



DECISION REPORT FIVE OF FIVE

Proposed Gisborne Regional Freshwater Plan

RESOURCE MANAGEMENT ACT 1991

HEARING OF SUBMISSIONS DECISION OF HEARING PANEL

TOPICS:

Catchment Plans

HEARING PANEL:

Mark Farnsworth MNZM (Chair)
Deputy Mayor Rehette Stoltz
Cr Craig Bauld
Peter Callander
Antoine Coffin

HEARING DATES:

5-6 December 2016

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1.0 Background

- 1.1** The Section 42A Report¹:
- Provides an overview of original and further submissions that relate to:
 - Catchment plans in general; and
 - the Waipaoa Catchment Plan
- 1.2** Provides an analysis of decisions requested in submissions and makes recommendations as to whether or not those submission points should be accepted or rejected, either in part or full; and
- 1.3** Concludes with recommendations for changes to the provisions of the Freshwater Plan.
- 1.4** A summary overview of the relevant statutory considerations are set in Decision Report No 1

2.0 Panel Appointment

- 2.1** The Gisborne District Council (GDC), under RMA S.37A, appointed Independent Commissioners Mark Farnsworth (Chair); Peter Callander and Antoine Coffin and Deputy Mayor Rehette Stoltz and Councillor Craig Bauld to a Proposed Gisborne Regional Freshwater Plan Hearings Panel. The Panel were given authority to hear and to make a recommendation on submissions and further submissions.
- 2.2** This fourth session hearing was convened to consider submissions and further submission on the PGDFP relating to the 'Waipaoa Catchment Plan'.
- 2.3** In preparing this decision the following abbreviations have been used:
- | | |
|----------|--|
| AEE | Assessment of Environmental Effects |
| Council | Gisborne District Council |
| DOC | Department of Conservation |
| FANZ | Fertiliser Association of New Zealand |
| FFNZ | Federated Farmers of New Zealand |
| FWAG | Freshwater Advisory Group |
| FMU | Freshwater Management Unit |
| HNZ | Horticulture New Zealand |
| Inc | Incorporated |
| Ltd | Limited |
| NOF | National Objectives Framework |
| NPSFM | National Policy Statement for Freshwater Management 2014 |
| NZCPS | New Zealand Coastal Policy Statement 2010 |
| PGRFP | Proposed Gisborne Regional Freshwater Plan |
| RMA | Resource Management Act 1991 |
| RMAA | Resource Management Amendment Act 2013 |
| RPS | Regional Policy Statement |
| The Plan | Proposed Gisborne Regional Freshwater Plan |
| RiVAS | River Values Assessment System |

3.0 Officers' Reports

- 3.1** The Panel received a comprehensive Section 42A which considered 'Waipaoa Catchment Plan' prepared by Dennis Crone, Sarah Thompson, Harriet Roil; and Lois Easton (Environmental and Science Services, Gisborne District Council), Kurt Ridling and Tim Blackman (Strategic Planning GDC) and Jerome Weyth (4 Sight Consulting Ltd) and reviewed by David Wilson, Strategic Planning Manager at Gisborne District Council².
- 3.2** A full list of submitters and further submitters can be found pages 110 - 285 of the Section 42A Report November 2016.
- 3.3** The Section 42A Report recommendations can be found on pages 227 - 285 of the Section 42A Report November 2016.

¹ *Gisborne Regional Freshwater Plan- Section 42A Report – Waipaoa Catchment Plan; December 2016, pages 3.*

² *ibid at [1.3]*

A copy of the pre-circulated evidence and the written representations presented to the Panel on each of the hearing days can be viewed at <http://www.gdc.govt.nz/gisborne-regional-freshwater-plan/>

4.0 Conflict of Interest Declaration

4.1 None were tabled.

5.0 Hearing

5.1 Commissioner Antoine Coffin opened each day of the hearing with a karakia.

5.2 During the hearing process the following submitters appeared before the Panel to speak in support of their submission points on the Waipaoa Catchment Plan:

Monday 5 December 2016 (in order of appearance)

Murray Palmer³.

Statement of evidence had been provided by:

- Murray Palmer

Federated Farmers of New Zealand⁴ - represented by

- Debra Bidlake; Charlie Reynolds; Hamish Cave and Kerry Phillips

Horticulture New Zealand (HortNZ)⁵ - represented by

- Christopher Keenan, Special Adviser, Natural Resources to HNZ

Statements of evidence had been provided by:

- Vance Andrew Hodgson, Director of Hodgson Planning Consultants Ltd;
- Nicolas Ashley Conland
- Stuart John Ford
- Nicholas Mark Pollock
- Christopher Martin Keenan, Special Adviser, Natural Resources to HortNZ.

Te Aitanga a Mahaki Represented by Ian Ruru and Ray Farmer

Both tabled their evidence at the hearing

Mangatu Blocks and Wi Pere Trust⁶ - represented by: Trevor Robinson; Alan Haronga; Dr Olivier Ausseil and Gerrard Willis.

Legal submission from Trevor Robinson tabled at the hearing.

Statement of evidence had been provided by:

- Gerard Matthew Willis
- Dr Olivier Michel Nicolas Ausseil

Ernslaw One - represented by Peter Weir.

Eastland Wood Council - represented by

- Michael Candy, Trish Fordyce and Prue Younger

Statement of evidence had been provided by:

- Michael Eric Candy

Legal submission from Trish Fordyce tabled at the hearing

Tuesday 6 December 2016 (in order of appearance)

Department of Conservation⁷ - represented by

- Teall Crossen Legal Counsel; Dr Alastair Fairweather (by phone link); Adam Canning; James Witham and Jamie Quirk.

