



The spectacular North Taranaki coastline and distinctive fragments of eroded cliffs.

5.2 NATURAL CHARACTER

5.2.1 WHAT IS THE STATE OF THE NATURAL CHARACTER OF TARANAKI'S COAST?

Protecting the natural character of the coast is a matter of national importance under the *Resource Management Act 1991*. Natural character is present to some degree in every coastal environment, even those areas that are highly modified. The key components of natural character are natural processes (ecological processes), natural elements (geology, landforms, vegetation cover, seabed, foreshore etc.) and natural patterns, as well as intrinsic values and aesthetic values²¹. Small changes in a natural area surrounded by a highly modified environment may be more significant in terms of natural character than where it is surrounded by a largely natural environment.

Assessing and monitoring changes in the natural character of the coast are not yet the subjects of a formal state of the environment monitoring programme in Taranaki. The following section sets out an overview of natural coastal features and how these change around the coast. This is followed by a discussion of an inventory into regionally and locally significant sites and then indicators of pressures on coastal natural character – levels of coastal subdivision and consented activities.

(A) TARANAKI'S NATURAL COASTAL CHARACTER

Natural coastal processes in Taranaki's coastal environment that contribute to its natural character include currents, coastal erosion, sand movement, formation of dunes, and such matters as the combination of seabed shape, swell direction and wave power that produce nationally and internationally recognised surf breaks. Natural features include the black sands of the west coast, stranded eroding fragments of cliff now surrounded by sea, estuaries formed by meandering rivers and river mouths that spill directly into the sea.

As the Taranaki region is exposed to the west, high-energy wave and wind conditions dominate the coastal environment. Consequently there are few areas of sheltered water beyond estuaries (for example in the Tongaporutu, Waitara and Pātea rivers) and the confines of Port Taranaki. Almost the entire Taranaki coastline is subject to varying degrees of erosion from waves and wind. This has resulted in a predominantly cliffed coastline, with the western coast characterised by boulder cliffs and offshore reefs derived from erosion of volcanic material. In North and South Taranaki, erosion of marine sediments has resulted in a coastline of almost continuous papa cliffs and black sand beaches.

Estuaries are significant features along the coast, creating quite different habitat from the open coast conditions. In comparison with estuaries elsewhere around the country, Taranaki estuaries are relatively small, with the four largest estuaries, Tongaporutu and Mimi

in the north, and Whenuakura and Waitōtara in the south, all less than 500 ha.

(B) NATURAL CHARACTER AROUND THE COAST

The Taranaki coastline falls into two large biogeographic regions (areas that are more similar to each other in terms of physical and biological characteristics) - the Western North Island and the North Cook Strait Coastal biogeographic regions (Figure 5.8). The Western North Island Coastal Biogeographic region extends from north of the Waikato to Cape Egmont. It is influenced by the northward flowing Westland current and the southward flowing west Auckland current, both of subtropical origin. The region is characterised by open, exposed sandy beaches interspersed by stretches of rocky platforms, bluffs and outcrops. The fauna has affinities with both warm-temperate, cool-temperate and sub-antarctic fauna.

The North Cook Strait Coastal Biogeographic region extends from Cape Egmont around Wellington and up the eastern Wairarapa coast. This region lies in a transition area between northern and southern flora and fauna, and has a high diversity of species. The tidal regimes each side of the strait are different and the water temperature is also very different. The northern side is greatly influenced by the easterly-flowing warm, saline D'Urville current and the cooler Southland current that travels northward through Cook Strait. The D'Urville current also flows up the west coast and is deflected offshore by the Mount Taranaki ring plain, resulting in very different biota further north of Cape Egmont.

21 Maplesden, R. 2000. *Natural Character: Concept Development in New Zealand Law Planning and Policy*. Prepared by Boffa Miskell for Environment Waikato.

