NZCPS 2010 guidance note
Policy 23: Discharge of contaminants

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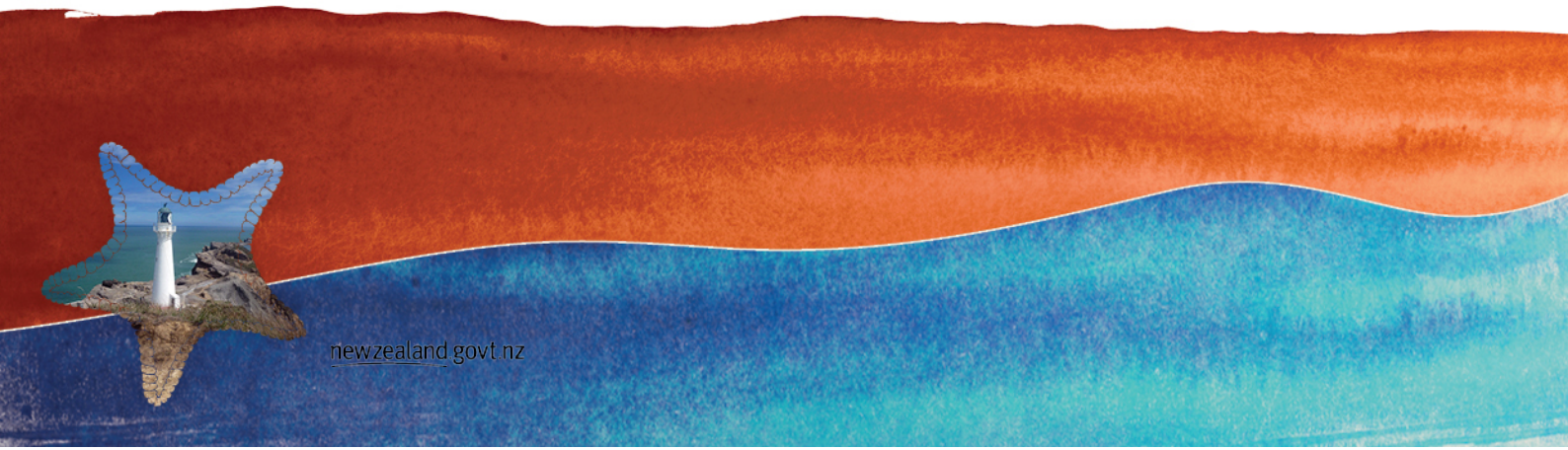

Policy 23 Discharge of contaminants

(1) In managing discharges to water in the coastal environment, have particular regard to:

(a) the sensitivity of the receiving environment;

(b) the nature of the contaminants to be discharged, the particular concentration of contaminants needed to achieve the required water quality in the receiving environment, and the risks if that concentration of contaminants is exceeded; and

(c) the capacity of the receiving environment to assimilate the contaminants;

and:

(d) avoid significant adverse effects on ecosystems and habitats after reasonable mixing;

(e) use the smallest mixing zone necessary to achieve the required water quality in the receiving environment; and

(f) minimise adverse effects on the life-supporting capacity of water within a mixing zone.

(2) In managing discharge of human sewage, do not allow:

(a) discharge of human sewage directly to water in the coastal environment without treatment; and

(b) the discharge of treated human sewage to water in the coastal environment, unless:

(c) there has been adequate consideration of alternative methods, sites and routes for undertaking the discharge; and

(d) informed by an understanding of tangata whenua values and the effects on them.

(3) Objectives, policies and rules in plans which provide for the discharge of treated human sewage into waters of the coastal environment must have been subject to early and meaningful consultation with tangata whenua.

(4) In managing discharges of stormwater take steps to avoid adverse effects of stormwater discharge to water in the coastal environment, on a catchment by catchment basis, by:

(a) avoiding where practicable and otherwise remedying cross contamination of sewage and stormwater systems;

(b) reducing contaminant and sediment loadings in stormwater at source, through contaminant treatment and by controls on land use activities;

(c) promoting integrated management of catchments and stormwater networks; and

(d) promoting design options that reduce flows to stormwater reticulation systems at source.

(5) In managing discharges from ports and other marine facilities:

(a) require operators of ports and other marine facilities to take all practicable steps to avoid contamination of coastal waters, substrate, ecosystems and habitats that is more than minor;

(b) require that the disturbance or relocation of contaminated seabed material, other than by the movement of vessels, and the dumping or storage of dredged material does not result in significant adverse effects on water quality or the seabed, substrate, ecosystems or habitats;

(c) require operators of ports, marinas and other relevant marine facilities to provide for the collection of sewage and waste from vessels, and for residues from vessel maintenance to be safely contained and disposed of; and

(d) consider the need for facilities for the collection of sewage and other wastes for recreational and commercial boating.

Overview of the policy

Policy 23 of the New Zealand Coastal Policy Statement 2010 (NZCPS 2010) provides direction on the management of the discharge of contaminants[1] to water in the coastal environment.

Policy 23(1) relates to all discharges to water and provides that 'particular regard' is to be given to the sensitivity of the receiving environment, the nature of the contaminants and the capacity of the receiving environment, as well as to the mixing zone by avoiding significant adverse effects on ecosystems after reasonable mixing, using the smallest mixing zone necessary and minimising the adverse effects on the life-supporting capacity of water within the mixing zone.

While Policy 23(1) applies to all discharges, the other parts deal with additional matters for specific types of discharges: Policy 23(2) and (3) are concerned with the discharge of human sewage, Policy 23(4) is concerned with the discharge of stormwater (including cross-contamination by sewage), and Policy 23(5) is concerned with discharges from ports and other marine facilities (also with a focus on sewage).

Policy 23 is one of three policies in the NZCPS 2010 that directly address water quality.

- Policy 21: Enhancement of water quality.
- Policy 22: Sedimentation.
- Policy 23: Discharge of contaminants.

Therefore, this guidance note should be read alongside the guidance notes for Policies 21 and 22.[2] To avoid duplication, some information and guidance that is common to all three policies is only provided in the Policy 21 guidance note.

Readers of this NZCPS 2010 guidance note should also refer to the NZCPS 2010 Implementation Guidance Introductory Note,[3] which contains general information and guidance that is important for implementing all of the objectives and policies in the NZCPS 2010.

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[1] As defined in section 2 of the Resource Management Act 1991 – refer to the 'Glossary of terms and definitions' at the end of this guidance note.

[2] https://www.doc.govt.nz/about-us/science-publications/conservation-publications/marine-and-coastal/new-zealand-coastal-policy-statement/policy-statement-and-guidance/

[3] Department of Conservation 2018: NZCPS 2010 implementation guidance introductory note. Department of Conservation, Wellington. 12 p. www.doc.govt.nz/globalassets/documents/conservation/marine-and-coastal/coastal-management/guidance/introductory-note.pdf

Rationale

The discharge of contaminants, including sediment, to water in the coastal environment has the potential to alter the water quality and cause irreversible changes to the benthos and wider biological systems, which may have adverse effects on the natural character and ecological functioning of the coastal environment. It can also have significant adverse effects on indigenous biodiversity and coastal areas, including those of particular interest to tangata whenua.[4]

Contaminants from both land- and marine-based activities can adversely affect the water quality in the coastal environment. Contaminants can include:

- sediment, nutrients, metals, hydrocarbons, organic contaminants and microorganisms (such as bacteria, viruses and protozoa) that are discharged directly to the coastal environment, including from wastewater system overflows, wastewater treatment system discharges, stormwater discharges, and sewage and wastes from vessels
- metals and hydrocarbons in urban stormwater from roads and car parks
- metals and chemicals from vessel hull treatments and maintenance
- sediment, nutrients, organic contaminants and microorganisms from erosion caused by land use practices such as farming, forestry and urban development
- nutrients and bacteria from non-point sources, such as intensive pastoral farming and horticulture, that are either discharged to the coastal environment via the land or discharged to groundwater and rivers that flow into the coastal environment
- discharges that alter the physical or chemical properties of the coastal water (eg the discharge of freshwater into coastal water)
- feed, faeces and nutrients (and in some instances metals and other contaminants) that are associated with finfish farming (aquaculture)
- pseudo-faeces, shells, sediment, and biological growths and drop off from shellfish farming, particularly during harvest
- sediments, which may be contaminated by antifouling residues, that are disturbed and relocated by port and marina dredging
- sediment that is suspended through seabed mining and drilling.

[4] In section 2 of the Resource Management Act 1991, 'tangata whenua' is defined as 'in relation to a particular area the iwi, or hapu that holds mana whenua over that area', while 'mana whenua' is defined as the 'customary authority exercised by an iwi or hapu in an identified area'.

Such contaminants may enter the coastal environment in one of two ways.

- Point source discharges from a single discrete point, such as a discharge outfall or drain (eg wastewater or stormwater from reticulated networks).
- Non-point source (diffuse) discharges that do not come from a single source (eg runoff from land or the leaching of discharges through the soil to the coastal environment, and inputs from rivers and streams to the coastal environment).

Policy 23 applies to all discharges to water in the coastal environment. Therefore, an application, including a 'replacement consent',[5] for a permit to discharge stormwater or treated waste water to water in the 'coastal environment' (as delineated in the relevant regional policy statement or regional plan) will need to be assessed under the relevant policies of the NZCPS 2010, the National Policy Statement for Freshwater Management 2014 (NPS-FM)[6] and the provisions of the relevant regional plan.

[5] Also referred to as a 'reconsent' or 'renewal'. The term 'replacement consent' was used by the High Court in relation to resource consents with finite terms where a new consent is required at the end of the term and there is no presumption that the current consent will be renewed or renewed on the same conditions. (*Ngāti Rangi Trust v Manawatu-Whanganui Regional Council* [2016] NZHC 2948). https://forms.justice.govt.nz/search/Documents/pdf/jdo/db/alfresco/service/api/node/content/workspace/SpacesStore/d3b004f5-aba4-441d-8525-b4f13fc5a45d/d3b004f5-aba4-441d-8525-b4f13fc5a45d.pdf

[6] Ministry for the Environment 2017: National Policy Statement for Freshwater Management 2014 (amended 2017). Ministry for the Environment, Wellington. 47 p. http://www.mfe.govt.nz/publications/fresh-water/national-policy-statement-freshwater-management-2014

Related objectives, policies and provisions

This section covers the links between the various provisions of the NZCPS 2010, the Resource Management Act 1991 (RMA),[7] other legislation and other national policy statements in terms of the management of the discharge of contaminants.

NZCPS 2010

The implementation of Policy 23 of the NZCPS 2010 requires careful consideration of all of the NZCPS 2010 objectives and policies. The table below outlines the key objectives and policies in relation to the discharge of contaminants, as well as other provisions that are relevant.

Key related objectives and policies	Other related objectives	Other related policies
Objectives 1 and 3 Policies 1, 2, 3, 4, 7, 8, 11, 12, 13, 21 and 22	2, 4 and 6	5, 7, 9, 14, 16 and 17

Objective 1

Objective 1 seeks to safeguard the integrity, form, functioning and resilience of the coastal environment, and to sustain its ecosystems by, inter alia, maintaining coastal water quality and enhancing this where it has deteriorated. Managing the discharge of contaminants by giving effect to Policy 23 will help to maintain or enhance coastal water quality.

