

Coastal environment





Objectives

1. The natural character of the coastal environment is preserved through:
 - (1) The protection of nationally and regionally significant areas and values;
 - (2) The protection of the integrity, functioning and resilience of physical and ecological processes in the coastal environment;
 - (3) The restoration and rehabilitation of degraded areas; and
 - (4) The management of subdivision, use and development, and the allocation of resources in the coastal environment so that adverse effects are avoided, remedied or mitigated.
2. Existing provisions for public access to and along the coastal marine area remain and appropriate opportunities are taken to enhance public access.
3. Coastal water quality is of a high standard.
4. There are increased opportunities for the aspirations of the tangata whenua for the coastal environment to be met.





Doing well

- Most nationally and regionally significant areas are protected. Some by regional or district plan measures, some by covenants, and some by public ownership.
- Greater Wellington has supported 13 community groups in their efforts to restore weedy and eroding areas of the coast.
- For more than 75 per cent of the time over the last four summers, water quality was suitable for swimming at all 76 bathing beaches surveyed.
- Greater Wellington, the Wairarapa district councils and iwi have prepared the Wairarapa Coastal Strategy. This provides guidance on managing development pressures and impacts on natural character.

Must improve

- Plimmerton, Paremata and Titahi Bay beaches, both arms of Porirua Harbour, and Hataitai and Petone beaches regularly failed water quality guidelines over the last four summers. Sometimes bacteria levels were more than a hundred times over the limit.
- Stormwater is causing levels of DDT, copper, lead, and zinc in marine sediments of the Onepoto arm of Porirua Harbour to be high enough to harm aquatic life.
- Sedimentation rates in the Pauatahanui Inlet are climbing, and whether the amount of sediment entering the harbour can, or should be, slowed down is unknown.
- Opportunities for tangata whenua to meet their aspirations for the coastal environment are frustrated by the lack of coordination between the various government bureaucracies with their different roles and responsibilities.

“I must go down to the sea again...”

To grow up a New Zealander is to build sandcastles, eat mussels off a makeshift barbecue, dig in Lions Club treasure hunts and watch the surf life savers sprint for the sea.

The beach culture is part of the character of our coast, but natural elements – geology, ecology – also help to shape it. Preserving that natural dynamism while providing for people’s use and enjoyment needs delicate management.

Tangata whenua have especially strong links with the coastal environment, value its mauri and all it offers.

The Regional Policy Statement set four objectives for the coastal environment. These reflect our expectations for maintaining our connections with this special place, while keeping its natural character.

Preserving natural character

Where we are now

What appears at first to be a single, contiguous coastline is in fact an ever-changing mosaic of different environments, from the rugged, largely unmodified Wairarapa coast to the highly developed urban beaches of Wellington city.

In this environment, how do you define such an esoteric quality as “natural character”? For lack of any rigid prescription, it might be judged by the extent an area is still unmodified by humans – highly modified sites have a low degree of natural character, while pristine sites rate highly.

Sometimes modifications are obvious – a building or seawall, or a carpet of introduced weeds – but we can disturb the natural order in more subtle ways, interfering with processes like coastal deposition and tidal flushes. Modification of any kind inevitably dilutes an area’s natural character, but increasingly, people are working through community projects to rid the coast of weeds, remove rubbish, replant native vegetation and reverse the decline.

Under the Resource Management Act 1991 (RMA), preserving the coast’s natural character is a matter of national importance. It must be recognised and provided for in the New Zealand Coastal Policy Statement, regional policy statements, regional and district plans, and when making decisions on resource consent decisions.

Protecting significant areas

The Regional Policy Statement lists those coastal sites that are nationally or regionally significant for their ecological, landscape, seascape or geological values. Some are publicly owned and largely unmodified by development, while some privately owned sites are protected by covenants or other measures.

Provisions in district plans and the Regional Coastal Plan do a good job of protecting landscape and geological values, but they cope less well with ecological values, which are in a state of constant flux from pressures like weeds or human recreation. Regular checks are needed if we’re to know whether we’re meeting the objectives of the Regional Policy Statement.