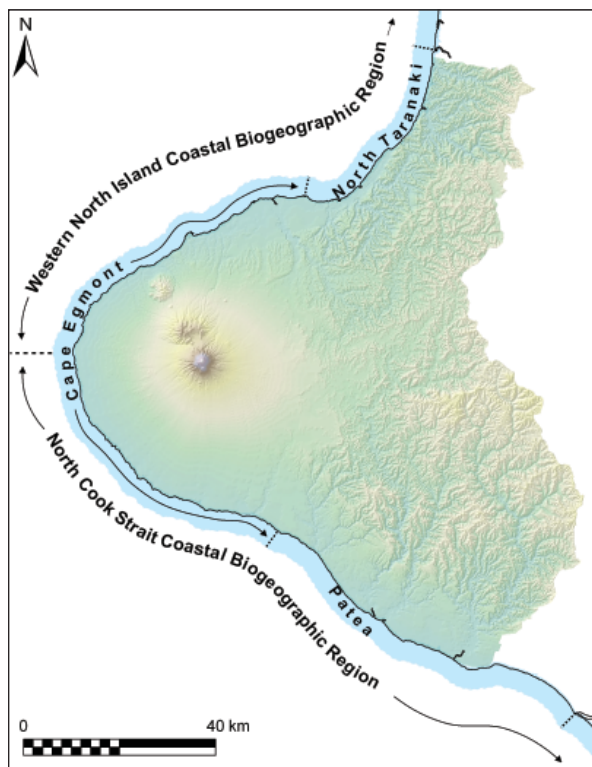


Figure 5.8: Biogeographic regions and coastal units.

The Taranaki coastal region can be further divided into three coastal units (illustrated Figure 5.8):

- North Taranaki (from the Mōkau River to Motunui), a section of narrow sand beaches, highly influenced by suspended sediments from river mouths and areas of rocky foreshore and intertidal reefs such as Pariokariwa and Epiha reefs;
- the Cape Egmont coastal unit (from Motunui around Cape Egmont to Hāwera), which includes the Sugar Loaf Islands and is highly influenced by the volcanic deposits forming reefs consisting of large boulders and cobbles; and
- the Pātea coastal unit, extending from Hāwera to just north of the Whanganui River mouth, a coastline dominated by sandy beaches and some limestone rock platforms, intertidal reefs and two significant reefs near Pātea (the North and South Traps)²².

(C) SITES OF REGIONAL AND LOCAL SIGNIFICANCE

The coastal environment is the land between the mean high water spring mark and the first dominant ridge²³. The width of the coastal environment is therefore influenced by the location of the ridgeline, or the area where there is a clear coastal influence.

An inventory has been prepared of sites of regional or local significance²⁴. The inventory was collated by a working party consisting of representatives from the Taranaki Regional Council, district councils

and the Department of Conservation. This identified 69 coastal areas, representing approximately 33% of the Taranaki coastline, as having features or qualities of local or regional significance.

To be identified as a coastal area of local or regional significance, an area had to be ranked as 'high' in relation to one or more of the following:

- **Amenity values.** Unique areas with significant natural, scenic, aesthetic, visual or rural amenity values (landscapes, seascapes, landforms and associated processes) were included.
- **Recreational values.** Areas included had high passive and/or active recreational use (eg, swimming, walking, fishing and boating) or areas unique and highly-valued for a particular recreational experience (eg, scuba diving or surfing).
- **Cultural/historical values.** This included places, sites and areas of special cultural or historical significance (eg, archaeological sites and/or areas or features of special significance to tangata whenua).
- **Ecological and scientific values.** This included places, areas or features of scientific interest, important or unique coastal environment ecosystems and/or spawning, nursery or feeding areas for marine mammals or birds. Estuaries in particular rated highly for ecological values.

Of the 69 coastal areas or sites identified as having local or regionally significant values, 48 sites (or 70%) were identified as being of local or regional significance based upon high amenity values. Forty-eight sites (or 70%) were also identified as being of local or regional significance for their high cultural or historical values and 41 sites (or 59%) were identified as being of significance based upon high ecological or scientific values. High recreational values were identified at 27 sites (or 39%). Many sites ranked highly in two or more attributes. For example, the Waitōtara estuary and dunes was recognised as having high amenity values, moderate recreational values (for whitebaiting), high cultural /historic values (with a ferry punt landing from early European settlement) and high ecological values (an unmodified estuary with sand dunes and a wetland, providing important habitat for threatened and migratory birds and sub-fossil tōtara stumps)²⁴.



Kayaking through the surf.

