



Rob Tucker

Windswept coastal environment.

## 5.1 COASTAL WATER QUALITY

### 5.1.1 WHAT IS THE STATE OF TARANAKI'S COASTAL WATER?

Taranaki coastal water quality is influenced by the exposed coast, high-energy wave environment, numerous discharges from rivers as they enter the sea, and a few direct discharges from point sources.

#### (A) INDICATORS

Indicators used to assess the ecological health and water quality of Taranaki's coastal water include the diversity of rocky shore invertebrates, levels of bacterial contamination (important for assessing beach bathing water quality), distribution of kelp (which requires both the appropriate substrate type and water quality) and levels of bacteria in shellfish tissue.

The diversity of rocky shore invertebrates is an indicator of rocky shore ecological health, however the composition of these communities is determined by more than just water quality: the high-energy nature of the Taranaki coast, abrasive and turbulent shoreline conditions, high water turbidity, suspended silt, sand inundation, nature of the substrate, and proximity to large rivers, all influence the make up of rocky shore communities.

Nutrients or sediment levels are not monitored in coastal or estuarine waters.



Taranaki Regional Council

Intertidal survey of Kawaroa reef, New Plymouth.

#### (B) ROCKY SHORE MARINE ECOLOGICAL QUALITY

Rocky shore sites around the Taranaki coastline are monitored twice a year for state of the environment monitoring (Figure 5.3). A number of other reef sites are included in compliance monitoring programmes.

The ecological health indices used are species richness (the number of species recorded) and the Shannon-Weiner index (a measure of diversity that incorporates both the number of species and their relative densities). Results from monitoring of these sites over a number of years show only minor variations in ecological health over time (Figure 5.4). Large and sudden dips in species diversity, such as occurred at Waihi in March 2004, at the Mangati site in 2007 and at Orapa B in 2002 were all attributed to natural sand inundation. Interestingly, species diversity at each of these sites was quickly restored when the sand moved on.

The Waihi Reef site in South Taranaki has generally had a lower level of diversity compared with the other control sites along the North Taranaki coastline. The South Taranaki coastline may have a relatively lower level of diversity than further north because of higher levels of wave exposure and possibly higher levels of cliff erosion depositing fine sediments on the reefs. In general, both the Greenwood and Manihi Road sites have the highest numbers of species and levels of diversity.

Long-term trend analysis was undertaken on data collected at each site (between 13 and 30 surveys). The results mostly indicated no significant long-term trends for either species richness or diversity. However, summer diversity at Turangi Road, and summer and spring diversity at Orapa B showed significant negative trends, even when the samples affected by sand inundation were removed from the analysis<sup>6</sup>. Reasons for these trends are unknown, and may have been largely due to some higher species numbers recorded in the late 1990s, which may in turn have been the result of settled weather patterns.

6 Taranaki Regional Council, 2008. *State of the Environment Monitoring Hard-shore and Soft-shore Marine Ecological Programmes 2007-2008*. Technical Report 08-07.

