process of identifying and characterising valued locations. This approach is consistent with recommendations of Scarfe et al. (2009b), Skellern et al. (2013) and others who have pointed out the urgent need for proper characterisation of the current surf break resource together with the establishment of baseline measurements as are needed to facilitate the assessment of impacts and risk.

5.3 Primary versus secondary attributes

For all of the primary attributes, there are additional contributing aspects. It is open to debate whether these require explicit consideration in relation to the concept of regional significance. In the proposed typology, primary attributes describe a property of the natural feature that underpins a cohesive and defensible source of value for the community. Secondary attributes are further characteristics of the feature or environmental context that are components of the primary attributes. They may contribute to primary attributes (e.g. aspects of seabed morphology or swell patterns that contribute to wave quality, or presence of vegetation types and wildlife contributing to naturalness), or may be responsible for the formation or maintenance of other attributes (e.g. coastal processes at rivermouths). The overall approach is considered appropriate for the purposes of a regional significance assessment where the focus is a smaller set of policy relevant criteria. The primary attributes are designed to be complementary and comprehensive in their ability to accommodate a wide range of knowledge sources and perspectives on the value of surf breaks.

It is noted that for the purposes of establishing baseline condition measurements and monitoring, decisions on the level of detail required are very important. This will generally require a greater level of detail than provided by the primary attributes in this typology. This arises because of the need to understand and monitor the factors responsible for the primary attributes valued by the community. This point has been well made by other researchers in connection with fundamental need to understand the oceanographic parameters responsible for high performance waves (ASR Ltd, 2011; Benedet et al., 2007; Mead & Black 2001a, 2001b; Hutt et al., 2001; McComb, 2016; Scarfe et al., 2009a, 2009b). The same reasoning applies to all of the primary attributes that underpin community values at a given surf break. All are important considerations for baseline and impact assessments, and the design of monitoring programmes.

5.4 Significance threshold

An argument was presented in Northland Regional Council (2016c) around the common use of thresholds to identify areas of regional significance for various resources, using examples such as the identification of Regionally Significant Wetlands in Otago and Regionally Significant landscapes in Canterbury. This was related to the following perspective:

> *"A threshold for regional significance should be set and this process should be used to show the elevated importance of this list of surf breaks of resources because they are exceptional examples of their type within a region" (Northland Regional Council, 2016c).*

The findings of this study do not support the view that the concept of regional significance as applied to surf breaks requires those areas to be "exceptional examples of their type within a region". Other terms, such as "outstanding" are typically employed in the RMA and related policy where this is the desired focus. Additional weaknesses of the proposed approach include failure to account for some attributes that are relevant to policy and previously shown to be important to the values of surf breaks, and the ability for some aspects to be weighted more highly than others without a policy-relevant and objective basis for doing so.

In general, the weighted sum model for Multi-Criteria Assessment (MCA) as used in Northland (2016c) and described in Hughey & Baker (2010) and Hughey (2013) provides an example of a criteria-based assessment system. Conceptual thresholds may readily be applied, such as through ranking the summed scores and applying numerical cut-offs. This process of ranking and grouping can be useful for tasks such

as prioritising management effort where the investment available is limited. For that purpose, the attributes selected for rating could be designed to measure aspects of the management needs. However, the policy context does not suggest that a summed score of ratings against a set of surf break attributes would be an appropriate basis for defining a threshold for regional significance. Rather, it suggests that areas should be identified that are important to the achievement of relevant policy objectives and there are several to be considered. Identifying areas based on a summed score runs the risk of obscuring areas that may be important for any one of these objectives.

Alternative MCA methodologies include specifying thresholds under any one or more individual criteria as proposed here. This is a better match for the surf break policy context. Examples as applied to other natural resources include the identification of ecologically significant areas under RMA s6(c). For this purpose, councils have some flexibility in specifying the assessment criteria to be used and there has been vigorous debate around which criteria should be applied and whether a standardised set is necessary (e.g. Walker et al., 2008; Davis et al., 2016). Once the criteria have been determined, the methodology involves the assessment of candidate areas against all the criteria, each of which has a threshold. Areas qualifying under any one criterion are deemed significant.

5.5 Application to the Taranaki Coastal Plan

5.5.1 Mapping and identification of surf breaks

In the Taranaki context there are large sections of the coastline that meet the definition of a surf break. There are also many locations where people are known to have associations with surf breaks that include a range of wave riding activities. Review of the Coastal Plan provides an excellent opportunity to recognise the surf break resources that provide benefits to the community. In the process to date, the Council has prepared a Draft Coastal Plan that provides for the protection of nationally and regionally significant surf breaks as identified in a schedule to the plan (currently Schedule 4). The draft plan also identifies a stretch of surf breaks from Kaihihi Road to Cape Road as a 'Nationally Significant Surfing Area' (TRC, 2016a, 2016b). This area is notable for a high density of quality surf breaks including three of the region's four nationally significant surf breaks, most of which are associated with reef systems formed by finger-like lahar deposits and volcanic debris (McComb, 2016). There are four nationally significant surf breaks in the region as identified in Schedule 1 of the NZCPS (DOC, 2010). These breaks are Waiwhakaiho, Stent Road, Backdoor Stent and Farmhouse Stent. No mechanism exists for affording 'national significance' status to any further surf breaks at the current time.

The four breaks of national significance and a further 76 surf breaks were identified as regionally significant in the RPS (TRC, 2010). The same list of 80 breaks is currently identified in Schedule 4 of the Draft Coastal Plan. However, as part of the plan review process the Council has identified that some of the locations of the 80 surf breaks mapped in the RPS are not particularly accurate (N. West, pers. comm.) To address the above, focus groups with local surfers were convened to confirm the locations and also add any additional surf breaks to create a comprehensive inventory of surf breaks in the Taranaki region.

In general, mapping is not a prerequisite for regional significance assessment. However, following identification the next step involves the development of planning methods to achieve the relevant policy objectives. The identification of spatial boundaries is undoubtedly a potential method for improving plan effectiveness by providing information to alert plan users to the location of the values to be protected. However if detailed mapping is envisaged this could also have counterproductive aspects. In particular, many local surfers may be hesitant to disclose the location or details of a regionally significant surf break in the knowledge that it will be mapped, thereby reducing plan effectiveness for purpose of surf break protection.

The following considerations may be helpful in developing an appropriate approach to the mapping and identification of surf breaks:

i) it may be appropriate to develop a 'locally sensitive break' (LSB) mechanism as a tool to support information sharing. An agreed approach to the treatment of information on LSBs could provide a mechanism similar to the 'silent file' approach developed by Ngāi Tahu (Tau et al., 1990). With regards to mapping, the approach could involve the suppression of LSBs from maps, or the inclusion of fuzzy data to indicate the presence of a valued location within a certain radius.

ii) in general, point data may be ineffective at identifying the location of surf break resources unless an additional tool is provided to clarify the spatial boundaries. This could be achieved by way of a descriptive schedule as an alternative to the mapping of polygons. In any event the boundaries of the area of significance should be clear to facilitate the implementation of protection methods, especially those reliant on impact assessments, and also to support the design of appropriate coastal developments in the vicinity. It is important to avoid unnecessary adversarial consequences that could result if the relevant boundaries become the subject of debate.

iii) the mapping of swell corridors is not essential to an effective planning approach provided that an adequate description of the swell corridor concept is provided directly within the plan. This could be achieved by adopting the NZCPS definition of surf break within the plan. Thereby, all activities seaward of identified surf breaks are required to assess effects in relation to the swell corridor component of each break. The most important factor is that the locations to be protected can be readily identified by resource users and managers. Where an activity is proposed that could have effects on a swell corridor, techniques such as numerical modelling are useful for predicting potential impacts such as the alteration of swell patterns and the number of breaks potentially affected. This is also an appropriate context for more detailed characterisation of swell corridors and their properties since the specific attributes that are valued at the surf breaks can be considered in the choice of the modelling approach and outputs. In addition, the establishment of baseline measurements for monitoring is another setting in which the investigation of swell patterns is required to characterise the physical components of important attributes such as wave quality (Hutt et al., 2001; McComb, 2016; Mead & Black, 2001a, 2001b; Scarfe, 2008; Scarfe et al., 2009a, 2009b). In general, there is a lack of documentation to describe the current values and condition of New Zealand's surf break resources as is needed to facilitate monitoring. A combination of community data, field measurements, and numerical modelling can assist in addressing these needs and should be applied to all of the attributes that underpin important values.

5.5.2 Application of regional significance criteria within the Coastal Plan

The following approaches are options for utilising the criteria to determine the surf breaks of regional significance in the context of the Coastal Plan:

i) *Conduct a surf break assessment to determine surf breaks of regional significance for inclusion in the plan.*
This method offers a direct mechanism to assist future decision making (e.g. on development proposals) by providing information on surf breaks directly to the community. In addition to regional significance status, information on the attributes and values of surf breaks will support processes such as resource consent applications and impact assessments. Arguably, this is the most effective method for ensuring robust and consistent effects assessments if these are a feature of the planning approach. However, it is important that a sufficient timeline is allocated to compile information and deal with information gaps. Inclusive community-based approaches are recommended

ii) *Provide information on the criteria to be considered when assessing values of, and effects on surf breaks.*
This method is complementary to the above and could be useful for addressing the situation where a surf break has not been fully assessed under the above process due to being unknown, an LSB, or data deficient. It would operate by specifying the criteria to be used when assessing surf breaks for regional significance. This may present both an efficient and effective solution for Council at the current time since it enables consistent assessment to be conducted by other parties, provided that the criteria have legal effect. This is best achieved by their inclusion directly within the plan.

Either of the above method could be supported by the content of the plan, by separate guidance documents, or a combination thereof.

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Appendix 1. Components of a regional classification of surf break types for assessment of the rarity criterion.

A. Community sectors with specific requirements or preferences for particular wave types:

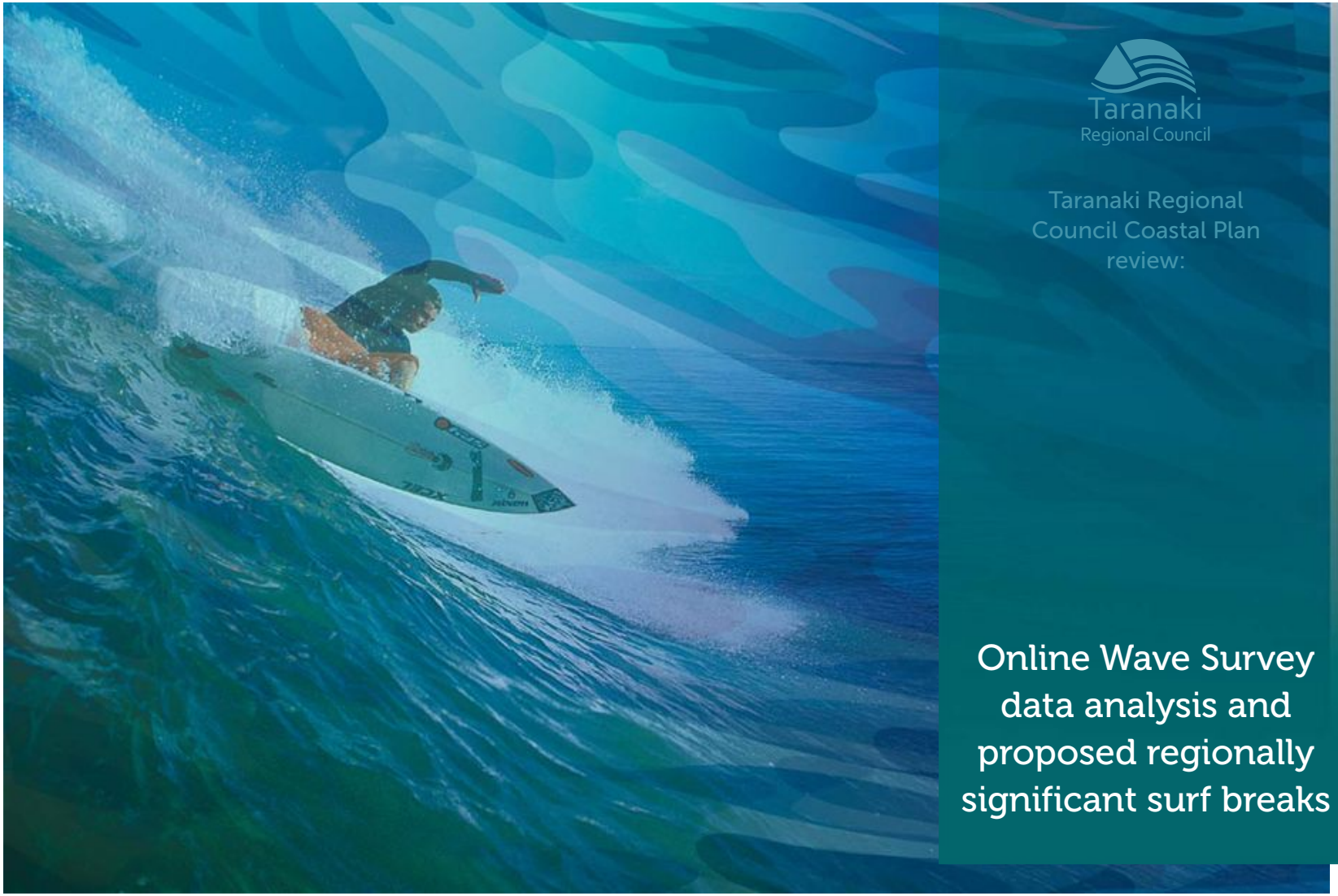
- beginner surfers
- big wave surfers
- short board / high performance surfing
- long boarding and stand-up paddle
- body boarding
- kayak surfing
- wind powered surfing
- body surfers / swimming in waves
- non-use interests e.g. photographers, spectators

B. Surf break types distinguishable by geomorphology (*sensu* Mead, 2000; Mead & Black 2001b) that occur in Taranaki:

- Beach breaks
- Point breaks
- Rocky reef breaks
- Rock ledges / slabs
- River bar breaks

Classes identified in part A reflect surf break types important to different community sectors. Classes identified in part B are defined according to physical characteristics of the seabed upon which the waves break. Both aspects may be regarded as relevant to the management of surf breaks as unique natural features. Although the relative importance of each is open to debate it is recommended that a combination (and potentially all) of the above categories are recognised for assessment of the rarity criterion. It is also noted that although some of the above community sectors may identify the same surf break(s) as being important waves types for their activities this is best established as an outcome of the rarity assessment rather than an *a priori* assumption.

In designing the assessment the key step is to identify community sectors that may value wave types differently. However, it is important to limit the classes recognised to keep the assessment practical and since the examples shown in parts A and B are both amenable to further subdivision. The above list provides an example of readily identifiable socio-ecological associations and geomorphic distinctions that may be a useful starting point when classifying surf break types for application of the rarity criterion.



Taranaki
Regional Council

Taranaki Regional Council Coastal Plan review:

Online Wave Survey data analysis and proposed regionally significant surf breaks

Taranaki
Regional Council

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Contents

1 Purpose

The purpose of this report is to:

- overview the methodology used to develop and undertake the online wave survey, 2017;
- summarise the community feedback received from the survey and the analysis undertaken to inform the development of a list of regionally significant surf breaks; and
- document the list of regionally significant surf breaks to be included in the proposed Coastal Plan for Taranaki for community consultation.

This report has been prepared by Taranaki Regional Council (Council) staff and will inform the review of the *Regional Coastal Plan for Taranaki, 1997* and form part of the section 32 analysis for *the Proposed Coastal Plan for Taranaki*.

The methodology outlined in *Orchard,2017* and the information collected from the Wave Survey informed development of a list of regionally significant surf breaks.

2 Background

The Taranaki coastline is a rugged and special environment that is prized for the recreational opportunities it offers. The coastline is unique and second to none for its numerous high quality surf breaks. The following paragraph from *McComb, 2016*[1] outlines why the Taranaki region is so unique.

'The hemispheric volcanic apron allows favourable wind conditions to be found under a range of synoptic weather patterns, and there is good exposure to the Sothern Ocean swells as well as waves generated in the Tasman Sea. This variety in coastal orientation is coupled with a nearshore marine environment that is interspersed with rocky reefs formed by volcanic debris and lahar agglomerates. The result is a province with a high concentration of quality surf breaks.'