Legal submission from Teall Crossen tabled at the hearing

Statements of Evidence had been provided by:

- James Robert Witham, Planner, DoC
- Adam Douglas Canning
- Jamie Quirk

³ Submission No 26

⁴ Submission No 9

⁵ Submission No 19

⁶ Submission No 22

⁷ Submission No 5

- Dr Alastair Andrew Chalmers Fairweather
- Stanley Hovell

Matawai Farmers Group⁸ - represented by Lilian Sherman and William Gaddum

Statements of evidence had been provided by:

- Lilian Anita Sherman
- William John Gaddam

Joint with Matawai Farmers Neil Henderson

Rongowhakaata Iwi Trust⁹ - represented by; Murray Palmer; Jody Wyllie; Moera Brown and Te Rina Whaanga. Verbal submission of Rongowhakaata Iwi Trust tabled at the hearing

Tabled Evidence / Representations

New Zealand Transport Agency – Cole O’Keefe Principal Planning Advisor.

Hearing Statement on Behalf Of The Oil Companies – Proposed Gisborne Regional Freshwater Plan John McCall Graduate Planner Burton Planning Consultants Limited

Eastern Fish and Game – Eben Herbert submission for freshwater hearing

Fertiliser Association of New Zealand – Statement of evidence of Claire Ursula Kelly

New Zealand Defence Force – Letter to support and oppose parts of the freshwater plan

5.3 The Following documents were tabled to support submissions made: Ko Te Aitanga a Mahaki - Gisborne Herald article on Mauri Compass – 22 Oct 2016

Ernslaw One - Powerpoint – Supporting evidence, submission to the hearings panel on the Proposed Gisborne Regional Freshwater Plan

Ernslaw One - Powerpoint – Forestry Water Quality

Department of Conservation - Supplementary evidence of Adam Douglas Canning, on surface water flows and ecological health of waterbodies

Department of Conservation - Supplementary evidence of James Witham

Department of Conservation - James Witham – Wetlands Management

Matawai Farmers Group - Powerpoint supporting evidence from William Gaddum

Neil Henderson - Powerpoint Water Slides

Horticulture NZ - Christopher Keenan – Oral evidence to a hearing on the proposed trial of MAR in the PBF, Gisborne region

Horticulture NZ - Regional council snap-shot survey responses

Horticulture NZ - Letter from Agrilink

Mangatu Block Inc / Wi Pere Trust - Hawke's Bay and Eastern Fish and Game Councils v Hawke's Bay Regional Council court decision

Mangatu Block Inc / Wi Pere Trust - Ngati Kahungunu Iwi Inc v HBRC court decision

Mangatu Block Inc / Wi Pere Trust - NZKS-SC- EDS v King Salmon court decision

Eastland Wood Council - Mike Candy – copy of landuse consent RR206022

Eastland Wood Council – Mike Candy -copy of LV-2011-104765-00

Eastland Wood Council - Mike Candy – various aerial photos

Eastland Wood Council - Mike Candy – sedimentation history of Waipaoa catchment Envirolink project 1015-GSDC96

6.0 Analysis of Submissions

SCREENING PROCESS

6.1.1 In making decisions on the relief sought in submissions and further submissions, factors that influenced the Panel's decision included:

- Minor corrections and additions that will assist Plan readers;
- Suggested changes/recommendation that give effect to NPSFM; and

⁸ Further Submission No 17

⁹ Submission No 36

- Suggested changes/recommendations that are fully justified by a Section 32AA type analysis demonstrating superiority to the Council's proposed provisions as supported by its Section 32 analysis.
- Further technical analysis undertaken by Dr Ned Norton – "Review of the Waipaoa Catchment Plan Limits"¹⁰
- Further legal advice from Buddle Finlay – "Setting water quality limits through the Waipaoa Catchment Plan"¹¹

The comments of technical experts who attended two technical discussion meetings at the Wainui Surf Club facilitated by Dr Ned Norton on 2 June 2017 and 12 July 2017.

- 6.1.2 The Panel also set aside changes sought by submitters during the hearing process that went beyond the scope of submissions or the notified PGDFWP. Relief sought in submissions has also been rejected by the Panel where the submitters failed to provide sufficient justification or cogent reasons to support the relief sought, and could not rely on other similar submissions, the further technical and legal analysis or Council Section 42A recommendations.

SUMMARY OF EVIDENCE & REPRESENTATIONS

- 6.1.3 Briefs of expert evidence, and a number of representation statements, had been pre-circulated prior to the hearing dates in accordance with the Panel's Second Direction of 20 September 2016. All material pre-circulated or tabled on the day of the hearing can be found on the Council's web page at <http://www.gdc.govt.nz/gisborne-regional-freshwater-plan/>. In this summary of the evidence presented it is our intention to highlight the key matters covered in each of the briefs/statements especially the points of difference the submitters have with the recommendations of the Section 42A Report, and focuses on the amendments, additions and deletions the submitters are requesting.

MURRAY PALMER

- 6.1.4 Mr Palmer spoke about the need for GDC to allow time to work with local people to develop appropriate objectives and limits for the plan, particularly the relationship between cultural values and water quality and quantity parameters and particularly for the Te Arai catchment with which he has a close association.

FEDERATED FARMERS OF NEW ZEALAND

- 6.1.5 Ms Debra Bidlake a Senior Regional Policy Advisor for Federated Farmers of New Zealand (FFNZ) spoke to her comprehensive written brief of evidence. Key points:

6.1.5.1 Catchment Plans

The split between Hill Country, Poverty Bay Flats and Urban FMUs as it effectively balanced the competing values.

The proposal that the Te Arai River be a separate sub-catchment FMU with consequential changes to the Waipaoa Catchment Plan is not supported.

Values need to be explained in greater detail in the Catchment Plan so that plan users can understand how competing land use uses/values have been provided for and balanced.

Catchment Plans should explain the freshwater values rather than just listing them so that people can understand how their values/uses are protected, how competing values have been balanced and how this is reflected in the objectives/limits that are set.