# COASTAL AND MARINE ENVIRONMENT

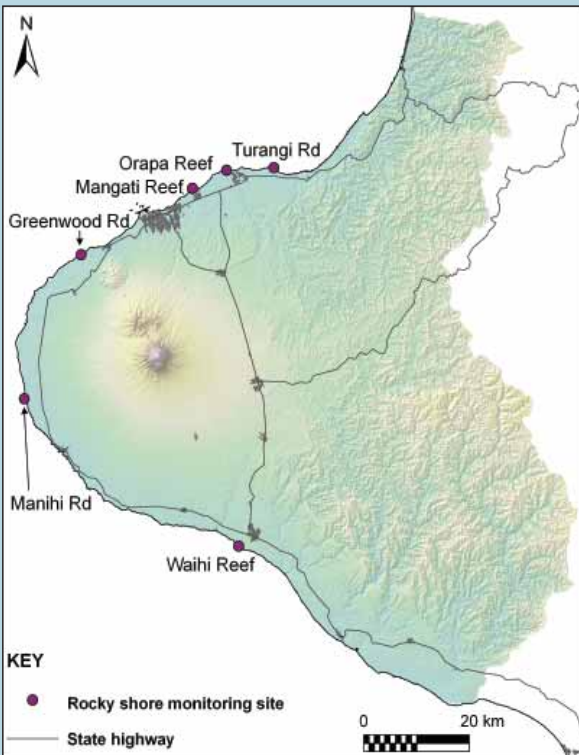
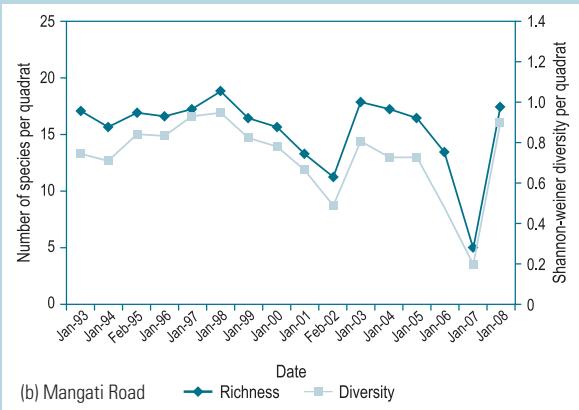
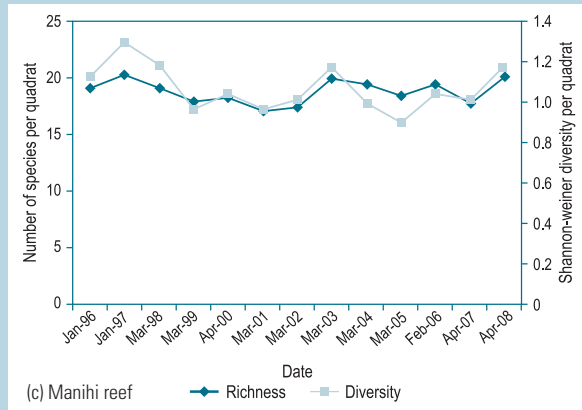
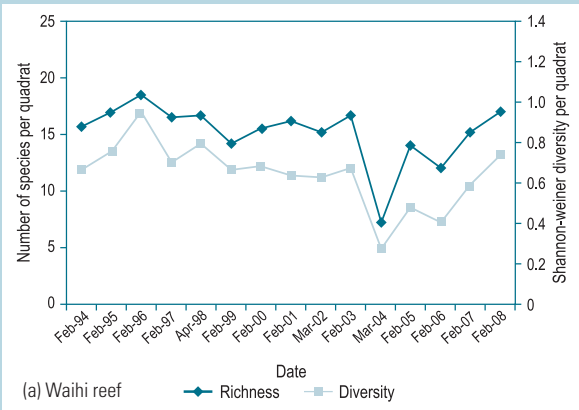
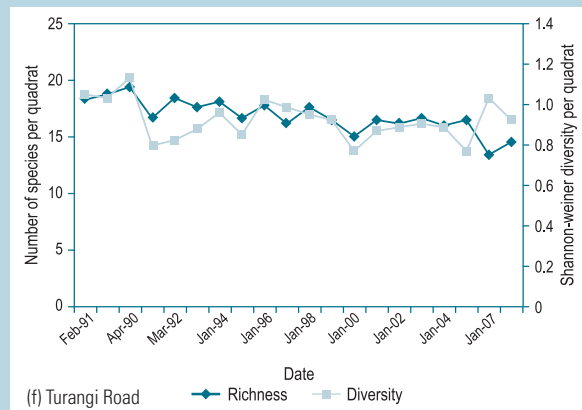
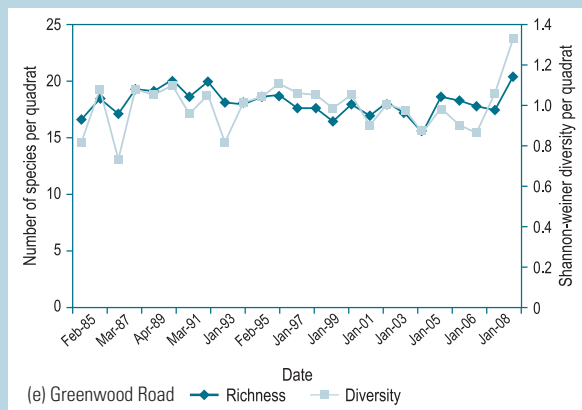


Figure 5.3: Rocky shore state of the environment monitoring sites and results.





Fitzroy Beach, New Plymouth.

### (C) BEACH BATHING WATER QUALITY

Water quality for swimming has been monitored at popular swimming beaches since 1995. Water quality of bathing beaches is assessed against the national marine bathing guidelines<sup>7</sup>. The guidelines use the bacterial concentration of enterococci as a measure of the risk of water users contracting gastrointestinal and respiratory illnesses. Enterococci are faecal bacteria which indicate the possible presence of disease-causing organisms. Following the monitoring, the water quality at each beach is categorised into one of three categories: 'Acceptable' (safe), 'Alert' (potentially unsafe) or 'Action' (likely to be unsafe). Results are posted for the public on the Taranaki Regional Council website ([www.trc.govt.nz](http://www.trc.govt.nz)) as soon as they become available. Immediate action is taken when water quality guidelines are exceeded to ascertain the cause and to notify the appropriate health authority.