Objective 3

Objective 3 requires that the principles of the Treaty of Waitangi are taken account of, recognising the role of tangata whenua as kaitiaki and providing for tangata whenua involvement in the management of the coastal environment. Under Policy 23(2), the discharge of treated human sewage to waters in the coastal environment is not allowed unless the proposal has been informed by an understanding of tangata whenua values and the effects on tangata whenua. That knowledge can only be gained through consultation and Policy 23(3) requires early and meaningful consultation with tangata whenua on objectives, policies and rules in plans that provide for the discharge of treated human sewage into waters of the coastal environment.

[7] http://www.legislation.govt.nz/act/public/1991/0069/latest/DLM230265.html

Policy 1: Extent and characteristics of the coastal environment

Policy 1 recognises that the coastal environment includes the coastal marine area, as well as coastal lakes, lagoons, tidal estuaries, saltmarshes and coastal wetlands. Policy 23 is concerned with the discharge of contaminants to water in the coastal environment and therefore applies to all of these areas. Policy 1(1) recognises that the extent and characteristics of the coastal environment vary between regions and localities, as do the key issues and effects. This should be recognised when managing discharges under Policy 23.

Policy 2: The Treaty of Waitangi, tangata whenua and Māori heritage

Policy 2 is concerned with the principles of the Treaty of Waitangi, and the connection and relationships that whanau, hapū, iwi and tangata whenua have with the coastal environment. It promotes whanau, hapū, iwi and tangata whenua involvement in coastal decision-making and recognises the importance of Māori cultural values. Policy 23 requires an understanding of tangata whenua values and the effects of discharges on them, and highlights the need for early and meaningful consultation with tangata whenua, particularly in relation to the discharge of treated human sewage to the coastal environment.

Policy 3: Precautionary approach

Policy 3(1) directs that a precautionary approach be adopted towards proposed activities where the effects on the coastal environment are uncertain, unknown or little understood but potentially significantly adverse. This is relevant to Policy 23, as there may be circumstances where there is uncertainty about the potential effects that contaminants may have on the coastal environment.

Policy 4: Integration

Policy 4 provides for the integrated management of both the natural and physical resources in the coastal environment, as well as any activities that affect that environment. In relation to managing stormwater discharges, Policy 23(4) requires that a catchment-by-catchment approached be adopted, while Policy 23(4)(c) requires councils to promote the integrated management of catchments and stormwater networks. Integrated management is also an important consideration where discharges from one region may affect coastal water quality in an adjoining region, such as in the Hauraki Gulf and Tasman Bay.

Integrated management can also be an effective way of addressing the cumulative effects of multiple discharges in the coastal environment. Because many discharges of stormwater, treated sewage and other potential contaminants are to fresh water outside the coastal environment, integration with the National Policy Statement Freshwater Management (NPS-FM) is a further important consideration, the relevant provisions of which are outlined below.

Policy 7: Strategic planning

Policy 7 is concerned with the consideration of where, how and when to provide for future development, and the identification of areas of the coastal environment that are inappropriate for particular activities and forms of development. The location of future residential and urban development also has implications for the discharge of contaminants and it is important that the potential effects on water quality are considered when assessing which forms of development are appropriate in the coastal environment.

Policy 8: Aquaculture

Policy 8 identifies that aquaculture can significantly contribute to the social, economic and cultural wellbeing of people and communities. It recognises the need for high water quality in areas that have been approved for aquaculture activities and seeks to ensure that development in the coastal environment does not make water quality unfit for such activities. While aquaculture activities may discharge contaminants, they are also sensitive to them, and Policy 8 recognises that policy statements and plans should make provision for aquaculture in appropriate places.

Policy 11: Indigenous biological diversity (biodiversity)

Policy 11 is concerned with New Zealand's indigenous biodiversity in the coastal environment and requires that it be protected, primarily through avoiding adverse effects on threatened species, ecosystems and habitats. Managing the discharge of contaminants to the coastal environment under Policy 23 is important for maintaining water quality to avoid any such adverse effects.

Policy 12: Harmful aquatic organisms

Policy 12 sets out policies to manage activities that could cause 'harmful aquatic organisms' (as defined in the NZPCS 2010) to be released or spread in the coastal environment. Policy 12 is especially relevant to Policy 23(4), which relates to discharges from ports and marinas.

Policy 13: Preservation of natural character

Policy 13 seeks to preserve the natural character of the coastal environment and to protect it from inappropriate subdivision, use and development. An assessment of natural character will include consideration of matters that are relevant to water quality, such as biophysical and ecological aspects and experiential attributes.[8] Policy 23 is relevant as the discharge of contaminants to water has the potential to cause adverse effects on those matters, particularly if the area has been identified as being of outstanding natural character.

Policy 21: Enhancement of water quality

Policy 21 requires that priority be given to improving the water quality in the coastal environment where it has deteriorated and is having a significant adverse effect on ecosystems, natural habitats or water-based recreational activities, or is restricting existing uses, such as aquaculture, shellfish gathering and cultural activities. Tangata whenua engagement is required in the process of identifying areas that require improvements in water quality. Since the appropriate management of discharges of contaminants to water in the coastal environment is an important component of enhancing water quality, Policies 21 and 23 are closely related.

Policy 22: Sedimentation

Policy 22 directs that sedimentation levels and their impacts on the coastal environment be assessed and monitored, and requires action to be taken to reduce sedimentation in the coastal marine area by controlling the impacts of land-based activities. Since sediment is considered a 'contaminant' for the purposes of Policy 23, Policies 22 and 23 are closely related. Policy 23(1) requires consideration of the sensitivity of the receiving environment, the nature of the contaminants and the capacity of the receiving environment to assimilate contaminants such as sediment. Policy 23(4) provides for the management of stormwater discharges, which can introduce high sediment loadings into the coastal environment.

[8] Policy 13(2)(b) and (h) of the NZCPS 2010.

Resource Management Act 1991

The RMA is concerned with ensuring the health and safety of people and communities, sustaining the potential of natural and physical resources to meet the needs of future generations, and safeguarding the life-supporting capacity of water and ecosystems (section 5 of the RMA). Managing the discharge of contaminants under Policy 23 of the NZCPS 2010 is very important for achieving this purpose. Depending on the circumstances of the discharge, relevant matters of national importance are likely to include sections 6(a) preservation of natural character of the coastal environment; 6(b) protection of outstanding features and landscapes; 6(c) protection of areas of significant indigenous vegetation[9] and significant habitats of indigenous fauna; and 6(e) relationship of Māori and their culture and traditions with their ancestral land, water, sites, waahi tapu and other taonga.

Matters in section 7 of the RMA that are relevant to the discharge of contaminants and that decision-makers may need to have particular regard to include (a) kaitiakitanga; (c) the maintenance and enhancement of amenity values; (d) the intrinsic value of ecosystems; (f) maintenance and enhancement of the quality of the environment; and (h) the habitat of trout and salmon.

Section 8 of the RMA is concerned with taking into account the principles of the Treaty of Waitangi, which is also an important consideration when managing the discharge of contaminants.

The following provisions of the RMA are also relevant to Policy 23.

- Section 15, which states that no person may discharge any contaminant to water unless allowed by a national environmental standard, a rule in a regional plan or a resource consent.
- Section 15B, which imposes restrictions on the discharge of harmful substances[10] or contaminants from a ship or offshore installation to the environment.

[9] 'Vegetation' is not defined in the RMA and section 6(c) does not distinguish between terrestrial and marine vegetation. However, in section 2, 'natural and physical resources' are defined as including 'land, water, air, soil, minerals, and energy, all forms of plants and animals (whether native to New Zealand or introduced), and all structures'.

[10] As prescribed by regulations (section 2 of the RMA). 'Harmful substances' are defined in Regulation 3 of the Resource Management (Marine Pollution) Regulations 1998 – see the 'Glossary of terms and definitions' at the end of this report.

- Section 30, which sets out the statutory functions of regional councils. The following clauses are particularly relevant to the control of discharges of contaminants to water:

  (c) control of the use of land for the purpose of ...

  - (ii) The maintenance and enhancement of the quality of water in water bodies and coastal water;
  - (iiia) The maintenance and enhancement of ecosystems in water bodies and coastal water
  - In respect of any coastal marine area in the region the control (in conjunction with the Minister of Conservation) of-
  - (iv) discharges of contaminants into ... water.

- Section 69, which allows regional councils to include rules in their plans based on the water quality classes included in Schedule 3 of the RMA, or more stringent or specific standards. Section 69(3) stipulates that subject to reasonable mixing of a discharged contaminant, the standards in a regional plan shall not result in a reduction in the quality of the water at the time of public notification of the proposed plan unless it is consistent with the purpose of the RMA to do so.
- Section 70, which sets out that before a regional council includes a rule providing for a discharge as a permitted activity, it must be satisfied that the discharge by itself or in combination with other discharges will not, after reasonable mixing, result in specified effects on the receiving waters, including the production of conspicuous oils, films, scums foams, floatable or suspended materials, a conspicuous change in water colour or clarity, and any significant effects on aquatic life.
- Section 104, which sets out the matters that a consent authority must have regard to when considering whether or not to grant a resource consent application, and guides consent authorities to consider any actual or potential effects on the environment that would result from allowing the activity.
- Section 105(1), which sets out matters that the consent authority must have regard to when considering a discharge permit or coastal permit application, including the nature of the discharge and the sensitivity of the receiving environment, the reasons for the discharge, and alternative methods of discharge, including into other receiving environments.
- Section 107, which sets out the restrictions on granting certain discharge permits and includes minimum qualitative standards for discharges that may enter water bodies, including coastal waters. These standards – that the discharge shall not cause conspicuous films, scums, or foam; a conspicuous change in water colour or clarity; objectionable odours; or significant adverse effects on aquatic life – apply generally and are to be met 'after reasonable mixing'. Exceptions to these standards – such as the discharge being of a temporary nature or related to necessary maintenance work – are set out in section 107(2).

- Section 108(2)(e), which provides that subject to section 108(8), a condition for a discharge consent may require the consent holder to adopt the best practicable option. Section 108(8) requires the consent authority to be satisfied that the best practicable option is the most efficient and effective means of preventing or minimising adverse effects on the environment, having regard to the nature of the discharge, the receiving environment and other alternatives, including any condition relating to minimum water quality standards.
- Schedule 3, which defines certain water quality classes, and section 69, which empowers regional councils to make rules requiring the observance of water quality standards based on those classes (or more stringent or specific standards). In accordance with section 69(4), which was inserted by the Resource Legislation Amendment Act 2017, Schedule 3 is no longer applicable to fresh water. Research is currently underway through the Ministry for the Environment (MfE)-led programme 'Managing upstream'[11] to develop attributes for fresh water that will inform water quality classification in the coastal environment.