Regionally significant surf breaks included in the *draft Coastal Plan for Taranaki, 2016*, (draft Plan) were those identified as 'high quality' or 'high value' in *the Regional Policy Statement for Taranaki, 2010 (*Regional Policy Statement*)*. These surf breaks were identified by local surfers and all known surf breaks were added to the Regional Policy Statement as no process for determining regional significance was developed at this time.

As part of the development of the draft Plan and prior to finalising surf break related policy, Dr McComb prepared a report for the Taranaki Regional Council (the Council) looking at the types of activities that may directly or indirectly have an impact on surf breaks, *Taranaki Surf Breaks of National Significance, McComb, 2016.* One of the recommendations from this report was that workshops be held to confirm the location and discuss the unique aspects of the regionally significant surf breaks.

Several workshops and one-on-one meetings with local surfers were subsequently undertaken. As well as confirming the location of the 80 breaks already mapped, these meetings identified an additional 60 surf breaks bringing the total number of surf breaks identified by name and mapped by Council to 140.

2.1 Feedback on the draft Plan

Feedback on regionally significant surf breaks was received from a number of submitters as part of the draft Plan consultation. Some respondents suggested additional surf breaks they considered should be added as regionally significant while others considered that surf breaks included did not warrant inclusion and submitters questioned what criteria was used to determine whether a surf break was regionally significant.

2.2 Regional significance criteria

The draft Plan provides regionally significant surf breaks with a very high level of protection and an increased level of protection compared with those that would be considered 'locally significant'. Because of this high level of protection certain types of activities would be restricted in the vicinity of these breaks. As such, it is important to ensure that those breaks identified as regionally significant do in fact warrant this classification and level of protection.

Given the need to ensure that the correct surf breaks are identified further work was considered necessary to develop a robust methodology for identifying regionally significant surf breaks. This work would address

[1] *Taranaki Surf Breaks of National Significance, McComb, 2016.*

feedback received on the draft coastal Plan questioning the criteria used to determine regional significance and allow the 60 additional surf breaks to be assessed and incorporated into the policy framework.

Consultant Shane Orchard was commissioned to prepare a report identifying criteria for determining regional significance, *Regional significance criteria for the assessment of surf breaks*, *Orchard, 2017*. This report identified 10 attributes that contribute to a surf break being considered important.

In order to assess the attributes and relative merits of each of the 140 identified surf breaks information needed to be gathered on each break. Council considered it essential that the community as a whole was involved with this process and given the opportunity to inform Council on which surf breaks were important and why. This information, along with the consultant's report, could then be used to inform the development of a revised list of regionally significant surf breaks which would be included in the *Proposed Coastal Plan for Taranaki* for further consultation with the community.

3 Regional Significance

In a Taranaki Regional Council planning context 'regional significance' represents those values or areas that have an elevated status compared to other examples and are considered superior in Taranaki. Regionally significant examples are those that sit well above average and are important or special at a regional rather than local level.

Examples of regionally significant areas recognised and protected through Council plans and strategies include Key Native Ecosystems, which are regionally significant ecosystems, regionally significant wetlands and regionally significant surf breaks.

Identification of regional significance allows Council to apply higher levels of regulatory protection and also target funding and work programmes towards maintaining and enhancing values in these more important areas. This makes practical sense from a resource management point of view by recognising that not all areas warrant the same degree of protection and that there are not unlimited resources that can be applied everywhere.

The proposed surf break policy for inclusion in the *Proposed Coastal Plan for Taranaki* recognises and protects **all** surf breaks but applies a very high level of protection to regionally significant surf breaks, as shown below. The high level of protection proposed for surf breaks is warranted given Taranaki is a highly regarded area nationally and internationally for surfing and on the basis that these regionally significant breaks are superior examples within our region.

Policy 18: Surf breaks and Significant Surfing Area
Protect surf breaks and their use and enjoyment from the adverse effects of other activities by:

(a) *avoiding adverse effects on:*
  (i) *all **nationally significant surf breaks** as identified in Schedule 4; and*
  (ii) *all surf breaks within the designated **Significant Surfing Area** as identified in Schedule 4;*

(b) *seeking to avoid adverse effects on all **regionally significant surf breaks**, identified in Schedule 4, that are outside of the Significant Surfing Area;*

(c) *avoiding, remedying or mitigating adverse effects on all **locally significant surf breaks** listed in Schedule 4;*

(d) *within the Significant Surfing Area seeking to avoiding adverse effects on seascape, including development which would have an adverse effect on the remote feel of the area;*

(e) *in managing adverse effects in accordance with clauses (a), (b) and (c), having regard to:*
  (i) *effects on the quality, uniqueness, rarity or consistency of the surf break by considering the extent to which the activity may: change or interrupt coastal sediment dynamics; change or interrupt swell within the swell corridor including through the reflection, refraction, absorption or diffraction of wave energy; or change the morphology of the foreshore or seabed; and*
  (ii) *effects on other important values, attributes and qualities of surf breaks.*

4 Survey methodology

An online survey was chosen as the most appropriate method for obtaining community feedback on surf breaks because this type of survey can be easily and widely distributed, provides easy access, and allows participants to provide feedback at their convenience.

The survey was developed in-house by Council staff, working with the consultant, with questions being based around the 10 attributes identified as being important for surf breaks in *Orchard, 2017*. These attributes are: rarity (how common), wave quality, wave consistency, wave uniqueness, wilderness, naturalness, amenity, level of use, economic value and historic and cultural value. Further explanation of these attributes is included as Appendix 1. Basing the questions around these attributes allowed the information gathered to be easily applied to the regional significance methodology included within this report.

4.1 Survey development

The survey was designed using Qualtrics survey software. A draft version was tested in-house prior to release of the final version.

Respondents were asked to choose all of the surf breaks that were important to them from a list of 140 named and mapped surf breaks identified by Council. There was also the opportunity to identify additional breaks not listed by contacting the Council (of note, no additional surf breaks were identified through this exercise).

The survey asked respondents to score each selected surf break on a five point scale for each of the 10 attributes, with 1 being very low value and 5 being very high value. The final survey is attached as Appendix 2.

4.2 Survey promotion

The survey was widely promoted on the Council's website, through social media, in local newspapers and on Stuff, Surf2Surf and Swellmap websites. Email notification was sent to those who provided feedback on the draft Coastal Plan and to other contacts that might be particularly interested in the survey, such as surfing clubs and surf life saving clubs.

A $400 gift voucher to a surf shop of the winners choice was offered as an incentive to complete the survey. This was won by a local surfer.

5 Survey response and demographics

The survey attracted 338 valid responses between 28/04/17 and 16/07/17. 180 of the 338 respondents (52%) completed the demographics questions in the survey.

Of those who completed the demographic questions 24 respondents, or 12% were from outside the region while 88% were resident within Taranaki.

Over half of these respondents had enjoyed Taranaki surf breaks for more than 20 years and over half of the respondents were aged between 30 to 49 years of age. The high proportion of responses from those who have enjoyed Taranaki surf breaks for many years is pleasing as these respondents would have built up a high level of knowledge over time.

Figure 1: Number of years respondents have enjoyed Taranaki surf breaks

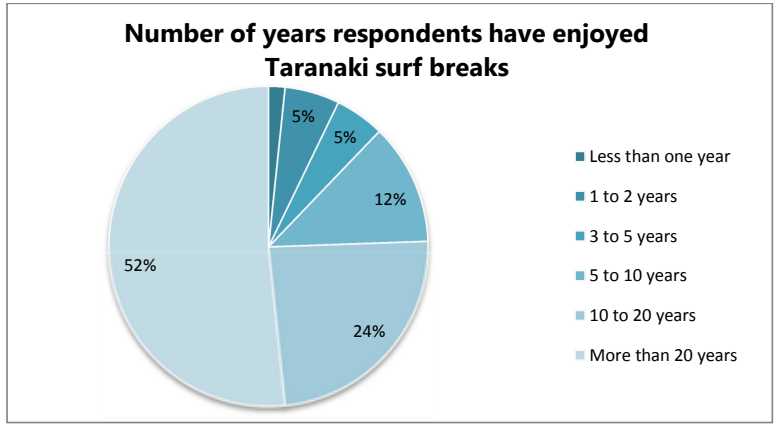
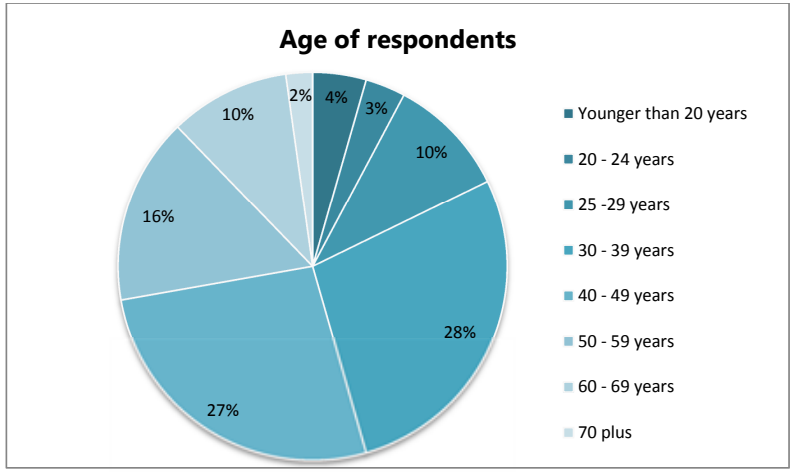
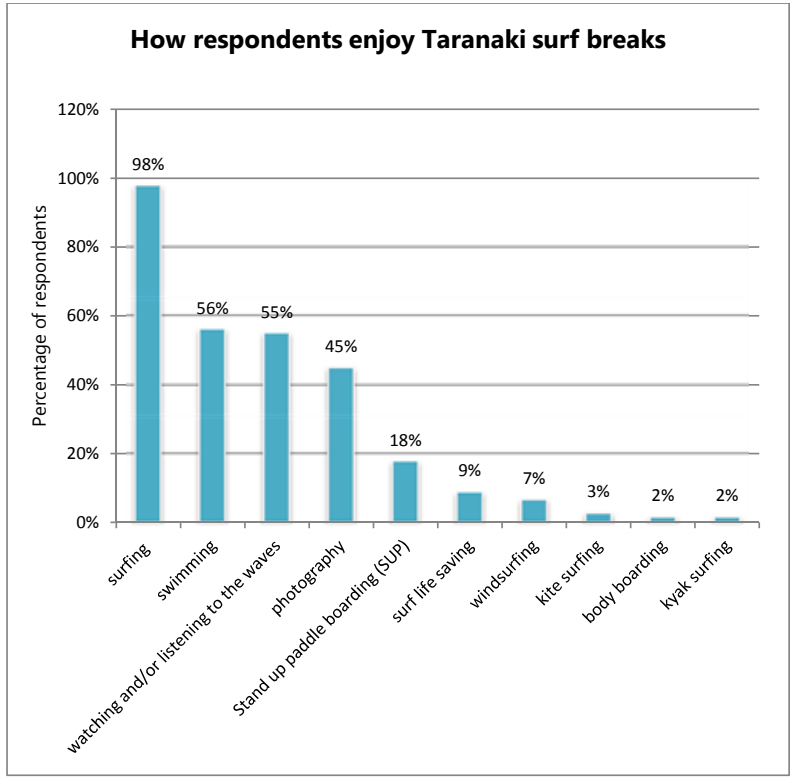


Figure 2: Age of respondents



Respondents indicated that they enjoyed Taranaki surf breaks in many ways as shown in Figure 3 below. Most respondents identified that they enjoyed surf breaks in more than one way. It was pleasing that respondents represented such a broad range of uses as which surf breaks are important may differ depending on use.

Figure 3: How respondents enjoy Taranaki surf breaks



5.1 Number of responses and certainty

The number of responses for each surf break varied between 0 and 110, however only two breaks, Montgomery Beach and Cliffs, had no responses and the average response rate was approximately 24, which was considered a very good response rate overall. The number of responses often varied for each attribute of a surf break as a result of 'don't know' responses.

To achieve a statistically robust view of community opinion more than 300 random responses would be needed for each surf break. This was not achieved and was not anticipated to be achieved, as the survey was targeted to those that had an interest and more knowledge about surf breaks.

Prior to analysing the data it was necessary to determine the number of responses that would be needed to ensure that the data for a surf break could reasonably be considered to represent a community view. The approach taken was to include as many surf breaks as possible in the analysis whilst maintaining some degree of certainty that the results would be representative. The more responses received the greater the likelihood that the data would accurately reflect a community view.

After consideration of these factors a response rate of at least 5 was considered to provide a good balance between ensuring the results were reasonably representative whilst still including as many breaks in the analysis process as possible.

Surf breaks which received less than 5 responses would be considered 'data deficient' and not included any further in the analysis. This doesn't mean these breaks could never be considered regionally significant, just that at this point in time there isn't enough information to make an informed assessment regarding regional significance.

6 Data Analysis

The raw data was exported from the Qualtrics web platform into a excel spreadsheet. Initial sorting of the data was performed to:

- eliminate multiple responses from the same person, in this case the most complete survey was included;
- eliminate any response where no surf breaks had been selected; and
- eliminate any responses where no questions had been answered about selected surf breaks.

At this point 338 valid responses remained.

The data was then separated on an attribute bases for each surf break. Calculations of attribute average were undertaken for nine of the 10 attributes these were wave quality, wave consistency, wave uniqueness, wilderness, naturalness, amenity, level of use, economic value and historic and cultural value.

The rarity attribute was analysed differently as the questions related to use and type both contribute to rarity. In order to determine how rare a break is for a certain use the average for each use was calculated across all of the use data and then the relevant uses selected for each surf break.

In order to determine rarity based on type the consultant assessed that only river bar breaks are considered rare in Taranaki and those surf breaks that are river bar breaks were identified.

7 Regionally significant surf breaks

Information collected from the online Wave Survey and the methodology outlined in the consultant's report *Orchard, 2017* were used to inform the development of a list of regionally significant surf breaks.

The methodology outlined within *Orchard 2017* identified that regional significance could be based around achieving at least one average attribute value of greater than 3. The challenge in creating a list of surf breaks consistent with Council's regional significance policy position (elevated importance, superior examples) was determining how far above 3 is appropriate for the cut-off point.

As part of determining regional significance attributes were also assessed to ascertain whether any should be considered essential. For essential attributes there may be a requirement to achieve a minimum attribute average in order to qualify for regional significance.

7.1 Essential Attributes

Ten attributes were identified in *Orchard, 2017,* as contributing to a surf break being important. These are wave rarity, wave quality, wave consistency, wave uniqueness, wilderness, naturalness, amenity, level of use, economic value and historic and cultural value.

Prior to determining an appropriate cut-off for assessing regional significance an assessment was made to determine whether achieving a minimum attribute average for any particular attribute should be considered essential in order for a surf break to qualify as regionally significant. Given that regional significance within Council's planning context is defined as being a regionally important and superior surf break 'wave quality' stood out as being an essential attribute for regional significance. Without at least average wave quality it was considered that a surf break should not be eligible for regional significance otherwise areas with low, or very low wave quality could theoretically qualify for regional significance based on attributes like amenity or naturalness alone, which is not consistent with identifying superior surf breaks.

7.2 Cut-off point for regional significance

Based on the 5 point scale used for assessing regional significance shown below (*Orchard, 2017*) it could reasonably be expected that regionally significant surf breaks, as per Council's planning context (elevated importance, superior examples), would have an attribute average somewhere around the high category, or a score of 4.0.

Table 1. Assessment scale for regional significance assessment.

Score	**Importance of the surf break for the attribute on a regional basis**
1	very low
2	low
3	moderate
4	high
5	very high

Taking a conservative approach to assessing significance and to ensure that all applicable surf breaks are captured, cut-off levels of at least 3.4, 3.5, 3.6 and 4.0, for at least one attribute average, were applied to the community data collected. This enabled comparison of which surf breaks would be included at differing cut-off levels. Table 2 below summarises the results of

this analysis. Further details are included in the spreadsheets attached as Appendix 3.

As previously discussed only surf breaks with at least 5 responses and an attribute average for wave quality of at least 3.0 were included in this analysis.

For the purposes of the Coastal Plan review, it is recommended that Council adopt a cut-off value of 3.4 for at least one attribute average to produce a list of regionally significant surf breaks. Surf breaks with a mean score of 3.4 or higher are considered to best reflect those surf breaks that have an elevated status and are superior examples when compared to others within the Taranaki region. Eighty-one out of 140 known surf breaks are thereby identified as regionally significant. This is similar in number to the surf breaks currently included in the Regional Policy Statement as 'high quality' or 'high value'.