HORTICULTURE NEW ZEALAND

- 6.1.6 Mr Nic Conland, an environmental consultant, addressed the following issues:

6.1.6.1 Freshwater Values and Freshwater Management Units

Supports a new FMU for the Te Arai sub-catchment

6.1.6.2 Water Quality Objectives

Use a single term for objectives - "percentile metrics"; "median values"; and "median levels. Replace 'metrics' and 'values' with 'level' for all of the objectives 1-34

6.1.6.3 Objectives for Ecosystem Function

The approach for dissolved oxygen in the PGRFP will create the potential for randomised results and regular reports for dissolved oxygen above the limit when actually over the diel period it was below the FMU limits.

¹⁰ Memorandum to Lois Easton from Ned Norton (LWP) dated 19 May 2017

¹¹ Letter to David Wilson and Tim Blackman from Buddle Findlay dated 5 May 2014

- Adopt a sampling protocol for repeatable measurements of Temperature; Dissolved Oxygen; and pH as a method in the plan; OR
- Adopt a continuous monitoring programme which targets the water bodies in each FMU in summer-autumn, during periods of stable flow that are not greater than the 25th percentile, and for periods not exceeding two weeks; or
- Adopt the objectives in the proposed amended format for each FMU as outlined in the Horticulture New Zealand submission.
- 6.1.6.4 **Freshwater Targets for Total Nitrogen**
Recommend that the target be changed accordingly to be consistent with the guidance from the NPS recommendations for total nitrogen levels
- 6.1.6.5 **Water Quantity Objectives**
A quantitative value for crop survival water should be included in the Waipaoa Catchment Plan.
- 6.1.6.6 **Water Quality Limits**
A common approach is required in the water quality limits for determining an exceedance of a freshwater limit for any of the attributes. The use of a model gives a more robust way than any other available method to provide a future proof set of limits for the nutrients that will require management from any landuse variability in the Waipaoa Catchment Plan
- 6.1.6.7 **Selecting Levels for the Poverty Bay Flats FMU**
It was recommended that the attribute levels be examined to see whether they are greater than 10 times the detection limit for each of the attributes in the FMU. Another key element is the number of significant figures in the attribute levels. The purpose of the significant figures is to ensure that the levels applied for each attribute limit don't have a 'tail' of numbers that imply an accuracy, which doesn't exist. These simple principles for significance and uncertainty are required for the attribute levels in the limits tables for each FMU
- 6.1.6.8 **Recommended Limits**
Proposed limits for the Poverty Bay Flats FMU were provided.¹²
- 6.1.6.9 **Model Function Review Through the Section 42a Report**
The s42A discussion demonstrates a misunderstanding of the SOURCE model framework as an empirical model that in the form developed doesn't include instream processes such as nutrient cycles or algal productivity.
- 6.1.6.10 We note that many of Mr Conlands comments have been superseded by the Science Working Group process that he participated in.
- 6.1.7 **Mr Vance Hodgson, a director of Hodgson Planning Consultants, spoke to his brief of evidence. Key points:**
- 6.1.7.1 **Water Quantity Limits – Survival Water**
All interested parties appear to agree that specific limits for survival water would provide clarity on this activity.
- 6.1.7.2 **Water Quality Limits – Figure 1**
Nic Conland has provided evidence on the proposed limit values for nitrogen and phosphorus within the catchment, and provided new proposed limits that:
- would not breach the A Band bottom line,
 - would provide for landuse change that can be managed by the limits framework in the Waipaoa Catchment Plan, and
 - are limit values that won't consistently cause alarm over whether or not it constitutes a degradation in water quality
- In terms of an examination under section 32(1)(b), I note that HortNZ are not proposing that the method be removed but that the limits be amended to be more efficient and effective in achieving the objectives. Witnesses for HortNZ identify the opportunities for economic growth and employment this would support [s32(2)(a)].
- 6.1.8 **Mr Nicholas Pollock, Senior Crop Manager/Agronomist for LeaderBrand gave us an overview of his written statement of evidence -growing crops in Gisborne.**

¹² Conland EiE at [108]

- 6.1.9 Mr Stuart Ford, Director of The AgriBusiness Group, provided us with a summary of his key points.
- 6.1.9.1 Crop Survival Water
The volume of crop survival water is best calculated by way of a formula and from then on it is best managed by a water users group. The water users group would be tasked with distributing the water with the following condition determining their decisions:
- First priority would recognize the best economic use of the water;
 - Second priority would recognize that each crop received sufficient water to allow it to survive.
- A formula to calculate the daily volume of crop survival water was given¹³.
- 6.1.9.2 Limits on Water Quality
For the majority of crops the amount of N leached is very low and they are all below that modelled for the pasture model. The staff officer has been incorrect in her decision that there was no reason to increase the water quality limits because sufficient gains would be made from farmers improving their practices and that in order to future proof the plan allowance should be incorporated within it now.
- 6.1.9.3 Setting the Minimum Flow
The hearing panel requested HortNZ to calculate the economic impact of the proposal that was suggested by the Department of Conservation (DOC) that the minimum flow be set at the 90% of MALF which is calculated using the naturalised flow on the Waipaoa River. The Gross Revenue under the 90% MALF minimum flow regime is \$5.39 m or 9% lower than the minimum flow figure whereas expenses are only \$1.65 m or 4% lower but that the Gross Margin result is \$3.74m or 19% lower. That sort of drop in financial performance demonstrated there would be disastrous consequences for the horticultural sector on the Poverty Bay flats and for the wider Gisborne regional economy.
- 6.1.10 Mr Christopher Keenan, the Special Adviser, Natural Resources to Horticulture New Zealand (“HortNZ”) and a Director of Water Matters Ltd. Submitted the following:
- 6.1.10.1 The Waipaoa Catchment Management Plan (WCMP)
Reemphasised the importance of the Waipaoa catchment to the horticulture sector in Gisborne. The Poverty Bay Flats FMU is of particular importance to the horticulture sector.
- 6.1.10.2 Development of Attributes and Bands within the National Objectives Framework, and their Application to the Waipaoa Catchment Management Plan
The most significant issue with the WCMP as proposed is the position around maintaining adherence to numeric values for nitrogen and phosphorus at current state numeric value, and the assumption by officers that this is required to maintain water quality.