Kohekohe on the Paekakariki escarpment. The Regional Policy Statement identifies coastal escarpments and small beaches from Paekakariki to Owhiro Bay as landscapes and seascapes of regional significance. With help from Greater Wellington, most of this escarpment was legally protected in 2001, and it has since been fenced to exclude stock.

Protecting physical and ecological processes

We disrupt the coast's special ecological processes by building inappropriate structures, through behaviour like driving on dunes and beaches – and by pollution.

Three investigations give an idea of how the region's coastal ecosystems are coping with these pressures.

Life on Wellington Harbour beaches

Sandy beaches and river estuaries are an important part of our coastline – a home for shellfish, wading birds, and coastal wetland plants. Here, the saline environment of the sea meets the freshwater of the land. River estuaries, living larders of shellfish, worms, sand hoppers and snails for migratory wading birds, mostly feature along sandy parts of the coast. Unfortunately, we know little about most of them except for the Waikanae River estuary and Pauatahanui Inlet in Porirua.

Over the last two summers, Greater Wellington surveyed the beaches and river estuaries of Wellington Harbour, the south coast and Kapiti coast (Wairarapa coastline surveys are planned for 2005-06). Sites were sampled for nutrients, heavy metals and the presence and abundance of macroinvertebrates – small animals without backbones like sandhoppers. Petone beach supported the biggest variety of organisms, particularly in the intertidal zone. Lowry Bay had very few bivalve shellfish, but a similar range of worms to Petone. Fitzroy Bay, an exposed gravel beach at the harbour entrance, featured sand hoppers and one species of worm. The Hutt River estuary is dominated by pipi, cockles and a variety of worms. Results from the Kapiti coast were not available for this report.

Sediments provide food and habitat for many coastal invertebrates but heavy metals can undermine their vitality. Sediment quality guidelines from the Australia New Zealand Environment and Conservation Council (ANZECC) set out tolerances for heavy metal concentrations. The survey sites comfortably met ANZECC guidelines, probably because the coarse nature of their sediment allows heavy metals to filter straight through them.



Variable oystercatchers nest on sandy and shingle beaches. This makes them and their chicks vulnerable to injury and death if vehicles are driven on the beach. Photo: Dave Hansford.

Neither were there any obvious signs of excessive nutrient enrichment.

The study found our intertidal sandy beaches and river estuaries in Wellington Harbour in good overall health. Human impacts like stormwater discharges appear to be localised, and not threatening the health of these ecosystems.

Pauatahanui cockles

The Guardians of Pauatahanui Inlet, partnered with the National Institute of Water and Atmospheric Research, have surveyed the inlet's cockle population every three years since 1992. Their findings are compared with results from a study by the then New Zealand Oceanographic Institute in 1976, which reckoned cockle numbers at between 438 and 608 million.

The first Guardians' survey in 1992 estimated Pauatahanui's cockle population at around 220 million, and each subsequent census has returned a similar figure.

Adult cockles have declined slightly since 2001, but the number of juveniles has jumped, which bodes well so long as they enjoy reasonable survival. If they do, we'll know whether the inlet could sustain a bigger population, or if whatever caused the decline between 1976 and 1992 has permanently diminished its carrying capacity.

Guardians of Pauatahanui Inlet out counting cockles at Motukaraka West. Done every three years since 1992, theirs is possibly the longest running and most comprehensive series of cockle surveys undertaken by community volunteers in New Zealand. Photo: Dave Hansford.



Ecological effects of sediment contamination

Contaminants in stormwater discharges affect the animal and plant life of estuaries and shallow harbours. The sheltered Onepoto arm of Porirua Harbour, which drains highly urbanised catchments, is particularly vulnerable.

In 1997, we sampled sediments at 11 sites around the shores of both arms of Porirua Harbour and tested for contamination. We found that the sediment in two sites near the mouth of the Porirua Stream in the Onepoto arm had lead and zinc at levels high enough to start affecting aquatic life. The shellfish we sampled from that part of the harbour had high copper levels, but not over guideline levels.

Heavy metal levels in sediments around the shores of the Pauatahanui arm and the rest of the Onepoto arm were lower, and did not exceed any guideline levels.