A number of other sections of the RMA also relate more contextually to water quality, which are covered in detail in the guidance note for Policy 21.[12]

Other legislation

Resource Management (Marine Pollution) Regulations 1998[13]

The Resource Management (Marine Pollution) Regulations 1998 regulate the discharge of oil, noxious liquids, sewage, garbage and clean ballast water, and the dumping of waste from ships (widely defined) and offshore installations. These

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[11] Cornelisen, C.; Zaiko, A.; Hewitt, J.; Berthelsen, A.; McBride, G.; Awatere, S.; Sinner, J.; Banks, J.; Hudson, N. 2017: Managing upstream: estuaries state and values. Stage 1A report. *NIWA Client Report No: 2017221HN*. Prepared for the Ministry for the Environment by the National Institute of Water & Atmospheric Research Ltd. 101 p. https://www.mfe.govt.nz/publications/fresh-water/managing-upstream-estuaries-state-and-values-project-stage-1a-report

Zaiko, A.; Berthelsen, A.; Cornelisen, C.; Clark, D.; Bulmer, R.; Hewitt, J.; Stevens, L.; Stott, R.; McBride, G.; Hickey, C.; Banks, J.; Hudson, N. 2018: Managing upstream: estuaries state and values – methods and data review. Stage 1B report. *NIWA Client Report No: 2017415HN*. Prepared for the Ministry for the Environment by the National Institute of Water & Atmospheric Research Ltd. 149 p. https://www.mfe.govt.nz/publications/fresh-water/managing-upstream-estuaries-state-and-values-%E2%80%93-methods-and-data-review

[12] https://www.doc.govt.nz/about-us/science-publications/conservation-publications/marine-and-coastal/new-zealand-coastal-policy-statement/policy-statement-and-guidance/

[13] http://www.legislation.govt.nz/regulation/public/1998/0208/latest/DLM253727.html

regulations apply only within the coastal marine area – the area between mean high water springs and the outer limits of the territorial sea (ie 12 nautical miles).[14]

Regulation 4 deals with the dumping of waste or other matter, including dredge material. This regulation deems that the dumping of matter including dredge spoil, fish processing waste from an onshore facility, inert inorganic geological material and organic material of natural origin is a discretionary activity in all proposed and operative regional coastal plans subject to the assessment criteria listed in a schedule to the Regulations. The dumping of matter that is not listed in the Regulations is deemed to be a prohibited activity.

Regulation 11 provides that no person may discharge untreated sewage from a ship or offshore installation within 500 m seaward of mean high water springs, within 500 m of a marine farm or gazetted mataitai reserve, in water less than 5 m deep or within 200 m of a marine reserve. Regional coastal plans may specify greater distances or depths for part of a region's coastal marine area, while lesser distances generally apply for treated sewage depending on the standard of treatment.

Other national-level instruments

National Policy Statement for Freshwater Management 2014 (amended 2017) (NPS-FM)[15]

The NPS-FM applies to discharges to fresh waters that are within the coastal environment but not directly to waters within the coastal marine area. The NPS-FM recognises that the management of coastal and fresh waters requires an integrated and consistent approach.

Objective C1 of the NPS-FM (Integrated management) seeks 'to improve integrated management of fresh water and the use and development of land in whole catchments, including the interactions between fresh water, land, associated ecosystems and the coastal environment'. Policy 23(4)(c) of the NZCPS 2010 promotes the integrated management of catchments and stormwater networks and is therefore strongly aligned with Objective C1 of the NPS-FM and its accompanying policies C1 and C2.

Policy C1 requires every regional council to recognise the interactions between fresh water, land, associated ecosystems and the coastal environment ki uta ki tai (from the mountains to the sea). This policy also directs regional councils to manage fresh water and land use development in whole catchments in an integrated way, while Policy C2 directs councils to make or change regional policy statements to the extent needed to provide for the integrated management of the effects of the use and development of land and fresh water on coastal waters.

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[14] See the Policy 1 guidance note for a detailed definition of the limits of the territorial sea. https://www.doc.govt.nz/globalassets/documents/conservation/marine-and-coastal/coastal-management/guidance/policy-1.pdf

[15] www.mfe.govt.nz/publications/fresh-water/guide-national-policy-statement-freshwater-management-2014

The Periphyton Attribute Note, which was added as part of the 2017 amendments, instructs councils to set appropriate instream nutrient concentrations (N and P) to achieve periphyton objectives.[16] This note also requires that the nutrient criteria are set to achieve the outcomes sought for downstream receiving environments, such as estuaries. Full technical guidance is currently (November 2018) being finalised and should be available on the MfE website shortly. This technical guidance recommends use of the estuarine trophic index in the first instance for setting nitrogen criteria for estuaries.

A three-stage technical project commissioned by MfE is also currently underway to provide the science to understand the impacts that limit setting for freshwater management may have on estuarine values to ensure that future management decisions regarding freshwater inputs into estuaries are consistent with or support estuary values. The stage 1A and 1B technical reports are available on the MfE website.[17]

Please see the section entitled 'Other national policy statements' in the Policy 21 guidance note for further details.[18]

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[16] Ministry for the Environment 2017: Changes to Freshwater NPS – 2017: managing nitrogen and phosphorus. Ministry for the Environment, Wellington. 3 p. https://www.mfe.govt.nz/publications/fresh-water/fact-sheets-changes-freshwater-nps-2017

See also: Ministry for the Environment 2018: A guide to attributes in Appendix 2 of the National Policy Statement for Freshwater Management (as amended 2017). Ministry for the Environment, Wellington. Pp. 12–17. https://www.mfe.govt.nz/publications/fresh-water/guide-attributes-appendix-2-national-policy-statement-freshwater

[17] Cornelisen, C.; Zaiko, A.; Hewitt, J.; Berthelsen, A.; McBride, G.; Awatere, S.; Sinner, J.; Banks, J.; Hudson, N. 2017: Managing upstream: Estuaries state and values. Stage 1A report. *NIWA Client Report No: 2017221HN*. Prepared for the Ministry for the Environment by the National Institute of Water & Atmospheric Research Ltd. 101 p. https://www.mfe.govt.nz/publications/fresh-water/managing-upstream-estuaries-state-and-values-project-stage-1a-report

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[18] https://www.doc.govt.nz/about-us/science-publications/conservation-publications/marine-and-coastal/new-zealand-coastal-policy-statement/policy-statement-and-guidance/

Origins of the policy

Various policies in section 5.1 of the NZCPS 1994 related to managing the discharge of contaminants to the coastal environment, including the discharge of human sewage, trade wastes and diffuse source discharges. Section 5.2 contained policies relating to limiting the adverse environmental effects from vessel waste disposal or maintenance. The intent of many of these policies has been carried over to Policy 23 of the NZCPS 2010, which builds on this previous policy direction by providing additional policy guidance on stormwater discharges and more direction on decision-making in relation to mixing zones.

The Board of Inquiry that recommended the current NZCPS noted that the concept of integrated management of all of the effects from stormwater catchments was generally supported by submitters. The Board recommended that the stormwater policy become part of the discharge of contaminants policy (Policy 23) and aligned with other issues under that policy because they are integrally connected. Policy 23 is intended to strengthen the consideration of activities involving discharges on a catchment-by-catchment basis.

Policy 5.1.2 of the NZCPS 1994 required that rules in regional plans only allow the direct discharge of human sewage to water without passing through land where this better meets the purpose of the RMA than disposal onto land and there has been consultation with the tangata whenua in accordance with tikanga Māori, as well as with the community in general. Policy 23 now stipulates that human sewage must be treated before being discharged directly to water.

Policy 5.1.3 of the NZCPS 1994 required that, after reasonable mixing, no discharge may give rise to any significant adverse effects on habitats, feeding grounds or ecosystems. Policy 23 of the NZCPS 2010 contains more specific direction to use the smallest mixing zone necessary, to minimise adverse effects on the life-supporting capacity of water within a mixing zone and to avoid significant adverse effects after reasonable mixing.

The preamble to the NZCPS 2010 identifies that the poor and declining water quality in many areas as a result of point and diffuse sources of contamination, including stormwater and wastewater discharges, is a key issue facing the coastal environment. Other key issues include the adverse effects of poor water quality on aquatic life and opportunities for aquaculture, mahinga kai gathering and recreational uses. The preamble also notes that poor water quality and sedimentation are two of the pressures causing a continuing decline in species, habitats and ecosystems in the coastal environment.

See the section entitled 'Origins of this policy' in the Policy 21 guidance note for further details.[19]

[19] https://www.doc.govt.nz/about-us/science-publications/conservation-publications/marine-and-coastal/new-zealand-coastal-policy-statement/policy-statement-and-guidance/

Implementing the policy

When implementing Policy 23, it is necessary to consider the entire NZCPS 2010 as well as the guidance provided here. Therefore, please also refer to the NZCPS 2010 Implementation Guidance Introductory Note,[20] which covers the matters that are relevant in giving effect to the NZCPS 2010.

Policy 23 covers five policy areas.

- Managing discharges to water in the coastal environment.
- Managing discharges of human sewage.
- Consulting with tangata whenua on the discharge of treated human sewage.
- Managing discharges of stormwater.
- Managing discharges from ports and other marine facilities.

Each of these policy areas is discussed below and practical planning approaches are given under each relevant topic.

Managing discharges to water in the coastal environment

Policy 23(1) provides guidance to plan writers and decision-makers about the matters to be considered when managing discharges to the coastal environment. This policy is directed generally at the management of all discharges to the coastal environment, while Policy 23(2), 23(3), 23(4) and 23(5) apply to specific types of discharges. Policy 23(1) is not limited to discharges from land and so is also applicable to discharges from activities in the coastal marine area, such as feed finfish farms where there is a discharge of nutrients.[21]

Policy 23 is applicable to applications for new discharges and the consideration of 'replacement consents' for existing discharges to water in the coastal environment. The maximum term for which a coastal permit for discharge to the coastal marine area or a discharge permit in the coastal environment may be granted is 35 years (section 123 of the RMA). The High Court has held that 'it should not be assumed that existing consents with finite terms will be renewed on the same conditions'.[22] Thus, when considering applications for replacement consents for discharge permits,

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[20] www.doc.govt.nz/globalassets/documents/conservation/marine-and-coastal/coastal-management/guidance/introductory-note.pdf

[21] Recent consents for salmon farms in Marlborough have adopted an adaptive management approach, including conditions that are in accordance with best practice benthic guidelines, with trigger and response levels being set according to the impacts on the benthic environment. Water quality guidelines are currently under development.

[22] *Ngāti Rangi Trust v Manawatu-Whanganui Regional Council* [2016] NZHC 2948 (paragraph 65).

decision-makers must start afresh as if it were a new application. This means that application of the NZCPS 2010, including Policy 23, and any decisions need to be informed by any new information that is available, including science-based information (eg water quality monitoring data) as well as current social and cultural values and attitudes.

In implementing Policy 23, decision-makers who are considering applications for discharges to water in the coastal environment will need to have particular regard to how to prevent or minimise adverse effects particularly on ecosystems, habitats and the life-supporting capacity of the water. This may include considering the alternatives to discharging the contaminants to water, identifying the risks to the environment of the discharge, recognising the opportunities to reduce waste at source and assessing the different treatment options available. The combination of Policy 23(1)(d) to avoid significant adverse effects on ecosystems and habitat outside the mixing zone and (e) to use the smallest mixing zone necessary to achieve the required water quality gives considerable weight to these policy provisions. The Supreme Court has determined that the word 'avoid' as used in section 5 of the RMA and the NZCPS 2010 means 'not allow' or 'prevent the occurrence of'.[23]

An understanding of the nature and sensitivity of the receiving environment and its assimilative capacity will contribute to an understanding of the nature and potential significance of the effects of a discharge. Decision-makers also need to take into account any coastal waters that have been identified and management objectives that have been set in the implementation of Policy 21 (Enhancement of water quality) and/or the NPS-FM.