Seven popular beaches are monitored every year (Figure 5.5). An additional 10 beaches are monitored every third year on a rotational basis<sup>8</sup>. The beaches included in the Council's monitoring programme featured among the most popular for recreational activities in the recent survey of recreational use of the coast<sup>9</sup>.

The frequency of samples falling within the guideline categories is illustrated for each of the seven sites for the past six summers in Figure 5.4. To determine if coastal water meets the national guidelines, at least 20 samples must be collected during the bathing season, in any weather. The Council's state of the environment programme, on the other hand, collects only 13 samples per year, and does not sample within three days of high river flows. Therefore the Council collects a further seven all-weather samples at the four most popular bathing sites. The graphs

of these four beaches have a total of 20 samples, while the other three beaches have only had 13 samples taken each year.

The high quality of Taranaki's coastal water quality can be gauged by the vast majority of samples for most of the sites tending to fall within the safe swimming guidelines. Over the past six years, 100% of the samples collected from Opunake Beach met the safe bathing water guidelines.

The only beach to have ever had samples in the action category was Ōhawe. Sites that have on occasions exceeded the safe swimming guidelines tend to be close to rivers (which carry faecal matter from the land down to the coast). For example, the site at Ōākura Beach at the surf club exceeds the safe swimming guidelines more often than the site a few hundred metres south at the campground. This is because the Waimoku Stream (a stream which frequently exceeds the freshwater safe swimming guidelines largely due to birdlife) discharges to the south of the surf club and the prevailing south-west flow brings bacteria to this monitoring site.

Coastal beaches generally have lower background levels of bacteria than river or lake swimming spots. This is largely due to contaminants being more rapidly diluted and dispersed by currents and the large volumes of water at the coast<sup>10</sup>.

Several factors may cause variations in coastal water quality from year to year. The proportion of all samples taken each summer that meet beach bathing guidelines is illustrated in Figure 5.6. During wet summers, more faecal matter is carried from the land into rivers and streams and out to the coast. The Council's monitoring programme has been designed to avoid these effects by not sampling within three days of high river flows and so the results are more conservative than if sampling was random.

7 Ministry for the Environment and Ministry of Health, 2003. *Microbiological Water Quality Guidelines for Marine and Freshwater Recreational Areas*.

8 Taranaki Regional Council, 1998, 2000, 2007, 2008. *Bathing Beach Water Quality State of the Environment Monitoring Report*. Technical Reports 90-09, 00-03, 07-13, 07-17, 07-18, 07-19, 07-20, 08-01