In 2004, we sampled marine sediments in five more locations in Porirua Harbour, this time the subtidal sediments away from the shore. We found levels of copper, lead and zinc potentially high enough to harm the aquatic life of the Onepoto arm of the harbour. DDT has accumulated in both arms of the harbour to levels where it may harm aquatic life.

While mercury levels are a concern in the sub-tidal sediments of the Onepoto arm – as is copper in Browns Bay in the Pauatahanui arm – concentrations of arsenic, cadmium, chromium, mercury, nickel and silver in both arms of the harbour were all below guideline limits. All metals except cadmium were higher in the Onepoto arm than the Pauatahanui.

This sort of study is being repeated every two or three years, to keep a watching brief on contaminant levels in the harbour. We need to find out how fast these contaminants are building up, and when they will be high enough to permanently affect the ecosystem. At the same time we have to work out how to stop that happening.

What's being done

Preserving natural character

In 2004, Greater Wellington, the Wairarapa district councils and iwi produced the *Wairarapa Coastal Strategy*, which looks at, among other things, what communities value about the coast and how they want it managed. The Strategy recognises the need to preserve the coast's natural character and its policies and guidelines aim to help manage development pressures and impacts on that character.

Greater Wellington and the Wairarapa district councils contracted landscape consultants Boffa Miskell to identify sites of high ecological significance on the Wairarapa coast against criteria such as:

- a predominately indigenous vegetation
- a native plant community past pioneering stage
- offering a long term habitat for indigenous fauna
- the presence of duneland systems or estuaries.

Boffa Miskell found 64 significant sites covering 1544 hectares – around ten per cent of the Wairarapa coastal environment. Many of them are on private land and have no formal protection. The study found that nearly three quarters of the Wairarapa coast retains moderate to high natural character – in fact, it gave no low rankings anywhere except within residential areas.

Information from the *Wairarapa Coastal Strategy* has been used in the development of the Wairarapa combined district plan, and will be used in the upcoming review of the Regional Policy Statement.

Restoration of degraded areas

Greater Wellington established the community environmental care programme *Take Care* in 2000. Since then we have supported 13 voluntary groups who are restoring and rehabilitating degraded coastal sites.

The Eastbourne Care Group have been removing marram grass, boneseed, and horned poppy from these dunes since 2004, and have nearly eradicated the invasive tree medick. Now the group is planting native grasses and returning natural character to this part of the coast.



Care groups at Otaki, Paraparaumu, Days Bay, Island Bay, Castlepoint and Riversdale Beach are tackling dune erosion by fencing them off and replanting with the native sand binding grasses spinifex and pingao.

At the Waikanae Estuary scientific reserve, Paekakariki escarpment, Eastbourne and the Motuwaiereka Estuary at Riversdale, volunteers have concentrated on weed removal, replacing them with native plants.

City and district councils take on coastal restoration and rehabilitation projects of their own – Wellington City Council's cleanup of the old Moa Point sewage outfall and purchase and restoration of land around the Owhiro Bay Quarry are just two examples.

Projects like these are helping return natural character to areas of the coast. They benefit the coastal ecosystems, and bring enjoyment to everyone who visits.

Over the last five years the Waitohu Stream Care Group has been protecting the dunes near the mouth of the Waitohu Stream, replanting with spinifex and pingao from their own nursery. Managing rabbits and dune buggies provide a greater challenge.

Understanding sedimentation of Pauatahanui Inlet

In 2000, Greater Wellington and Porirua City Council adopted the Pauatahanui Inlet Action Plan to “enhance the quality of the environment by protecting the integrity of existing ecosystems and by restoring degraded ecosystems wherever possible.” The Pauatahanui Inlet Community Trust was established in 2002 to oversee the implementation of the Plan.

The Plan aims to tackle a variety of concerns raised by community groups, the most serious of which is sedimentation. Most inlets receive sediment – some may even fill up over time – but large-scale earthworks can accelerate the process and disrupt ecological flows.



In 2004, Greater Wellington and Porirua City Council commissioned two interrelated studies to better understand the impacts of land use in the Pauatahanui catchment, and the consequences of sedimentation for the inlet.

The studies found that sedimentation rates had climbed from a pre-human one mm per year to the current 4.6 mm in the wake of forest removal, conversion to pasture and other developments.