The overall sensitivity of any given receiving environment will vary depending on its biophysical characteristics and ecosystem values (including particular biological communities), the sensitivity of existing ecosystems to changes in water quality, the uses made of the area and the values attached to it. Consequently, the assessment of the effects of discharges will be heavily case-dependent, especially for major discharges.

While the only direct reference to tangata whenua values in Policy 23 is in relation to discharges of treated human sewage, Policy 2 of the NZCPS 2010 requires that the principles of the Treaty of Waitangi (te Tiriti o Waitangi) and kaitiakitanga (guardianship) be taken into account. Consequently, the concept of mauri (the life force/essential quality and vitality of water) is important when giving effect to all aspects of Policy 23.

Information on the physical and chemical characteristics and hydrodynamics of the receiving water (eg tidal currents, water depth, wave exposure, mixing and dispersion rates) and the nature of the discharge (eg level of treatment, flow rate and concentration of contaminants) will assist with predicting the likely effects of the discharge on the receiving environment, particularly in terms of the levels of contaminants that are likely to occur in the receiving waters and sediment.

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[23] *Environmental Defence Society Inc. v New Zealand King Salmon Limited* [2014] NZSC 38 (paragraph 96).

Achieving the required water quality in the receiving environment

Policy 23(1)(b) and (e) both make reference to achieving 'the required water quality in the receiving environment'.

This policy direction assumes that some form of water quality classification will be applied, either as a measure of the existing quality or as an 'aspiration of quality'. It also assumes that once appropriate water quality standards have been set, discharges will be required to meet those standards (ie after reasonable mixing, the concentration of contaminants will need to comply with the standards set for the receiving waters).

The guidance note for Policy 21 (Enhancement of water quality) provides direction on setting standards or limits for areas of deteriorated water quality, and the periphyton guidance note for the NPS-FM[24] may also be relevant. However, even for areas not covered by Policy 21, regional councils are encouraged to classify waters in their regional plans or regional coastal plans, as such classifications form a structured basis for managing activities and assessing consent applications, as well as providing a baseline against which cumulative adverse effects can be evaluated, including the bioaccumulation of contaminants in the food chain.

The classification of waters involves identifying the management objectives for those waters (ie the purposes for which they are to be managed), having regard to existing and potential water quality, uses and values, and setting water quality standards that ensure those management objectives can be met.

Of the 11 classes of water that are listed in Schedule 3 of the RMA, 7 are relevant to coastal waters.[25] The classifications are based on the purpose for which the waters are being managed (eg aquatic ecosystem, shellfish gathering, contact recreation, cultural purposes). Schedule 3 also lists water quality standards for each class. The list of classes and standards in Schedule 3 is not exhaustive and, in accordance with section 69(2) of the RMA, a regional council may develop its own more stringent or specific classes and standards where those in Schedule 3 are not adequate or appropriate. Once in place, the classification makes the purposes for which the waters are being managed clear to existing and potential water users.

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[24] Ministry for the Environment 2017: Changes to Freshwater NPS – 2017. Ministry for the Environment, Wellington. 3 p. https://www.mfe.govt.nz/publications/fresh-water/fact-sheets-changes-freshwater-nps-2017

[25] Classes AE (Aquatic ecosystems), F (Fisheries), FS (Fish spawning), SG (Shellfish gathering), CR (Contact recreation), A (Aesthetic) and C (Cultural). Schedule 3 no longer applies to fresh water (section 69(4) of the RMA – 2017 amendment).

Reasonable mixing

The concept of 'reasonable mixing' is provided for in sections 70 (Rules about discharges) and 107(1) (Restrictions on grant of certain discharge permits) of the RMA. Except for under exceptional circumstances, or if the discharge is temporary or associated with necessary maintenance work, no rule may be included in a regional coastal plan that allows the discharge of a contaminant as a permitted activity nor may a discharge or coastal permit be granted to discharge a contaminant if, after reasonable mixing, the contaminant either by itself or in combination with other contaminants would give rise to conspicuous[26] oil or grease films, scums or foams, or floatable or suspended materials; any conspicuous change in colour or visual clarity; any objectionable odour; or any significant adverse effects on aquatic life.

Sections 70 and 107(1) of the RMA set a minimum standard for all discharges. If, after reasonable mixing, a discharge will or is likely to cause any of the adverse effects specified in those sections, the contaminants that cause those effects will need to be removed or otherwise treated before discharge to prevent those effects from occurring.

Policy 23(1) items (d)–(f) of the NZCPS 2010 also include reference to 'reasonable mixing' and 'mixing zones'. The NZCPS 2010 defines 'mixing zone' as 'The area within which "reasonable mixing" of contaminants from discharges occurs in receiving water and within which the relevant water quality standards do not apply'. However, the term 'reasonable mixing' is not defined in Policy 23 or the RMA. Case law that was developed for discharges to fresh water under the Water and Soil Conservation Act 1967[27] held that reasonable mixing is a question of fact in each case and that a case-by-case approach has been adopted under the RMA.[28] For instance, to address the unconsented effect of a conspicuously coloured discharge from an ocean outfall, the Environment Court approved a 2-km extension of the outfall pipeline into deeper water with a longer diffuser and enlarged the zone of reasonable mixing from a 150-m radius from the end of the existing outfall pipe to 150 m along the length of the proposed 400-m-long diffuser. The Court was satisfied that a discharge into deeper water with a longer diffuser and an enlarged mixing zone would achieve the necessary dilution so that the discharge was no longer conspicuous.[29]

The matters listed in Policy 23(1)(a)–(c) provide an indication of the aspects that are relevant in the determination of a mixing zone. Information on the hydrodynamics of the receiving water (eg tidal currents, water depth and mixing rates) and the nature of

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[26] In *Maungaharuru-Tangitu Trust v Hawke's Bay Regional Council* [2016] NZEnvC 232 (paragraph 55), it was noted that 'conspicuous does not simply mean *visible* but rather implies some higher degree of visibility. For the discharge to be conspicuous, we consider that it would need (in layman's terms) to *catch the eye*'.

[27] http://www.nzlii.org/nz/legis/hist_act/wasca19671967n135320/

[28] See, for instance, *Southland Regional Council v New Zealand Deer Farms Limited* [2004] 9NZED 630. This is related to a prosecution for the disturbance of a river bed in contravention of permitted activity standards, which led to the release of contaminants.

[29] *Maungahaururu- Tangitu Trust v Hawkes's Bay Regional Council* [2016] NZEnvC 232.

the discharge (eg level of treatment, flow rate, concentration and outfall design[30]) will also assist in determining an acceptable mixing zone for any particular discharge. When determining the mixing zone in tidal waters, changes in the direction of flow during each tidal cycle need to be taken into account.

Policies in plans can provide useful principles to help consent applicants to understand the likely size of mixing zones and to allow them to adapt discharges or treatment technologies to comply with these zones. Where a plan specifies a discharge as a permitted activity, it is necessary to specify the size of the reasonable mixing zone or alternatively to define reasonable mixing in order to provide certainty as to the standards for a permitted activity. If those standards cannot be met, consent will be required.

Policy 23(1)(e) requires that the smallest mixing zone necessary to achieve the required water quality in the receiving environment is used. Calculation of the size of the smallest mixing zone necessary will need to be undertaken on a case-by-case basis depending on the quality and other characteristics of the discharge, and the location and sensitivity of the receiving environment. The setting of acceptable mixing zones can be a complex area of science. The 'Resources' section of this guidance note contains links to technical reports that discuss the definition of reasonable mixing and the setting of reasonable mixing zones.

Plan provisions

Objectives, policies, rules and other methods that are included in regional plans set the framework for managing discharges to water in the coastal environment. Relevant regional plans may include regional coastal plans, other single-purpose regional plans (such as regional freshwater plans), integrated regional plans or unitary plans.

The integrated management of the effects of discharges (ie on both fresh and coastal waters) is important to meet the requirements of Policy 23, as well as to give effect to Policy 21 (Enhancement of water quality). In particular, Policy 23(4) requires a catchment-based approach for stormwater management (discussed later).

Since what happens upstream will often affect the values and uses downstream, the implementation of Policy 23 is closely related to Policy 4 (Integration), which directs the use of an integrated approach to manage the effects of activities that cross administrative boundaries, such as mean high water springs. Integrated management programmes and collaborative processes involving communities and relevant agencies can be an effective way of achieving well-integrated management responses.

The desired outcome for coastal water quality can be outlined in objectives, which then guide the development of policies and the consideration of applications to discharge contaminants. Policies can list matters to be considered for further development of the requirements of Policy 23(1), which include the avoidance of

[30] Outfall design encompasses matters such as the use of diffusers or discharges from a single point at the end of a pipe, as well as the location of a discharge (eg near shore or in deeper water).

significant adverse effects on ecosystems and habitats after reasonable mixing (Policy 23(1)(d)) and the minimisation of adverse effects on the life-supporting capacity of the water within mixing zones (Policy 23(1)(f)). Matters contained in these policies then guide the conditions that are set on discharge consents.

Standards or limits that are set through policies or other methods in regional plans can help to define the benchmark for what constitutes acceptable effects. As noted earlier, baseline water quality standards, sediment quality standards and ecological limits can be set through the classification of waters, or on a case-by-case basis for particularly sensitive or highly used areas, and are strongly encouraged. Rules in plans can then require that these standards are achieved in receiving waters outside mixing zones. For further guidance, refer to 'Plan provisions – water quality classifications and setting limits' in the guidance note for Policy 21.[31]

Consideration also needs to be given to the appropriate status of contaminant discharge activities in plans. Permitted activities should only be provided for when it is certain that the standards in rules will avoid significant adverse effects, including cumulative effects. Controlled and restricted discretionary activities must retain matters of control and discretion that are relevant in all potential circumstances and that include monitoring. In some circumstances, discharges may appropriately be prohibited or non-complying. Both discretionary and non-complying statuses allow for the full range of actual and potential adverse effects to be taken into account which, given the diversity of circumstances in the environment and pertaining to discharges, may be most appropriate.

Resource consents and monitoring

The cumulative effects of multiple stressors on water quality and habitat in the coastal environment should be assessed when considering an application for a discharge permit to the coastal environment and when setting appropriate conditions. These stressors may include other consented discharges but may also include factors outside the direct control of the council, such as an ongoing decline in the population of a threatened indigenous species where its habitat may be affected by the additional discharge (Policy 11 of the NZCPS 2010).[32]

Resource consent conditions should require the smallest mixing zone that is necessary to achieve the required water quality in the receiving environment. Consent conditions should also set performance criteria for the discharge and establish what is to be monitored, where it is to be monitored (ie at the point of discharge or the edge of the mixing zone) and how frequently monitoring should occur.

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[31] https://www.doc.govt.nz/about-us/science-publications/conservation-publications/marine-and-coastal/new-zealand-coastal-policy-statement/policy-statement-and-guidance/

[32] For instance, a threatened species that has a declining population due to a range of stressors and factors outside of the RMA and which hunts visually, where a discharge could affect the water clarity in its main feeding grounds and increased turbidity may reduce primary productivity and the abundance of its preferred prey.

Water quality monitoring consists of measuring the physical parameters of water, such as temperature, pH, dissolved oxygen and clarity, as well as the levels of contaminants, such as nitrogen, phosphorus and microbes. A suite of parameters and contaminants should be selected that are specific to the discharge that is being monitored and its potential effects. A further option is whole effluent toxicity (WET) testing, which involves testing in a laboratory the adverse effects of an effluent or a water quality sample on a population of aquatic organisms that is found in the receiving environment.