9 Taranaki Regional Council, 2008. *Recreational Use of Coast, Rivers and Lakes in Taranaki 2007-08*.

10 Ministry for the Environment, 2007. *Environment New Zealand 2007*.

# COASTAL AND MARINE ENVIRONMENT

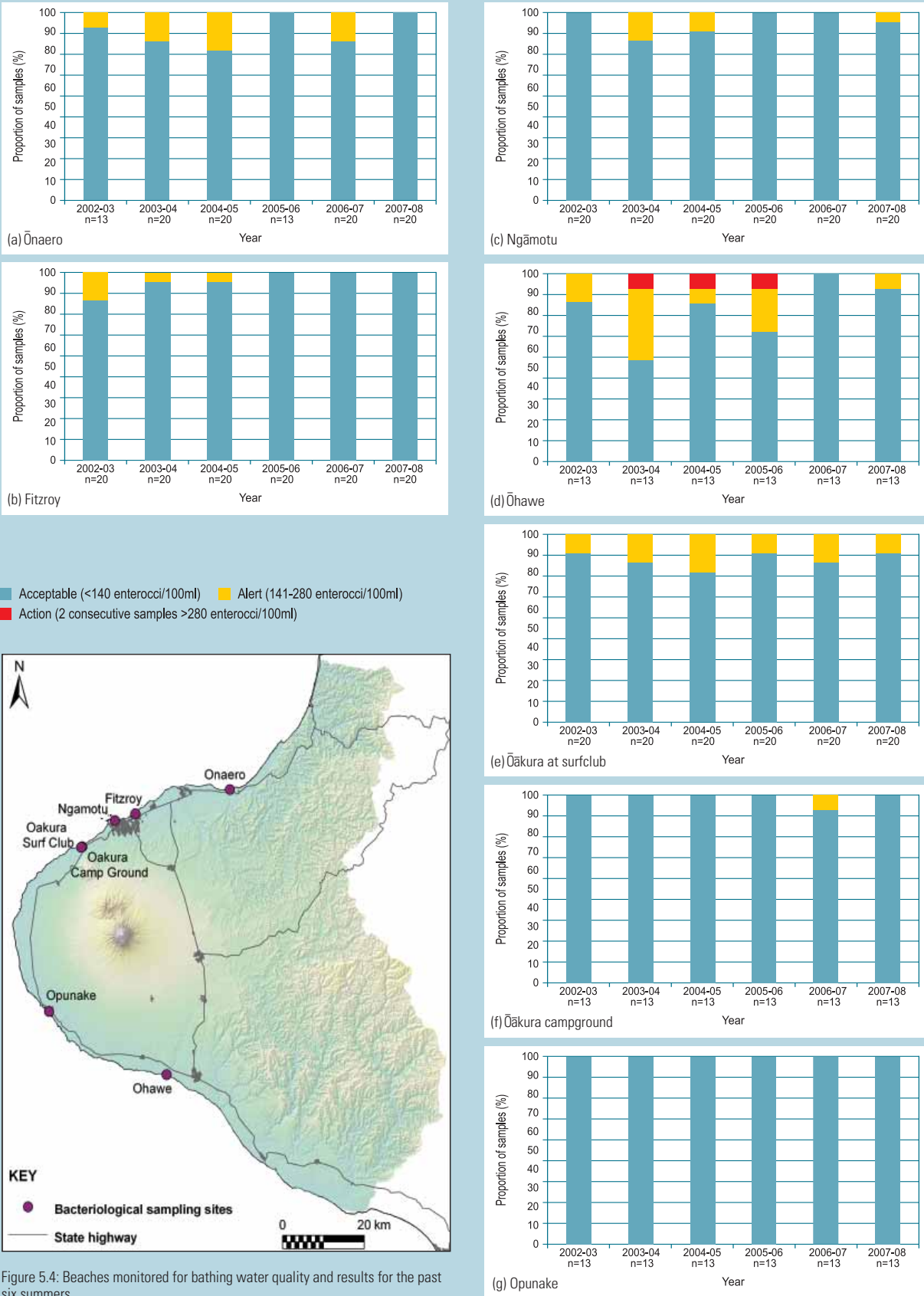


Figure 5.4: Beaches monitored for bathing water quality and results for the past six summers.

Table 5.1: Annual seasonal medians at the seven most popular Taranaki beaches (enterococci/100ml) for the past five years.

Site	Ōnaero	Fitzroy	Ngāmotu	Ōākura surfclub	Ōākura camp	Opunake	Ōhawe
2003-04	5	3	5	8	3	1	29
2004-05	15	4	14	25	6	1	23
2005-06	4	6	13	12	1	2	13
2006-07	7	3	12	11	3	1	7
2007-08	4	3	4	32	1	1	5

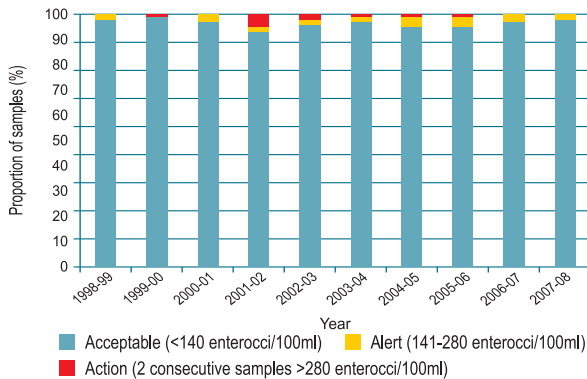


Figure 5.5: Proportion of all samples collected each year meeting guidelines.

While it is the frequency of individual samples that is most important in terms of measuring compliance with guidelines, the median (or middle) value provides an indication of the absolute levels of bacterial contamination. Table 5.1 summarises the results of monitoring bacteria levels at the seven most popular Taranaki beaches using just the 13 samples collected as part of the Council's state of the environment monitoring programme. This illustrates that the seasonal median for all seven beaches was very low, particularly for Opunake, Ōākura campground and Fitzroy.

Looking at the data over time, the good news is that no sites show a measurable deterioration in water quality. Fitzroy Beach, one of the region's most popular, showed a statistically significant improvement, although this trend is not that meaningful as water quality is already high.

Three Taranaki beaches, Ōākura, East End and Fitzroy, gained and held Blue Flag accreditation for the summer period. This is an internationally

recognised award for beaches that meet the four criteria of high standards for water quality, environmental education and information, environmental management and safety and services. These were the first beaches in Australasia to obtain Blue Flag accreditation.

#### (D) COASTAL WATER QUALITY

Coastal water quality is highly influenced by the nature of water entering the coastal area through rivers. Rivers towards the north and south of the region are more sediment-laden as a consequence of draining more erodible catchments. A recent research project<sup>11</sup> was undertaken on the ecology of the sea floor around North Taranaki with a specific focus on the distribution of the brown kelp, *Ecklonia radiata* (see case study). The physical environmental factors quantified by the study included substrate, habitat complexity, wave energy, water turbidity and depth. These parameters were used to describe geographic trends and to investigate why *Ecklonia* was distributed where it was.