²² Walls, K. 2006. *Nearshore Marine Classification and Inventory – a planning tool to help identify marine protected areas for the nearshore of New Zealand*. Department of Conservation, Wellington.

²³ New Plymouth District Council. 2006. *Coastal Strategy*.

²⁴ Taranaki Regional Council. 2004. *Inventory of Coastal Areas of Local or Regional Significance in the Taranaki Region: Summary and Discussion*.



Coastal subdivision, Stent Road.

(D) SUBDIVISION IN THE COASTAL ENVIRONMENT

The increasing popularity of living near the coast has brought increasing pressure to subdivide, particularly adjacent to low lying areas. This has the potential to impact on many aspects of the natural character of the coast, particularly in the more remote areas of Taranaki.

In the New Plymouth District, most of the subdivision has occurred around the New Plymouth periphery, with the rate of subdivisions being fairly

consistent each year. The average lot size for rural coastal subdivision is around seven hectares. Coastal subdivisions are now occurring along the New Plymouth coastline at road ends, whereas in 2003 they were particularly centered in the Ōākura and Ōmata areas. Table 5.5 outlines the subdivision undertaken in the various coastal environment zones in the New Plymouth District. This highlights the significant and increasing demand for subdivision within 3 km of the coast.

South Taranaki appears to have less pressure to subdivide on the coast. However, there have been subdivisions near Waverley Beach, Ōaonui, Manaia, Pūniho, Opunake and Waiinu Beach since 1995.

The effects of urban and industrial development on the natural character of the coast are not felt to be significant at present, with the most modified parts of the coastline being in and around the city of New Plymouth.

In the future, however, the effects of urban and industrial development on the coast may become more significant. Some parts of the coast are more vulnerable to levels of urban development that may lead to a gradual loss in the natural, scenic and amenity values that attracted people to the area in the first place. This particularly applies to smaller coastal settlements such as Ōākura, Ōmata, Urenui and Opunake, which are becoming increasingly popular.

Table 5.5: Subdivision pressures within the New Plymouth District.

	Definition	Subdivision lots created between 1998 and 2006	% of subdivision within the whole New Plymouth District	General observation
Coastal Hazard Zone (CHZ)	For most areas within New Plymouth District this is 70 m wide but there are variations based on erosion data.	Four new lots created in 2004, one new lot created in 2005.	0.1%	There is not a great pressure on the CHZ with respect to subdivision.
Coastal Hazard Zone Buffer	Set as a distance of 250 m inland of the coastal hazard zone.	126 new lots created, averaging 14 per year. These peaked in 2003 (39 lots), 2004 (37) and 2005 (23).	3.8	There could be increasing pressure immediately inland of the CHZ.
Coastal Policy Area (CPA)	Is defined within the <i>New Plymouth District Plan</i> but typically is wider in the rural areas and narrower around urban centres on the coast.	88 new lots created: averaging 9.8 per year. These peaked in 2000 (12 lots), 2002 (10), 2003 (13) and 2005 (35).	2.6	Subdivision within the CPA may be an area to monitor in the future to more accurately determine the actual ongoing and cumulative effects of subdivision on the CPA.
Coastal Buffer	Is set at 3 km from the coast.	1502 new lots created, averaging 167 per year. These peaked in 2003 (297 lots), 2004 (476) and 2005 (347)	44.8	There appears to be a significant demand for subdivision within 3 km of the coast.

Data provided by the New Plymouth District Council.

COASTAL AND MARINE ENVIRONMENT

(E) ACTIVITIES AND STRUCTURES IN THE COASTAL MARINE AREA

Most stretches of the Taranaki coastline are untouched by significant developments which might have a detrimental effect on the natural character of the coast. However, some areas such as Port Taranaki have been substantially modified. Furthermore, some development, such as ports, reclamation and offshore production platforms for the oil and gas industry can only be located in the coastal marine area.

Development in the coastal marine area has the potential to adversely impact on the coastline's natural character whilst also potentially providing wider benefits to the community such as protecting key assets or providing public access to the coast. The current number of coastal permits held for various activities and structures are set out in Table 5.6. There are a total of 252 coastal permits currently held, the majority (42%) are for coastal erosion protection structures.

Table 5.6: Total number of current coastal permits (including those current that were issued before the *Coastal Plan* became operative).