Strong prevailing winds that stir up and re-suspend the sediment, and a vigorous tidal flush that effectively changes the water every four days, help to slow the rate of deposition, but the study concluded that those influences are no longer coping with the increasing amount of sediment entering the inlet.

Where to from here?

Subdivision, and a subsequent shift from rural to residential land use, is the most pervasive pressure on the coast's natural character, including its ecosystems and how they function. Since 1999, coastal land has been split into 4,481 new lots, mostly along the Kapiti coast, where the District Council has dealt with the effects by putting a coastal dune environment zone in its district plan. Proposed coastal subdivisions must meet prescribed standards and a coastal reserve must be set aside if the new lots are small (less than four hectares).

Nearly half the new lots in the Wairarapa since 1999 were created at Riversdale in a single year – 2005. Mitigation works included revegetation and rehabilitation of gullies and wetlands. If development pressures increase there over the next decade, more protection will be needed for areas high in natural character. This could be secured through policies in a combined district plan being prepared by the Wairarapa district councils.

Since 1999, Greater Wellington has granted 287 permits for activities in the coastal marine area – essentially anywhere seaward of the high tide mark. Only nine permits were granted in the Wairarapa, and those were mainly for erosion protection works. The rest were mostly for work around Wellington Harbour, including development of the new beach at Oriental Bay and changes to the Wellington Waterfront.

Associated with these development pressures is people's ongoing use of the coastal environment. Driving on most beaches in the region is allowed in the Regional Coastal Plan, but needs a resource consent in some areas of significant conservation value (like Pauatahanui Inlet), and is prohibited on one beach (Titahi Bay in Porirua).

Greater Wellington has not assessed vehicle impacts on coastal fauna, but we know that the eggs and chicks of shore-nesting birds are particularly vulnerable to being crushed, as are cockles and other shellfish, which start life in the upper shore and migrate toward the sea as they grow.

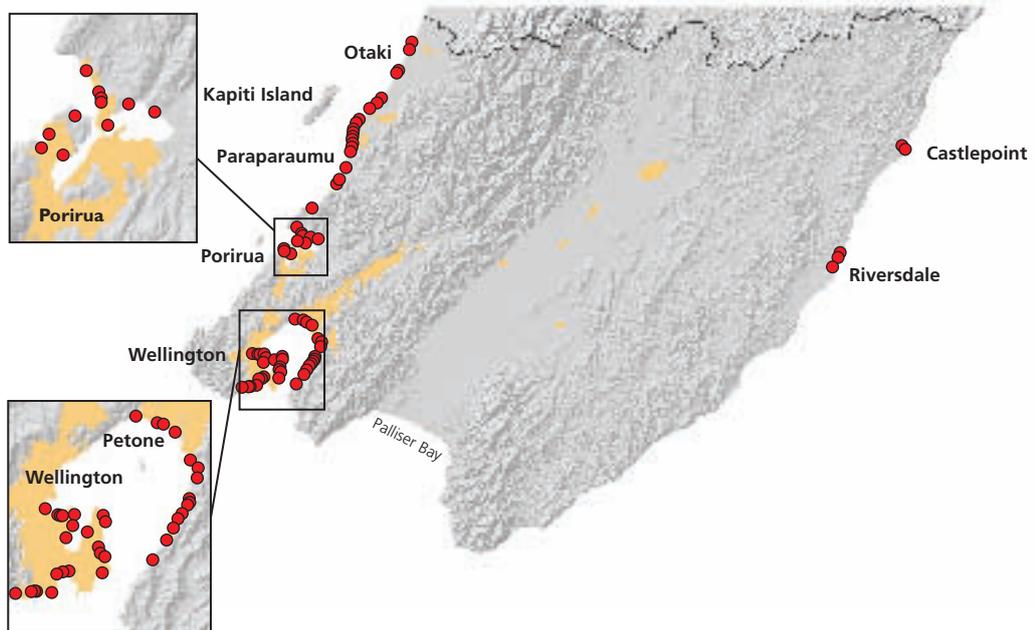
The combined effects of the many activities on the coast's natural character are not well known in the Wellington region. The kind of study done on Wairarapa's coast needs to be extended around the entire coast. This would help us know if areas with high natural character or ecological value are at risk from human influences.