The research concluded that water turbidity is the primary factor that defines the *Ecklonia* distribution in Taranaki, although the wave energy and habitat complexity (such as the nature of the substrate) of the reef were also influential. *Ecklonia* was more abundant around Cape Egmont, with density and abundance decreasing along the coast towards Motunui in the north-east. The research found that wave action has the potential to limit the size and abundance of *Ecklonia* in shallow waters, but that water turbidity, or clarity, reduces the depth range that the kelp can occupy. The direct effect of fine sediments from rivers was thought to be the main limiting factor for kelp colonisation on the north-eastern reefs, particularly near the Waitara River.



One of Taranaki's renowned surf breaks.



Timaru Stream estuary.

11 Crofkey, E. 2007. *The Distribution of Ecklonia radiata Around the North Taranaki Headland and its Relationship with Key Physical Characteristics*. University of Auckland, MSc thesis.



Surveying the sea floor.

## EMMA GETS HELP WITH THE KELP

If it takes a village to raise a child, it takes a region to raise a marine scientist.

When Inglewood-raised, Fitzroy surf lifesaver Emma Crowsley came to choose a research project in 2006 for her University of Auckland master's degree in marine science, there was no question where it would be – off the coast of Taranaki.

"I love the coast and the Taranaki coastline is so rugged and beautiful, it was a great excuse to get out there and explore it in more detail," she said.

And her home region embraced and supported its daughter. The local office of the Department of Conservation offered her a summer job, the use of a boat and skipper and a specially designed camera she could use for her study of kelp distribution along 60 km of the North Taranaki coastline.

Also weighing in with support were the George Mason Trust, the Taranaki Regional Council and marine consultancy ASR Limited.

The study involved dropping the 2 kg camera over the side of the boat almost 1,000 times, with Emma using a video recorder to intensively study the images she captured. "The project involved many hours out on the water, which was really enjoyable," she said. "The only frustration was having to wait for long periods when the weather wasn't suitable."

Emma said that the kelp is a good indicator of the state of the undersea reefs along the coast. "The more we know about the sea, the better the decisions we can make to safeguard it," she said.

The highest densities of kelp plants were found around Cape Egmont, although there weren't the vast kelp beds that she had expected. One of the study's conclusions is that kelp distribution is affected by water clarity, depth and wave velocity. The clearer waters at the Cape allowed for higher densities of kelp plants to grow, however the more vigorous wave action was detrimental to kelp growth at shallow depths.

The increase in cloudy water around the coast towards Waitara obstructed the sunlight reaching the seabed making it less attractive for kelp, which survives on photosynthesis.

Little is known about the subtidal ecology of North Taranaki. Earlier studies have found the area to be generally species-poor, often attributed to intensive wave action, high silt load from the region's rivers coupled with higher than average rainfall, and eroding sandstone cliffs.

## (E) SHELLFISH TISSUE QUALITY

The Council monitors bacteria in shellfish collected along the Hāwera coast in relation to Fonterra and Hāwera waste discharges. There has been no measurable change in bacteria numbers in shellfish tissue at sites adjacent to the Fonterra outfall, and no increases of bacterial levels since the Hāwera wastewater discharge was added. Some individual samples have exceeded the guideline limit, probably due to wet weather when bacteria numbers in the coastal sea water increase due to the run-off from many small coastal streams and the nearby Tāngahoe River catchment<sup>12</sup>. However, median levels have been well within the acceptable guidelines.

Metals are tested in shellfish in compliance monitoring programmes. For example, shellfish are sampled from a few reefs around the New Plymouth wastewater treatment discharge every second year. Only low levels of metals around the coast have been found and generally levels

in sites potentially affected by the discharge are as low as other sites<sup>13</sup>. Slight increases in zinc concentrations have been detected from both South and North Taranaki, but not at levels of concern.

The New Zealand Food Safety Authority runs a programme to test shellfish and water samples from around the New Zealand coastline every fortnight to make sure that shellfish are not contaminated with marine biotoxins from toxic algal blooms. Samples of shellfish are collected from three sites around Taranaki at Ōhawe, Ōākura and Mohakatino. Public warnings are issued when shellfish are not safe to eat, and sections of the coast are closed for shellfish gathering. Closures have been put in place over the summer of 2000, 2001, between September and December 2003<sup>14</sup>, once in 2006-07 and once in 2007-08<sup>15</sup>. Reasons for algal blooms that led to these closures are unknown – they could be natural or related to water quality issues within the region or beyond it.