7.3 Next step

Surf breaks included in the 'preferred option' list of surf breaks produced from using a 3.4 cut-off, shown in Table 2, will be listed and mapped in the *Proposed Coastal Plan for Taranaki* and provided with a very high level of protection. The remainder of the 140 identified surf breaks will be listed as locally significant within the Plan and also protected but to a slightly lesser extent. Those surf breaks that received fewer than 5 responses will be marked with 'DD' to indicate that insufficient data was available to fully assess them for regional significance. Further community consultation on the list of regionally significant surf breaks included in the Plan will be undertaken when the Plan is formally notified.

7.4 Limitations

7.4.1 Targeted survey

The Wave Survey was targeted towards and responded to by those within the community with an interest in surf breaks. As such it cannot be considered to provide a statistically robust indication of the community view.

However, the demographic information collected shows that 76% of those who completed these questions have enjoyed Taranaki surf break for at least 10 years. These respondents have a long term relationship with and knowledge of Taranaki surf breaks and therefore should have provided useful accurate information. The survey was also open to everyone in the community who wanted to participate and is therefore a much more inclusive process than use of an 'expert panel' which has been used in other parts of New Zealand. Consequently the survey provides a good indication of community views.

7.4.2 Number of responses

In taking a conservative approach and including surf breaks with as few as 5 responses in data analysis there is the potential for outliers and surf breaks may appear in the regionally significant list that don't necessarily warrant this status. Inaccuracies in data collected could result from errors in completing the survey (ticking the wrong box) or intentional over-rating of attribute and with so few responses these inaccuracies would not be negated by other data. There will however be the opportunity to remove these outliers, if needed, as part of the further public consultation.

Table 2: Lists of regionally significant surf breaks resulting from applying various cut-off values

Surf Breaks with at least one attribute average of 4.0 or more	Surf Breaks with at least one attribute average of 3.6 or more	Surf Breaks with at least one attribute average of 3.5 or more	Preferred option Surf Breaks with at least one attribute average of 3.4 or more
	Ahu Ahu Multiple Breaks	Ahu Ahu Multiple Breaks	Ahu Ahu Multiple Breaks
Arawhata Road Point	Arawhata Road Point	Arawhata Road Point	Arawhata Road Point
	Arawhata Road Reef	Arawhata Road Reef	Arawhata Road Reef
			Arawhata Road Beach
Back Beach Breaks	Back Beach Breaks	Back Beach Breaks	Back Beach Breaks
	Back of Stent	Back of Stent	Back of Stent
	Bayly Road Breaks	Bayly Road Breaks	Bayly Road Breaks
	Bayly Road North	Bayly Road North	Bayly Road North
	Bell Block Reef	Bell Block Reef	Bell Block Reef
	Belt Road Left	Belt Road Left	Belt Road Left
			Belt Road Right
			Bird's Nest
	BJ's Left	BJ's Left	BJ's Left
		Boat Ramps	Boat Ramps
Bog Works	Bog Works	Bog Works	Bog Works
	Boilers	Boilers	Boilers
		Boulters (Boulder Bay)	Boulters (Boulder Bay)
		Brazils	Brazils
			Breakwater
			Butlers Reef
		Cemetery Point	Cemetery Point
			Crushers
Dread Rock	Dread Rock	Dread Rock	Dread Rock
	East Beach	East Beach	East Beach
East End	East End	East End	East End
		Far Toos (Kina Road North)	Far Toos (Kina Road North)
		Farmhouse	Farmhouse
	Fin Whaka	Fin Whaka	Fin Whaka
Fitzroy Beach	Fitzroy Beach	Fitzroy Beach	Fitzroy Beach
Graveyards	Graveyards	Graveyards	Graveyards
	Greenmeadows	Greenmeadows	Greenmeadows

Surf Breaks with at least one attribute average of 4.0 or more	Surf Breaks with at least one attribute average of 3.6 or more	Surf Breaks with at least one attribute average of 3.5 or more	Preferred option Surf Breaks with at least one attribute average of 3.4 or more
	Greenmeadows Beach	Greenmeadows Beach	Greenmeadows Beach
Inside Fences	Inside Fences	Inside Fences	Inside Fences
	Kaupokanui Beach	Kaupokanui Beach	Kaupokanui Beach
	Kina Point (Kina Road South)	Kina Point (Kina Road South)	Kina Point (Kina Road South)
	Kina Road	Kina Road	Kina Road
	Komene Road Beach	Komene Road Beach	Komene Road Beach
Kumera Patch	Kumera Patch	Kumera Patch	Kumera Patch
	Lupins	Lupins	Lupins
		Manihi Reef	Manihi Reef
Mangahume Reef	Mangahume Reef	Mangahume Reef	Mangahume Reef
Oakura Beach	Oakura Beach	Oakura Beach	Oakura Beach
	Oakura Camp Ground	Oakura Camp Ground	Oakura Camp Ground
Oakura River Mouth	Oakura River Mouth	Oakura River Mouth	Oakura River Mouth
		Oaonui Beach	Oaonui Beach
Oats	Oats	Oats	Oats
	Ohawe Beach	Ohawe Beach	Ohawe Beach
Opunake Reef and Beach	Opunake Reef and Beach	Opunake Reef and Beach	Opunake Reef and Beach
	Patea River Beach	Patea River Beach	Patea River Beach
Patea River North Side	Patea River North Side	Patea River North Side	Patea River North Side
Patea River South Side	Patea River South Side	Patea River South Side	Patea River South Side
	Pohutakawas	Pohutakawas	Pohutakawas
		Puketapu	Puketapu
	Punihos	Punihos	Punihos
	Rahotu Multiple Beach Breaks	Rahotu Multiple Beach Breaks	Rahotu Multiple Beach Breaks
			Rifle Range
Rocky Lefts	Rocky Lefts	Rocky Lefts	Rocky Lefts
Rocky Rights	Rocky Rights	Rocky Rights	Rocky Rights
		Secret Sandy's	Secret Sandy's
	Secrets	Secrets	Secrets
	Sky Williams	Sky Williams	Sky Williams
	Sluggo's	Sluggo's	Sluggo's
South Point	South Point	South Point	South Point

Surf Breaks with at least one attribute average of 4.0 or more	Surf Breaks with at least one attribute average of 3.6 or more	Surf Breaks with at least one attribute average of 3.5 or more	Preferred option Surf Breaks with at least one attribute average of 3.4 or more
	Spot X	Spot X	Spot X
Stent Road	Stent Road	Stent Road	Stent Road
	Stepladders Left and Right	Stepladders Left and Right	Stepladders Left and Right
	Sundays	Sundays	Sundays
		Tai Road	Tai Road
			The Dump (Dumps)
	The Gap (at Fitzroy)	The Gap (at Fitzroy)	The Gap (at Fitzroy)
The Groyne	The Groyne	The Groyne	The Groyne
The Pipe	The Pipe	The Pipe	The Pipe
The Point (Fences)	The Point (Fences)	The Point (Fences)	The Point (Fences)
		The Wedge	The Wedge
	Trap Doors	Trap Doors	Trap Doors
		Waiongana Reef	Waiongana Reef
Waitara Bar	Waitara Bar	Waitara Bar	Waitara Bar
Waiwhakaiho Reef	Waiwhakaiho Reef	Waiwhakaiho Reef	Waiwhakaiho Reef
Waiwhakaiho River Mouth	Waiwhakaiho River Mouth	Waiwhakaiho River Mouth	Waiwhakaiho River Mouth
	Weld Road Breaks	Weld Road Breaks	Weld Road Breaks
		Wind Wand	Wind Wand
Total 26	**Total 59**	**Total 73**	**Total 81**

Surf breaks that are considered 'high quality' or 'high value' in the *Regional Policy Statement for Taranaki, 2010.*

Appendix 1 - Attribute typology for significance assessment, Orchard, 2017

Primary attributes	**Explanation**	**Secondary attributes (examples only)**
Rarity	Recognises the rarity of the type of surf break, in the sense of being uncommon. 'Type' refers to physical characteristics of the waves produced by different surf breaks and this may be distinguished in various ways. To apply this criterion it is recommended that the types to be considered are first defined by a classification that addresses the characteristics thought to be important. An example classification is provided in Appendix 1. This recognises both types of surf breaks that are suitable for different activities (include both skill level considerations and various recreational pursuits) and geomorphic distinctions that may be used to categorise surf breaks such as those described by Mead (2000), Mead & Black (2001b) and Hutt et al. (2001). At the primary attribute level the rarity criterion describes whether the surf break is a rare type for any of the types considered.	Surf break types as defined by suitability for different activities, e.g. beginner surfers, big wave surfing, body-boarding, wind assisted wave riding etc. Surf break types as defined by geomorphic characteristics, e.g. beach break, reef break, point break, river bar break.
Wave quality	Recognises the quality of the waves at surf break for the wave riding activities practiced there. Assessed on the basis of the wave quality under near optimum conditions e.g. as used by Morse & Brunskill (2004).	- length of ride - wave shape characteristics - wave power characteristics - wave height range - performance aspects under optimum conditions
Wave consistency	Recognises the consistency of the surf break for producing surfable waves.	- surfable days / year or season - consistency of good quality surf
Uniqueness of the surf break in relation to favourable conditions	Recognises the importance of the location to the regional surf break resource in conditions when other breaks are not favourable	- relationships with other surf breaks in different weather & swell conditions
Naturalness	Recognises the degree to which the surf break is free from modifications to the natural environment which may be influenced by factors such as the presence of particular ecosystems, vegetation types, or wildlife, and absence of man-made structures and pollutants.	- proximity and design of structures or other modifications to the natural environment - occurrence of particular ecosystems, vegetation types, or wildlife - condition and legibility of landforms and/or formative coastal processes - water quality parameters / pollutants e.g. plastics - sounds and smells
Wilderness	The key distinction from naturalness relates to wilderness being a human construction associated with the experience of wild nature. As applied to surf breaks it is primarily associated with the environmental context e.g. the	- perception of wildness, as influenced by level of exposure to the elements, difficulty of human access

values	level of remoteness or exposure to the elements the location offers.	or commitment required to reach the location
Amenity values	Recognises the importance of amenity values associated with the surf break. These are aspects that contribute to the pleasantness of the location. These aspects may be important to a range of associations with the surf break that do not necessarily involve wave riding. They include aesthetic aspects the influence the perception of beauty or memorability of the location, and others such as the ease of access and the presence of facilities.	- presence of services and facilities - proximity to home - scenic qualities and other aesthetics - memorability
Level of use	Recognises the popularity of the surf break in terms of the frequency of use and number of people who derive value from it.	- frequency of use - diversity of uses or associations with the surf break - numbers of people involved
Economic value to the community	Recognises the level of economic importance of the surf break for local communities and/or the wider regional community	- Promotional value for visitors to the local area or region, including as a component of international appeal - Economic activity associated with visitation modes - Contributions associated with events or contest venues
Historic, heritage, and cultural associations	Recognises the contribution of the surf break to historical and heritage values, including the importance of the site for historical events and the development of coastal and surf riding culture, and specific associations important to tangata whenua	Characteristics in relation to: - importance of the site for historical events - heritage aspects of the local or regional coastal culture e.g. long standing boardriding or surf lifesaving clubs - importance to contemporary coastal culture - contribution to the local sense of place - tangata whenua values associated with the surf break

Appendix 2 – Online Wave Survey

Introduction

Which waves rock? It's worth speaking up.

The Council would like to know which surf breaks are important to you and why. Complete the survey and **be in to win a $400 voucher** for a surf shop of your choice!

Please note the following:

- The list of surf breaks included in this survey is primarily made up of the 80 surf breaks that are currently mapped within the Regional Policy Statement for Taranaki, 2010 (public document). Mapping of the surf breaks was undertaken in response to public feedback requesting that the surf breaks be mapped. Information on the remainder of the surf breaks was obtained from the Wavetrack New Zealand Surfing Guide and conversations with local surfers.
- Information collected from this survey will be used by the Council to identify which surf breaks are important to people and why. You will be helping us to ensure that the values and attributes of those surf breaks that are important to you are appropriately protected, so it's worth taking your time with each question. We would encourage you to click here to read important additional information before completing this survey.
- It will take approximately 2.5 minutes to complete the survey for each surf break. For example, answering questions relating to 6 surf breaks will take 15 minutes, 20 surf breaks will take 50 minutes etc.
- Only one response will be accepted per person. For security purposes only one response can be accepted from each computer or mobile device. If you require more than one person to use the same device to complete the survey please call Council on 0800 736 222.

If you have any questions about this survey please contact Taranaki Regional Council on 0800 736 222.

The survey will end on 16 July 2017.

Demographic questions

First name

Last name

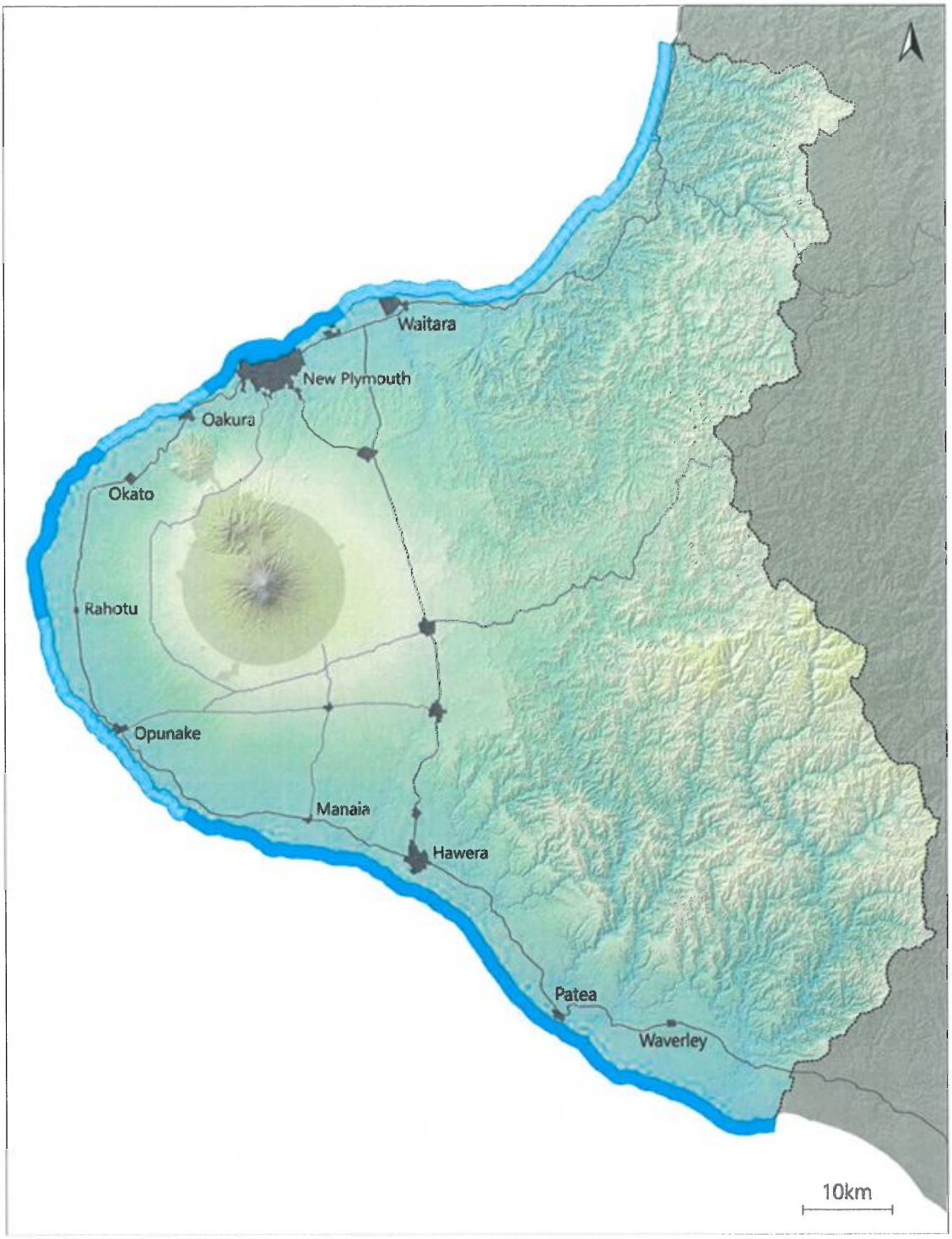
Email address

Contact telephone number (optional)

Surf Break Selection

Please click on the blue coastline on the map nearest the location of the surf break/s that are important to you. **Select as many areas as you like.**

When you select Next, you will be provided with a list of surf breaks for each area.