Coastal water quality

City and district councils, and Greater Wellington keep regular watch on coastal water quality at 76 sites around the region's coastline. These sites are popular with swimmers, surfers and boaties.

Figure 4.2:
These bathing beaches are sampled throughout the summer and tested for compliance with recreational water quality guidelines. Weekly results are posted on our website.



Sites are sampled every week during summer – and at least monthly for the rest of the year – for the presence of enterococci (bacteria that live in the gut of all warm-blooded animals, including humans). High enterococci counts point to bacterial contamination from sewage, or from effluent from other animals, and a subsequent risk of illness.

Ministry for the Environment and Ministry of Health guidelines set two thresholds for enterococci levels with actions for when those levels are reached. The guidelines recommend a three-tier (traffic-light) management framework where:

- Green, or surveillance mode, denotes low or no public health risk (single sample enterococci count $\leq 140/100\text{ml}$)
- Orange is an alert mode that requires follow-up monitoring until levels return to green mode (single sample enterococci count $> 140/100\text{ml}$)
- Red calls for an action response – the beach must be closed to avoid a likely health risk (two consecutive sample enterococci counts $> 280/100\text{ml}$).



Where we are now

Some key points from the results of the last four summers are:

- Only one site – Paekakariki Beach surf club – had all samples at the surveillance level (green) during the last four summer bathing seasons. This site also achieved 100 per cent compliance with the surveillance level during routine winter monitoring from April 2002 to October 2004.
- Fifty-nine sites complied with the surveillance level (green) on more than 90 per cent of summer sampling occasions.
- The sites with the lowest compliance with the surveillance level (green) were Plimmerton's South Beach, Titahi Bay both at Bay Drive and the south beach access road, Pauatahanui Inlet at Browns Bay, and Porirua Harbour at the Rowing Club.
- The sites with the most action level (red) occurrences were Titahi Bay at Bay Drive, Pauatahanui Inlet at Browns Bay, Plimmerton's South Beach, Porirua Harbour at the rowing club, and Plimmerton Beach at Bath Street.

Weather records show that most action level (red) occurrences coincided with heavy rain, implicating sewage-contaminated stormwater or streams contaminated with agricultural runoff as the likely sources of bacterial contamination. But this wasn't always the case. For example, Plimmerton's South Beach had three action level events during dry spells.

The reason for dry weather breaches is unclear. Sewage could be getting into stormwater systems via illegal connections, some streams could be polluted by agricultural or other animal discharges, or high wave energy could be stirring up contaminated sediment.

As well as our bathing beach monitoring, coastal water quality is monitored at seven sites to check its suitability for shellfish gathering. Three sites are on the Kapiti coast (Otaki, Peka Peka, and Raumati beaches) one in Porirua Harbour (near Te Hiko Street), and three in Wellington Harbour (Sorrento, Mahanga and Shark bays).

Sites are sampled weekly over summer, and at least monthly during the rest of the year to coincide with recreational water quality sampling at six of the seven sites.



A surfer at Lyall Bay. The three Lyall Bay sites were within guideline limits for more than 90 per cent of tests over the last four summers. Most breaches happened after rain, especially at the Tirangi Road end.



Shellfish are unsafe to eat if there are high levels of bacteria in the water. This is usually the case after heavy rain.

Samples are tested for the presence of faecal coliforms and compared with guideline levels. These guidelines apply only to bacteria levels in the water; low faecal levels in the water is still no assurance that shellfish are actually safe to eat.

Some points of interest over the four summers since 2001-2002:

- The three Wellington Harbour sites – Sorrento Bay, Mahanga Bay, and Shark Bay – were the only ones that consistently complied with the seasonal median guideline.
- The three Kapiti sites – Otaki, Peka Peka and Raumati beaches – had the worst record and came in above the median guideline value for all summers except the 2002-2003 summer.
- The median faecal coliform count recorded in Porirua Harbour at the Te Hiko Street site over the 2001-2002 summer was well above the median guideline value but the site has only been tested monthly since then. Shellfish collected from this area are likely to be unsafe to eat.

Overall, winter and summer, the Wellington Harbour sites had the lowest median faecal coliform counts.