Type of coastal permit	Total current coastal permits	Percentage of total
Renourishment	0	0
Structure - access	2	<1
Structure - pipeline	7	3
Structure - boat ramp	11	4
Structure - intake	0	0
Structure - protection	105	42
Structure - outfall	10	4
Structure - stormwater outlet	7	3
Structure - wharf/marina/jetty	12	5
Structure - bridge	3	1
Structure - stream outlet	3	1
Structure - other	15	6
Discharge	43	17
Deposit	4	2
Disturb foreshore	10	4
Extraction	3	1
Occupy	6	2
Occupy and structure (boat ramp)	2	<1
Take, use, divert or dam	9	4
TOTAL	252	100

Installing structures such as pipelines, boat ramps, oil platforms, protection structures (i.e. sea walls), depositing material on the foreshore or disturbing the beach are examples of activities that are required to comply with the *Regional Coastal Plan for Taranaki*, either by meeting permitted activity standards or by getting a coastal permit.

The *Regional Coastal Plan* sets out the objectives and policies to ensure that natural character is safeguarded, in accordance with four distinct coastal management areas (Figure 5.9). A different set of rules governs activities undertaken in:

- areas of outstanding coastal value for natural features, landscapes or areas with significant habitat for biodiversity (Area A);
- identified estuaries (Area B);
- the open coast (Area C); and
- Port Taranaki.

The coastal management areas recognise the different natural and ecological values and types of community use in the coastal marine area. The number and type of coastal permits that have been issued in the four coastal management areas since the *Regional Coastal Plan* became operative are set out in Table 5.7. This illustrates that there have been a total of 238 coastal permits issued in Taranaki since the plan became operative: 27 in Coastal Management Area A, 28 in Coastal Management Area B, 148 in Coastal Management Area C and 35 in Coastal Management Area D. The high number and type of permits within the Port area reflects the industrialised nature of the Port and the fact that the natural character of this area has already been extensively modified for the economic wellbeing of the community.

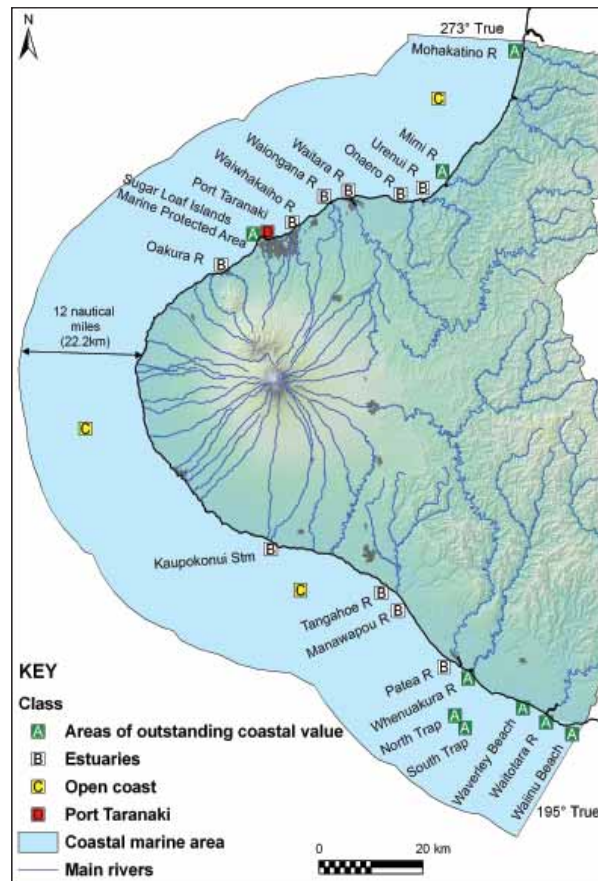


Figure 5.9: Coastal management areas in the *Regional Coastal Plan for Taranaki*.

Table 5.7: Coastal permits issued, reviewed or varied between October 1997 and June 2008.