The National Objectives Framework within the NPS 2016 is the first step to more clearly defining the meaning of “quality. The NPS-FM 2014 requires councils to set freshwater objectives and limits in regional plans. The purpose of the NOF is to assist councils with this.
- 6.1.10.3 HortNZ submissions to the RPS noted:

“The NPSFM requires the maintenance of water quality where ‘water quality’ (defined by values, which are made up of attributes, which are measured in numeric and narrative bands) is ultimately measured in bands, not precise numeric states. For this reason, fluctuations within a band suffice a Council’s obligation to maintain water quality.”
- The argument that the Council must maintain the current numeric value of the attribute to allow for the maintenance of water quality is not supported by HortNZ.
- 6.1.10.4 Adoption of Good Management Practice and Farm Planning as a Means to Provide Headroom for New Growth
There is no evidence to support a contention that a low standard of good management practice is adopted in the Gisborne District. On the contrary, there are practices adopted in Gisborne that are significantly ahead of the national average including the standard of solid set irrigation used in squash harvest and other raised bed crops.

¹³ Ford EIE at [22 – 23]

6.1.10.5 Schedule 13 Irrigation Management Plan

HortNZ request that the Council reserve the right to approve independent professionals to produce and ensure the auditing standard required for Farm Plans.

TE AITANGA A MAHAKI

6.1.11 Mr Raymond Farmer spoke to his representation¹⁴ about collecting mortuary wastewater into separate receptacles or containers. It should be offered to family members either to bury or put into a designated place of safety or a Wisconsin Mound sited in a cemetery. It is not appropriate for these wastewaters to be entering other water bodies, due to its impact on Mauri.

6.1.12 The overall aim of this submission is to restore the mauri of the Waipaoa.

ERNSLAW ONE

6.1.13 Mr Peter Weir, Environmental Manager for Ernslaw One spoke to his powerpoint presentation:

He spoke of the interface between the NES for Plantation Forestry and the NPSFM and the importance of forestry to shut down earthflows and stabilise small to medium gully erosion features. He recognised that between harvest and regeneration, forestry slash and soil erosion could adversely affect waterways. His view was that these effects must be accepted as an inevitable aspect of forestry activities.

MANGATU BLOCKS INCORPORATION AND WI PERE TRUST.

6.1.14 Trevor Robinson presented legal submissions on behalf of the Mangatu Blocks Incorporation and Wi Pere Trust. He addressed:

6.1.14.1 Relationship between Values, Objectives and Limits in the Waipaoa Catchment Plan Focus in other plans has been on the values sought to be protected in waterbodies and the water quality thresholds necessary to achieve that protection. Where degraded to improve water quality to enable them to support desired values. The approach the council has taken renders the NOF process largely irrelevant and unnecessary – council is following its own path.

They have a fundamental concern – by fixing objectives focussed on current median and 95th percentiles, and limits reflecting current measured values, the council will be forced to apply more regulation to achieve those objectives and to ensure those objectives are achieved and limit met.

Determining freshwater objectives and fixing limits are significant steps that have consequences for the future management of the Waipaoa Catchment. It is absolutely critical that the plan should say what it means¹⁵. Evidence from Dr Ausseil and Mr Willis is proffered on how the Proposed Catchment Plan might be reformulated to implement the NPSFM.

6.1.15 Dr Ausseil

6.1.15.1 Dr Ausseil's evidence set out the progression of defining FMUs, values, attributes and numerical thresholds to maintain those values. He felt the proposed plan followed most of those steps, but was concerned that it set numerical limits based on statistical descriptions of the current state monitoring data, such as medians. He was concerned that the definition of these limits did not always have sufficient monitoring data to define the limit with sufficient accuracy and there was inadequate allowance for natural variability, which occurs both seasonally and on a longer term basis. Neither does the simple statistically based limit setting approach give an appropriate link back to any actual effect on the values.

6.1.15.2 Dr Ausseil was concerned that some of the Attributes in the proposed Waipaoa Catchment plan were incorrectly classified as either Objectives or Limits and some should only be used as indicators of state.

6.1.15.3 We note that subsequent to the hearing, submitters and their experts were invited to participate in a Science Working Group to provide collective advice to us on various matters, including those raised in Dr Ausseil's evidence. He participated in that group and it provided a useful forum from which we received a useful summary of the experts on these matters who attended the hearing.

¹⁴ Co-authored by Ian Ruru; Anna Barber; Mo Smith and Joanne Pere

¹⁵ The NZ King Salmon reasoning.

- 6.1.16 Mr Willis
- 6.1.16.1 Mr Willis advised us that, in his opinion, some aspects of the proposed Waipaoa Catchment Plan were not consistent with the NPSFM and required amendment. He disagreed with some of the Values and Objectives and did not favour the setting of numerical limits at this point in time. Instead, he suggested that the limits could be achieved through the various rules in the Regional Freshwater Plan and the Combined Regional Land and District Plan. He recommended the use of various parameters as Objectives and Indicators with a proposed approach to setting numeric limits for the future.
- 6.1.16.2 In response to some of these points we sought some independent legal advice, which is discussed below in section 7 of this decision report.