You selected the northern area.

Please select the surf break/s that are important to you, select as many as you like.

- [ ] Boilers
- [ ] Dread Rock
- [ ] Onaero Surf Camp
- [ ] Onaero Beach
- [ ] Turangi Reef
- [ ] Urenui Bar

- [ ] East Beach
- [ ] Epiha Road
- [ ] Montgomery Beach
- [ ] Motunui
- [ ] Oats
- [ ] O T Dub
- [ ] Secrets
- [ ] Spot X
- [ ] Tongaporutu
- [ ] Waiongana Reef
- [ ] Waitara Bar
- [ ] Waitoetoe
- [ ] Waterfalls

You selected the New Plymouth area.
Please select the surf break/s that are important to you, select as many as you like.

- [ ] Back Beach Breaks
- [ ] Bell Block Reef
- [ ] Belt Road Left
- [ ] Belt Road Right
- [ ] Bog Works
- [ ] Boulters (Boulder Bay)
- [ ] Breakwater
- [ ] Cliffs
- [ ] DDT's
- [ ] East End
- [ ] Fitzroy Beach
- [ ] Hole 9
- [ ] Kawaroa
- [ ] Long Reef
- [ ] Outside Corner
- [ ] Railways 2
- [ ] Rewa Rewa
- [ ] Secret Sandy's
- [ ] Slimey Rocks
- [ ] Tank Farms
- [ ] Tasman
- [ ] Te Henui Right (Reform)
- [ ] The Gap (at Fitzroy)
- [ ] The Groyne
- [ ] The Islands
- [ ] The Pipe
- [ ] The Wedge
- [ ] Waiwhakaiho River Mouth
- [ ] Waiwhakaiho Reef
- [ ] Wind Wand

You selected the Oakura area.
Please select the surf break/s that are important to you, select as many as you like.

- [ ] Ahu Ahu Multiple Breaks
- [ ] Antunovic's
- [ ] Butlers Reef
- [ ] Cortez Bank
- [ ] Fort St George
- [ ] Jeffery's
- [ ] Lawrie's Memorial
- [ ] Lieth Road
- [ ] Oakura Beach
- [ ] Oakura Camp Ground
- [ ] Oakura River Mouth
- [ ] Putts Beach
- [ ] Rifle Range
- [ ] Shipwrecks
- [ ] Tapuae Beach Breaks
- [ ] Tapuae Left
- [ ] Weld Road Breaks

You selected the Okato - Rahoutu area.
Please select the surf break/s that are important to you, select as many as you like.

- [ ] Back of Stent
- [ ] Bayly Road Breaks
- [ ] Bayly Road North
- [ ] Bird's Nest
- [ ] BJ's Left
- [ ] Black Rocks
- [ ] Fin Whaka
- [ ] Graveyards
- [ ] Hammer Heads
- [ ] House for Karen
- [ ] Komene Left
- [ ] Komene Road Beach
- [ ] Rahotu Multiple Beach Breaks
- [ ] Rocky Lefts
- [ ] Rocky Rights
- [ ] Ronga mai Road
- [ ] Shark Pit
- [ ] Sluggo's

- [ ] Boat Ramps
- [ ] Brazils
- [ ] Coast Road Bach
- [ ] Crow's Nest
- [ ] Crushers
- [ ] Farmhouse
- [ ] Kumera Patch
- [ ] Lupins
- [ ] Outsides (Cape Egmont Boat Club/Ramp Reef)
- [ ] Porikapa Road
- [ ] Punihos
- [ ] Stent Road
- [ ] Sundays
- [ ] Tapus
- [ ] Three Amigos
- [ ] Trap Doors

You selected the Opunake area.
Please select the surf break/s that are important to you, select as many as you like.

- [ ] Arawhata Point
- [ ] Arawhata Reef
- [ ] Arawhata Road Beach
- [ ] Cemetery Point
- [ ] Desperation Point
- [ ] Far Toos (Kina Road North)
- [ ] Greenmeadows
- [ ] Greenmeadows Beach
- [ ] Kina Point (Kina Road South)
- [ ] Kina Road
- [ ] Manahi Reef
- [ ] Mangahume Reef
- [ ] Middletons Bay
- [ ] Mussels
- [ ] Oaonui Beach
- [ ] Opunake Reef and Beach
- [ ] Pohutakawas
- [ ] Puketapu
- [ ] Sandy Bay
- [ ] Sky Williams
- [ ] Slaughterhouse Left and Right
- [ ] Stepladders Left and Right
- [ ] Stones
- [ ] South Point
- [ ] Tai Road
- [ ] Te Namu Reef
- [ ] The Dump (Dumps)
- [ ] Twin Peaks

You selected the southern Taranaki area.
Please select the surf break/s that are important to you, select as many as you like.

- [ ] Cabins
- [ ] Denby Road
- [ ] Inside Fences
- [ ] Kaupokanui Beach
- [ ] Ohawe Beach
- [ ] Patea River Beach
- [ ] Patea River North Side
- [ ] Patea River South Side
- [ ] Pid's Point (Waipipi)
- [ ] The Point (Fences)
- [ ] Waiinu Reef
- [ ] Waverley Beach

These are the surf breaks you have selected as being important to you. Use the back button if you wish to make any changes. YOU WILL BE UNABLE TO CHANGE YOUR SELECTIONS ONCE YOU SELECT NEXT. Upon selecting the next button, you will be taken through a series of questions for each surf break in a random order.

Northern area: ${q://QID3/ChoiceGroup/SelectedChoices}
New Plymouth area: ${q://QID9/ChoiceGroup/SelectedChoices}

Oakura area: ${q://QID10/ChoiceGroup/SelectedChoices}
Okato - Rahoutu area: ${q://QID11/ChoiceGroup/SelectedChoices}
Opunake area: ${q://QID12/ChoiceGroup/SelectedChoices}
South Taranaki area: ${q://QID13/ChoiceGroup/SelectedChoices}

Please note it will take approximately 2.5 minutes to complete the survey for each surf break. 6 surf breaks 15 minutes. 20 surf breaks 50 minutes etc.

The survey will automatically save and allow you to return to the point you were up to if you are using the same computer or mobile device.

Can't find a surf break? Please contact the Taranaki Regional Council on 0800 736 222.

Region 1
loop

There are a variety of attributes that contribute to the value of a surf break and different people may value different things. Please score ${lm://Field/1} on the attributes below **compared to other surf breaks within Taranaki.**

Rarity - the rating is based on the availability of different types of surf breaks.

Please select the category that best describes ${lm://Field/1} in your view?

- ◯ Point break
- ◯ Reef break
- ◯ River bar break
- ◯ Beach break
- ◯ Don't know
- ◯ Other

If you have selected other, please describe the category of surf break that best describes ${lm://Field/1}:

Please select the main activity you value ${lm://Field/1} surf break for:

- ◯ Learning to surf
- ◯ Big wave riding
- ◯ Longboarding
- ◯ Surf lifesaving
- ◯ Swimming (body surfing)
- ◯ Windsurfing
- ◯ Stand up paddleboarding
- ◯ Photography
- ◯

- ◯ Short board surfing
- ◯ Body boarding
- ◯ Kitesurfing
- ◯ Watching and/or listening to waves
- ◯ Other

If you have selected other, please describe the main activity that you use ${lm://Field/1} surf break for:

How common are surf breaks that can be used for ${q://QID120/ChoiceGroup/SelectedChoices} in Taranaki?

	1 - Very common (lots of locations)	2 - Common	3 - Moderately common	4 - Uncommon	5 - Very uncommon (very few locations)	I don't know
How common?	◯	◯	◯	◯	◯	◯

How common are surf breaks that can be used for ${q://QID121/ChoiceTextEntryValue} in Taranaki?

	1 - Very common (lots of locations)	2 - Common	3 - Moderately common	4 - Uncommon	5 - Very uncommon (very few locations)	I don't know
How common?	◯	◯	◯	◯	◯	◯

Wave quality – how good is the wave quality at ${lm://Field/1} ? Quality is the shape, power, height, length of ride etc.

	1 - Very low wave quality	2 - Low wave quality	3 - Moderate wave quality	4 - High wave quality	5 - Very high wave quality	I don't know
Wave Quality	◯	◯	◯	◯	◯	◯

Wave consistency – how often are the waves good at ${lm://Field/1} , e.g. how many days in a year?

	1 - Very low wave consistency	2 - Low wave consistency	3 - Moderate wave consistency	4 - High wave consistency	5 - Very high wave consistency	I don't know
Wave Consistency	○	○	○	○	○	○

Wilderness – how remote, exposed and 'wild' is the experience offered by ${lm://Field/1} ?

	1 - Very low wilderness	2 - Low wilderness	3 - Moderate wilderness	4 - High wilderness	5 - Very high wilderness	I don't know
Wilderness	○	○	○	○	○	○

Uniqueness – Some surf breaks produce good waves in conditions that are unfavourable at most other breaks. How unique are the conditions that produce good waves at ${lm://Field/1} compared to other breaks in Taranaki?

	1 - Very low uniqueness	2 - Low uniqueness	3 - Moderate uniqueness	4 - High uniqueness	5 - Very high uniqueness	I don't know
Uniqueness	○	○	○	○	○	○

Naturalness – how much has ${lm://Field/1} been changed by humans? Is there:
native wildlife?
native vegetation i.e. not pasture?
good water quality?
no buildings or other man made structures, bridges or roads

	1 - Very low naturalness	2 - Low naturalness	3 - Moderate naturalness	4 - High naturalness	5 - Very high naturalness	I don't know
Naturalness	○	○	○	○	○	○

Amenity – to what extent does ${lm://Field/1} provide features that make the place attractive to visit:

facilities - e.g. café, toilets, picnic areas, club rooms?
services – e.g. Surf Life Savers, surfing lessons?
easy access, short travel distance from home?
good place to view or photograph surf?

	1 - Very low in amenity	2 - Low in amenity	3 - Moderate in amenity	4 - High in amenity	5 - Very high in amenity	I don't know
Amenity	○	○	○	○	○	○

Level of use – is ${lm://Field/1} popular, do lots of people use the surf break?

	1 - Very low use	2 - Low use	3 - Moderate use	4 - High use	5 - Very high use	I don't know
Level of use	○	○	○	○	○	○

Economic value – is ${lm://Field/1} a renowned break or visitor attraction, are competitions held bringing people to the region?

	1 - Very low economic value	2 - Low economic value	3 - Moderate economic value	4 - High economic value	5 - Very high economic value	I don't know
Economic value	○	○	○	○	○	○

Historical and cultural association - how important is ${lm://Field/1} for cultural and historic reasons, including the importance to tangata whenua, historic club associations such as surf life saving or board riding etc?

	1 - Very low importance	2 - Low importance	3 - Moderate importance	4 - High importance	5 - Very high importance	I don't know
Historic and cultural association	○	○	○	○	○	○

Region 2 loop

There are a variety of attributes that contribute to the value of a surf break and different people may value different things. Please score ${lm://Field/1} on the attributes below **compared to other surf breaks within Taranaki.**

Rarity - the rating is based on the availability of different types of surf breaks.

Please select the category that best describes ${lm://Field/1} in your view?

- ◯ Point break
- ◯ Reef break
- ◯ River bar break
- ◯ Beach break
- ◯ Don't know
- ◯ Other

If you have selected other, please describe the category of surf break that best describes ${lm://Field/1}:

Please select the main activity you value ${lm://Field/1} surf break for:

- ◯ Learning to surf
- ◯ Big wave riding
- ◯ Longboarding
- ◯ Short board surfing
- ◯ Body boarding
- ◯ Surf lifesaving
- ◯ Swimming (body surfing)
- ◯ Windsurfing
- ◯ Kitesurfing
- ◯ Stand up paddleboarding
- ◯ Photography
- ◯ Watching and/or listening to waves
- ◯ Other

If you have selected other, please describe the main activity that you use ${lm://Field/1} surf break for:

How common are surf breaks that can be used for ${q://QID132/ChoiceGroup/SelectedChoices} in Taranaki?

	1 - Very common (lots of locations)	2 - Common	3 - Moderately common	4 - Uncommon	5 - Very uncommon (very few locations)	I don't know
How common?	◯	◯	◯	◯	◯	◯

How common are surf breaks that can be used for ${q://QID133/ChoiceTextEntryValue} in Taranaki?

	1 - Very common (lots of locations)	2 - Common	3 - Moderately common	4 - Uncommon	5 - Very uncommon (very few locations)	I don't know
How common?	○	○	○	○	○	○

Wave quality – how good is the wave quality at ${lm://Field/1} ? Quality is the shape, power, height, length of ride etc.

	1 - Very low wave quality	2 - Low wave quality	3 - Moderate wave quality	4 - High wave quality	5 - Very high wave quality	I don't know
Wave Quality	○	○	○	○	○	○

Wave consistency – how often are the waves good at ${lm://Field/1} , e.g. how many days in a year?

	1 - Very low wave consistency	2 - Low wave consistency	3 - Moderate wave consistency	4 - High wave consistency	5 - Very high wave consistency	I don't know
Wave Consistency	○	○	○	○	○	○

Uniqueness – Some surf breaks produce good waves in conditions that are unfavourable at most other breaks. How unique are the conditions that produce good waves at ${lm://Field/1} compared to other breaks in Taranaki?

	1 - Very low uniqueness	2 - Low uniqueness	3 - Moderate uniqueness	4 - High uniqueness	5 - Very high uniqueness	I don't know
Uniqueness	○	○	○	○	○	○

Wilderness – how remote, exposed and 'wild' is the experience offered by ${lm://Field/1} ?

	1 - Very low wilderness	2 - Low wilderness	3 - Moderate wilderness	4 - High wilderness	5 - Very high wilderness	I don't know
Wilderness	○	○	○	○	○	○

Naturalness – how much has ${lm://Field/1} been changed by humans? Is there:

native wildlife?
native vegetation i.e. not pasture?
good water quality?
no buildings or other man made structures, bridges or roads

	1 - Very low naturalness	2 - Low naturalness	3 - Moderate naturalness	4 - High naturalness	5 - Very high naturalness	I don't know
Naturalness	○	○	○	○	○	○

Amenity – to what extent does ${lm://Field/1} provide features that make the place attractive to visit:

facilities - e.g. café, toilets, picnic areas, club rooms?
services – e.g. Surf Life Savers, surfing lessons?
easy access, short travel distance from home?
good place to view or photograph surf?

	1 - Very low in amenity	2 - Low in amenity	3 - Moderate in amenity	4 - High in amenity	5 - Very high in amenity	I don't know
Amenity	○	○	○	○	○	○

Level of use – is ${lm://Field/1} popular, do lots of people use the surf break?

	1 - Very low use	2 - Low use	3 - Moderate use	4 - High use	5 - Very high use	I don't know
Level of use	○	○	○	○	○	○

Economic value – is ${lm://Field/1} a renowned break or visitor attraction, are competitions held bringing people to the region?

	1 - Very low economic value	2 - Low economic value	3 - Moderate economic value	4 - High economic value	5 - Very high economic value	I don't know
Economic value	○	○	○	○	○	○

Historical and cultural association - how important is ${lm://Field/1} for cultural and historic reasons, including the importance to tangata whenua, historic club associations such as surf life saving or board riding etc?

	1 - Very low importance	2 - Low importance	3 - Moderate importance	4 - High importance	5 - Very high importance	I don't know
Historic and cultural association	○	○	○	○	○	○

Region 3 loop

There are a variety of attributes that contribute to the value of a surf break and different people may value different things. Please score ${lm://Field/1} on the attributes below **compared to other surf breaks within Taranaki.**

Rarity - the rating is based on the availability of different types of surf breaks.

Please select the category that best describes ${lm://Field/1} in your view?

