

## Appendix 1 – Key components of the Council’s monitoring framework

Monitoring programme	Information sources	Parameters monitored	Coverage	Monitoring (M) & Reporting (R) frequency
Community outcomes	Government, district and regional councils, sector agencies, community	A selection of key economic, social, environmental and cultural indicators under each of the seven community outcomes	Use of various existing databases and community survey data	M = varied R = 3-yearly
State of the environment: Our freshwater resources	Freshwater physicochemical programme	Temperature, flow, DO, BOD5, pH, conductivity, black disc clarity, turbidity, absorbances, ammonia-N, nitrate-N, total-N, DRP, total P, alkalinity, suspended solids, faecal coliform, enterococci, algal cover	11 sites plus 3 NIWA sites	M = monthly R = annual
	Freshwater biological programme	Invertebrate numbers and taxa, macroinvertebrate community index	51 sites	M = spring and summer R = annual
	Freshwater nuisance periphyton programme	Algal cover and type	21 sites	M = spring, mid summer, late summer R = annual
	Freshwater bathing water quality programme	Faecal coliforms, <i>E. coli</i> , enterococci, conductivity, turbidity, number of bathers and other users	11 sites at popular freshwater bathing spots	M = 13 samples over summer bathing season R = annual
	Groundwater quality programme	Conductivity, alkalinity, pH, chloride, sulphate, silica, nitrate, nitrite, ammonia, DRP, sodium, potassium, calcium, magnesium, iron, manganese, bromide, fluoride	6 sites	M = quarterly R = annual
	Groundwater nitrate programme	Nitrates	3 sites	M = monthly R = annual
	Groundwater level programme	Water levels	7 sites	M = monthly, quarterly and annual R = annual
	Regional hydrological monitoring	Water levels and flows, rainfall, wind direction and speed and temperature	31 telemetered sites, 24 non-telemetered water temperature sites	M = continuous R = monthly for selected sites
	Summary of freshwater use and availability	Natural 10 year low flow, total allocated water use, permitted water use, residual flow, residual flow as % low flow	20 sites on key rivers and streams	M = 5-yearly R = 5-yearly
	Summary of regional surface water abstraction volumes	Total volume of consented surface water abstraction in the region by industry category	Region-wide	M = annual R = annual
	Regional lake water quality programme	Chlorophyll-a, clarity, total phosphorus, total nitrogen, temperature	Lake Rotorangi	M = annual R = annual
	Riparian management water quality	Invertebrates, periphyton diversity and abundance, water temperature, bacteria, clarity, turbidity, conductivity depending on site	Kaupokonui River and Katikara, Kapoiaia and Tawhiti Streams	M = continuous, monthly or spring and summer depending on parameter R = annual
	Register of dams, weirs and fish passage	Location, size, type, barrier	Region-wide	M = continuous R = as required

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State of the Environment : Our air	Ambient air quality programme – nitrogen oxides	Nitrogen oxides	8 sites	M = monthly R = annual
	Ambient air quality programme – sulphur dioxide	Sulphur dioxide	2 sites	M = monthly R = annual
	Benzene, toluene, ethylbenzene and xylene	Benzene, toluene, ethylbenzene and xylene	5 site	M = 3-6 monthly R = annual
	Agricultural burnoffs	Visible sources of smoke, location, weather conditions, effect on amenity values	Eastern, northern and southern Taranaki	M = daily for 1 month R = annual
	Regional air emissions inventory	Air emissions data from resource consents plus standard emission data for various sources	Region-wide	M = 5 yearly R = 5 yearly
	Annual air quality monitoring	Air discharge consents, upgrades, ambient air quality, air pollution complaints, installation of wood fires	Region-wide	M = various R = annual
State of the Environment : Our coastal environment	Marine bathing water quality programme	Faecal coliforms, <i>E. coli</i> , enterococci, conductivity	7 primary sites monitored annually 12 secondary sites monitored on a 3-year rotation	M = 13 times over the bathing season R = annual
	Hard shore marine ecological programme	Habitat and species type	6 sites	M = spring and/or summer R = annual
	Soft shore marine ecological programme	Habitat and species type	4 sites	M = summer R = annual
	Subtidal marine ecological programme	Habitat and species type	5 sites	M = summer R = annual
	Port Taranaki Water Quality Programme	Sediment quality (hydrocarbons, DDT, tributyl tin, copper, zinc, lead, arsenic and cadmium), bioaccumulation of chemicals (in mussels), intertidal ecology, invasive species, water quality (faecal coliforms, <i>E. coli</i> , enterococci and conductivity) and shipping movements	Port Taranaki: 7 sites (sediment quality), 3 sites (bioaccumulation plus 1 control site outside harbour), 3 sites (intertidal ecology, 3 sites (invasive species), 7 sites (water quality)	M = 2 yearly and monthly for invasive species R = 2 yearly
	Hard shore habitat effects programme (trial)	Habitat composition and effects on marine communities	3 sites	M = 3 times in the year R = annual
State of the environment: Our land	Aerial photographic coverage	Land cover, land use	Region-wide	M = 5 yearly
	Hill country sustainable land use programme	Vegetation, land use, land use change, physically sustainable land use	25 representative hill country sites	M = 5 yearly R = 5 yearly
	Coastal sand country sustainable land use programme	Area of bare sand, vegetation type, land use vegetation and land use change, physically sustainable land use	4 representative sites	M = 5 yearly R = 5 yearly