THE DIRECTOR GENERAL OF CONSERVATION

- 6.1.17 Ms Teall Crossen provided legal submission on behalf of the Director-General of Conservation:
- She supported the recommendation that a downward trend of water quality within a band is degradation of water quality. The MCI and QMCI attributes proffered are to safeguard the life-supporting capacity of freshwater ecosystems.
- 6.1.18 Mr James Witham, Resource Management Planner for the Department of Conservation provided a summary of the matters he addressed in his evidence. Rationale, amended wording, or wording additions were proffered. Key submissions included:
- 6.1.18.1 Additional targets or limits for periphyton, MCI and cyanobacteria
- In terms of the addition of targets or limits for periphyton, MCI, and cyanobacteria sought by the submission of the Director-General, section 3.4 of the Section 42A Report addresses the matters sought. In lieu of similar limits or targets requested by other submitters, the report recommends additional 'objectives' for continued data gathering and the setting of targets and limits in the future.
- While this is an appropriate method, the approach does not recognise a number of compulsory NOF attributes set out by the NOF and consequentially National Bottom Lines for some of those, the ability to set interim targets as aspirational goals, nor does it result in the clarity regarding the ability of the PGRFP to safeguard ecosystem health. Mr Canning identifies the importance of limiting excess periphyton and cyanobacteria in determining ecosystem and human health. In addition, Mr Canning outlines two measures, being MCI and QMCI, as being widely used measures of ecosystem health.
- Mr Canning's proposed attribute states of MCI 120 or QMCI 6 for both the Hill country FMU and Te Arai FMU, and MCI 100 or QMCI 5 for the Poverty Bay Flats FMU.126 should be included as non-statutory targets for those FMU's.
- The NOF sets out National Bottom Lines for a range of quality measures for the Compulsory National Value of ecosystem health. The language of the NPS FM is strongly directive in its description of these provisions, they are a compulsory requirement and should be met by all the waterbodies to which their metrics relate across all of New Zealand. The Council may not feel it has sufficient data to establish limits, but the expectation of the NPS FM is clear.
- In providing an appropriate approach to including metric limits and targets for periphyton and cyanobacteria, refer back to Objective A2 of the NPS FM which requires the maintenance or improvement of the quality of freshwater. Where waterbodies do not meet National Bottom Lines for these attributes improvement to the minimum acceptable state should be required. Until such time as more detailed data becomes available, all other waterbodies should be required to at least maintain their current states. Additional objectives for each of the FMU's to that effect were provided. This is the lowest level of management considered appropriate to give effect to the NPS FM.
- 6.1.19 Mr Adam Canning, a Doctoral Researcher in Freshwater Ecology in the Institute of Agriculture and Environment – Ecology at Massey University is undertaking research focussed on understanding community and ecosystem thresholds to ensure ecosystem health (life supporting capacity) of freshwater and estuarine systems in New Zealand. In summary: -

- 6.1.19.1 One of the principle drivers of ecosystem health is excessive periphyton growth. Periphyton biomass should be limited to a level that will have reasonable confidence of achieving the acceptable level of ecosystem health. Periphyton biomass in upland rivers/streams should have a chlorophyll a target/limit of <math><50\text{mg}/\text{m}^2</math> and lowland rivers/streams a limit/target of <math><120\text{mg}/\text{m}^2</math>.
- 6.1.19.2 Cyanobacteria blooms can cause waterways to be toxic to animals (including humans). These blooms can be prevented by keeping nutrient enrichment low and maintaining hydrological variability. To keep rivers safe for human contact then benthic cyanobacteria blooms should be limited to under 20% bed cover.
- 6.1.19.3 At the moment, there would be very little scientific confidence that ecosystem health will be achieved. He considers that the most effective way to manage ecosystem health is to first set the desired in-stream ecosystem health (usually measured by MCI or QMCI), then the required in-stream nutrient concentrations and water quantity is determined as needed to achieve the ecosystem health targets. From there, total allowable nutrient loads for a downstream river/stream are determined and that is used to set a maximum allowable root zone leaching rate (after soil attenuation has been accounted for).
- 6.1.19.4 Mr Canning also participated in the Science Working Group that was implemented after the hearing to seek a collective expert view on many of the matters he raised.
- 6.1.20 Mr Jamie Quirk, a Ranger for DoC – provided information to us regarding a whitebait spawning site on the Whatatuna Stream in the Waipaoa River catchment.

RONGWHAKAATA IWI TRUST (RIT)

- 6.1.21 RIT confirmed the cultural, historical and spiritual importance of the Te Arai (Te Uru) River to Rongowhakaata. They once more expressed their disappointment with the GDC process of engagement and are uncertain whether GDC realise the weight and value placed upon tangata whenua expression of their mana whenua and the importance of their active participation in the process.

Submission points:

A new FMU for the Te Arai sub-catchment.

Communities can identify values for their water bodies and set water quality limits to ensure these values are protected. Hence the importance of dedicated participatory framework between GDC and the hapu and iwi groups in order to establish FMU values.

Mountain to sea, ki uta ki tai, integrated perspective is fundamental to a Māori world view.

GDC work with RIT and other iwi and hapu, land managers and wider community, local freshwater advocates and science providers to develop regional guidelines for land management practices to protect, restore or enhance freshwater aquatic ecosystems.

Consider aspirational components (eg swimming quality, mahinga kai, supporting endemic and culturally significant fauna / ngahere, protection of mauri) as part of their values setting processes within catchment plan and FMU development.

New method required aligning RMA, science, ki uta ki tai and kaitiaki perspectives with greater recognition of ecosystem value.

Identify plantation forest harvest on LUC Class VIe and Class VII for forest planted after 2020 as a discretionary or non-complying activity.

Review the 'three tiered FMU river flow concept:

The importance of the lower Waipaoa River reaches in migratory freshwater fish passage and their juvenile and adult habitat.

Areas for (coastal and estuarine) diadromous fish breeding and spawning habitat (e.g. mullet, flounder and kahawai).

Development of water monitoring programmes based a suite of relevant attributes and characteristics.

Engagement with mana whenua as kaitaki to identify and prescribe methods for protecting or restoring the mauri of waterbodies where numeric characteristic data is insufficient or there is uncertainty regarding it interpretation.

The use of biological indicators and the well-being of the mauri of waterbodies as signposts for potential change of waterbody status due to anthropogenic influences.

Cattle access to wetlands should be a non-complying activity.