Type of coastal permit	Coastal management area in the Regional Coastal Plan				TOTAL issued
	A Outstanding Coastal Value	B Estuaries	C Open Coast	D Port Taranaki	
Renourishment			1		1
Structure - pipeline		3	4		7
Structure - boat ramp		1	4	1	6
Structure - intake	1				1
Structure - protection	22	11	64		97
Structure - outfall		2	4		6
Structure - stormwater outlet		1	4	1	6
Structure - wharf/marina/jetty		1	2	2	5
Structure - bridge		1	1		2
Structure - stream outlet			1	2	3
Structure - other	2	1	10	1	14
Discharge	1	5	16	17	39
Deposit			6		6
Disturb foreshore	1		16	9	25
Extraction		2	1	1	4
Occupy			4		4
Occupy and structure (boat ramp)			2		2
Take, use, divert or dam			8	1	9
TOTAL	27	28	148	35	238



Sea wall and boat ramp, Ōnaero Beach.

The majority of coastal permits issued, reviewed or varied since the plan became operative (147 or 79%) have been for structures – pipelines, boat ramps, stormwater outlets, but particularly coastal erosion protection works.

There is an estimated 11.6 km of seawall protection structures, and about 2 km of these have been consented over the last five years. A number of these are subject to consent monitoring programmes. Historically, erosion protection structures have been established in areas where development has occurred close to the eroding coast. Protection works in the open coast area are a response to the erosive nature of

the coastline and are undertaken to protect developments that have historically occurred in the coastal environment.

Sixty-four consents have been issued for protection structures along the open coast at Urenui, Middleton Bay, Ōākura, New Plymouth near Kawaroa Park, Bayly Road, Bell Block and Waihi Beach. Some consents issued have been for existing structures and others for renewals. In the estuary zones, consents for coastal protection structures have been issued for the Waitara, Urenui, Ōākura and Pātea rivers and the Te Henui Stream. In areas of outstanding value, 22 consents have been issued for coastal erosion protection purposes in the Mohakatino and Tongaporutu estuaries and on Waititi Beach.

The effects of the protection works on the natural character of the coast are weighed against the need to protect assets. Wherever possible, the Taranaki Regional Council and the district councils encourage applicants wishing to undertake developments to avoid areas subject to erosion and so reduce the need for future erosion protection works.

Hard engineered structures are not the only answer to coastal erosion, and there has been considerable success in re-establishing dunes along Fitzroy Beach.

There are relatively few areas of natural dunes around the Taranaki coast. Some, such as at Ōākura and Sandy Bay, are subject to community-driven restoration projects (see case study).



Peter Johnston at Sandy Bay.

GETTING THE BIRDS BACK WHERE THEY BELONG

You could call it a project that aids homeless refugees. One of the visions of the Ngāti Tara Ōaonui Sandy Bay Society is to have seabirds nesting amidst the dunes instead of on neighbouring farmland – or worse not nesting at all.

“We had one pair of gulls nesting down in the dunes last summer, and around 30 up on the farm. We’d like to see them back where they belong,” said Society President Peter Johnston, one of the neighbouring landowners.

As the only significant area of dunes along the rocky coastline between Opunake and Ōmata, Sandy Bay attracts not only black-backed gulls and oystercatchers, but also the endangered New Zealand dotterel.

The Bay is also home to the chronically threatened green gecko, gold-striped gecko and the rare native Taranaki moth *Notoreas Taranaki Coast*.

It’s a special place where for four years the Society has worked to counter the negative effects of erosion, introduced predators and unhelpful human activity. This follows earlier planting and pest-control work initiated by the Community Advisory Group for the nearby Māui production station run by Shell Todd Oil Services Ltd.

The Opunake Lions Club, Opunake Surf Club and students from Opunake High School have all been involved in planting to help restore natural dunes. Unfortunately much of the early work has been knocked out by storms but Peter said valuable lessons were learned and a new three-year planting and shaping plan will result in a low-forming spinifex/pīngao dune where there is currently a sand blow-out.

This work is being funded through the Department of Conservation’s Biodiversity Condition Fund, with assistance from the Taranaki Regional Council and community and corporate donations.

Pest control work will also continue, and signs at key locations will advise visitors how they can best protect the habitat and the life it supports.

Sandy Bay is just 9 km from Opunake and recent residential development nearby has highlighted the importance of the Society’s work to ensure the Bay’s special natural character is protected and enhanced. Peter says access to biodiversity funding is making a difference and he’s optimistic he’ll soon see more of those seabirds setting up home exactly where nature intended.