Biological and ecological monitoring involves assessing the effects of a discharge on abiotic and biotic factors within the receiving waters. This can include:

- analysing the sediment – source, association with other contaminants, quantity, particle size and turbidity effects
- assessing the ecological condition and structure of biological communities through, eg benthic community sampling (species, abundance and community composition) and the assessment of intertidal communities (both plant and animal) and fish, shellfish and marine mammal populations (species and abundance)
- sampling the tissues of resident plants and/or fish and shellfish.

Biological and ecological monitoring should be undertaken in association with water quality monitoring to assess the adverse effects on ecosystems and habitats, as required by Policies 23(1)(d), (1)(f), (5)(a) and (5)(b). Measuring only water quality, with no biological and ecological monitoring for point source and non-point discharges, will often be ineffective for understanding and managing effects (particularly cumulative effects) on the environment.

In the coastal marine area, discharges are affected by the tide, wind, freshwater flows and mixing, currents, and eddies. Therefore, it is important to identify the direction of the discharge plume, usually through the use of a dye, and to undertake sampling at the edge of the mixing zone, unless the consent conditions specify the sampling locations. To assess the effects of the discharge, stormwater or other intermittent discharges should be monitored during the first flush.

Biological and ecological monitoring needs to be repeated periodically to determine whether the discharge is having an effect on aquatic life. Water quality monitoring alone may overlook ecologically relevant information if it misses high-concentration pulses of contaminants due to insufficient temporal sampling or, conversely, may not identify the effects of low-level chronic discharges on biological communities. Examples of ecological monitoring programmes are contained in the 'Resources' section of this guidance note.

Review conditions and term of consent

In considering whether the actual and potential effects of a discharge on the environment are better managed by way of review conditions or a shorter term of consent, the Environment Court has endorsed a risk-based approach, whereby review conditions may be used on longer term consents 'where review is capable of addressing all areas of concern and to ensure conditions do not become outdated,

irrelevant or inadequate'. However, while a longer term will reduce uncertainty for the consent holder, a shorter term is justified where 'there is uncertainty about the effectiveness of conditions to protect the environment', including considerations of the consent holder's financial viability, past compliance record or where the operation has caused considerable public concern. By contrast, a longer term is justified for an activity that 'generates known and minor effects on the environment on a constant basis but one that generates fluctuating or variable effects, or which depends on human intervention or management for maintaining satisfactory performance, or relies on standards that have altered in the past and may be expected to change again in the future should generally be granted for a shorter term'.[33]

Provided that it is specified in the consent, a review condition as provided for under section 128(1)(a) of the RMA can enable the consent authority to require the holder of a discharge or coastal permit to adopt the latest best practicable option should better technical methods of dealing with that discharge become reasonably available, having regard to the financial implications of adopting such technologies compared with other options. A review of consent conditions may also be commenced if a regional plan becomes operative that amends the water quality standards (section 128(1)(b) of the RMA).

Adaptive management approach

Policy 3 of the NZCPS 2010 requires that a precautionary approach be adopted to proposed activities (such as the discharge of contaminants) where the effect on the coastal environment is uncertain, unknown or little understood but potentially significantly adverse. 'Adaptive management' is a method that recognises that knowledge about natural resource systems is uncertain and that a structured 'learning by doing' approach may be appropriate in particular circumstances. The first and most important requirement is that the consent authority is confident that the effects that might arise can be remedied before they become irreversible (the 'threshold test'), which involves the consideration of risk and uncertainty. Consequently, adaptive management is not appropriate where no monitoring of the issues of concern is proposed or where there is a small remaining risk of the survival of an endangered species. In addition to the 'threshold test', the Supreme Court has set out three other factors that must be present before an adaptive management approach should be adopted.[34]

(a) There is good baseline information on the receiving environment.

(b) The consent conditions provide for effective monitoring of adverse effects using appropriate indicators.

(c) Thresholds have been set (in conditions) to trigger remedial action before the effects become overly damaging.

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[33] *PVL Proteins Ltd v Auckland Regional Council* A 061/2001 as cited in *Manawatu District Council v Manawatu District Council* [2016] NZEnvC 53 (paragraph 156).

[34] *Sustain Our Sounds Inc. v The New Zealand King Salmon Company Limited* [2014] NZSC 40 (paragraph 133).

The above Supreme Court case was in respect of the discharge of nutrients from salmon farms. In that case, which was upheld by the Supreme Court, there was a consent requirement to undertake comprehensive baseline water quality monitoring and ongoing monitoring over the consent term, the effects of additional nutrient discharges could be reasonably predicted by water quality models and calibrated and verified using the monitoring results, and the feed levels on the farms were to be increased in staged increments only if supported by the monitoring and modelling results and endorsed by an expert peer review panel.

Managing discharges of human sewage

Policy 23(2) provides direction on managing the discharge of human sewage. This policy directs that there should be no discharge of human sewage directly to water in the coastal environment without treatment and requires that prior to discharging any treated human sewage, alternatives are considered and there is an understanding of tangata whenua values and the effects on them.

Policy 23(3) directs that early and meaningful consultation must be carried out with tangata whenua before including any plan provisions that will provide for the discharge of treated human sewage to waters in the coastal environment. While there is no obligation under the RMA for the applicant for a discharge permit to consult,[35] it is considered good practice to do so.

In addition to consulting the relevant iwi authorities and hapū, it will be necessary for councils to determine whether there is a statutory acknowledgement under any relevant Treaty of Waitangi Settlement Act when developing policies and rules in relation to sewage discharges or considering discharge permits for treated human sewage. Where a customary marine title, protected customary right or application for a recognition order under the Marine and Coastal Area (Takutai Moana) Act 2011[36] applies, the relevant iwi and applicant groups should also be consulted. Contact details for each iwi authority and hapū are available on the Te Kāhui Māngai website,[37] and details regarding applications and orders under the Marine and Coastal Area (Takutai Moana) Act 2011 can be found on a webpage administered by the Ministry of Justice.[38] Councils are also required to keep and maintain records of iwi and hapū, including contact details, in accordance with section 35A of the RMA. Where a council has a Mana Whakahono a Rohe iwi participation arrangement under

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[35] Section 36A of the RMA. Note that this section applies only in relation to resource consent applications. Schedule 1, clause 3 of the RMA requires that councils consult with iwi when preparing regional policy statements and plans. Policy 23(3) of the NZCPS 2010 is consistent with that Schedule 1 duty.

[36] http://www.legislation.govt.nz/act/public/2011/0003/latest/DLM3213131.html

[37] www.tkm.govt.nz/

[38] https://justice.govt.nz/maori-land-treaty/marine-and-coastal-area/applications/ Note that this website contains applications that were made for direct engagement with the Crown. Additional applications that were lodged with the High Court are not readily available online. However, most regional councils keep a record of all applications lodged in their region under the Takutai Moana Act.

section 58R of the RMA, consultation will need to be in accordance with that document. Iwi management plans and any other relevant planning documents that are recognised by the appropriate iwi authority or hapū and lodged with the council should also be taken into account both to assist consultation and when making a decision. Refer also to the guidance note for Policy 2 (Treaty of Waitangi, tangata whenua and Māori heritage).[39]

The RMA sets out the requirements for consultation in relation to the preparation of policy statements, plans, resource consents and notices of requirements. For the preparation of a proposed regional policy statement or regional or district plan, clauses 2–3C of Schedule 1 of the RMA particularly apply. These provisions make it clear that iwi authorities[40] and any customary marine title group[41] in an area are to be consulted. Case law makes it clear that consultation needs to be meaningful and robust, and that when a council proposes a plan change or variation, consultation with Māori must occur prior to notification. (See the case law section at the end of this guidance note for further details on *Waikato Tainui Te Kauhanganui Inc v Hamilton City Council,* 3 June 2010, High Court, CIV [2009], 419-1712.)

Where a discharge of treated human sewage to water in the coastal environment is being considered, the following information will be required by decision-makers.

- The method and level of treatment (eg primary, secondary or tertiary) before discharge.
- The sensitivity of the receiving environment.
- The location, frequency, duration, volume and source of the discharge, and the extent to which the discharge is the best practicable option.
- The current biological and ecological health of the receiving environment.
- The current physical and chemical characteristics of the receiving waters.
- The constituent contaminants of the sewage discharge, including the effects of each contaminant individually and in combination. For instance, effluent from an entirely residential area will have different contaminants from a sewerage system receiving effluent from both residential and industrial areas.
- The hydrodynamics of the receiving environment, including the dispersal characteristics of the proposed discharge.

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[39] https://www.doc.govt.nz/globalassets/documents/conservation/marine-and-coastal/coastal-management/guidance/policy-2.pdf

[40] 'Iwi authority' means the authority that represents an iwi and is recognised by that iwi as having authority to do so (section 2 of the RMA).

[41] According to section 9(1) of the Marine and Coastal Area (Takutai Moana) Act 2011:

> **customary marine title group—**
> (a) means an applicant group to which a customary marine title order applies or with which an agreement is made and brought into effect; and
> (b) includes a delegate or transferee of the group if the delegation or transfer is made in accordance with tikanga'.

- The uses and values of the receiving environment (eg fisheries, aquaculture, swimming and other forms of recreation, and amenity, intrinsic, cultural and spiritual values).
- Alternative treatment and disposal methods and sites, including the option of land-based disposal and the routes of discharge that were considered by the applicant, and the reasons for selecting the proposed options.
- An understanding of tangata whenua values and the effects of the discharge on those values.

This information will enable decision-makers to determine whether or not to grant consent and the types of conditions that would be appropriate. The Environment Court set out clear expectations of the level of technical detail it required when considering an application for a 'replacement discharge permit' for a sewage treatment plant that included an upgrade of an existing urban wastewater treatment and disposal facility.[42]

Sewage overflows

Overflow discharges of untreated sewage from a reticulated sewage system can occur due to excess flow from a stormwater ingress during a particularly heavy rain event, the failure of pumps, including as a result of electricity outages, and the accidental rupturing or leakage from pipework or fittings. More frequent and intense rainfall events due to climate change may exacerbate this issue.

Policy 23(2)(a) states that the discharge of human sewage directly to water in the coastal environment should not be allowed without treatment. 'Treatment' is not defined in the NZCPS 2010 but the conditions that are typically imposed on applications for overflow discharges from sewerage pump stations require that overflow sewage passes through screens or macerators before discharge. In some circumstances where the discharge of overflow human sewage is unavoidable, screening, maceration or other methods to remove or break down recognisable and floatable constituents in the waste stream might be considered a rudimentary form of treatment. When assessing applications for overflow discharges, it is important to consider alternative methods, sites and routes; tangata whenua values and the effect of the overflow discharge on those values; the sensitivity of the receiving waters and the values for which those waters are managed; and the circumstances under which sewage overflows could occur. Where an overflow occurs because of excess stormwater inflows and infiltration overloading the system, the potential adverse effects of the sewage discharge are likely to be masked in part by high-volume discharges of stormwater into the same receiving waters.