Cultural values and the mauri of freshwater are matters to be considered in the setting of standards. Targets and matters of control and discretion for riparian management.

Fundamental to Rongowhakaata – throughout the catchment planning process iwi and hapu are directly involved in a participatory process to establish the values and aspirations for their waterbodies, and ensure that these values and aspirations inform the application of significance to them.

7.0 Panel Requests for Further Legal Advice and Technical Information

LEGAL ADVICE FROM BUDDLE FINLAY

- 7.1.1 To provide guidance on the setting of Objectives, Limits and Targets, the panel sought legal advice from Buddle Findlay which was provided in a letter dated 5 May 2017.
- 7.1.2 This letter was circulated to all submitters on the Waipaoa Catchment Plan on 19 May 2017. It clarified that where possible, quantified Objectives should be specified, such as those specified in the NPSFM National Objectives Framework. Similarly, quantified Limits (or Targets if current water quality is not achieving a proposed Limit) should be specified that will achieve the Objectives. The advice noted that the relevant Environment Court case Law indicates that:
- setting enforceable water quality limits is central to giving effect to the NPSFM (thereby allowing for the maintenance and improvement of water quality); and
 - the lack of precise scientific understanding is not a good reason to avoid or delay taking steps to ensure water quality is maintained and enhanced.
- 7.1.3 The advice also suggested that if we are not confident to define numeric limits based on the presently available information we need to specify a process to have them in place as soon as is reasonably practicable, and certainly within the timeframe specified in the NPSFM.
- 7.1.4 Feedback on the Buddle Findlay legal opinion was received from several submitter's with most expressing support for the advice received, or a neutral position until the panel decision is available to see how the advice has been implemented in the plan.
- 7.1.5 Counsel for DOC favoured the specification of numeric limits wherever possible. Counsel for Forest and Bird provided helpful comments regarding the implementation of the Buddle Findlay legal advice and also favoured setting numeric objectives wherever possible. Their comments also emphasised the need for well defined interaction between Limits/Targets and methods to be clearly focused on achieving the Objectives.
- 7.1.6 Counsel for Mangatu Blocks Inc and Wi Pere Trust noted that the legal advice does not sit in isolation but must be applied recognising the availability (or absence) of technical evidence. Where sufficient scientific evidence is available we can implement the NPSFM, but where the evidence is inadequate we need to defer that implementation and specify a process that will allow robust limits to be put in place as soon as reasonably practical.
- 7.1.7 Federated Farmers recommended an even more cautious approach and did not favour numeric limits for freshwater quality at the present time, although we find that approach to be at odds with the case law set out in the Buddle Findlay letter. However, we agree with Federated Farmers approach that non-numeric rules can operate as Limits, such as stock exclusion requirements and we have adopted such an approach.
- 7.1.8 Many of the comments on the legal opinion also favoured the use of a science review discussion amongst the submitter experts to help in the definition of appropriate Objectives and Limits/ Targets. We initiated such a review, as discussed in the following paragraphs of this decision.

TECHNICAL ADVICE FROM DR NED NORTON

- 7.1.9 Dr Norton reviewed the Waipaoa Catchment Plan Objectives, Limits and Targets from a technical perspective. He reviewed the Section 32 report, the 42A report, submissions and tabled evidence from submitters. Dr Norton raised a number of key matters in his review.
- 7.1.10 Being clear about the difference between objectives and limits
- 7.1.10.1 Catchment limits and targets are specified as a means to achieve objectives – objectives are not the vehicle to achieve limits and targets as stated in the s32 Report. Generally it appears that catchment limits and targets have become blended in as the objectives. The NPSFM states that *“a freshwater objective describes the intended environmental outcome.”* and a limit is defined as *“the maximum amount of resource use available, which allows a freshwater objective to be met”*.

- 7.1.10.2 Some attributes make good objectives and some are better used as limits and targets
- 7.1.10.3 Some attributes such as periphyton (trophic state) and MCI make good objectives because the indices directly measure an “end” that we are interested in –i.e. a component of ecosystem health.
- 7.1.10.4 Some attributes make useful limits – such as minimum flows and allocation limits. N, P and sediment attributes can be useful as limits. These are a “means to an end” rather than being the end in themselves.
- 7.1.10.5 An approach based on taking a very literal interpretation to “maintain or improve” which sets the current state of all measurable attributes as the objective, with equal emphasis on all attributes misses the linkages between attributes and values.
- 7.1.10.6 Dr Norton identified a preliminary list of potential objectives as follow:
- Periphyton (mandatory under the NPSFM-NOF – suggest use NOF thresholds and related monitoring and statistical compliance testing regime)
 - MCI – using literature thresholds and related statistical compliance testing regime¹⁶
 - E.coli concentration (mandatory under the NPSFM-NOF – suggest use NOF thresholds and related monitoring and statistical compliance testing regime)
 - Dissolved oxygen (mandatory under the NPSFM-NOF – suggest use NOF thresholds and related monitoring and statistical compliance testing regime)
 - Ecosystem toxicity protection level (mandatory for nitrate and ammonia as an objective under the NPSFM NOF)
- 7.1.10.7 He also considered the following attributes may also have merit as objectives:
- Benthic cyanobacteria mat bed cover (%) –using MFE interim guideline values¹⁷
 - Bed cover deposited fine sediment (%) - using literature values¹⁸
 - Percent EPT taxa as an attribute for rivers impacted by sediment.
- 7.1.10.8 In addition to the use of numeric objectives, Dr Norton suggested the panel consider including narrative objectives to express the intention to maintain or improve physical habitat and health of macroinvertebrates, fish and birds.
- 7.1.10.9 Dr Norton notes that it is not just water quality limits but also other management actions promulgated by the plan such as minimum flows and allocations, fish passage and habitat restoration initiatives, as well as potentially other non-regulatory actions outside the plan, which will contribute to achieving all these objectives.
- 7.1.11 Limits/targets and/or indicators – depending on plan architecture.
- 7.1.11.1 Dr Norton considered that there are a number of attributes suitable for limits, to support the objectives outlined in the NOF and above.
- Consider interim Dissolved Inorganic Nitrogen (DIN) – in relation to achieving periphyton objectives. The options appear to be i) maintain current median and 95th percentile statistics (existing proposed plan approach); ii) provide for a small amount of headroom on top of current median and 95th percentile statistics based on modelling of headroom required for anticipated development on the Poverty Bay Flats as proposed by Mr Conland in his evidence¹⁹; or iii) estimate the DIN concentration required to adequately limit periphyton growth based on guideline relationships with large uncertainty associated with them, as discussed by Dr Ausseil in his evidence.
- Consider interim Dissolved Reactive Phosphorus (DRP) - in relation to achieving periphyton objectives.
- The options appear to be the same as the three described for DIN above.
- Toxicant concentrations for nitrate and ammonia.
- These should be the same as expressed to achieve a percentage species protection level in the objectives (see above).