5.2.2 HOW IS COASTAL NATURAL CHARACTER MANAGED?

(A) REGIONAL COASTAL PLAN

The preservation of the natural character of the coastal marine area, and protection of the areas from inappropriate subdivision, use and development, is a matter of national importance under the Resource Management Act 1991. The *Regional Coastal Plan for Taranaki* contains objectives, policies and methods to ensure that the natural character of, and public access to, the coastal environment are maintained. Methods include rules giving effect to the policies for each of the four coastal management areas, and general rules that apply to all coastal management areas.

(B) DISTRICT PLANS AND STRATEGIES

District councils are responsible for protecting the natural character of the coastal environment from inappropriate subdivision, use and development. The *New Plymouth District Plan* and *South Taranaki District Plan* have delineated coastal areas and have mechanisms in place to protect the coastal natural character.

In terms of land use and subdivision controls around the coast, both district councils have planning regimes that allow use and development, subject to specified terms, conditions and standards to address any environmental effects. District councils, when implementing those rules, have regard to policies in their district plans that address the consolidation of existing urban settlements, the protection of the natural character and the avoidance of inappropriate subdivision, use or development.

The New Plymouth District Council has prepared a *Coastal Strategy*, a non-statutory planning document, which sets out a vision for what the community wants the coastal environment to look like in 20 years²⁵. The vision of the *Coastal Strategy* is for “A prosperous, growing coastal community, balancing the needs of people and environment within our high-energy untamed coast.” The Strategy sets out more than 100 actions that have been prioritised over the next 20 years, and will be undertaken in partnership with other agencies and groups who also play a part in how the coast is managed. These actions address appropriate population growth along the coast; infrastructure compatibility with coastal values; sustainable economic growth; recreation; understanding and support of the tangata whenua role as kaitiaki; management of coastal hazards; and protection and enhancement of the natural environment and landscape values.

The South Taranaki District Council is undertaking a landscape assessment to review its coastal protection area in order to better define the coastal environment landscape.

(C) RESOURCE CONSENT MANAGEMENT AND MONITORING

Significant activities in the coastal marine area require a resource consent. Sixty three new coastal consents were issued between October 1997 and the end of 2002 (an average of 1.0/month), and 96 were issued between the beginning of 2003 and June 2008 (an average of 1.5/month). This indicates increased activity on the coast.

Consent conditions avoid or mitigate any adverse effects that may result from the activity. A monitoring programme is being developed for coastal structures involving a mixture of checking the integrity of structures and beach profiling²⁶. In the 2007-08 year, coastal structure monitoring was



Dredging in Port Taranaki.

commenced for a number of structures including groynes, sea walls, boat ramps and outlets²⁷.

The Council, in partnership with the district councils, is looking to undertake a coastal erosion assessment using changes over time in aerial photos to calculate rates of coastal erosion around the region.

(D) RESTORATION WORKS

The New Plymouth District Council has established Coast Care groups over the past 12 years to undertake large-scale dune restoration projects at New Plymouth, Waitara and Ōākura. Such projects restore natural character to a section of beach providing habitat for coastal biodiversity. Now that these projects have been completed, the emphasis is on small-scale, community and school dune plantings. Valuable lessons have been learned about restoring dunes and the role of restored dunes in managing coastal erosion. One such dune restoration project has been located at the Ōākura campground which has seen planting trials undertaken by the local Coast Care group and Ōākura School in an attempt to reinstate a resilient natural dune system better able to withstand the forces of erosion. However, recent storm events have had an impact on this restoration project.

Another type of restoration project involves the sand dumping trial offshore from New Plymouth city in an attempt to restore the natural functioning and character of the coast (see case study). It is expected that in the long term, Port Taranaki’s sand deposition programme will have a positive effect on restoring the natural character of New Plymouth beaches where there are no sea walls. The ecological effects are being monitored through a resource consent monitoring programme undertaken by the Taranaki Regional Council.



Sand dune restoration, Ōākura Beach.

25 New Plymouth District Council. 2006. *New Plymouth District Coastal Strategy*.

26 Tonkin and Taylor. 2001. *Taranaki Regional Council Compliance Monitoring for Coastal Structures*. Prepared by Tonkin and Taylor and DTEC Consulting Ltd for the Taranaki Regional Council.