What's being done

Sewage and stormwater discharges are a big influence on coastal water quality. Since 1995, the three sewage treatment plants serving Wellington, Upper Hutt, Hutt, and Porirua cities – all of which discharge to the sea – have been upgraded. Water quality around Moa Point, Pencarrow and Rukutane Point south of Titahi Bay has improved as a result.

Figure 4.3:
Discharge points for sewage and stormwater. Treated sewage effluent from Wellington, Upper Hutt, Hutt and Porirua cities is discharged at four places around the coast. Stormwater contamination from sewage is decreasing because of work done through Wellington City Council's sewage pollution elimination programme. Nevertheless, these and other stormwater outfalls may be delivering high levels of heavy metals and other contaminants to the coastal environment.

- Contaminated Stormwater
- Treated sewage



Stormwater discharges are a permitted activity in the Regional Coastal Plan, subject to conditions concerning their effect on aquatic life. Along with the nutrients and dirt that stormwater washes off roofs, roads and driveways, comes more dangerous contaminants like heavy metals. These accumulate in seabed sediments, where they can put the life-supporting capacity of marine environments at risk.

When the Plan was prepared in the 1990s, Greater Wellington had little information about pollutants in the region's stormwater, or their influence on coastal water quality or ecology. In 2001, we started investigating contaminants from 11 stormwater catchments around the region, looking mainly for heavy metals.

Levels of zinc dissolved in the stormwater were highest, especially from the two industrial catchments in Seaview and Paraparaumu. Zinc was high again in the stormwater sediments, along with chromium, copper, lead, and nickel.

Most zinc in stormwater comes from galvanised roofs and car tyres, and ends up in sediments at the bottom of harbours and sheltered beaches. Our preliminary studies of Porirua Harbour have showed that heavy metals are already accumulating in the marine sediments to levels that could harm aquatic life. We need to at least slow down this passage of contaminants if we're to protect the harbour's ecology.



Stormwater pipes like this deliver more than rainfall runoff to the coast. Along with the rain comes dirt and grime from the city streets, and more worryingly, pollutants like zinc from galvanised roofs and car tyres. In some areas, these pollutants are already building up in seabed sediments to levels that threaten aquatic life.

In 1994, bacteria levels in the water at the Overseas Passenger Terminal near Oriental Bay were higher than around some sewage outfalls – the median faecal coliform count for that year was 38,500/100ml. The reason was sewage getting into the stormwater system.

Wellington City Council's response, worked out through the resource consent process with Greater Wellington, called for extensive works to the stormwater system. Their sewage pollution elimination programme has reduced both dry weather leakage and wet weather overflows, although some sewage is still getting through. Bacteria counts at the Overseas Passenger Terminal have reduced as a result and the median level in 2004 was down to 1,500/100ml. This work is continuing because bacteria counts are still elevated at times, especially after heavy rainfall.

Where to from here?

Greater Wellington and the city and district councils began work on a regional stormwater action plan in 2004. The Plan will describe the actions each of us will take to improve stormwater quality and reduce its impact on the coastal environment. It is expected to be finished by the end of 2006.

Public access

No one in the Wellington region lives further than 60km from the coast and many of us live in coastal towns and cities. People have a strong connection with the coast and they expect easy access to at least some part of it.

But ensuring or encouraging public access can compromise the very qualities people go there to enjoy. A successful public access policy will keep that delicate balance between securing thoroughfare and protecting the coast's essential character. This might mean restricting access to ecologically sensitive or culturally treasured places.

City and district councils are responsible for securing public access rights in any proposed coastal developments. Information on the state of public access to the coast is lacking, so we cannot tell where it's working well and where it's not. As a snapshot, there is road access to and along most of the west coast beaches – Otaki, Te Horo, Peka Peka, Waikanae, Paraparaumu, Raumati, Pukerua Bay, Plimmerton, and Paremata. There is also access at Titahi Bay, Whitireia Park and to most of both arms of Porirua Harbour.

From Owhiro Bay, a public road lends good access virtually all the way round to Pencarrow Head, interrupted only by marinas and the CentrePort complex.

In the Wairarapa, the coastal road offers good beach access from Ocean Beach to Cape Palliser. North of Cape Palliser, access is limited to just seven roads leading to the coast.