¹⁶ See Collier et al., (2014) - <http://www.mfe.govt.nz/publications/fresh-water/macroinvertebrate-attribute-assess-ecosystem-health-new-zealand-waterways>

¹⁷ See Wood et al., (2009) - <http://www.mfe.govt.nz/publications/fresh-water-environmental-reporting/guidelines-cyanobacteria>

¹⁸ See Clapcott et al., (2011) - http://www.cawthron.org.nz/media_new/publications/pdf/2014_01/SAM_FINAL_LOW.pdf

¹⁹ Plus including the minor rounding adjustments proposed by Mr Conland to accommodate measurement uncertainties, which seem reasonable.

Suspended sediment.

Consider risks of unknown relationship of this attribute to deposited fine sediment (which was suggested as an objective above), and what actions the plan offers to plausibly achieve any given limit or target set. Both Dr Ausseil and Mr Conland have made comments on this in their evidence.

Temperature

It will be important to establish protocols around sampling to account for diurnal fluctuations when testing against any limit set – suggest base this on the statistical regime used for DO in the NPSFM NOF, which is a similarly diurnally fluctuating variable).

pH

It will be important to establish protocols around sampling to account for diurnal fluctuations when testing against any limit set – suggest base this on the statistical regime used for DO in the NPSFM NOF, which is a similarly diurnally fluctuating variable).

- 7.1.12 Once the planning framework for which attributes to use as objectives and limits is chosen what should the numbers be for each attribute?
- 7.1.12.1 Dr Norton recommended caucusing with the relevant expert witnesses to both confirm the attributes that technical witnesses could recommend for use as objectives and limits, and frame the decision for commissioners as to the choice of numbers for each attribute.
- 7.1.12.2 Dr Norton noted the sparse monitoring data in relation to some attributes (eg periphyton, MCI) and suggested that “interim” limits may be appropriate.
- 7.1.13 Management methods (policies, rules, regulatory and non-regulatory actions) used to constrain resource use and achieve limits set and thus ultimately achieve the objectives
- 7.1.13.1 Dr Norton noted that the general thrust of the Freshwater Plan involved the less regulatory approach of requiring and supporting the development of Farm Environment Plans (FEPs) rather than estimating loads and allocating contaminants (e.g., nutrients) at the property level and that, therefore this is the main property level constraint on resource use, along with the requirement for any necessary consents for point source discharges and water takes, stock exclusion requirements, and various mitigation and restoration projects.
- 7.1.13.2 In order to maintain justifiable linkages through the plan values, objectives, policies (including limits) and methods the implicit assumption must be that the FEPs in combination with flow regime rules and other regulatory and non-regulatory methods mentioned above, will be sufficient to meet any instream concentration limits set, and to thus achieve identified objectives. This assumption should be made explicit and reality checked during the process of deciding on which attributes to set as limits (i.e., with hard meaning) versus indicators, and what the numbers should be.
- 7.1.13.3 He noted that if there is potential for further area and/or intensification of landuse in the Waipaoa catchment and nothing is constraining it (or offsetting it by mitigations) then this would raise a question-mark as to the achievability of maintaining all current contaminant concentration statistics as limits. Failure to be transparent about these things in some past regional plans has made decisions seem easier but ultimately leads to lack of clarity about resource use, potential for disappointment when objectives aren’t achieved, and in some cases has contributed to cumulative effects, over-allocation and a difficult claw-back problem.
- 7.1.14 Linkages between the management actions and triggering mechanisms to determine whether any limit or objective is being met.
- 7.1.14.1 If all the plan’s proposed management actions are both pre-determined (such as the requirement to prepare and implement FMPs), and based on an explicitly stated prediction that this will be sufficient to achieve instream concentration limits and objectives in the long term, then the need to monitor and assess compliance and trends through time becomes essentially a similar exercise to regular state of environment reporting employing any of numerous available statistical techniques. However if there are hard actions that need to be triggered by monitoring compliance with thresholds within short turnaround times (e.g., < 5 years) then this places a different and significant requirement on the design of any trigger threshold and the intensity of monitoring needed to test it.