- ○ Point break
- ○ Reef break
- ○ River bar break
- ○ Beach break
- ○ Don't know
- ○ Other

If you have selected other, please describe the category of surf break that best describes ${lm://Field/1}:

Please select the main activity you value ${lm://Field/1} surf break for:

- ○ Learning to surf
- ○ Big wave riding
- ○ Longboarding
- ○ Short board surfing
- ○ Body boarding
- ○ Surf lifesaving
- ○ Swimming (body surfing)
- ○ Windsurfing
- ○ Kitesurfing
- ○ Stand up paddleboarding
- ○ Photography
- ○ Watching and/or listening to waves
- ○ Other

If you have selected other, please describe the main activity that you use ${lm://Field/1} surf break for:

How common are surf breaks that can be used for ${q://QID149/ChoiceGroup/SelectedChoices} in Taranaki?

	1 - Very common (lots of locations)	2 - Common	3 - Moderately common	4 - Uncommon	5 - Very uncommon (very few locations)	I don't know
How common?	○	○	○	○	○	○

How common are surf breaks that can be used for ${q://QID150/ChoiceTextEntryValue} in Taranaki?

	1 - Very common (lots of locations)	2 - Common	3 - Moderately common	4 - Uncommon	5 - Very uncommon (very few locations)	I don't know
How common?	○	○	○	○	○	○

Wave quality – how good is the wave quality at ${lm://Field/1} ? Quality is the shape, power, height, length of ride etc.

	1 - Very low wave quality	2 - Low wave quality	3 - Moderate wave quality	4 - High wave quality	5 - Very high wave quality	I don't know
Wave Quality	○	○	○	○	○	○

Wave consistency – how often are the waves good at ${lm://Field/1} , e.g. how many days in a year?

	1 - Very low wave consistency	2 - Low wave consistency	3 - Moderate wave consistency	4 - High wave consistency	5 - Very high wave consistency	I don't know
Wave Consistency	○	○	○	○	○	○

Uniqueness – Some surf breaks produce good waves in conditions that are unfavourable at most other breaks. How unique are the conditions that produce good waves at ${lm://Field/1} compared to other breaks in Taranaki?

	1 - Very low uniqueness	2 - Low uniqueness	3 - Moderate uniqueness	4 - High uniqueness	5 - Very high uniqueness	I don't know
Uniqueness	○	○	○	○	○	○

Wilderness – how remote, exposed and 'wild' is the experience offered by ${lm://Field/1} ?

	1 - Very low wilderness	2 - Low wilderness	3 - Moderate wilderness	4 - High wilderness	5 - Very high wilderness	I don't know
Wilderness	○	○	○	○	○	○

Naturalness – how much has ${lm://Field/1} been changed by humans? Is there:
native wildlife?
native vegetation i.e. not pasture?
good water quality?
no buildings or other man made structures, bridges or roads

	1 - Very low naturalness	2 - Low naturalness	3 - Moderate naturalness	4 - High naturalness	5 - Very high naturalness	I don't know
Naturalness	○	○	○	○	○	○

Amenity – to what extent does ${lm://Field/1} provide features that make the place attractive to visit:

facilities - e.g. café, toilets, picnic areas, club rooms?
services – e.g. Surf Life Savers, surfing lessons?
easy access, short travel distance from home?
good place to view or photograph surf?

	1 - Very low in amenity	2 - Low in amenity	3 - Moderate in amenity	4 - High in amenity	5 - Very high in amenity	I don't know
Amenity	○	○	○	○	○	○

Level of use – is ${lm://Field/1} popular, do lots of people use the surf break?

	1 - Very low use	2 - Low use	3 - Moderate use	4 - High use	5 - Very high use	I don't know
Level of use	○	○	○	○	○	○

Economic value – is ${lm://Field/1} a renowned break or visitor attraction, are competitions held bringing people to the region?

	1 - Very low economic value	2 - Low economic value	3 - Moderate economic value	4 - High economic value	5 - Very high economic value	I don't know
Economic value	○	○	○	○	○	○

Historical and cultural association - how important is ${lm://Field/1} for cultural and historic reasons, including the importance to tangata whenua, historic club associations such as surf life saving or board riding etc?

	1 - Very low importance	2 - Low importance	3 - Moderate importance	4 - High importance	5 - Very high importance	I don't know
Historic and cultural association	○	○	○	○	○	○

Region 4 loop

There are a variety of attributes that contribute to the value of a surf break and different people may value different things. Please score ${lm://Field/1} on the attributes below **compared to other surf breaks within Taranaki.**

Rarity - the rating is based on the availability of different types of surf breaks.

Please select the category that best describes ${lm://Field/1} in your view?

- ○ Point break
- ○ Reef break
- ○ River bar break
- ○ Beach break
- ○ Don't know
- ○ Other

If you have selected other, please describe the category of surf break that best describes ${lm://Field/1}:

Please select the main activity you value ${lm://Field/1} surf break for:

- ◯ Learning to surf
- ◯ Big wave riding
- ◯ Longboarding
- ◯ Short board surfing
- ◯ Body boarding
- ◯ Surf lifesaving
- ◯ Swimming (body surfing)
- ◯ Windsurfing
- ◯ Kitesurfing
- ◯ Stand up paddleboarding
- ◯ Photography
- ◯ Watching and/or listening to waves
- ◯ Other

If you have selected other, please describe the main activity that you use ${lm://Field/1} surf break for:

How common are surf breaks that can be used for ${q://QID166/ChoiceGroup/SelectedChoices} in Taranaki?

	1 - Very common (lots of locations)	2 - Common	3 - Moderately common	4 - Uncommon	5 - Very uncommon (very few locations)	I don't know
How common?	◯	◯	◯	◯	◯	◯

How common are surf breaks that can be used for ${q://QID167/ChoiceTextEntryValue} in Taranaki?

	1 - Very common (lots of locations)	2 - Common	3 - Moderately common	4 - Uncommon	5 - Very uncommon (very few locations)	I don't know
How common?	◯	◯	◯	◯	◯	◯

Wave quality – how good is the wave quality at ${lm://Field/1} ? Quality is the shape, power, height, length of ride etc.

	1 - Very low wave quality	2 - Low wave quality	3 - Moderate wave quality	4 - High wave quality	5 - Very high wave quality	I don't know
Wave Quality	○	○	○	○	○	○

Wave consistency – how often are the waves good at ${lm://Field/1} , e.g. how many days in a year?

	1 - Very low wave consistency	2 - Low wave consistency	3 - Moderate wave consistency	4 - High wave consistency	5 - Very high wave consistency	I don't know
Wave Consistency	○	○	○	○	○	○

Uniqueness – Some surf breaks produce good waves in conditions that are unfavourable at most other breaks. How unique are the conditions that produce good waves at ${lm://Field/1} compared to other breaks in Taranaki?

	1 - Very low uniqueness	2 - Low uniqueness	3 - Moderate uniqueness	4 - High uniqueness	5 - Very high uniqueness	I don't know
Uniqueness	○	○	○	○	○	○

Wilderness – how remote, exposed and 'wild' is the experience offered by ${lm://Field/1} ?

	1 - Very low wilderness	2 - Low wilderness	3 - Moderate wilderness	4 - High wilderness	5 - Very high wilderness	I don't know
Wilderness	○	○	○	○	○	○

Naturalness – how much has ${lm://Field/1} been changed by humans? Is there:
native wildlife?
native vegetation i.e. not pasture?
good water quality?
no buildings or other man made structures, bridges or roads

	1 - Very low naturalness	2 - Low naturalness	3 - Moderate naturalness	4 - High naturalness	5 - Very high naturalness	I don't know
Naturalness	○	○	○	○	○	○

Amenity – to what extent does ${lm://Field/1} provide features that make the place attractive to visit:

facilities - e.g. café, toilets, picnic areas, club rooms?
services – e.g. Surf Life Savers, surfing lessons?
easy access, short travel distance from home?
good place to view or photograph surf?

	1 - Very low in amenity	2 - Low in amenity	3 - Moderate in amenity	4 - High in amenity	5 - Very high in amenity	I don't know
Amenity	○	○	○	○	○	○

Level of use – is ${lm://Field/1} popular, do lots of people use the surf break?

	1 - Very low use	2 - Low use	3 - Moderate use	4 - High use	5 - Very high use	I don't know
Level of use	○	○	○	○	○	○

Economic value – is ${lm://Field/1} a renowned break or visitor attraction, are competitions held bringing people to the region?

	1 - Very low economic value	2 - Low economic value	3 - Moderate economic value	4 - High economic value	5 - Very high economic value	I don't know
Economic value	○	○	○	○	○	○

Historical and cultural association - how important is ${lm://Field/1} for cultural and historic reasons, including the importance to tangata whenua, historic club associations such as surf life saving or board riding etc?

	1 - Very low importance	2 - Low importance	3 - Moderate importance	4 - High importance	5 - Very high importance	I don't know
Historic and cultural association	○	○	○	○	○	○

Region 5
loop

There are a variety of attributes that contribute to the value of a surf break and different people may value different things. Please score ${lm://Field/1} on the attributes below **compared to other surf breaks within Taranaki.**

Rarity - the rating is based on the availability of different types of surf breaks.

Please select the category that best describes ${lm://Field/1} in your view?

- ◯ Point break
- ◯ Reef break
- ◯ River bar break
- ◯ Beach break
- ◯ Don't know
- ◯ Other

If you have selected other, please describe the category of surf break that best describes ${lm://Field/1}:

Please select the main activity you value ${lm://Field/1} surf break for:

- ◯ Learning to surf
- ◯ Big wave riding
- ◯ Longboarding
- ◯ Short board surfing
- ◯ Body boarding
- ◯ Surf lifesaving
- ◯ Swimming (body surfing)
- ◯ Windsurfing
- ◯ Kitesurfing
- ◯ Stand up paddleboarding
- ◯ Photography
- ◯ Watching and/or listening to waves
- ◯ Other

If you have selected other, please describe the main activity that you use ${lm://Field/1} surf break for:

How common are surf breaks that can be used for ${q://QID183/ChoiceGroup/SelectedChoices} in Taranaki?

	1 - Very common (lots of locations)	2 - Common	3 - Moderately common	4 - Uncommon	5 - Very uncommon (very few locations)	I don't know
How common?	○	○	○	○	○	○

How common are surf breaks that can be used for ${q://QID184/ChoiceTextEntryValue} in Taranaki?

	1 - Very common (lots of locations)	2 - Common	3 - Moderately common	4 - Uncommon	5 - Very uncommon (very few locations)	I don't know
How common?	○	○	○	○	○	○

Wave quality – how good is the wave quality at ${lm://Field/1} ? Quality is the shape, power, height, length of ride etc.

	1 - Very low wave quality	2 - Low wave quality	3 - Moderate wave quality	4 - High wave quality	5 - Very high wave quality	I don't know
Wave Quality	○	○	○	○	○	○

Wave consistency – how often are the waves good at ${lm://Field/1} , e.g. how many days in a year?

	1 - Very low wave consistency	2 - Low wave consistency	3 - Moderate wave consistency	4 - High wave consistency	5 - Very high wave consistency	I don't know
Wave Consistency	○	○	○	○	○	○

Uniqueness – Some surf breaks produce good waves in conditions that are unfavourable at most other breaks. How unique are the conditions that produce good waves at ${lm://Field/1} compared to other breaks in Taranaki?

	1 - Very low uniqueness	2 - Low uniqueness	3 - Moderate uniqueness	4 - High uniqueness	5 - Very high uniqueness	I don't know
Uniqueness	○	○	○	○	○	○

Wilderness – how remote, exposed and 'wild' is the experience offered by ${lm://Field/1} ?

	1 - Very low wilderness	2 - Low wilderness	3 - Moderate wilderness	4 - High wilderness	5 - Very high wilderness	I don't know
Wilderness	○	○	○	○	○	○

Naturalness – how much has ${lm://Field/1} been changed by humans? Is there:
native wildlife?
native vegetation i.e. not pasture?
good water quality?
no buildings or other man made structures, bridges or roads

	1 - Very low naturalness	2 - Low naturalness	3 - Moderate naturalness	4 - High naturalness	5 - Very high naturalness	I don't know
Naturalness	○	○	○	○	○	○

Amenity – to what extent does ${lm://Field/1} provide features that make the place attractive to visit:

facilities - e.g. café, toilets, picnic areas, club rooms?
services – e.g. Surf Life Savers, surfing lessons?
easy access, short travel distance from home?
good place to view or photograph surf?

	1 - Very low in amenity	2 - Low in amenity	3 - Moderate in amenity	4 - High in amenity	5 - Very high in amenity	I don't know
Amenity	○	○	○	○	○	○

Level of use – is ${lm://Field/1} popular, do lots of people use the surf break?

	1 - Very low use	2 - Low use	3 - Moderate use	4 - High use	5 - Very high use	I don't know
Level of use	○	○	○	○	○	○

Economic value – is ${lm://Field/1} a renowned break or visitor attraction, are competitions held bringing people to the region?

	1 - Very low economic value	2 - Low economic value	3 - Moderate economic value	4 - High economic value	5 - Very high economic value	I don't know
Economic value	○	○	○	○	○	○

Historical and cultural association - how important is ${lm://Field/1} for cultural and historic reasons, including the importance to tangata whenua, historic club associations such as surf life saving or board riding etc?

	1 - Very low importance	2 - Low importance	3 - Moderate importance	4 - High importance	5 - Very high importance	I don't know
Historic and cultural association	○	○	○	○	○	○

Region 6 loop

There are a variety of attributes that contribute to the value of a surf break and different people may value different things. Please score ${lm://Field/1} on the attributes below **compared to other surf breaks within Taranaki.**

Rarity - the rating is based on the availability of different types of surf breaks.

Please select the category that best describes ${lm://Field/1} in your view?

- ○ Point break
- ○ Reef break
- ○ River bar break
- ○ Beach break
- ○ Don't know
- ○ Other

If you have selected other, please describe the category of surf break that best describes ${lm://Field/1}:

Please select the main activity you value ${lm://Field/1} surf break for:

- ○ Learning to surf
- ○ Big wave riding
- ○ Longboarding
- ○ Short board surfing
- ○ Body boarding
- ○ Surf lifesaving
- ○ Swimming (body surfing)
- ○ Windsurfing
- ○ Kitesurfing
- ○ Stand up paddleboarding
- ○ Photography
- ○ Watching and/or listening to waves
- ○ Other

If you have selected other, please describe the main activity that you use ${lm://Field/1} surf break for:

How common are surf breaks that can be used for ${q://QID200/ChoiceGroup/SelectedChoices} in Taranaki?

	1 - Very common (lots of locations)	2 - Common	3 - Moderately common	4 - Uncommon	5 - Very uncommon (very few locations)	I don't know
How common?	○	○	○	○	○	○

How common are surf breaks that can be used for ${q://QID201/ChoiceTextEntryValue} in Taranaki?

	1 - Very common (lots of locations)	2 - Common	3 - Moderately common	4 - Uncommon	5 - Very uncommon (very few locations)	I don't know
How common?	○	○	○	○	○	○

Wave quality – how good is the wave quality at ${lm://Field/1} ? Quality is the shape, power, height, length of ride etc.

	1 - Very low wave quality	2 - Low wave quality	3 - Moderate wave quality	4 - High wave quality	5 - Very high wave quality	I don't know
Wave Quality	○	○	○	○	○	○

Wave consistency – how often are the waves good at ${lm://Field/1} , e.g. how many days in a year?

	1 - Very low wave consistency	2 - Low wave consistency	3 - Moderate wave consistency	4 - High wave consistency	5 - Very high wave consistency	I don't know
Wave Consistency	○	○	○	○	○	○

Uniqueness – Some surf breaks produce good waves in conditions that are unfavourable at most other breaks. How unique are the conditions that produce good waves at ${lm://Field/1} compared to other breaks in Taranaki?

	1 - Very low uniqueness	2 - Low uniqueness	3 - Moderate uniqueness	4 - High uniqueness	5 - Very high uniqueness	I don't know
Uniqueness	○	○	○	○	○	○

Wilderness – how remote, exposed and 'wild' is the experience offered by ${lm://Field/1} ?

	1 - Very low wilderness	2 - Low wilderness	3 - Moderate wilderness	4 - High wilderness	5 - Very high wilderness	I don't know
Wilderness	○	○	○	○	○	○

Naturalness – how much has ${lm://Field/1} been changed by humans? Is there:
native wildlife?
native vegetation i.e. not pasture?
good water quality?
no buildings or other man made structures, bridges or roads

	1 - Very low naturalness	2 - Low naturalness	3 - Moderate naturalness	4 - High naturalness	5 - Very high naturalness	I don't know
Naturalness	○	○	○	○	○	○

Amenity – to what extent does ${lm://Field/1} provide features that make the place attractive to visit:

facilities - e.g. café, toilets, picnic areas, club rooms?
services – e.g. Surf Life Savers, surfing lessons?
easy access, short travel distance from home?
good place to view or photograph surf?