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State of the environment: Our land	Soil health programme	Soil compaction, nutrient depletion (carbon, phosphate, nitrogen, sulphur, potassium, calcium, magnesium, sodium) and residual soil contamination (arsenic, cadmium, copper, lead, zinc, persistent organopesticides and herbicides), soil biological health and soil ecological diversity	Region-wide – various representative sites on ring plain and hill country soils	M = 5 yearly R = 5 yearly
	Pesticide residues in dairy and meat produce	DDT, DDE, dieldrin and/or others as appropriate	Region-wide data from MAF Regulatory Authority	M = 5 yearly R = 5 yearly
	District council monitoring	Protected heritage sites and buildings, protected or significant trees, number of significant natural areas, number and location of consents for clearance of indigenous vegetation, number, location and area of esplanade reserves, esplanade strips and access strips, annual volume of waste generation, annual volume of wastes recycled, issues raised by network utility operators, noise in the coastal marine area	Each of the region’s district councils	M = 5 yearly R = 5 yearly
State of the environment: Our biodiversity	Inventory of regionally significant and protected wetlands	Number, location, condition and protection status of wetlands in the Council’s schedule of regionally significant wetlands	Region-wide	M = 2 yearly R = 2 yearly
	Department of Conservation monitoring	Number, area, type and location of protected natural areas, percentage habitat types protected, threatened species	Region-wide	M = 5 yearly R = 5 yearly
	QEII Trust	Number, area, habitat type covered by QEII covenants	Region-wide	M = 5 yearly R = 5 yearly
	Further programmes to be developed	To be developed	To be developed	To be developed
Compliance monitoring	Tailored compliance monitoring programmes	Various chemical, physical, biological, bacterial or viral parameters, groundwater monitoring, soil analyses, vegetation or lichen studies, flow gauging, electric fishing, dye dilution studies, biological surveys of freshwater or marine ecosystems, odour surveys, the sampling and analysis of stack particulate, gas emission or downwind ambient air and time lapse video recording of emission or outfall plumes, water abstraction (including auditing and calibration of abstraction systems), contingency and site management plans	188 individual tailored compliance monitoring programmes involving over 1000 inspections of more than 230 consent holders and 770 resource consents (numbers may change from year to year)	M = variable depending on programme (monthly, quarterly, yearly) R = annual
	Agricultural monitoring programme	Compliance with consent conditions. May include sampling and analysis of various physical, chemical or biological parameters	Inspections of all 2122 dairy farms, 26 piggeries, 48 poultry farms and reinspections as required (numbers may change from year to year)	M = annual R = annual

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Compliance monitoring	Minor industrial operations programme	Compliance with consent conditions or Council policy and plan requirements. May include sampling and analysis of various chemical, physical or biological parameters	Inspections of over 860 minor industrial operations including hydrocarbon exploration and production sites, paint sprayers, light engineering, quarries, garages and other general industrial sites and land uses, and reinspections as required (number may change from year to year)	M = annual R = annual
	Once-only compliance inspection programme	Compliance with consent conditions	Region-wide small-scale installation activities (bridges, culverts etc)	M = on completion of work or commencement of consent R = following inspection
	Review of contingency plans	Content of contingency plans to ensure ongoing relevance and appropriateness	Review of a selection of approximately 200 operational plans	M = annual R = annual
	Unauthorised Incidents Register	Number of unauthorised incidents reported. Number of abatement notices and infringement notices issued and prosecutions taken. A variety of parameters sampled and/or analysed depending on the nature of the incident	Region-wide	M = continuous R = 6 weekly and annual.
	Public information databases	Requests for information, Council communications activities, use of Council website, public information materials produced and distributed, number of visits to the Council’s freshwater lab, number and type of initiatives under the Council’s environmental education programme	Region-wide	M = annual R = annual
Resource consent processing and administration	Resource consent database	Number and type of consent applications and consents granted, notified and non-notified, submissions lodged, application pre-hearing resolution rate, number of hearings, number of appeals lodged, result of appeals, consent processing timeline compliance, implications of regional plans, consent processing charges	Region-wide	M = annual R = annual
Policy and plan effectiveness and efficiency monitoring	Community outcomes monitoring, state of the environment monitoring, compliance monitoring, resource consents processing and administration and other monitoring programmes, and community and stakeholder review	As set out in other monitoring programmes plus stakeholder comment compared to environmental results anticipated as recorded in the Council’s plans	Determined by coverage of the plans	M = 5 yearly R = 5 yearly
Research and investigations	Applied research and investigation projects	Need for investigations, outputs from investigations, application to Council planning, policy and operations	Determined by research or investigation needs	M = during and at completion of projects R = during and at completion of projects