<sup>12</sup> Taranaki Regional Council, 2008. *South Taranaki District Council Hawera Municipal Oxidation Ponds System Monitoring Report. Technical Report 2007-93.*

<sup>13</sup> Taranaki Regional Council, 2008. *New Plymouth District Council New Plymouth Wastewater Treatment Plant Marine Outfall and Sludge Lagoon Monitoring Programme Annual Report 2007-2008. Technical Report 2008-11.*

<sup>14</sup> Rush, M. 2006. *Netting Coastal Knowledge: A report into what is known about the South Taranaki-Whanganui marine area.* Published by the Department of Conservation, Wanganui.

<sup>15</sup> Taranaki Public Health Officer, pers comm.



South Taranaki coast from Ōhawe.



Enesco offshore drilling rig and supply vessel.

## 5.1.2 HOW IS COASTAL WATER QUALITY MANAGED?

### (A) REGIONAL PLANS

The *Regional Coastal Plan for Taranaki* gives the Council statutory responsibility for maintaining and enhancing the quality of coastal water. The plan contains policies and methods (including rules) for controlling waste discharges direct into coastal waters so that:

- contact recreation, shellfish gathering and fishing in Taranaki's coastal waters are not affected;
- marine ecosystems, particularly estuarine and intertidal areas, are maintained;
- accidental spills are minimised and clean-up operations are effective if spills occur; and
- the relationship of tangata whenua with the coastal environment, particularly the importance of the coast for gathering kaimoana and protecting wāhi tapu sites, is recognised.

The plan became operative on 1 October 1997. An interim review of the plan completed in 2002 found that the plan is effective and is achieving its purpose. A full review of the plan commenced in 2008.

The *Regional Fresh Water Plan for Taranaki* addresses the improvement of inland water quality, which ultimately affects the quality of water discharged into coastal waters. Significant parts of the plan deal with the control of discharges to rivers and streams. It also addresses the effects of run-off into rivers from agricultural land by promoting activities such as stream bank riparian planting.

### (B) RESOURCE CONSENT MANAGEMENT

Direct discharges to the sea are managed and controlled through the resource consent process. This constitutes a large component of the Council's effort to implement the *Regional Coastal Plan*. Processing

resource consents involves thorough investigations before consent is granted, consultations with affected parties (including iwi and hapū) and the identification of any special conditions that may need to be attached to a consent. Where appropriate, the Council involves iwi or hapū in the design and/or delivery of monitoring programmes to ensure compliance with consent conditions. Spill contingency planning is now a compulsory component of a discharge consent and is intended to reduce the impacts of an accidental spill into the coastal marine area.

There are currently six major discharges to the coastal marine area: The New Plymouth wastewater treatment plant discharges highly-treated effluent offshore. Effluent from Waitara is scheduled to be put through to the New Plymouth plant for a higher level of treatment by 2010. The Hāwera municipal and Fonterra Whareroa wastes are now combined and discharged through a long ocean outfall. There are small municipal discharges from Opunake, Manaia and Pātea.

There are currently 43 consents for discharges to the coastal marine area. These include the major discharges described above and discharges from stormwater or activities like dredging (Figure 5.6).

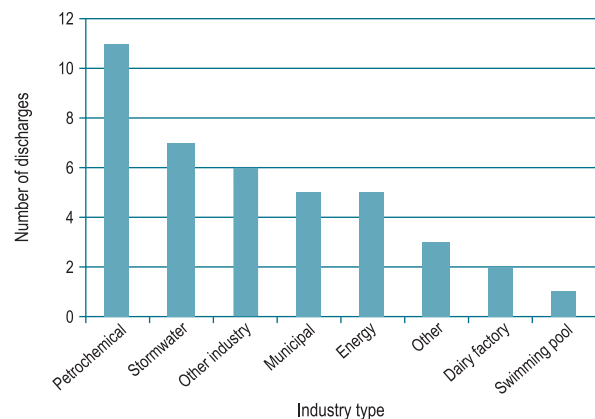


Figure 5.6: Discharges to the coastal marine area by type.

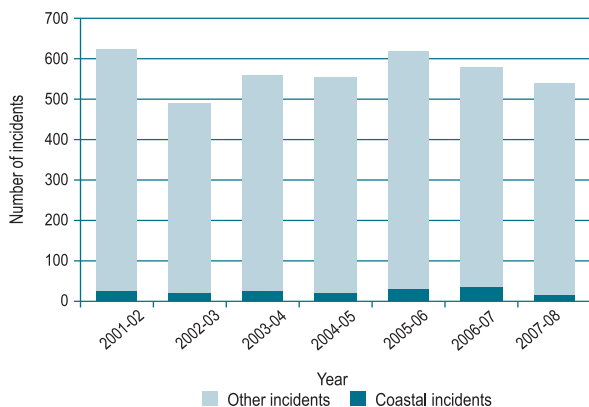


Figure 5.7: Number of coastal unauthorised incidents compared to the total number of incidents between 2001-02 and 2007-08.