27 Taranaki Regional Council. 2008. *NPDC Coastal Structures Monitoring Programme Report. 08-44*.

SAND ON THE RUN

On the surface it seems a win-win situation: Material that's been dredged to maintain navigable channels at Port Taranaki is dumped near to shore so it can feed beaches that are starved of sand because the Port blocks the natural drift northwards of such material.

But when the idea was first suggested, iwi raised concern about the effects of such sand-dumping on kaimoana beds and other marine life.

A trial operation was approved in the late 1990s, however, and the Taranaki Regional Council developed a detailed monitoring programme in consultation with iwi, who were also involved in implementing it.

The monitoring showed the sand was not moving from the trial site in a large mass, rather it was being lifted and dispersed gradually. It also showed the sand was not moving inshore and smothering the kaimoana beds and other sea life.

In 2002 Port Taranaki Ltd (then trading as Westgate Transport) was issued a permit allowing it to dump up to 400,000 cubic metres of sand at a time in the specified area near Kawaroa Reef. The permit expires in 2029 but can be reviewed every four years.

The Council's monitoring programme is continuing, and includes repeated intertidal and subtidal surveys, kaimoana surveys and inspections of Arakaitia and Kawaroa reefs. Port Taranaki Ltd also



Council staff and Ngāti Te Whiti carrying out a Kaimoana survey.

carries out surveys involving the use of underwater sonar and cameras, and aerial photography.

These surveys show that while the sand is definitely on the move in the way intended, the diversity and amount of marine life in the area have remained stable. Only a small amount of sand gets on to the reefs, and while there has been some variation in species richness and diversity, this is common at reef sites monitored by the Council around Taranaki. The causes are thought to be unrelated to the sand dumping. Numbers of pāua at the six reef sites surveyed have remained similar to, or increased when compared with pre-dredging numbers.

(E) INFORMATION, EDUCATION AND ADVICE

Regional and district councils provide information and technical advice relating to the protection of natural character, resource consent requirements and effects of structures on the coastal environment.

Under its sustainable land management programme, the Council prepares conservation plans for landowners on coastal sand country.

These plans can contain methods to address localised erosion problems through planting and possible re-contouring.

(F) SUMMARY OF PROGRESS

Progress implementing regional objectives and policies on the natural character of the coastal environment is summarised in Table 5.8.

Table 5.8: Summary of progress: Implementing regional objectives and policies on the natural character of the coastal environment.

Issue	What do we want to achieve?	What are we doing about it?	Where are we at?
Natural character of the coast	<ul style="list-style-type: none"> • Preservation of the natural character of the coastal environment. • Provision for appropriate subdivision, use and development of the coastal environment. • Provision made for estuarine and open coastal natural processes, differing natural values, and different levels and types of use across the coastal marine area. 	<ul style="list-style-type: none"> • Reviewing the <i>Regional Coastal Plan</i> in accordance with the revised <i>New Zealand Coastal Policy Statement</i>. • District councils to implement district plans provisions relating to coastal natural character. • Monitoring district council subdivision consent applications. • Attaching conditions to coastal permits to ensure that adverse affects from activities on the natural character are avoided, remedied or mitigated. • Coast Care groups continued. • Planting of native species and dune stabilisation methods undertaken at Sandy Bay. 	<ul style="list-style-type: none"> • <i>Regional Coastal Plan</i> for Taranaki made operative in 1997. The plan contains policies and rules to maintain and enhance natural character. • District plans contain policies and rules relating to the preservation and enhancement of the natural character of the coastal environment. • A total of 252 coastal permits are currently held.

5.2.3 HOW DO WE COMPARE?

Most regions have coastal policies and plans and district plans that seek to protect the natural character of the coast from inappropriate subdivision, use and development. The Taranaki region has fewer development pressures on its coastline than other regions such as Northland, Auckland, Waikato, Bay of Plenty, Marlborough and Canterbury. Pressures from subdivision, urban development, recreation, tourism and aquaculture are much greater in these regions than in Taranaki.

In Taranaki, the primary response to coastal erosion threatening existing development is generally for engineering solutions and erosion protection structures rather than using alternative solutions such as recreating dunes as protection mechanisms. Nationally, many councils are now involved in the Dune Restoration Trust of New Zealand exploring alternative approaches to coastal erosion.