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Emergency management	Seismic monitoring network	Earthquakes, earth movements, tremours	7 sites on Egmont Volcano and surrounding area	M = continuous R = annual
	Incidents log and responses	Severe weather warnings (snow, hail, rain, wind), gas leaks and other incidents	Region-wide	M = continuous R = as needed, 3 monthly and annual
	Reports on significant emergency or hazard events	Determined by emergency or hazard	Determined by emergency or hazard	M & R = determined by emergency or hazard
	Survey of community awareness of natural hazards	Community awareness of natural hazards, preparedness and response	Region-wide	M = 5 yearly R = 5 yearly
Land management	Land management databases	Number and coverage (hectares) of comprehensive, agroforestry, riparian and conservation plans, length of proposed riparian planting (kms), number of soil conservation and riparian plants supplied, number of requests for advice and assistance	Region-wide	M = annual R = annual
Pest management	Pest animal management databases	Coverage (hectares) of and number of properties in the self-help possum control programme, number of properties on which maintenance occurred, numbers of properties inspected for compliance with strategy rules, residual trap rate, number and type of enquiries for advice and information on pest animals, number of pest animals killed (in addition to initial control under the self-help programme), advice and control of other unwanted animal organisms	Self-help possum control programme: Taranaki ring plain with residual trap catch monitoring on 247 properties selected at random. Other: region-wide	M = annual R = annual
Pest management	Pest plant management databases	Inspection of Category A, B and C properties for compliance with strategy rules, number of Notices of Direction or other enforcement action taken to destroy or control pest plants, success of biological control agents, number of complaints on pest plants, number and type of enquiries for advice and information on pest plants, number and results of inspections of plant nursery and retail outlets, number results of direct control of eradication pest plants, advice and control of other unwanted plant organisms	Region-wide with over 1800 inspections annually, 8 field trial sites for biological control agents, 28 nurseries	M = annual R = annual
Land transport	Report on Regional Land Transport Strategy, Land Transport New Zealand, Transit New Zealand, district councils, NZ Police, land transport operators and users, sector agencies	Implementation of strategy objectives and use of subsidised passenger transport and total mobility schemes	Region- wide. Subsidised passenger or total mobility schemes in New Plymouth, Waitara, Inglewood, Stratford and Hawera	M = monthly and annual R= annual

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Harbour management	Report of harbourmaster. Reports on implementation of the Taranaki Regional Oil Spill Response Plan	Navigation safety records and incidents, oil spill maintenance checks and equipment audits, training exercises, number and nature of responses to marine oil spills	Port Taranaki and approaches	M = continuous R = annual
River control and flood protection	Monitoring and observation of channel characteristics and flow conditions, and asset condition, engineering and other reports, hydrological monitoring network (rainfall and river level and flow)	Condition and maintenance requirements for Council-owned or managed river control and flood protection assets, rainfall, river levels and flows, channel conditions, number and nature of responses to public requests for information and assistance on drainage and river and flood control	Region-wide for rainfall, river levels and flows (see State of the Environment Monitoring Programme), and general river channel conditions. Council-owned or managed schemes – lower Waitara River, lower Waiwhakaiho River, and central Taranaki schemes	M = continuous (rainfall river levels and flows), annual or as required R = annual or as required
Environmental enhancement	Reports on projects proposed or completed	Nature, size and extent of enhancement proposal, values to be protected or enhanced, cost of project (\$), number of wetlands protected	Regionally significant or important wetlands. Other aspects of the environment to be protected or enhanced	M = annual R = annual
Waste minimisation	Individual reports on studies, surveys or projects, annual report on activities, district councils, industry and national organisations	Dependent on project. May include type and volume of wastes generated, collected, recycled or reduced	Dependent on project	M = dependent on project and/or annual R = annual
Environmental attitudes	Environmental attitudes survey	Environmental issues of most importance, level of concern over issues, order of priority of council functions, perceptions of change in the environment, perceptions of environmental quality in local area and in region, what residents most like-dislike about there they live	Taranaki residents	M = 5 yearly R = 5 yearly
	Submissions on notified resource consents and plans	Key issues raised in submissions, type of consent application or policy document	Dependent on location of consent or coverage of policy document	M = 5 yearly R = 5 yearly
	Public information databases	Requests for information, Council communications activities, use of Council website, public information materials produced and distributed, number of visits to the Council’s freshwater lab, number and type of initiatives under the Council’s environmental education programme	Region-wide	M = annual R = annual