	1 - Very low in amenity	2 - Low in amenity	3 - Moderate in amenity	4 - High in amenity	5 - Very high in amenity	I don't know
Amenity	○	○	○	○	○	○

Level of use – is ${lm://Field/1} popular, do lots of people use the surf break?

	1 - Very low use	2 - Low use	3 - Moderate use	4 - High use	5 - Very high use	I don't know
Level of use	○	○	○	○	○	○

Economic value – is ${lm://Field/1} a renowned break or visitor attraction, are competitions held bringing people to the region?

	1 - Very low economic value	2 - Low economic value	3 - Moderate economic value	4 - High economic value	5 - Very high economic value	I don't know
Economic value	○	○	○	○	○	○

Historical and cultural association - how important is ${lm://Field/1} for cultural and historic reasons, including the importance to tangata whenua, historic club associations such as surf life saving or board riding etc?

	1 - Very low importance	2 - Low importance	3 - Moderate importance	4 - High importance	5 - Very high importance	I don't know
Historic and cultural association	○	○	○	○	○	○

How do you enjoy Taranaki Surf Breaks

How do you enjoy Taranaki surf breaks? Select as many answers as needed.

- ☐ Surfing
- ☐ Swimming
- ☐ Windsurfing
- ☐ Kite surfing
- ☐ Surf life saving
- ☐ Photography
- ☐ Watching and/or listening to the waves
- ☐ Other

- [ ] Stand up paddle boarding (SUP)

If you have selected "Other", please describe how else you enjoy Taranaki surf breaks:

Do you have any other comments about surf breaks?

How many years have you enjoyed Taranaki surf breaks?

- ◯ Less than one year
- ◯ 1 to 2 years
- ◯ 3 to 5 years
- ◯ 5 to 10 years
- ◯ 10 to 20 years
- ◯ More than 20 years

What age bracket do you fall into?

- ◯ Younger than 20 years
- ◯ 20 - 24 years
- ◯ 25 -29 years
- ◯ 30 - 39 years
- ◯ 40 - 49 years
- ◯ 50 - 59 years
- ◯ 60 - 69 years
- ◯ 70 plus

Are you a current Taranaki resident?

- ◯ Yes
- ◯ No

End

Thank you for participating in the Taranaki Coastal Surf Survey. If you want to start the survey again, or edit your responses, please contact Taranaki Regional Council on 0800 736 222.

Appendix 3 – Further analysis information

Wave Quality			Wave Consistency			Wave Uniqueness			Wilderness			Naturalness		
Surf Break Name	Average	Responses	Surf Break Name	Average	Responses	Surf Break Name	Average	Responses	Surf Break Name	Average	Responses	Surf Break Name	Average	Responses
Stent Road	4.800	86	Stent Road	4.333	84	The Point (Fences)	4.571	14	Kumera Patch	4.124	97	Kumera Patch	3.948	97
Kumera Patch	4.536	98	Rocky Lefts	4.075	80	Inside Fences	4.105	19	Inside Fences	4.105	19	Rahotu Multiple Beach Breaks	3.933	15
Rocky Lefts	4.338	81	Graveyards	3.922	90	Bog Works	4.045	44	Lupins	3.971	35	Lupins	3.743	35
South Point	4.250	25	Mangahume Reef	3.860	57	Stent Road	3.988	84	Greenmeadows	3.917	48	Komene Left	3.727	33
Graveyards	4.156	90	Fitzroy Beach	3.844	96	Kumera Patch	3.969	96	Greenmeadows Beach	3.862	29	South Point	3.667	24
The Groyne	4.143	49	Kumera Patch	3.813	96	Greenmeadows	3.875	48	Rahotu Multiple Beach Breaks	3.800	15	Greenmeadows Beach	3.655	29
The Point (Fences)	4.143	15	The Pipe	3.800	5	Bell Block Reef	3.818	33	Sundays	3.794	34	Komene Road Beach	3.632	38
Mangahume Reef	4.140	58	Back Beach Breaks	3.798	109	South Point	3.792	24	Pohutakawas	3.741	27	Manihi Road Reef	3.583	12
Bog Works	4.091	45	Punihos	3.721	86	Spot X	3.765	17	Rongomai Road	3.714	14	The Point (Fences)	3.571	14
Waiwhakaiho Reef	4.089	57	Spot X	3.706	17	Kina Point (Kina Road South)	3.720	25	The Point (Fences)	3.714	14	Greenmeadows	3.563	48
Rocky Rights	4.060	84	Back of Stent	3.650	80	Mangahume Reef	3.719	57	South Point	3.708	24	Rongomai Road	3.500	14
Inside Fences	4.000	19	Arawhata Road Point	3.635	63	Rocky Lefts	3.713	80	Stepladders Left and Right	3.700	10	Far Toos (Kina Road North)	3.500	12
Dread Rock	4.000	5	Rocky Rights	3.602	83	Lupins	3.686	35	Komene Road Beach	3.658	38	Slaughterhouse Left and Right	3.500	10
Oats	4.000	5	Weld Road Breaks	3.583	72	Fin Whaka	3.625	24	Kina Road	3.656	32	The Islands	3.500	6
Fitzroy Beach	3.958	97	Oakura Beach	3.574	61	Tasman	3.625	8	Fin Whaka	3.625	24	Puketapu	3.429	14
Spot X	3.941	17	Waiwhakaiho River Mouth	3.547	53	Sundays	3.618	34	BJ's Left	3.615	13	Brazils	3.429	7
Punihos	3.930	87	Ahu Ahu Multiple Breaks	3.531	81	The Groyne	3.612	49	Kina Point (Kina Road South)	3.600	25	Inside Fences	3.421	19
Fin Whaka	3.917	24	Farmhouse Stent	3.522	23	Punihos	3.612	85	Slaughterhouse Left and Right	3.600	10	Turangi Reef	3.400	5
Waiwhakaiho River Mouth	3.868	54	Waiwhakaiho Reef	3.500	56	Belt Road Left	3.605	43	Turangi Reef	3.600	5			
Bell Block Reef	3.818	34	Bayly Road Breaks	3.500	24	Boilers	3.600	10	Manihi Road Reef	3.583	12	Naturalness average less than 3.4		
Arawhata Road Point	3.813	65	Fin Whaka	3.500	24	The Pipe	3.600	5	Oaonui Beach	3.571	14			
Greenmeadows	3.813	49	Greenmeadows	3.458	48	Manihi Road Reef	3.583	12	Brazils	3.571	7	Mangahume Reef	3.386	57
The Pipe	3.800	6	Opunake Reef and Beach	3.448	29	Graveyards	3.567	90	Waiongana Reef	3.571	7	Sundays	3.382	34
Back of Stent	3.763	81	East Beach	3.444	9	Rocky Rights	3.566	83	Sky Williams	3.535	43	Kina Road	3.344	32
Waitara Bar	3.737	20	Sky Williams	3.442	43	The Wedge	3.556	9	Back of Stent	3.525	80	Pohutakawas	3.333	27
Trap Doors	3.727	23	Kina Point (Kina Road South)	3.440	25	Weld Road Breaks	3.548	73	The Islands	3.500	6	Kina Point (Kina Road South)	3.320	25
Secrets	3.706	18	The Gap (at Fitzroy)	3.426	47	Rahotu Multiple Beach Breaks	3.533	15	Komene Left	3.485	33	Shark Pit	3.308	13
Sky Williams	3.698	44	Arawhata Road Reef	3.423	52	Arawhata Road Point	3.531	64	Bayly Road Breaks	3.480	25	Tapuae Beach Breaks	3.308	13
Lupins	3.657	36	Kina Road	3.406	32	Far Toos (Kina Road North)	3.500	12	Secrets	3.471	17	Sky Williams	3.302	43
Back Beach Breaks	3.606	110				Ohawe Beach	3.500	10	Spot X	3.471	17	Rifle Range	3.286	7
Arawhata Road Reef	3.604	54	Wave consistency average less than 3.4			Stepladders Left and Right	3.500	10	Shark Pit	3.462	13	Back of Stent	3.263	80
Patea River Beach	3.583	13				The Islands	3.500	6	Mangahume Reef	3.439	57	Weld Road Breaks	3.233	73
Secret Sandy's	3.565	24	The Dump (Dumps)	3.360	25	Sky Williams	3.488	43	Puketapu	3.429	14	Ahu Ahu Multiple Breaks	3.232	82
Kina Point (Kina Road South)	3.560	26	Secrets	3.353	17	Ahu Ahu Multiple Breaks	3.488	82	Rifle Range	3.429	7	Bird's Nest	3.224	58
The Gap (at Fitzroy)	3.553	48	BJ's Left	3.308	13	Boat Ramps	3.480	25	Punihos	3.419	86	Tapuae Left	3.222	9
Farmhouse Stent	3.545	23	East End	3.304	46	Waiwhakaiho River Mouth	3.472	53	Far Toos (Kina Road North)	3.417	12	Porikapa Road	3.200	10
Tai Road	3.524	22	Slimey Rocks	3.286	7	Kina Road	3.469	32				The Pipe	3.200	5
Kina Road	3.500	33	Bird's Nest	3.259	58	BJ's Left	3.462	13	Wilderness average less than 3.4			Shipwrecks	3.182	22
Butlers Reef	3.478	23	South Point	3.250	24	Trap Doors	3.455	22				Crushers	3.176	17
Sundays	3.471	34	Patea River Beach	3.250	12	Back of Stent	3.450	80	Bell Block Reef	3.394	33	Fin Whaka	3.167	24
Kaupokanui Beach	3.467	15	Patea River South Side	3.250	12	Pohutakawas	3.444	27	Tapuae Beach Breaks	3.385	13	Waverley Beach	3.167	6
BJ's Left	3.462	14	Shipwrecks	3.238	21	Bird's Nest	3.431	58	Bird's Nest	3.362	58	Punihos	3.163	86
Bird's Nest	3.448	58	Boilers	3.200	10	Tai Road	3.429	21	Bayly Road North	3.313	16	Oaonui Beach	3.143	14
Boat Ramps	3.440	26	Bayly Road North	3.188	16	Puketapu	3.429	14	Rocky Rights	3.289	83	Waiinu Reef	3.143	7
The Dump (Dumps)	3.423	27	Crushers	3.176	17	Belt Road Right	3.422	45	Waiinu Reef	3.286	7	Waiongana Reef	3.143	7
Boilers	3.400	10	Arawhata Road Beach	3.167	30	Butlers Reef	3.417	24	The Dump (Dumps)	3.269	26	Graveyards	3.124	89
			Patea River North Side	3.167	12	Breakwater	3.417	12	Desperation Point	3.250	16	Rocky Rights	3.122	82
Wave quality average less than 3.4			Waitara Bar	3.158	19	Secrets	3.412	17	Tai Road	3.238	21	Back Beach Breaks	3.119	109
			Pohutakawas	3.148	27	Waiwhakaiho Reef	3.404	57	Crow's Nest	3.222	9	Secrets	3.118	17
Bayly Road Breaks	3.375	25	Sundays	3.147	34	Turangi Reef	3.400	5	Farmhouse Stent	3.217	23	Rocky Lefts	3.101	79
Desperation Point	3.375	17	Oakura Camp Ground	3.146	48				Porikapa Road	3.200	10	Stepladders Left and Right	3.100	10
Wind Wand	3.375	9	Tai Road	3.143	21	Wave uniqueness average less than 3.4			Arawhata Road Reef	3.189	53	Arawhata Road Reef	3.096	52
Belt Road Left	3.372	43	Rifle Range	3.143	7				Crushers	3.176	17	Secret Sandy's	3.087	23
Weld Road Breaks	3.365	75	Sluggo's	3.143	7	Secret Sandy's	3.391	23	Waverley Beach	3.167	6	BJ's Left	3.077	13
Belt Road Right	3.356	46	Greenmeadows Beach	3.069	29	Desperation Point	3.375	16	Shipwrecks	3.136	22	Epiha Road	3.077	13
Ahu Ahu Multiple Breaks	3.341	83	Oakura River Mouth	3.049	41	Te Namu Reef	3.375	8	Arawhata Road Point	3.125	64	Desperation Point	3.063	16
Patea River North Side	3.333	13	The Groyne	3.041	49	Wind Wand	3.375	8	Graveyards	3.122	90	Spot X	3.059	17
East Beach	3.333	10	Boulters (Boulder Bay)	3.000	22	Bayly Road Breaks	3.360	25	Tapuae Left	3.111	9	Farmhouse Stent	3.043	23
The Wedge	3.333	10	Rahotu Multiple Beach Breaks	3.000	15	Arawhata Road Reef	3.358	53	The Wedge	3.111	9	Bayly Road Breaks	3.000	25
Ohawe Beach	3.300	10	Sandy bay	3.000	14	Oaonui Beach	3.357	14	Secret Sandy's	3.087	23	Butlers Reef	3.000	23
Pohutakawas	3.296	28	Tank Farms	3.000	14	Farmhouse Stent	3.348	23	Fort St George	3.083	24	Fort St George	3.000	23
Crushers	3.294	17	Crow's Nest	3.000	9	Waitara Bar	3.333	18	Lieth Road	3.083	12	Lieth Road	3.000	11
Oakura Beach	3.290	63	Wind Wand	3.000	8	Kaupokanui Beach	3.333	15	Weld Road Breaks	3.068	74	Motunui (Oataroa Road)	3.000	5
Brazils	3.286	8	Motunui (Oataroa Road)	3.000	5	Back Beach Breaks	3.315	108	Kaupokanui Beach	3.063	16	Pid's Point (Waipipi)	3.000	5
Rifle Range	3.286	8	Trap Doors	2.955	22	Bayly Road North	3.313	16	Arawhata Road Beach	3.033	30	Arawhata Road Point	2.984	64
Sluggo's	3.286	7	Oaonui Beach	2.929	14	Epiha Road	3.308	13	Ahu Ahu Multiple Breaks	3.012	82	Arawhata Road Beach	2.967	30
Arawhata Road Beach	3.267	31	Far Toos (Kina Road North)	2.917	12	Rifle Range	3.286	7	Sandy bay	3.000	14	Kaupokanui Beach	2.938	16
Patea River South Side	3.250	13	Ohawe Beach	2.900	10	Waiinu Reef	3.286	7	Te Namu Reef	3.000	9	Sandy bay	2.929	14
Cemetery Point	3.250	9	Porikapa Road	2.900	10	Fitzroy Beach	3.278	97	Cemetery Point	3.000	8	Crow's Nest	2.889	9
Epiha Road	3.231	13	Middletons Bay	2.882	17	Opunake Reef and Beach	3.276	29	Mussels	3.000	6	Bayly Road North	2.875	16
Greenmeadows Beach	3.207	29	Cemetery Point	2.875	8	The Dump (Dumps)	3.269	26	Motunui (Oataroa Road)	3.000	5	Cemetery Point	2.875	8