The information that is lodged with applications for overflow discharges should demonstrate an ongoing commitment and work programme to reduce the occurrence of such discharges. The conditions of such consents should require the consent holder to report all such discharges; the cause of the discharge and the work that is

[42] *Manawatu District Council v Manawatu District Council* [2016] NZEnvC 53. This decision was in relation to a sewage treatment plant disposing to both fresh water and land.

being and is proposed to be undertaken to avoid a recurrence; and monitoring and reporting protocols on the ecological, microbiological and cultural effects of the discharge.

Discharges from ships and offshore installations

The Resource Management (Marine Pollution) Regulations 1998 govern the discharge of untreated sewage to coastal waters from ships and offshore installations. Since a 'ship' is defined as 'every description of boat or craft used in navigation',[43] these Regulations apply to every form of recreational and commercial boat and vessel.

Under regulation 11(2), no person may discharge untreated sewage to the coastal marine area from a ship or offshore installation unless the discharge is more than 500 m seaward of mean high water springs and at least 500 m from a marine farm or maitaitai reserve, more than 200 m from a marine reserve[44] and in water depths greater than 5 m. Regulation 11(3) provides that rules in regional coastal plans may increase the distance seaward or the water depth for discharges of untreated sewage 'for any harbours, estuaries, embayments, or other parts of the region, or ... the distances from a marine farm, marine reserve, or maitaitai reserve, ... for all or any part of the year'.

The Regulations provide a 'bottom line' specifically for ships and offshore installations. Policy 23 of the NZCPS 2010 applies generally to all discharges of human sewage.

Regulations 12 and 12A govern the discharge of treated sewage. In respect of Grade A and B treated sewage, these regulations provide that a rule in a regional coastal plan may increase the distances and depths of water specified in the Regulations.

Managing discharges of stormwater

Policy 23(4) provides direction on managing the adverse effects of stormwater discharges. This policy applies to all discharges of stormwater whether to water or land in the coastal environment in recognition that there are many naturally flowing freshwater discharges to the coastal environment, including surface and shallow groundwater, which may be contaminated by a range of diffuse discharges from within the coastal environment.

Stormwater discharges can be a major contributor to water quality degradation, particularly where the discharges are from urban areas, into shallow or semi-enclosed waters (eg estuaries, harbours), or into enclosed waters (eg coastal lakes). These discharges can introduce sediments and other contaminants into the coastal environment, thereby degrading the water quality and having adverse effects on ecological functioning and biodiversity, marine farming, and recreational activities such as shellfish gathering and swimming.

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[43] Section 2 of the RMA and section 2(1) of the Maritime Transport Act 1994.

[44] Except for the Kermadec Islands Marine Reserve.

The degree of contamination and environmental impact of stormwater is often not appreciated. A 2008 analysis of stormwater-derived chemical contaminants in urban streams in Wellington showed that zinc, and to a lesser extent lead, were the most common heavy metals in both stream bed sediments and in-stream waters during both base and wet weather flows and were often present at concentrations exceeding ANZECC (2000) Interim Sediment Quality Guidelines. Zinc is found in all urban stormwater, primarily originating from unpainted metal roofs and vehicle tyre wear. Lead is generally a legacy of pre-1996 petrol and residues from paints applied before the mid-1960s. Many of the sample sites also had high concentrations of polycyclic aromatic hydrocarbons (PAHs), probably arising from multiple sources, including diesel, wood, coal and wood combustion. Copper (from roof guttering and vehicle brake lining and pad wear) and pesticide residues (mostly dichlorodiphenyltrichloroethane (DDT) retained in the soil) were also detected in most samples. The researchers noted that at many of the urban stream sites, sediments and the contaminants attached to them are rapidly flushed to harbours where they accumulate.[45] Similar types and concentrations of contaminants were also found in sediments adjacent to stormwater outfalls in Tauranga Harbour in a separate 2008 survey.[46]

Stormwater discharges include point source discharges of urban runoff as well as non-point source runoff from roads, industrial areas, housing, agriculture and forestry. Although urban stormwater may discharge from a pipe and is technically a point source discharge, in reality such end-of-pipe discharges are comprised of multiple diffuse distributed inputs channelled to a single discharge point – and because stormwater arises from diffuse sources, the concentration of contaminants and discharge rates (which are a function of rainfall and the area of impermeable surfaces) can be difficult to predict. Consequently, stormwater discharge is different from a point source discharge arising from a single activity or urban wastewater, where the inflow volumes and contaminant levels are relatively constant and treatment plants can be designed and managed to achieve consistent discharge standards.

There is a close relationship between the quantity and quality of urban sediments and the quality of urban stormwater. Urban development can have the following effects on stormwater.

- Increased stream bank erosion and sediment transport from higher runoff flows caused by more impermeable surfaces.
- Higher rates of deposition of sediments and associated contaminants in estuaries and harbours. Contamination of the coastal receiving environment may be acute (following storm events) and/or chronic (accumulation over time).

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[45] Milne, J.R.; Watts, L. 2008: Stormwater contaminants in urban streams in the Wellington region. Greater Wellington Regional Council, Wellington. 56 p. www.gw.govt.nz/assets/council-publications/Stormwater%20Contaminants%20in%20Urban%20Streams%20in%20the%20Wellington%20Region.pdf

[46] www.boprc.govt.nz/media/32386/envreport-0901-marinesedimentcontaminantsurvey2008.pdf

- Increased overflow frequencies and volumes from sanitary sewers, particularly in areas with combined stormwater and wastewater sewers.

Consequently, the emphasis of Policy 23(4) is on reducing the level of contamination and the volume of stormwater at source.

Where water needs to be diverted into a stormwater system, the impacts can be reduced by:

- feeding the stormwater into and through a soakage area (eg a new wetland or infiltration trench or swale)
- passing the stormwater through some form of treatment system before it is discharged to the natural water body
- using a 'first flush' stormwater system that diverts the initial stormwater runoff, which usually has the highest level of contaminants, from roads and other hard trafficked surfaces to the sewerage system for treatment as wastewater.

A number of different stormwater management and treatment options are available. Management systems that reduce and attenuate flows and treat stormwater contaminants as opposed to purely acting as drainage systems are variously called low impact design (LID), sustainable urban drainage systems (SUDS), best management practices (BMPs) and water sensitive urban design (WSUD).

Under Policy 23(4), the management of stormwater can include the implementation of WSUD, which addresses both the quality and quantity of discharges and applies the processes that occur in natural systems to urban environments. Examples of WSUD include permeable paving and other infiltration surfaces to reduce the volume of stormwater runoff, vegetated swales to slow and treat stormwater runoff, media filters and bio-retention, green (vegetated) roofs on buildings, and detention ponds and wetlands to slow and treat stormwater and provide amenity and habitat. While these techniques have mainly been applied in greenfield developments, where they can be a cost-effective solution compared with conventional designs, they also have a role in existing urban areas, particularly when associated with stream restoration projects. WSUD may also be combined with stormwater storage systems to reduce the demand for potable water for non-potable uses such as irrigation.

On-site rainwater collection for non-potable uses such as irrigation has the double advantage of reducing stormwater runoff and reducing demand for the abstraction of fresh water.

Together with identifying upstream solutions and implementing best practicable options for avoiding the contamination of stormwater at source, the integrated management of stormwater catchments is also important. Policy 23(4) is closely linked to Policy 4 (Integration), which directs that the integrated management of activities that affect the coastal environment be provided for, as well as to Policy 7 (Strategic planning), which directs local authorities to consider where, how and when to provide for future residential, rural residential, settlement, urban development and other activities in the coastal environment at a regional and district level when preparing regional policy statements and plans.

Regional and district plan provisions can address stormwater discharges by setting in place policies and rules that require the improved management of urban catchments, eg by placing limits on impervious surfaces, implementing design options that reduce flows to stormwater reticulation systems at source and adding conditions to rules relating to stormwater discharges. Controls on land use activities (such as subdivision and roading development) can be imposed to reduce contaminant and sediment loadings in stormwater at source. Plans and policies can be used to promote the use of stormwater treatment systems and upgrades to reduce contaminant loadings, such as incorporating stormwater treatment into the design of reticulation systems, establishing stormwater detention systems to slow down the discharge of stormwater to rivers and streams and to provide some measure of treatment, and the implementation of inspection and remedial works programmes to reduce cross-connections between sewerage and stormwater systems. Local authorities are also encouraged to develop whole-of-catchment management strategies through mechanisms such as urban stormwater and rural runoff management plans (ie catchment management approaches to managing the interactions between land use and water quality).

In terms of rules and resource consents, site standards can be set in district plans to control the effects of land use activities, including by requiring the design and implementation of on-site stormwater treatment systems and urban design that reduces stormwater generation. Conditions on permitted activity rules for stormwater discharges can also be included in regional plans to set standards for effects in the receiving environment that act as a threshold for when consent is needed. Consent conditions on both district and regional council consents can require that new subdivision and development activities and land use activities implement measures to avoid adverse sedimentation and contamination of waters in the coastal environment, and can also require monitoring and reporting. Once these measures have been implemented, it may be possible to set end-of-pipe discharge standards for stormwater discharges.

Combined stormwater and human sewage systems should be dealt with in accordance with Policy 23(2). Human sewage that enters a dedicated stormwater network through unintentional cross-connections or unintended overflows where there is also a separate sewerage system should be dealt with as a contaminant of stormwater, with conditions included on the stormwater discharge consent to identify and eliminate such cross-connections and overflows from the sewerage system in accordance with Policy 23(4)(a). Where the sewage overflow is predictable, Policy 23(2) and (3) apply.

Case study – Auckland Unitary Plan approach

The Auckland Unitary Plan[47] controls stormwater discharges and diversions at source by classifying different types of activities. Land use rules control the area of impervious surface that is allowed at each site depending on the zone and land use

[47] www.aucklandcouncil.govt.nz/plans-projects-policies-reports-bylaws/our-plans-strategies/unitary-plan/Pages/default.aspx

activity. For instance, the maximum impervious area is 60 percent of the total site area for a permitted activity in the single house zone.[48]

Regional rules provide for the diversion of stormwater runoff from all lawfully established impervious areas into an authorised stormwater network as a permitted activity subject to standards in relation to the probability of flooding or inundation of other properties or buildings, and provided that the diversion and discharge do not give rise to any of the effects specified in section 70 of the RMA in any surface or coastal water.[49] There is no allowance for reasonable mixing.

Within urban areas, the discharge of stormwater runoff from impervious surfaces greater than 1,000 m^2 and up to 5,000 m^2 to a stream receiving environment is a controlled activity, subject to hydrology mitigation requirements (retention – volume reduction and detention – temporary storage) and stormwater management devices that apply the best practicable option to reduce or remove contaminants.[50] The diversion and discharge of stormwater from an impervious area greater than 5,000 m^2 becomes a discretionary activity,[51] the assessment criteria for which include the policies that are relevant to water quality and the integrated management of land and water.

Managing discharges from ports and other marine facilities

[Note: Guidance on the in-water cleaning of ship biofouling and in-water vessel maintenance, which includes the discharge of biological materials, is provided in the guidance note for Policy 12 (Harmful aquatic organisms).[52]]

Policy 23(5) provides direction for controlling discharges from ports and other marine facilities, which can include toxic antifouling paints that are passively leaching into the water column from moored and docked vessels, as well as the discharge of antifouling paints and biofouling from slipways and haul-out areas during routine out-of-water vessel maintenance. Other port discharges may include contaminated stormwater runoff from port operational areas, such as log storage areas, and unauthorised occasional oil spills from refuelling, as well as wind-blown dust from the handling of ship cargoes such as coal, sulphur and gypsum.