## (C) UNAUTHORISED INCIDENTS

The number of unauthorised incidents on the coast is also low, with coastal-related incidents making up only a very small proportion of the total number of unauthorised incidents that the Council responds to (Figure 5.7). In 2007-08, 17 incidents, 3.1% of all unauthorised incidents reported to the Council, were in the coastal marine area. A number of reported incidents each year, such as foams on beaches, are natural events. These are generally those classified as ‘unknown’. Whilst the number of unauthorised incidents on the coast is low, the potential for a significant impact from a single event, such as an oil spill, can be significant (see the case study on the Ōkato oil spill incident).

## (D) MONITORING

The Council has undertaken state of the environment monitoring in the coastal marine area since 1995. This involves monitoring bathing beach water quality and ecology of rocky reefs (described above) and ecology of estuaries (described in section 5.3). The monitoring programmes are designed to monitor progress against the objectives and desired results of the *Regional Coastal Plan*.



Ngāti Ruanui representative assisting with intertidal survey, South Taranaki.

The Council also undertakes monitoring of resource consents. The number of monitoring programmes carried out in 2007-08 with a coastal water quality component is set out in Table 5.2.

Table 5.2: Monitoring programmes with a coastal water quality component in 2007-08

Activity/Industry	Number of programmes
Municipal sewage	5
Beach motor camps	4
Petrochemical	1
Dairy processing	1
Coastal structures	2
Recreational	1
General industrial	6

Monitoring of the discharge of wastewater from Fonterra shows a marked improvement in the marine ecology in the vicinity of the discharge point since this discharge was discharged offshore through the long ocean outfall<sup>16</sup>. Monitoring in the vicinity of the New Plymouth and Waitara wastewater outfalls does not show any significant adverse environmental effects arising from the discharges<sup>17,18</sup>. Discharges associated with the Opunake, Pātea and Manaia wastewater treatment systems are also monitored, as are discharges from beach camps at Waiiti, Urenui, Ōnaero and Waiinu, with no significant effects detected.

## (E) MARINE POLLUTION REGULATIONS

The Resource Management Act (Marine Pollution) Regulations 1998 are the responsibility of the Ministry for the Environment and are enforced by regional councils. These regulations deal with the dumping and incineration of waste and the discharge of sewage, garbage, ballast water and other wastes from ships and offshore installations.

## (F) OIL SPILL PLANNING AND RESPONSE

Oil spill planning and response operates at two tiers. Tier I contingency plans are developed by individual companies or operators and set out the response to small spills, such as one developed by Port Taranaki. Tier II contingency plans, are usually developed by a regional body such as the Council, and set out the response to large spills beyond the ability of a company or operator to contain. The Council’s tier II response plan, the *Marine Oil Spill Response Plan for Taranaki*<sup>19</sup>, has been recently reviewed and approved. The objective of the plan is to safely mitigate the effects of a marine oil spill and, if possible, assist with the restoration of oil damaged environments.

## (G) SUMMARY OF PROGRESS

Progress implementing regional objectives and policies on coastal water quality is summarised in Table 5.3.

<sup>16</sup> Taranaki Regional Council, 2008. *Fonterra Whareroa Compliance Monitoring Programme Annual Report 2007-2008*. Technical Report 2008-39.

<sup>17</sup> Taranaki Regional Council, 2008. *New Plymouth District Council New Plymouth Wastewater Treatment Plant Marine Outfall and Sludge Lagoon Monitoring Programme Annual Report 2007-2008*. Technical Report 08-11.

<sup>18</sup> Taranaki Regional Council, 2008. *Waitara Waste Water Treatment Plant Monitoring Programme Annual Report 2007*. Technical Report 2008-03.

<sup>19</sup> Taranaki Regional Council, 2008. *Taranaki Regional Marine Oil Spill Response Plan: A tier II marine oil spill contingency plan for the Taranaki coastal marine area*.

## COAST WILD BUT ALSO VULNERABLE

The harshest of environments can also be vulnerable – as was dramatically illustrated when large amounts of crude oil washed up on the wild and windswept west coast near Ōkato in October 2007. It was the largest ever crude oil spill in New Zealand and the second largest oil spill in New Zealand in recent history.

Residents, iwi and the surfing community were alarmed as nearly 15 km of sand and rocks along the coast were fouled by the waxy oil, mostly in the form of small tarballs that melted in the sun.

Taranaki Regional Council staff began planning the clean-up operations under the *Marine Oil Spill Response Plan* within two hours of the oil being reported. They were later joined by a team from Australian Worldwide Exploration (AWE), which admitted responsibility for a 23-tonne spill from processing equipment associated with the Tūt oilfield it operates 60 km offshore.

While the spill was an unwelcome reminder of the coastline's environmental vulnerability, quick action and fortunate timing kept long-term effects to a minimum.