Motunui (Oataroa Road)	3.200	5	Secret Sandy's	2.864	22	Patea River Beach	3.250	12	Pid's Point (Waipipi)	3.000	5	Trap Doors	2.864	22
Bayly Road North	3.188	17	Hole 9	2.857	7	Patea River South Side	3.250	12	Rocky Lefts	2.975	79	Stent Road	2.845	84
Far Toos (Kina Road North)	3.167	13	Epiha Road	2.846	13	Cemetery Point	3.250	8	Stent Road	2.941	85	Rewa Rewa	2.833	6
Oakura Camp Ground	3.149	48	Rewa Rewa	2.833	6	East Beach	3.222	9	Tank Farms	2.929	14	Tai Road	2.810	21
Tank Farms	3.143	14	Komene Left	2.818	33	Sandy bay	3.214	14	Epiha Road	2.923	13	Coast Road Bach	2.800	10
Hole 9	3.143	8	Kaupokanui Beach	2.800	15	Slaughterhouse Left and Right	3.200	10	Boilers	2.900	10	Bell Block Reef	2.788	33
Waiongana Reef	3.143	8	Coast Road Bach	2.800	10	Pid's Point (Waipipi)	3.200	5	Sluggo's	2.857	7	Tank Farms	2.786	14
Opunake Reef and Beach	3.138	30	Stepladders Left and Right	2.800	10	Greenmeadows Beach	3.172	29	Patea River North Side	2.833	12	East Beach	2.778	9
Rahotu Multiple Beach Breaks	3.133	15	Rongomai Road	2.786	14	Patea River North Side	3.167	12	Rewa Rewa	2.833	6	Patea River North Side	2.750	12
Oakura River Mouth	3.122	42	Jeffery's	2.765	17	Sluggo's	3.143	7	Waiwhakaiho River Mouth	2.811	53	The Dump (Dumps)	2.731	26
Jeffery's	3.118	17	Desperation Point	2.750	16	Waiongana Reef	3.143	7	Back Beach Breaks	2.798	109	Boat Ramps	2.720	25
Crow's Nest	3.111	9	Outsides (Cape Egmont Boat Club/Ramp Reef)	2.750	16	Arawhata Road Beach	3.133	30	Butlers Reef	2.792	24	Waiwhakaiho River Mouth	2.717	53
Stepladders Left and Right	3.100	11	Tasman	2.750	8	Komene Road Beach	3.132	38	Waiwhakaiho Reef	2.789	57	Sluggo's	2.714	7
Shipwrecks	3.091	22	Komene Road Beach	2.737	38	Crushers	3.118	17	Trap Doors	2.773	22	Urenui Bar	2.714	7
Breakwater	3.083	12	Bell Block Reef	2.727	33	Shipwrecks	3.091	22	Boat Ramps	2.760	25	Oakura River Mouth	2.667	42
Komene Road Beach	3.079	39	Puketapu	2.714	14	Rongomai Road	3.071	14	Wind Wand	2.750	8	Te Namu Reef	2.667	9
Oaonui Beach	3.071	15	Brazils	2.714	7	Oakura Beach	3.048	62	Coast Road Bach	2.700	10	Mussels	2.667	6
Sandy bay	3.071	15	Waiongana Reef	2.714	7	The Gap (at Fitzroy)	3.021	47	Ohawe Beach	2.700	10	Waitara Bar	2.650	20
East End	3.043	48	Butlers Reef	2.696	23	Middletons Bay	3.000	18	Bog Works	2.628	43	Waiwhakaiho Reef	2.649	57
Boulters (Boulder Bay)	3.000	24	Manihi Road Reef	2.667	12	Outsides (Cape Egmont Boat Club/Ramp Reef)	3.000	16	Outsides (Cape Egmont Boat Club/Ramp Reef)	2.625	16	Wind Wand	2.625	8
Middletons Bay	3.000	18	Te Namu Reef	2.667	9	Tank Farms	3.000	15	East Beach	2.600	10	Ohawe Beach	2.600	10
Outsides (Cape Egmont Boat Club/Ramp Reef)	3.000	17	The Islands	2.667	6	Shark Pit	3.000	13	The Pipe	2.600	5	The Groyne	2.571	49
Puketapu	3.000	15	Waverley Beach	2.667	6	Te Henui Right (Reform)	3.000	11	Patea River Beach	2.583	12	Hole 9	2.571	7
Manihi Road Reef	3.000	13	Fort St George	2.636	22	Brazils	3.000	7	Hole 9	2.571	7	Outsides (Cape Egmont Boat Club/Ramp Reef)	2.563	16
Onaero Surf camp	3.000	5	Lieth Road	2.636	11	Hole 9	3.000	7	Urenui Bar	2.571	7	Oakura Camp Ground	2.521	48
			Te Henui Right (Reform)	2.636	11	Urenui Bar	3.000	7	Waitara Bar	2.550	20	Bog Works	2.500	44
Wave quality average less than 3.0			Slaughterhouse Left and Right	2.600	10	Waverley Beach	3.000	6	Oakura River Mouth	2.524	42	Middletons Bay	2.500	18
			Pid's Point (Waipipi)	2.600	5	Oakura Camp Ground	2.958	48	The Groyne	2.510	49	Te Henui Right (Reform)	2.500	12
Komene Left	2.939	34	Tapuae Beach Breaks	2.583	12	Oakura River Mouth	2.952	42	Patea River South Side	2.500	12	Boilers	2.500	10
Rongomai Road	2.929	14	Lupins	2.571	35	Boulters (Boulder Bay)	2.913	23	Middletons Bay	2.444	18	Opunake Reef and Beach	2.448	29
Shark Pit	2.923	13	The Wedge	2.556	9	Komene Left	2.909	33	Oakura Camp Ground	2.333	48	Slimey Rocks	2.429	7
Coast Road Bach	2.900	11	Belt Road Left	2.500	42	Coast Road Bach	2.900	10	Kawaroa	2.333	6	The Gap (at Fitzroy)	2.383	47
Te Namu Reef	2.889	10	Boat Ramps	2.480	25	Fort St George	2.875	24	Te Henui Right (Reform)	2.250	12	Oakura Beach	2.377	61
Slimey Rocks	2.857	8	Belt Road Right	2.477	44	Tapuae Beach Breaks	2.846	13	Belt Road Left	2.140	43	Patea River Beach	2.333	12
Waiinu Reef	2.857	8	Shark Pit	2.462	13	Porikapa Road	2.800	10	Opunake Reef and Beach	2.103	29	Patea River South Side	2.333	12
Rewa Rewa	2.833	7	Bog Works	2.432	44	Motunui (Oataroa Road)	2.800	5	Belt Road Right	2.091	44	The Wedge	2.333	9
Porikapa Road	2.800	10	The Point (Fences)	2.429	14	East End	2.766	47	Oakura Beach	2.032	62	Belt Road Left	2.286	42
Slaughterhouse Left and Right	2.800	10	Urenui Bar	2.429	7	Slimey Rocks	2.714	7	The Gap (at Fitzroy)	2.021	47	Belt Road Right	2.267	45
Turangi Reef	2.800	6	Waiinu Reef	2.429	7	Jeffery's	2.706	17	Fitzroy Beach	2.010	97	Fitzroy Beach	2.216	97
Tasman	2.750	9	Turangi Reef	2.400	5	Crow's Nest	2.667	9	Jeffery's	2.000	17	Jeffery's	2.176	17
Te Henui Right (Reform)	2.667	12	Mussels	2.333	6	Mussels	2.667	6	Breakwater	2.000	12	East End	2.170	47
The Islands	2.667	7	Inside Fences	2.263	19	Rewa Rewa	2.667	6	Slimey Rocks	2.000	7	Kawaroa	2.167	6
Pid's Point (Waipipi)	2.600	5	Tapuae Left	2.250	8	Tapuae Left	2.625	8	Boulters (Boulder Bay)	1.913	23	Tasman	2.125	8
Fort St George	2.583	25	Breakwater	1.833	12	Lieth Road	2.583	12	Tasman	1.875	8	Boulters (Boulder Bay)	2.000	23
Lieth Road	2.583	12	Kawaroa	1.667	6	Kawaroa	1.833	6	East End	1.830	47	Breakwater	1.667	12
Mussels	2.500	7												
Urenui Bar	2.429	7	Less than 5 responses			Less than 5 responses			Less than 5 responses			Less than 5 responses		
Tapuae Beach Breaks	2.385	13												
Waverley Beach	2.333	7	Dread Rock	3.750	4	Tongaporutu	4.000	4	Dread Rock	4.500	4	Dread Rock	4.750	4
Onaero Beach	2.250	5	House for Karen	3.000	4	Onaero Surf camp	3.750	4	House for Karen	3.250	4	House for Karen	2.750	4
Tapuae Left	2.222	10	Oats	3.500	4	Dread Rock	3.500	4	Oats	3.500	4	Oats	3.250	4
Kawaroa	2.167	7	Onaero Beach	2.000	4	Oats	3.500	4	Onaero Beach	2.500	4	Onaero Beach	2.500	4
			Onaero Surf camp	2.750	4	Waterfalls	3.500	4	Onaero Surf camp	3.250	4	Onaero Surf camp	3.250	4
Less than 5 responses			Putts Beach	2.750	4	Putts Beach	3.250	4	Putts Beach	3.250	4	Putts Beach	3.250	4
			Tongaporutu	4.000	4	Waitoetoe	3.250	4	Tongaporutu	4.750	4	Tongaporutu	4.500	4
Cabins	4.000	4	Waitoetoe	2.750	4	Onaero Beach	2.750	4	Waitoetoe	3.000	4	Waitoetoe	3.000	4
Denby Road	3.000	4	Waterfalls	3.250	4	House for Karen	2.500	4	Waterfalls	3.250	4	Waterfalls	3.250	4
Hammer Heads	3.333	4	Antunovic's	2.667	3	Cabins	4.000	3	Antunovic's	3.000	3	Antunovic's	3.000	3
House for Karen	2.750	4	Cabins	3.333	3	Three Amigos	3.667	3	Cabins	4.333	3	Cabins	4.333	3
Putts Beach	3.000	4	Cortez Bank	2.000	3	Cortez Bank	3.333	3	Cortez Bank	3.333	3	Cortez Bank	3.667	3
Three Amigos	3.333	4	Denby Road	2.667	3	Hammer Heads	3.333	3	Denby Road	3.000	3	Denby Road	2.667	3
Tongaporutu	3.750	4	Hammer Heads	3.000	3	Denby Road	3.000	3	Hammer Heads	4.000	3	Hammer Heads	3.667	3
Waitoetoe	3.250	4	Railways 2	2.333	3	Antunovic's	2.667	3	Railways 2	3.000	3	Railways 2	2.333	3
Waterfalls	3.000	4	Three Amigos	3.333	3	Railways 2	2.333	3	Three Amigos	3.333	3	Three Amigos	3.000	3
Antunovic's	2.667	3	DDT's	3.000	2	DDT's	3.500	2	DDT's	3.500	2	DDT's	3.000	2
Cortez Bank	3.000	3	Lawrie's Memorial	3.000	2	Stones	3.500	2	Lawrie's Memorial	3.000	2	Lawrie's Memorial	3.500	2
Lawrie's Memorial	3.000	3	Stones	3.000	2	Tapus	3.500	2	Long Reef	4.000	2	Long Reef	4.500	2
Railways 2	2.667	3	Tapus	3.000	2	Lawrie's Memorial	3.000	2	Stones	2.000	2	Stones	2.000	2
Stones	3.500	3	Twin Peaks	2.500	2	Twin Peaks	3.000	2	Tapus	3.500	2	Tapus	3.500	2
Tapus	3.000	3	Black Rocks	2.000	1	O T Dub	5.000	1	Twin Peaks	2.500	2	Twin Peaks	2.500	2

Twin Peaks	3.000	3	Long Reef	4.000	1	Long Reef	4.000	1	Black Rocks	3.000	1	Black Rocks	2.000	1
Black Rocks	2.000	2	O T Dub	2.000	1	Outside Corner	3.000	1	O T Dub	1.000	1	O T Dub	1.000	1
DDT's	3.000	2	Outside Corner	3.000	1	Black Rocks	2.000	1	Outside Corner	3.000	1	Outside Corner	3.000	1
Long Reef	3.000	2	Cliffs	#DIV/0!	0	Cliffs	#DIV/0!	0	Cliffs	#DIV/0!	0	Cliffs	#DIV/0!	0
O T Dub	3.000	2	Montgomery Beach	#DIV/0!	0	Montgomery Beach	#DIV/0!	0	Montgomery Beach	#DIV/0!	0	Montgomery Beach	#DIV/0!	0
Outside Corner	3.000	2												
Cliffs	#DIV/0!	1												
Montgomery Beach	#DIV/0!	1												