In relation to Policy 23(5)(a), determining whether a port and marina operator has taken 'all practicable steps' to avoid contaminant discharges that are more than

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[48] Rule H3.6.9 in the Auckland Unitary Plan.

[49] Section E8 (Stormwater – discharge and diversion), rule E8.6.2.1 and section E8.6.1 (General standards) in the Auckland Unitary Plan.

[50] Rule E8.6.3.1 in the Auckland Unitary Plan.

[51] Except for roads that are operated by a road controlling authority where the diversion and discharge of stormwater is a restricted discretionary activity (rule E8.6.4.1 of the Auckland Unitary Plan).

[52] https://www.doc.govt.nz/about-us/science-publications/conservation-publications/marine-and-coastal/new-zealand-coastal-policy-statement/policy-statement-and-guidance/

minor from all discharge sources will require similar technical considerations as apply when determining the 'best practicable option' in relation to a discharge.[53] Because the practicable steps that are available to port and marina operators are dependent on many variables, this determination may need to be made through a resource consent process.

Policy 23(5)(b) recognises that over time the cumulative effects of point and non-point discharges of contaminants from port areas and other marine facilities can significantly degrade the seabed and water quality in and adjoining the port and marina areas, and that this contaminated material may occasionally need to be removed, including for port redevelopment.

One example of a resource consent approach to the dredging and removal of historic contaminated seabed material is the remediation of the Calwell Slipway Basin at the Port of Nelson. Consent was granted for the removal of approximately 42,000 m^3 of seabed material that had been contaminated with biofouling paint residues and other contaminants from the operation of the adjacent marine slipway. The consent authorised the excavation of this contaminated material followed by stabilisation with a mix of cement and activated carbon to form 'mudcrete', which has been used to create a 5,000-m^2 reclamation at the port. Conditions imposed on the consent required the preparation and implementation of an environmental management plan to ensure the construction activities complied with the consent conditions to limit the disturbance to only that necessary and to minimise the mobilisation of sediment and associated contaminants during the operation. Detailed conditions related to baseline and operational monitoring, particularly of turbidity, a hydrographic survey and final sediment quality validation surveys, as well as operational certification and reporting.[54]

Dredging and the disposal of dredged material, particularly where this involves contaminated materials, can also give rise to adverse effects on water quality and the seabed.

Local authorities will need to work with the operators of ports and other marine facilities to manage discharges from these areas. Information on the existing environment at ports and marine facilities (eg the current and historic water quality, sediment quality, biodiversity values and ecological health of the sites) would assist with management.

Policies 23(5)(c) requires that port and marina operators provide for the collection of sewage and waste from vessels, while (d) requires that regional councils consider the need to ensure that facilities for sewage and waste collection from recreational and commercial boating are provided at locations other than ports and marinas.

While a condition can be imposed on a coastal permit for a marina that requires the provision of suitable sewage pump out and waste collection facilities, it is also important to ensure that the owners and operators of vessels berthed and using the marina use those facilities. The Environment Court has imposed conditions that

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[53] Refer to section 2 of the RMA for a definition of 'best practicable option'.

[54] Calwell Basin Slipway dredging, reclamation and remediation (application RM1655168 and RM165189, Port Nelson Limited. Decision of Nelson City Council, 14 December 2016. www.csrp.co.nz/

require the development, certification and implementation of a Marina Management Plan, including the location and frequency of servicing of refuse, recycling and waste oil collection facilities, and the provision of a sewage pump out facility, including its use (for a fee) by the general public. Additional conditions require the marina consent holder to develop a set of marina rules for all berth holders, including a prohibition on the deliberate discharge of bilge water, fuel, sewage, waste oil and litter into marina waters, a prohibition on in-water hull cleaning, and the requirement to use only low-impact (non- or low-copper) antifouling products.[55]

[55] *SKP Incorporated and RA Walden v Auckland Council* [2018] NZEnvC 081 (Conditions 97, 99 and 101). (Kennedy Point Boat harbour (marina), Waiheke Island.)

Resources

Resources that are relevant to the discharge of contaminants are listed below. In addition, please see 'Resources – Reports, websites and additional information' in the Policy 21 guidance note.[56]

Relevant case law

- *Waikato Tainui Te Kauhanganui Inc v Hamilton City Council, 3* June 2010, High Court, CIV [2009], 419-1712

  This case addresses the question of the appropriate level of consultation in relation to RMA decision-making processes. The Court found that where a council proposes a plan change or variation, consultation with iwi must occur prior to notification. The Court expressed the importance of maintaining an open mind in order to achieve meaningful consultation. This decision reiterates the importance that the RMA places on consulting with iwi in a meaningful and robust way, using a fair process that is established in good faith. This case provides some helpful guidance on the Court's view of effective consultation.

- *Ngāti Rangi v Manawatu Whanganui Regional Council* [2016] HZHC 2984

  While this case relates to discretionary activity consents to continue to take water for the Raetihi Hydro-Electric Power Scheme, which was constructed in 1918, the decision sets out some important principles that apply to all applications for existing activities that operate under resource consents with finite terms. The Court adopted the term 'replacement consent' to describe resource consents for 'permits' granted under the RMA where the permits are not permanent, existing use rights do not apply, and a new consent needs to be applied for and assessed on the expiry of the current permit. The decision notes that 'it should not be assumed that existing consents with finite terms will be renewed or renewed on the same conditions' (paragraph 65).

  In considering what constitutes the 'existing environment', the High Court reviewed case law and adopted the reasoning used in *Port Gore Marine Farms v Marlborough District Council* [2010] NZEnvC 72 where, in considering replacement consent applications for three marine farms, the Environment Court imagined the environment for the purposes of section 104(1)(a) of the RMA as if the three marine farms were not present.

[56] https://www.doc.govt.nz/about-us/science-publications/conservation-publications/marine-and-coastal/new-zealand-coastal-policy-statement/policy-statement-and-guidance/

- *Maungaharuru-Tangitu Trust v Hawke's Bay Regional Council* [2016] NZEnvC 232

  In this case, the Environment Court considered an existing coastal discharge of treated waste water from a pulp and paper mill. The mill had been upgraded to produce higher quality pulp and at the same time the existing primary treatment plant had been upgraded to include a two-stage biological secondary treatment plant. An unexpected consequence of the secondary treatment was a significant change in the colour of the discharge from grey to reddish brown, which was conspicuously visible at the end of the 318-m outfall in Hawke's Bay. The scientific evidence indicated that there was no more than a minor biophysical effect outside the mixing zone. The application was to increase the length of the outfall to 2.3 km and to include a 400-m diffuser at the end to achieve a 500:1 dilution so that the discharge would no longer be conspicuous.

  The Court considered the existing discharge and pipeline, the coastal permits for which had not expired, to be part of the existing environment and limited its consideration to the effects arising from the new proposal.

  Because 'conspicuous' is not defined in the RMA, the Court considered various dictionary definitions and decided that it does not simply mean visible but that it must also 'catch the eye'. The decision then discusses objective methods of assessing 'conspicuous', including the degree of change in hue and viewing points, having regard to the water classification of Hawke's Bay and the distance from the coastline to the discharge point, as well as the colour intensity of the discharge when viewed from the air.

  The decision considers the relationship of Māori and their culture and traditions with their ancestral lands and waters, kaitiakitanga, and the principles of the Treaty of Waitangi (sections 6(e), 7(a) and 8 of the RMA). The issue of consultation is also discussed at some length, with the Court noting that while section 36A of the RMA provides that neither an applicant for a resource consent nor a consent authority has a duty to consult with any person, 'it is invariably best practice to do so'. The Court endorsed a condition of consent requiring the establishment of a Mana Whenua Kaitiaki Liaison Group to develop a cultural monitoring programme, investigate alternative options to the coastal discharge, share understanding, and be informed of complaints and responses to those complaints.

  With respect to the NZCPS 2010, the decision considered dictionary definitions of 'infrastructure', as this term is used in Policy 6(1)(a), and concluded that 'we see no basis for upholding the appeal on the basis of wrongly considering a private drain as infrastructure in terms of the NZCPS'.

- *Sustain Our Sounds Inc v The New Zealand King Salmon Company Limited* [2014] NZSC 40

  This decision of the Supreme Court is in respect of three salmon farms in the Marlborough Sounds, which had been approved as a concurrent plan change and resource consents by a Board of Inquiry appointed by the Minister of Conservation under Parts 6AA (Proposals of national significance) and 7A (Occupation of the common marine and coastal area) of the RMA. Potential adverse effects of the operation of the farms included impacts on the benthic environment in the vicinity of the farms as a result of sedimentation from fish faeces, additional nutrients in the water column from fish feed, possible habitat exclusion effects on the threatened king shag and potentially the entanglement of marine mammals.

  The farms were approved to operate using an 'adaptive management' approach. Under the approved scenario, initial monitoring was required to establish an environmental baseline, following which feed and stocking levels were to commence at an initial level for 3 years. If ongoing monitoring and modelling then showed no adverse effects beyond those consented feed levels, they could be increased in set stages up to the consented maximum.

  The conditions established environmental 'trigger' levels, whereby additional monitoring and analysis were to be undertaken if certain environmental thresholds were reached, and management responses needed to occur, including destocking, if 'response' levels were reached.

  The decision considers Objectives 1 and 6 and Policies 3 (Precautionary approach), 8 (Aquaculture), 12 (Harmful aquatic organisms) and 23 (Discharge of contaminants) of the NZCPS 2010. The decision considers New Zealand and international case law and commentary in respect of adaptive management, and evaluates when an adaptive management approach can legitimately be considered part of a precautionary approach. The Court sets out the threshold criteria for when an adaptive management approach can even be considered and reinforces that adaptive management is not a case of 'suck it and see'.

  The decision sets out four factors that need to be considered when assessing whether an adaptive management approach is appropriate in the circumstances.

  (a) The extent of the environmental risk, including the gravity of the consequences if the risk is realised.

  (b) The importance of the activity.

  (c) The degree of uncertainty.

  (d) The extent to which an adaptive management approach will sufficiently diminish the risk of the uncertainty.

When considering risk and uncertainty under (d), the Supreme Court identified the following four assessment criteria.

(a) There will be good baseline information about the receiving environment.

(b) The conditions provide for effective monitoring of the adverse effects using appropriate indicators.

(c) Thresholds are set to trigger remedial action before the effects become overly damaging.

(d) Any effects that may arise can be remedied before they become irreversible.

Having identified the relevant threshold and assessment criteria, the Supreme Court then went on to evaluate the three proposed salmon farms. The Court dismissed the appeals and upheld the Board of Inquiry decision.

- *Okura Holdings v Auckland Council* [2018] NZEnvC 87

  This Environment Court decision concerns appeals against the rural/urban boundary in the Auckland Unitary Plan in relation to 130 ha of land in the catchment of the Okura Estuary north of Auckland. The appellants were seeking various zonings primarily to provide for future residential development. The Long Bay – Okura Marine Reserve is on the coastal edge of the site. In addition to the discharge of sediment from the earthworks that would be required to develop the land for residential purposes, the Court also considered the effects of the discharge of stormwater when development including housing was completed. The decision is useful for demonstrating the Court's approach to decision-making by setting out the values of the estuary, including water quality, the range of potential effects of the development on those values and the assessment of those potential adverse effects. The appeals were dismissed for reasons other than sediment and stormwater discharges.