The New Zealand Coastal Policy Statement Board of Inquiry noted that the region's inventory of coastal areas of local or regional significance was a unique document. This document, prepared by a working party consisting of representatives from the Taranaki Regional Council, district councils and Department of Conservation will provide valuable assistance for implementing the revised *New Zealand Coastal Policy Statement* when the *Regional Coastal Plan for Taranaki* is reviewed.

5.3 COASTAL AND MARINE BIODIVERSITY

5.3.1 WHAT IS THE STATE OF COASTAL AND MARINE BIODIVERSITY?

The Taranaki region has a 295 km coastline, comprising steep cliffs, rocky shores and sandy beaches, subtidal reefs, rivermouths and estuaries. These provide a wide range of ecological habitats for native plant and animal species. This section describes the state of biodiversity of rocky reefs, estuaries, marine protected areas and threatened marine mammals.

(A) BIODIVERSITY OF THE ROCKY SHORE AND REEFS

Taranaki's intertidal reef systems have generally lower diversity and abundance of species compared to similar type systems elsewhere in New Zealand. This is due to the high wave energies typical of the Taranaki coastline, which give rise to abrasive and turbulent shoreline conditions, high water turbidity, suspended silt, and sand inundation. Notwithstanding that, associated with reef systems is a large diversity of marine life, including fish species and encrusting animals such as sponges and anemones.

Higher species diversity is found on rocky shores where larger rocks are present, as they provide plenty of habitat for rocky shore creatures to shelter under. This type of environment provides more suitable shelter and habitat when compared to sites with cobbles or sandy beaches. Taranaki has more intertidal rocky reefs than sandy beaches. Large, discrete reef systems are present around the Waitara River, New Plymouth, North Taranaki and around Cape Egmont. A smaller reef system lies south of the Waitōtara River. Large subtidal reefs called the



Intertidal biodiversity.

North and South Traps are located offshore from Pātea. A number of smaller offshore subtidal reefs also occur.

The rocky inshore marine environment provides a wide range of different habitats for a number of different aquatic species. This includes species such as starfish, sea anemones, crabs, crayfish, sea cucumbers, mussels, pāua, sponges, whelks and a number of seaweed species. The rock borer which bores into soft cliffs around Taranaki is a local feature.

Results from the Council's state of the environment monitoring of intertidal rocky shore sites have been described earlier in this chapter. The Department of Conservation's monitoring of subtidal reefs is described below.

(B) BIODIVERSITY OF SOFT SEDIMENTS AND ESTUARIES

Estuaries and river mouths make up approximately 16% of Taranaki's 295 km coastline. These are shallow, sheltered areas of productive 'nursery' habitats for a variety of marine life. Taranaki estuaries do not have a wide range of intertidal and subtidal habitats, and are well flushed with fresh water. This results in a high freshwater input/area ratio, creating a harsh environment for estuarine aquatic life that prefers things to be more salty. The low numbers and diversity of fish and shellfish found in Taranaki estuaries have been attributed to this more freshwater type estuary environment²⁸. The Waitōtara and Whenuakura rivers drain mudstone catchments and are highly modified, with large areas of land cleared for farming, and they frequently flood. Both factors contribute to the high silt load in the rivers, a factor which reduces the number and diversity of species in the lower estuary. In comparison, the Tongaporutu and Mimi catchments are not as extensively modified.

The soft substrate of estuaries (consisting of sediment carried down by rivers mixed with detrital material such as leaves, sticks etc.) supports a range of burrowing fauna such as worms, cockles and pipis. Most of these animals feed on detrital material, and bacterial and algal films on the mud surface. These estuarine areas are ideal refuges for juvenile fish of many species and wading birds in search of fish and crustacea²⁹.

The Council monitors two estuaries in an estuarine monitoring component of the Council's state of the environment monitoring programme – Tongaporutu in the north and Waitōtara in the south. Some information is held about conservation values of a number of

28 Taranaki Regional Council, 2008. *State of the Environment Monitoring Hard-shore and Soft-shore Marine Ecological Programmes 2007-2008*. Technical Report 2008-07.