Amenity			Level of use			Economic value			Historic and cultural			Rarity			
Surf Break Name	Average	Responses	Surf Break Name	Average	Responses	Surf Break Name	Average	Responses	Surf Break Name	Average	Responses	Use type	Average	Responses	River bar breaks
Fitzroy Beach	4.392	97	Fitzroy Beach	4.794	97	Fitzroy Beach	4.573	96	Waitara Bar	4.250	16	Kite surfing	3.122	50	Oakura River Mouth
Opunake Reef and Beach	4.276	29	Stent Road	4.788	85	Stent Road	4.157	83	Rongomai Road	4.250	12	Big wave riding	2.504	125	Patea river North Side
East End	4.170	47	Rocky Lefts	4.500	80	Oakura Beach	4.067	60	Graveyards	4.214	84	Surf lifesaving	2.500	18	Patea River South Side
Oakura Beach	4.065	62	Back Beach Breaks	4.321	109	Opunake Reef and Beach	3.931	29	Stent Road	4.143	77	Windsurfing	2.444	36	Waitara Bar
Oakura Camp Ground	3.938	48	Graveyards	4.300	90	The Pipe	3.800	5	The Point (Fences)	4.000	12	Learning to surf	2.164	122	Waiwhakaiho River Mouth
The Gap (at Fitzroy)	3.723	47	Oakura Beach	4.246	61	East End	3.717	46	Waiinu Reef	4.000	6	Longboarding	1.955	376	
Wind Wand	3.625	8	East End	4.170	47	Rocky Lefts	3.608	79	Rocky Lefts	3.973	73	Stand up paddleboarding	1.940	66	
Boulters (Boulder Bay)	3.565	23	Opunake Reef and Beach	4.103	29	Arawhata Road Point	3.587	63	Fin Whaka	3.952	21	Swimming	1.926	27	
			Arawhata Road Point	4.078	64	The Gap (at Fitzroy)	3.574	47	Mangahume Reef	3.945	55	Body Boarding	1.843	103	
Amenity average less than 3.4			Rocky Rights	4.036	83	Back Beach Breaks	3.570	107	Patea River Beach	3.909	11	Photography	1.769	13	
			The Pipe	4.000	5	Waitara Bar	3.556	18	Fitzroy Beach	3.904	83	Short board surfing	1.634	2131	
Te Henui Right (Reform)	3.333	12	Kumera Patch	3.990	97	Oakura Camp Ground	3.447	47	Ohawe Beach	3.900	10	Watching and or listening to waves	1.600	25	
Oakura River Mouth	3.286	42	Mangahume Reef	3.912	57	East Beach	3.444	9	Opunake Reef and Beach	3.893	28				
Slimey Rocks	3.286	7	Ahu Ahu Multiple Breaks	3.890	82	Mangahume Reef	3.421	57	Inside Fences	3.882	17	None of the uses have an average of above 3.4			
The Pipe	3.200	5	The Gap (at Fitzroy)	3.830	47				The Islands	3.833	6				
Jeffery's	3.176	17	Waiwhakaiho Reef	3.825	57	Economic value average less than 3.4			Patea River South Side	3.818	11				
Kawaroa	3.167	6	Punihos	3.824	85				Kaupokanui Beach	3.786	14				
Tasman	3.125	8	Weld Road Breaks	3.822	73	Graveyards	3.393	89	Kumera Patch	3.782	87				
Ohawe Beach	3.100	10	Waiwhakaiho River Mouth	3.792	53	Kumera Patch	3.389	95	Porikapa Road	3.778	9				
Middletons Bay	3.000	18	The Groyne	3.755	49	Arawhata Road Reef	3.340	53	Te Namu Reef	3.778	9				
The Wedge	3.000	9	Oakura Camp Ground	3.688	48	The Islands	3.333	6	East Beach	3.750	8				
Breakwater	2.917	12	Waitara Bar	3.632	19	Waiwhakaiho Reef	3.321	56	Bayly Road North	3.733	15				
Waiwhakaiho River Mouth	2.906	53	Arawhata Road Reef	3.623	53	Waiwhakaiho River Mouth	3.314	51	Patea River North Side	3.727	11				
The Groyne	2.898	49	Belt Road Left	3.465	43	Wind Wand	3.250	8	Back Beach Breaks	3.722	90				
Waiwhakaiho Reef	2.895	57	Boulters (Boulder Bay)	3.435	23	Rocky Rights	3.235	81	Sluggo's	3.714	7				
Urenui Bar	2.857	7	Back of Stent	3.413	80	Ahu Ahu Multiple Breaks	3.213	80	Bayly Road Breaks	3.696	23				
Belt Road Right	2.844	45	Greenmeadows	3.404	47	Arawhata Road Beach	3.179	28	Sky Williams	3.667	39				
Bell Block Reef	2.818	33	Arawhata Road Beach	3.400	30	Sky Williams	3.143	42	BJ's Left	3.615	13				
Back Beach Breaks	2.809	110				Boulters (Boulder Bay)	3.136	22	Rocky Rights	3.589	73				
Boat Ramps	2.800	25	Level of use average less than 3.4			Tasman	3.125	8	Rahotu Multiple Beach Breaks	3.583	12				
Waitara Bar	2.800	20				Weld Road Breaks	3.114	70	Oakura Beach	3.558	52				
Belt Road Left	2.767	43	Shipwrecks	3.381	21	Punihos	3.095	84	Tapuae Beach Breaks	3.538	13				
Kaupokanui Beach	2.750	16	East Beach	3.333	9	Belt Road Left	3.023	43	Punihos	3.527	74				
East Beach	2.700	10	Sky Williams	3.326	43	Bog Works	3.023	43	East End	3.514	37				
Bog Works	2.682	44	Slimey Rocks	3.286	7	The Groyne	3.021	48	Boat Ramps	3.500	24				
Butlers Reef	2.667	24	Middletons Bay	3.278	18	Oakura River Mouth	3.000	40	Puketapu	3.500	14				
Patea River Beach	2.667	12	Oakura River Mouth	3.275	40	Tai Road	3.000	21	Cemetery Point	3.500	8				
Ahu Ahu Multiple Breaks	2.646	82	Fin Whaka	3.208	24	Spot X	3.000	16	Tai Road	3.474	19				
Patea River South Side	2.583	12	Boilers	3.200	10	Boilers	3.000	10	Komene Road Beach	3.455	33				
Weld Road Breaks	2.581	74	Kina Road	3.188	32	Greenmeadows	2.911	45	Crushers	3.438	16				
Outsides (Cape Egmont Boat Club/Ramp Reef)	2.563	16	Spot X	3.176	17	Kina Road	2.900	30	Oakura River Mouth	3.429	35				
Rocky Lefts	2.538	80	Hole 9	3.143	7	Middletons Bay	2.889	18	Kina Road	3.429	28				
Stent Road	2.447	85	The Dump (Dumps)	3.115	26	Slimey Rocks	2.857	7	Wind Wand	3.429	7				
Patea River North Side	2.417	12	Patea River Beach	3.083	12	Fin Whaka	2.792	24	Ahu Ahu Multiple Breaks	3.426	68				
Boilers	2.400	10	Belt Road Right	3.067	45	The Wedge	2.778	9	The Gap (at Fitzroy)	3.415	41				
Pid's Point (Waipipi)	2.400	5	Jeffery's	3.059	17	Shipwrecks	2.773	22	House for Karen	3.400	5				
Waverley Beach	2.333	6	Bayly Road Breaks	3.040	25	Belt Road Right	2.733	45							
Spot X	2.294	17	Boat Ramps	3.000	25	The Dump (Dumps)	2.731	26	Historic and cultural average less than 3.4						
Far Toos (Kina Road North)	2.250	12	Bog Works	2.977	44	Bayly Road Breaks	2.720	25							
Te Namu Reef	2.222	9	Kina Point (Kina Road South)	2.960	25	Hole 9	2.714	7	Weld Road Breaks	3.383	60				
Graveyards	2.211	90	Patea River South Side	2.917	12	Urenui Bar	2.714	7	The Dump (Dumps)	3.375	24				
Kina Road	2.188	32	Butlers Reef	2.913	23	Back of Stent	2.701	77	Oaonui Beach	3.357	14				
The Islands	2.167	6	Secrets	2.882	17	Ohawe Beach	2.700	10	Lupins	3.355	31				
Rocky Rights	2.145	83	South Point	2.875	24	Butlers Reef	2.696	23	Komene Left	3.345	29				
Trap Doors	2.136	22	Bayly Road North	2.875	16	Jeffery's	2.688	16	Oakura Camp Ground	3.341	41				
Bayly Road North	2.125	16	Farmhouse Stent	2.870	23	Kaupokanui Beach	2.688	16	Manihi Road Reef	3.333	12				
Desperation Point	2.125	16	Trap Doors	2.864	22	Te Henui Right (Reform)	2.667	12	Farmhouse Stent	3.333	21				
Coast Road Bach	2.100	10	Bird's Nest	2.845	58	Farmhouse Stent	2.591	22	Fort St George	3.333	21				
Kina Point (Kina Road South)	2.080	25	Te Henui Right (Reform)	2.833	12	Patea River Beach	2.583	12	Trap Doors	3.333	21				
BJ's Left	2.077	13	Secret Sandy's	2.826	23	Patea River North Side	2.583	12	Epiha Road	3.333	12				
Arawhata Road Reef	2.077	52	Tai Road	2.810	21	Patea River South Side	2.583	12	Urenui Bar	3.333	6				
Back of Stent	2.050	80	Ohawe Beach	2.800	10	Bayly Road North	2.563	16	Outsides (Cape Egmont Boat Club/Ramp Reef)	3.313	16				
Bayly Road Breaks	2.040	25	The Point (Fences)	2.786	14	Kina Point (Kina Road South)	2.560	25	Middletons Bay	3.294	17				
The Dump (Dumps)	2.038	26	Greenmeadows Beach	2.759	29	BJ's Left	2.538	13	Arawhata Road Reef	3.289	45				
Arawhata Road Beach	2.033	30	Kaupokanui Beach	2.750	16	Oaonui Beach	2.500	14	Arawhata Road Point	3.283	53				
Hole 9	2.000	7	Patea River North Side	2.750	12	The Point (Fences)	2.500	14	Greenmeadows	3.282	39				
Sky Williams	1.977	43	Cemetery Point	2.750	8	Coast Road Bach	2.500	10	Back of Stent	3.264	72				
Farmhouse Stent	1.955	22	Inside Fences	2.737	19	South Point	2.458	24	Waiwhakaiho River Mouth	3.250	44				
Shipwrecks	1.955	22	Tank Farms	2.714	14	Bell Block Reef	2.455	33	Spot X	3.250	16				
Tai Road	1.952	21	Epiha Road	2.692	13	Desperation Point	2.438	16	Stepladders Left and Right	3.250	8				

Oaonui Beach	1.929	14	The Wedge	2.667	9	Rifle Range	2.429	7	Arawhata Road Beach	3.240	25				
Arawhata Road Point	1.922	64	Rewa Rewa	2.667	6	Secrets	2.412	17	Secrets	3.231	13				
Mangahume Reef	1.877	57	Crushers	2.647	17	Rahotu Multiple Beach Breaks	2.400	15	Waiwhakaiho Reef	3.229	48				
Rifle Range	1.857	7	Lupins	2.629	35	Pid's Point (Waipipi)	2.400	5	Bird's Nest	3.222	54				
Waiinu Reef	1.857	7	Desperation Point	2.625	16	Tapuae Beach Breaks	2.385	13	Boilers	3.200	10				
Bird's Nest	1.845	58	Wind Wand	2.625	8	Cemetery Point	2.375	8	Pid's Point (Waipipi)	3.200	5				
Fort St George	1.792	24	Rahotu Multiple Beach Breaks	2.600	15	Secret Sandy's	2.364	22	The Pipe	3.200	5				
The Point (Fences)	1.786	14	Sandy bay	2.571	14	Boat Ramps	2.360	25	South Point	3.190	21				
Secrets	1.765	17	Pohutakawas	2.556	27	Greenmeadows Beach	2.333	27	Sandy bay	3.182	11				
Manihi Road Reef	1.750	12	Sundays	2.500	34	Far Toos (Kina Road North)	2.333	12	Belt Road Left	3.179	39				
Fin Whaka	1.750	24	Fort St George	2.500	24	Waverley Beach	2.333	6	Sundays	3.161	31				
Tank Farms	1.733	15	Outsides (Cape Egmont Boat Club/Ramp Reef)	2.500	16	Trap Doors	2.318	22	Shipwrecks	3.143	21				
Puketapu	1.714	14	Komene Left	2.485	33	Bird's Nest	2.316	57	Coast Road Bach	3.111	9				
Sandy bay	1.714	14	Oaonui Beach	2.429	14	Outsides (Cape Egmont Boat Club/Ramp Reef)	2.313	16	Bell Block Reef	3.074	27				
Brazils	1.714	7	Rifle Range	2.429	7	Pohutakawas	2.296	27	Jeffery's	3.067	15				
South Point	1.708	24	Sluggo's	2.429	7	Sluggo's	2.286	7	Kina Point (Kina Road South)	3.043	23				
Sundays	1.706	34	Far Toos (Kina Road North)	2.417	12	Sundays	2.235	34	Secret Sandy's	3.000	16				
Secret Sandy's	1.696	23	Tapuae Beach Breaks	2.417	12	Tank Farms	2.200	15	Desperation Point	3.000	14				
Tapuae Beach Breaks	1.692	13	Stepladders Left and Right	2.400	10	Komene Left	2.156	32	Far Toos (Kina Road North)	3.000	11				
Lieth Road	1.667	12	Bell Block Reef	2.394	33	Sandy bay	2.143	14	Mussels	3.000	6				
Crow's Nest	1.667	9	BJ's Left	2.385	13	Porikapa Road	2.100	10	Waverley Beach	3.000	5				
Rongomai Road	1.643	14	Tasman	2.375	8	Stepladders Left and Right	2.100	10	Belt Road Right	2.951	41				
Komene Left	1.636	33	Coast Road Bach	2.333	9	Lupins	2.029	35	Tank Farms	2.923	13				
Lupins	1.629	35	Crow's Nest	2.333	9	Komene Road Beach	2.000	37	Greenmeadows Beach	2.920	25				
Cemetery Point	1.625	8	Kawaroa	2.333	6	Inside Fences	2.000	19	Tapuae Left	2.889	9				
Epiha Road	1.615	13	Waverley Beach	2.333	6	Crushers	2.000	17	The Wedge	2.889	9				
Porikapa Road	1.600	10	Rongomai Road	2.214	14	Puketapu	2.000	14	Pohutakawas	2.833	24				
Punihos	1.581	86	Komene Road Beach	2.211	38	Rongomai Road	2.000	14	Rifle Range	2.833	6				
Tapuae Left	1.556	9	Pid's Point (Waipipi)	2.200	5	Epiha Road	2.000	13	The Groyne	2.829	41				
Komene Road Beach	1.553	38	Puketapu	2.143	14	Lieth Road	2.000	12	Boulters (Boulder Bay)	2.818	22				
Greenmeadows	1.542	48	Urenui Bar	2.143	7	Tapuae Left	2.000	9	Butlers Reef	2.750	20				
Inside Fences	1.526	19	Tapuae Left	2.125	8	Te Namu Reef	2.000	9	Lieth Road	2.727	11				
Kumera Patch	1.526	97	Lieth Road	2.091	11	Kawaroa	2.000	6	Bog Works	2.725	40				
Slaughterhouse Left and Right	1.500	10	Manihi Road Reef	2.000	12	Rewa Rewa	2.000	6	Tasman	2.714	7				
Mussels	1.500	6	Porikapa Road	2.000	10	Slaughterhouse Left and Right	1.900	10	Shark Pit	2.667	12				
Rewa Rewa	1.500	6	Slaughterhouse Left and Right	2.000	10	Waiinu Reef	1.857	7	Slaughterhouse Left and Right	2.667	9				
Greenmeadows Beach	1.483	29	Mussels	2.000	6	Manihi Road Reef	1.833	12	Kawaroa	2.667	6				
Crushers	1.471	17	The Islands	2.000	6	Fort St George	1.833	24	Rewa Rewa	2.667	6				
Sluggo's	1.429	7	Breakwater	1.917	12	Breakwater	1.833	12	Slimey Rocks	2.667	6				
Pohutakawas	1.407	27	Waiinu Reef	1.857	7	Shark Pit	1.750	12	Waiongana Reef	2.667	6				
Motunui (Oataroa Road)	1.400	5	Waiongana Reef	1.857	7	Waiongana Reef	1.714	7	Turangi Reef	2.600	5				
Rahotu Multiple Beach Breaks	1.333	15	Brazils	1.714	7	Crow's Nest	1.667	9	Breakwater	2.500	12				
Waiongana Reef	1.286	7	Shark Pit	1.667	12	Mussels	1.667	6	Te Henui Right (Reform)	2.500	10				
Shark Pit	1.250	12	Turangi Reef	1.600	5	Turangi Reef	1.600	5	Hole 9	2.500	6				
Stepladders Left and Right	1.200	10	Te Namu Reef	1.556	9	Brazils	1.500	6	Crow's Nest	2.250	8				
Turangi Reef	1.000	5				Motunui (Oataroa Road)	1.400	5	Brazils	2.000	5				
			Less than 5 responses												
Less than 5 responses						Less than 5 responses			Less than 5 responses						
			Dread Rock	2.500	4										
Dread Rock	1.500	4	House for Karen	2.500	4	Dread Rock	2.500	4	Hammer Heads	4.250	4				
House for Karen	2.250	4	Motunui (Oataroa Road)	2.000	4	House for Karen	2.750	4	Motunui (Oataroa Road)	3.250	4				
Oats	1.500	4	Oats	2.250	4	Oats	1.250	4	Onaero Beach	3.250	4				
Onaero Beach	2.500	4	Onaero Beach	2.250	4	Onaero Beach	2.500	4	Onaero Surf camp	4.250	4				
Onaero Surf camp	2.750	4	Onaero Surf camp	3.250	4	Onaero Surf camp	3.250	4	Putts Beach	3.500	4				
Putts Beach	2.000	4	Tongaporutu	2.500	4	Putts Beach	3.000	4	Tongaporutu	3.500	4				
Tongaporutu	1.250	4	Waitoetoe	1.500	4	Tongaporutu	3.250	4	Waterfalls	4.000	4				
Waitoetoe	1.500	4	Waterfalls	2.500	4	Waitoetoe	1.750	4	Antunovic's	2.667	3				
Waterfalls	2.250	4	Antunovic's	2.333	3	Waterfalls	2.750	4	Cabins	4.333	3				
Antunovic's	2.000	3	Cabins	3.333	3	Cabins	3.000	3	Cortez Bank	3.000	3				
Cabins	1.667	3	Cortez Bank	2.000	3	Cortez Bank	2.333	3	Dread Rock	4.000	3				
Cortez Bank	2.000	3	Denby Road	2.333	3	Denby Road	1.667	3	Oats	4.333	3				
Denby Road	2.000	3	Hammer Heads	2.667	3	Hammer Heads	3.000	3	Railways 2	1.667	3				
Hammer Heads	2.000	3	Putts Beach	2.667	3	Railways 2	1.667	3	Three Amigos	3.000	3				
Railways 2	2.333	3	Railways 2	2.000	3	Three Amigos	1.667	3	Waitoetoe	3.000	3				
Three Amigos	1.000	3	Three Amigos	2.333	3	Antunovic's	2.500	2	DDT's	3.000	2				
DDT's	3.000	2	DDT's	3.000	2	DDT's	3.000	2	Denby Road	2.000	2				
Lawrie's Memorial	3.000	2	Lawrie's Memorial	2.500	2	Lawrie's Memorial	3.000	2	Lawrie's Memorial	4.000	2				
Stones	1.500	2	Stones	3.000	2	Stones	2.000	2	Stones	4.000	2				
Tapus	2.000	2	Tapus	1.500	2	Tapus	1.500	2	Tapus	1.500	2				
Twin Peaks	1.000	2	Twin Peaks	2.000	2	Twin Peaks	2.500	2	Twin Peaks	5.000	2				
Black Rocks	1.000	1	Black Rocks	1.000	1	Black Rocks	1.000	1	Black Rocks	1.000	1				
Long Reef	3.000	1	Long Reef	4.000	1	Long Reef	5.000	1	Long Reef	5.000	1				

O T Dub	2.000	1	O T Dub	4.000	1	O T Dub	1.000	1	O T Dub	5.000	1				
Cliffs	#DIV/0!	0	Cliffs	#DIV/0!	0	Cliffs	#DIV/0!	0	Cliffs	#DIV/0!	0				
Montgomery Beach	#DIV/0!	0	Montgomery Beach	#DIV/0!	0	Montgomery Beach	#DIV/0!	0	Montgomery Beach	#DIV/0!	0				
Outside Corner	#DIV/0!	0	Outside Corner	#DIV/0!	0	Outside Corner	#DIV/0!	0	Outside Corner	#DIV/0!	0				

Agenda reports

Policy & Planning Committee, October 2017

Item 2

Lake Rotorangi environmental monitoring report (2.9 MB)

Item 3

Groundwater environmental monitoring report (2.1 MB)

Item 4

Rocky shore environmental monitoring report (3 MB)