  The Environment Court decision has since been appealed.

  https://environmentcourt.govt.nz/assets/Documents/Decisions/2018-NZEnvC-087-Okura-Holdings-Limited-v-Auckland-Council.pdf

Examples of non-statutory plan provisions

- Greater Wellington Regional Council; Porirua City Council; Wellington City Council; Te Rūnanga o Toa Rangātira 2015: Te Awarua-o-Porirua Harbour and Catchment Sediment Reduction Plan: response to sediment loss from the Te Awarua-o-Porirua Harbour catchment. 36 p. www.gw.govt.nz/assets/Uploads/Te-Awarua-o-Porirua-harbour-and-catchment-sediment-reduction-plan.pdf

  This 3-year plan (2015–2018) sets interim and long-term targets to reduce sediment inputs and sedimentation rates in Te Awarua-o-Poirua Harbour, and

includes operational plans and budgets. The plan contains a stated intention to make recommendations to the Greater Wellington Regional Council, including setting possible limits on the volume of sediment that is allowed to flow into the harbour to be considered by way of a change to the Natural Resources Plan[57] (refer page 19 of the Strategy and Action Plan).

Reports, websites and additional information

Ministry for the Environment

- Ministry for the Environment 2003: Sustainable wastewater management: a handbook for smaller communities. Ministry for the Environment, Wellington. 156 p.

  www.mfe.govt.nz/publications/waste/wastewater-mgmt-jun03/

- Ministry for the Environment 2007: Environment New Zealand 2007. Ministry for the Environment, Wellington. 460 p. (See Chapters 10 (Fresh water) and 11 (Oceans).)

  www.mfe.govt.nz/publications/ser/enz07-dec07/index.html

- Ministry for the Environment; Statistics New Zealand 2015: New Zealand's Environmental Reporting Series: Environment Aoteoroa 2015. *Publication No. MfE 1215*. Ministry for the Environment and Statistics New Zealand, Wellington. 131 p.(See chapters on fresh water, land and marine.)

  www.mfe.govt.nz/node/21222

- Hume, T.; Gerbeaux, P.; Hart, D.; Kettles, H.; Neale, D. 2016: A classification of New Zealand's coastal hydrosystems. *NIWA Client Report No: HAM2016-062*. Prepared for the Ministry for the Environment by the National Institute of Water & Atmospheric Research Ltd. 120 p.

  www.mfe.govt.nz/sites/default/files/media/Marine/a-classification-of-nz-coastal-hydrosystems.pdf

  This document provides a consistent description of the characteristics and properties of approximately 500 discrete coastal hydrosystems found in New Zealand. These range from near coast freshwater and wetland systems to marine sounds and fiords.

- Cornelisen, C.; Zaiko, A.; Hewitt, J.; Berthelsen, A.; McBride, G.; Awatere, S.; Sinner, J.; Banks, J.; Hudson, N. 2017: Managing upstream: estuaries state and values. Stage 1A report. *NIWA Client Report No: 2017221HN*. Prepared for the Ministry for the Environment by the National Institute of Water & Atmospheric Research Ltd. 101 p.
  www.mfe.govt.nz/publications/fresh-water/managing-upstream-estuaries-state-and-values-project-stage-1a-report

[57] http://www.gw.govt.nz/proposed-natural-resources-plan/#Regional Policy Statement (RPS)

Zaiko, A.; Berthelsen, A.; Cornelisen, C.; Clark, D.; Bulmer, R.; Hewitt, J.; Stevens, L.; Stott, R.; McBride, G.; Hickey, C.; Banks, J.; Hudson, N. 2018: Managing upstream: estuaries state and values – methods and data review. Stage 1B report. *NIWA Client Report No: 2017415HN*. Prepared for the Ministry for the Environment by the National Institute of Water & Atmospheric Research Ltd. 149 p.
www.mfe.govt.nz/publications/fresh-water/managing-upstream-estuaries-state-and-values-%E2%80%93-methods-and-data-review

These two reports are the first stage of a science-based investigation to understand the impacts that limit setting in freshwater management may have on estuarine values. The information will enable future management decisions regarding freshwater inputs into estuaries to be consistent with or support estuary values. The technical work is being undertaken by an interdisciplinary team of researchers and scientists.

Auckland Council

- Hailes, S.F.; Hewitt, J.E. 2012: Manukau Harbour Ecological Programme: report on data collected up until February 2011. *Auckland Council Technical Report 2012/004*. Prepared for Auckland Council by the National Institute of Water and Atmospheric Research Ltd. 43 p.

  http://knowledgeauckland.org.nz/assets/publications/TR2012-004-Manukau-Harbour-ecological-monitoring-programme-report-to-February-2011.pdf

  The Manukau Harbour Ecological Monitoring Programme provides a good example of ecological monitoring, showing how the ecosystem responds to different levels of water quality.

- Auckland Unitary Plan.
  http://unitaryplan.aucklandcouncil.govt.nz/pages/plan/Book.aspx?exhibit=AucklandUnitaryPlan_Print

  Factsheets on key topics for the Auckland Unitary Plan (including stormwater quality and flows).
  www.aucklandcouncil.govt.nz/EN/PLANSPOLICIESPROJECTS/PLANSSTRATEGIES/UNITARYPLAN/Pages/keytopicsindetail.aspx

- Cooke, J.; Milne, P.; Rutherford, K. 2010: A review of definitions of "mixing zones" and "reasonable mixing" in receiving waters. *Technical Report 2010/045*. Auckland Regional Council, Auckland. 44 p.

  http://knowledgeauckland.org.nz/publication/?mid=2064

  The authors of this report took a multi-disciplinary approach. The report discusses the role of reasonable mixing under the RMA, when reasonable mixing is relevant, why it should be defined and approaches to reasonable mixing in New Zealand. It also considers various regional council approaches, including quantitative definitions and guidance. A review of international perspectives is followed by an analysis of approaches, including a concentration-based approach, a distance approach and a combined

approach. The report also discusses reasonable mixing in relation to stormwater discharges.

Environment Bay of Plenty

- Stormwater management guidelines for the Bay of Plenty region – 2012 (updated 2015).

  www.boprc.govt.nz/media/520746/guidelines-2012-01-stormwater-management-guidelines-for-the-bay-of-plenty-region2.pdf

  This comprehensive, 271-page document sets out design guidance for stormwater quality treatment and the control of stormwater quantity. It discusses the effects of land use on stormwater runoff quality and quantity, the various receiving environments (streams, rivers, ground, estuaries, harbours and open coasts), the concepts of stormwater design, and various management practices and engineering solutions. Various case studies of low impact design (LID) solutions are presented and discussed.

- Bay of Plenty marine sediment contaminants survey 2008 (Environment Bay of Plenty Environmental publication 2009/01 January 2009)

  www.boprc.govt.nz/media/32386/envreport-0901-marinesedimentcontaminantsurvey2008.pdf

  This report presents the findings of a one-off survey of sediment contaminants (metals and organics) associated with stormwater outfalls and industrial areas around Tauranga Harbour. The survey showed elevated concentrations of PAHs and metals, particularly zinc and lead.

Greater Wellington Regional Council

- Greater Wellington Regional Council runs a programme of coastal monitoring that is focused on estuaries in Wellington Harbour and the Hutt, Whareama, Waikanae, and Te-Awarua-o-Porirua Harbour.
- Milne, J.R.; Watts, L. 2008: Stormwater contaminants in urban streams in the Wellington Region. Greater Wellington Regional Council, Wellington. 50 p.

  www.gw.govt.nz/assets/council-publications/Stormwater%20Contaminants%20in%20Urban%20Streams%20in%20the%20Wellington%20Region.pdf

  This 50-page report sets out the results of two investigations into stormwater-derived chemical contaminants in various urban streams across the Wellington region.

Porirua City Council

- Porirua Harbour and catchment programme.

  www.gw.govt.nz/porirua-harbour-and-catchment-programme/

  Porirua City Council and Te Rūnanga o Ngāti Toa Rāngatira, with support from Greater Wellington Regional Council, Wellington City Council and the Pāuatahanui Inlet Community Trust, are committed to ongoing critical research that identifies and monitors the biophysical condition of Te Awarua-o-Porirua Harbour and its catchment. A series of annual and longer term research projects are underway to monitor changes with the harbour.

Wellington City Council

- Stormwater monitoring.

  http://wellington.govt.nz/services/environment-and-waste/stormwater

  Wellington City Council has developed a water-sensitive urban design guideline, has a stormwater quality monitoring programme and provides a range of other advice.

Environment Southland

- Coastal monitoring.

  www.es.govt.nz/environment/coast/Pages/default.aspx

  Environment Southland monitors a range of coastal sites.

Other regions

Most of the country's regional councils have coastal monitoring programmes in place that are similar to those listed above. More details can be found by visiting the 'Our Estuaries' hub.

www.doc.govt.nz/nature/habitats/estuaries/monitoring-estuaries-map/

Glossary of terms and definitions

NZCPS 2010 glossary

Marine facilities Includes ports, dry docks, slipways, moorings, marinas, boat servicing grids, wharves, jetties and ramps, offshore platforms, navigational aids, and associated structures and activities.

Mixing zone The area within which 'reasonable mixing' of contaminants from discharges occurs in receiving waters and within which the relevant water quality standards do not apply.

Substrate Material that forms the surface of the foreshore and seabed.

Other definitions

Contaminants

... includes any substance (including gases, odorous compounds, liquids, solids, and micro-organisms) or energy (excluding noise) or heat, that either by itself or in combination with the same, similar, or other substances, energy, or heat—

(a) when discharged into water, changes or is likely to change the physical, chemical, or biological condition of water; or

(b) when discharged onto or into land or into air, changes or is likely to change the physical, chemical, or biological condition of the land or air onto or into which it is discharged.

(Section 2 of the RMA)

Harmful substances

(a) petroleum in any form, including crude oil, fuel oil, sludge, oil refuse, and refined petroleum products (other than petrochemicals which are noxious liquid substances); and includes the substances specified in Schedule 2:

(b) any substance specified in Schedule 1 and any mixture of those substances if carried in bulk in a ship:

(c) drainage and other wastes from any form of toilet, urinal, or toilet scupper on a ship or offshore installation:

(d) drainage from washbasins, washtubs, and scuppers located in the dispensary, sick bay, or other medical premises of a ship or offshore installation:

(e) drainage from spaces on a ship or offshore installation containing living animals:

(f) waste water from a ship or offshore installation mixed with the drainage and waste specified in paragraphs (c), (d), or (e):

(g) all kinds of food waste, domestic waste, operational waste, plastic, cargo residue, incinerator ash, cooking oil, fishing gear, and any animal carcass generated during the normal operation of a ship or an offshore installation and liable to be disposed of continuously or periodically, except—

(i) any substance that is defined or listed in any Annex to MARPOL other than Annex V; and

(ii) fresh fish or parts of fresh fish generated as a result of fishing activity undertaken during a voyage, or as a result of aquaculture activity that involves the transport of fish (including shellfish) for placement in an aquaculture facility and the transport of harvested fish (including shellfish) from such facilities to shore for processing.

(Resource Management (Marine Pollution) Regulations 1998)