We know less about coastal access across private land. Access between Titahi Bay and Makara is restricted by private ownership, but an almost continuous paper road runs around the south coast between Makara and Owhiro Bay. In 2002, Wellington City Council prepared the South Coast Management Plan for nearly 25 km of this stretch of coast – much of it reserve – between Karori Stream in the west round to Port Dorset in the east.

The plan recognised that the area's conservation and recreational values were not being fully realised. The plan now provides for greater public enjoyment through upgraded tracks and footpaths, wayfinding signs, and interpretation through brochures, signs and maps.



Aspirations of tangata whenua

The relationship of Maori and their culture and traditions with their ancestral lands, water, sites, wahi tapu and other taonga is identified as a matter of national importance in the RMA. This relationship must be recognised and provided for in the New Zealand Coastal Policy Statement, regional policy statements, regional and district plans, and when making decisions on resource consent applications.

Objective 4 of the Regional Policy Statement recognised this relationship by seeking to increase opportunities for the aspirations of tangata whenua for the coastal environment to be met. We asked representatives of Ara Taha if they thought this was happening.

Lack of co-ordination

The coastal aspirations of tangata whenua can be broadly described as a desire for kaitiakitanga. All of our region's iwi have a large coastline that they are actively seeking to manage as kaitiaki. In doing this, they must work with local and central government agencies.

Local government (regional, district and city councils) controls the use of land, water and air in the coastal environment under the RMA. The Department of Conservation (DoC) has RMA responsibilities in the coastal marine area that are exercised jointly with regional councils, and has responsibilities for marine reserves and marine mammals under separate legislation. DoC also manage land in the coastal marine area on behalf of the Crown. The Ministry of Fisheries is responsible for the sustainable utilisation of fisheries. Iwi work with them all, but feel they are the only ones interested in the overall holistic management of the coast – everyone else sticks to their compartmentalised responsibilities. Even within Greater Wellington different departments appear to be operating with different mandates.

In general, iwi have found that multiple agencies makes for blurred responses and difficulties in applying their own kaitiaki responsibilities. The narrow focus of each agency means they tend to forget about connected matters.

Many iwi thought that Greater Wellington could contribute by facilitating a collaborative approach. One observation was that Greater Wellington's kaupapa was environmentally focussed, so it is well placed to coordinate other agencies who are more commercially driven. Another expressed this in terms of travelling down the track together – tangata whenua and bureaucracy.

Managing coastal development

All iwi are concerned about coastal development, particularly the effects of subdivisions on the character and natural processes of the coastal environment. One put it plainly, saying there is “too much politics and talk while the beaches continue to disappear.”

Some effects of coastal development that are concerning iwi in terms of their aspirations for the coast were

- changes to streams and wetlands near the coast
- possible changes to aquifers that feed the toheroa beds
- the strain on the water resources of the Kapiti Coast
- the effects of sewage
- the increased pressure on fisheries.

These were seen as areas where Greater Wellington and the city and district councils could do more to recognise the relationship of Maori and their culture and traditions with the coastal environment.

Some coastal development has been sympathetic to Maori matters. For example, there have been opportunities for iwi to become involved when there have been wahi tapu discoveries. This has been positive in terms of learning more about the history of the coast.

Understanding the coast

In some areas iwi lack access to information about the coastal environment. For example, iwi were asked to comment on the effects – from a cultural perspective – of sinking a ship at Mana Island, but felt they had limited knowledge and information.

In another example, iwi have to present information in support of rahui applications to decision-makers, but struggle to collect this information. It was felt that Greater Wellington could help with the monitoring, as could the Ministry of Fisheries, while the iwi contribute the cultural methodology. In these situations, and in wider coastal monitoring such as the state of coastal habitat and the health of kaimoana resources, it was felt there could be a future in monitoring the coastal environment together.

Despite these gaps, it was observed that traditional knowledge is still held, and is a source of protection for the environment. Tangaroa (god of the sea) has the power to remind us all that we are part of the system, not the boss of it.

More Information

Forsyth, Kirsten. 2005. *The Coastal Environment – background report*. Greater Wellington.

Milne, Juliet. 2005. *Recreational water quality monitoring technical report*. Greater Wellington.