The oil came ashore on a spring tide, which meant most was deposited at the highest point possible on the beach – well away from the zone where marine life is active.

The waxy blobs were quickly scooped off beach surfaces so the fast-melting oil did not have a chance to penetrate deep into the sand. If it had, a far more extensive and expensive clean-up operation would have been needed.

The oil in the rocks was left to weather and break down, as any clean-up action would have caused more environmental damage. Beaches



Oil spill cleanup.

were monitored after every spring tide and oil that had dissipated from the rocks was cleaned up.

Sea water, sediment and kaimoana samples tested by Council staff and by the Cawthron Institute, the latter under contract to AWE, showed no significant increase in hydrocarbon or metal levels.

A feature of the response to this incident was the close liaison of the Council with other agencies, local residents, iwi and surfers, with all consulted as the monitoring programme was developed.

Coastal landowners were also very co-operative, despite it being a busy time of year for farmers. Council staff were given free access over their properties, and the farmers also made equipment available for the clean-up operation.

Maritime New Zealand has taken legal action over the spill. Both AWE and Prosafe (the operators of the floating offshore production station) have appeared in court and entered guilty pleas. The decision on sentencing was yet to come at the time of printing.

Table 5.3 Summary of progress: Implementing regional objectives and policies on coastal water quality.

Issue	What do we want to achieve?	What are we doing about it?	Where are we at?
Maintain and enhance coastal water quality.	<ul style="list-style-type: none"> <li>Widespread contact recreation, shellfish gathering and consumption, and fishing.</li> <li>Maintenance of marine ecosystem.</li> <li>Minimisation of occurrence of accidental spills and effective clean-up if spills occur.</li> </ul>	<ul style="list-style-type: none"> <li>Preparing and implementing the <i>Regional Coastal Plan</i>.</li> <li>Preparing and implementing the <i>Regional Fresh Water Plan</i>.</li> <li>Issuing and monitoring resource consents for coastal activities.</li> <li>Requiring or encouraging promotion of contingency plans.</li> <li>Undertaking state of the environment beach bathing water quality programmes and coastal marine ecology monitoring.</li> <li>Carrying out enforcement.</li> <li>Preparing tier II oil spill response plan.</li> <li>Requiring ballast water discharges beyond Port limits.</li> </ul>	<ul style="list-style-type: none"> <li><i>Regional Coastal Plan</i> made operative in October 1997.</li> <li><i>Regional Fresh Water Plan</i> made operative in October 2001.</li> <li>Reduction in wastewater discharges to the coastal marine area – now only six significant discharges, down from 25 major discharges in 1975.</li> <li>Improvements made in waste treatment and disposal systems.</li> <li>Beach bathing bacteriological monitoring shows very good coastal water quality.</li> <li>Monitoring of rocky shores indicates that ecological health is generally stable, it does get affected with sand inundation but returns to normal when the sand moves on.</li> <li>Contingency plans have been developed at consent holder level (tier I) and at regional level (tier II).</li> </ul>



Taranaki's coast is popular for surfing.



Opunake Beach.

### 5.1.3 HOW DO WE COMPARE?

Comparing Taranaki's rocky reef habitats with other regions is difficult as this would require identical, or at least similar, measures of diversity, sampling areas and sampling design and methodology. In addition, natural climate, physical and habitat conditions vary greatly from one region to another. As a result little information exists for comparison purposes. However, regional recreational water quality comparisons are possible due to the development of national recreational water quality

guidelines and standardised sampling procedures and techniques. Table 5.4 compares bacteria counts at beach bathing sites in Taranaki and other regions for the 2007-08 summer. It should be noted, that despite standardised sampling procedures, not all councils use the same methodology to collect and analyse samples, and each council routinely monitors a significantly different number of sites. In terms of results, the table shows that the quality of marine bathing water quality in Taranaki compares well with other regions.

Table 5.4 Marine bathing water quality in Taranaki compared to other regions 2007-08 <sup>20</sup>.

Location	No. of sites monitored	Range of enterococci/100ml	End of season enterococci medians	% samples complying
Taranaki	10	<1 - 1800	<1 - 42	98
Northland	44	<10 - 2005	<10 - 31	93
Waitakere	4	<10 - 1500	<10 - 20	99
Waikato	26	<1 - 3300	<1 - 11	96
Hawke's Bay	14	<1 - 3200	<1 - 5	96
Horizons	5	<10 - 450	<10 - 20	96
Tasman	16	<1 - >2000	<10 - 10	99
West Coast	8	<1 - 370	2 - 60	83
Canterbury	39	<2 - 3700	2 - 43	95
Otago	2	<1 - 520	2 - 10	97
Southland	13	<10 - 6900	10 - 390	98