- 7.1.14.2 It takes time and significant monitoring effort to establish with confidence that a threshold for an environmental attribute has been breached²⁰. All these unavoidable limitations of monitoring and threshold compliance and trend detection need to be considered when deciding on limits, and actions that relate to those limits. Importantly, if effects-based thresholds are selected from the NPSFM NOF and other guidelines then these come with statistical design built into them and so the monitoring required to test compliance is already reasonably clearly defined²¹.
- 7.1.14.3 If local current state data statistics are chosen as the thresholds (i.e. based on the simple objective to maintain or improve all water quality indicators) then the compliance testing challenge is compounded because the threshold itself (as well as the future monitoring data being used to test future compliance against the said threshold) is only an estimate of the true value for current state²².
- 7.1.14.4 If the current state estimate is based on a short data set gathered during a period with non-average conditions (during a climate cycle such as el Nino for example) then future estimated medians and 95 percentiles will very likely be different from the original estimate of current state. In short, while a very literal interpretation of “maintain or improve” that sets current state as the threshold for each attribute appears conceptually attractive, it actually places a much greater burden on the need for monitoring data and for developing statistical analysis protocols than using effects-based literature thresholds such as the NPSFM NOF thresholds.
- 7.1.15 What clarification is needed around how compliance with limits and objectives will be assessed by monitoring and how natural variability will be taken into account?
- 7.1.15.1 If the end result leads to the use of compliance testing and trend analysis for purposes at state of environment reporting and plan review timescales (5-10 years) then this becomes a relatively more straight forward technical exercise and definitions of protocols could be advanced using caucusing of technical witnesses. Similarly if literature thresholds (e.g., NOF) are used then monitoring and statistical requirements defined there can be easily adopted.

RESULTS OF TECHNICAL CAUCUSING MEETINGS HELD AS A RESULT OF THE 4TH AND 5TH DIRECTIONS FROM THE HEARING PANEL

7.1.16 The difference between objectives and limits

There was general agreement with the views on this question as expressed in Dr Norton’s review. No parties raised any disagreement on this question. There was consensus on the following statements:

All parties agreed it is desirable to be consistent with NPSFM definitions of objectives and limits.

All parties agreed that ideally limits should be separate to, not inside, objectives.

All parties agreed that objectives should in principle be specifically defined to express explicit values.

All parties agreed that a useful principle is to think of objectives as “the end” we want, and limits as being one of several “means” or “levers” to achieve that end. (e.g., rules, water quality, flows, education, enhancement projects).

WHICH ATTRIBUTES MAKE GOOD OBJECTIVES AND WHICH ARE BETTER AS LIMITS, TARGETS OR INDICATORS?

7.1.17 There was consensus from all parties that expressed a view that the following attributes are suited for objectives – in an ideal world:

- Periphyton
- MCI/ QMCI
- E.coli (health risk)
- Dissolved oxygen
- Ecological toxicity Nitrate
- Ecological toxicity Ammonia
- Benthic cyanobacteria bed cover
- Deposited fine sediment

²⁰ I note that point discharge management is different. It is much easier to monitor effluent quality in a point discharge and to determine compliance quickly because this type of monitoring is not subject to so much natural environmental variability.

²¹ For example on page 27 of the NPSFM the periphyton attribute table describes the number of sample exceedances that constitute a breach of the provided thresholds, based on a monthly monitoring programme for a minimum of 3 years.

²² This is a point that is also described in more detail in Dr Ausseil’s evidence.

- Narrative physical habitat
 - Narrative invertebrates, fish, birds
- 7.1.18 The attributes where there was consensus among the parties about whether they were suited for limits – in an ideal world were:
- DIN
 - DRP
 - Suspended sediment
- 7.1.19 There was not a consensus view on whether the following attributes were best used as limits, indicators or objectives – in an ideal world:
- Temperature
 - pH
 - Turbidity
 - Clarity
- 7.1.20 Following the second caucusing meeting however, there was an agreed view on clarity as being appropriate as an objective.
- 7.1.21 The numbers that should be set on the attributes – as objectives or limits.
- 7.1.21.1 A discussion on the potential numbers for each attribute was held in the first meeting and then further discussed in the second.
- 7.1.21.2 In general the group favoured using the effects-based thresholds approach (e.g., the NPSFM NOF thresholds). The group also generally favoured then using the NPSFM NOF and/or other literature statistical compliance regime associated with that attribute.
- 7.1.21.3 When it came to discussing the actual choice of threshold numbers for those attributes favoured for use as objectives, the group significantly narrowed the range of options considered appropriate. While full consensus was not reached the outputs of the discussion show which parties favoured which numbers for the attributes periphyton, MCI, E.coli, dissolved oxygen, nitrate toxicity, ammonia toxicity and benthic cyanobacteria cover.
- 7.1.21.4 With regard to the discussion on DIN and DRP there was consensus that the plan should be using DIN rather than TN, and that it is appropriate to consider DIN and DRP in relation to their effects on the growth of periphyton - this having already been signalled by consensus agreement as an appropriate plan objective.
- 7.1.21.5 In relation to numbers for DIN and DRP to support the periphyton objective, the expert group agreed that the relationship between DIN, DRP, periphyton, MCI & flow for this catchment is not well enough understood to specify numeric limits that link to the objective attributes. Their recommendation was to focus on a robust monitoring programme to monitor all these parameters (DIN, DRP, periphyton, MCI, flow) so as to inform the setting of limits for the next plan review. No support was voiced by any party for using current statistics to set limits.
- 7.1.21.6 All parties agreed that it is useful to include a narrative component of the plan objectives covering physical habitat, invertebrate, fish and bird community aspects of ecosystem health.
- 7.1.22 How the numbers should be expressed (e.g. percentiles based on x samples collected over y months)?
- 7.1.22.1 The group generally favoured using the effects-based thresholds approach (e.g., the NPSFM NOF thresholds) and this meant that the group also generally favoured then using the NPSFM NOF and/or other literature statistical compliance regime associated with that attribute.
- 7.1.22.2 With regard to expressing the periphyton attribute it was noted by the group (with full consensus) that there is a need to be clear in the plan about which waterways fall into the “default class” versus the “productive class” because the compliance regime for these need to be no more than 8% and 17% of samples exceeding the threshold respectively, as defined in the NPSFM NOF table for the periphyton attribute. If the periphyton thresholds are used in the plan it may be necessary to provide planning maps delineating these two classes.
- 7.1.22.3 The group emphasized that most of the attributes for the Poverty Bay Flats FMU should only apply upstream of the most upstream extent of the tidal salt wedge influence.

- 7.1.22.4 The group noted that compliance with the MCI thresholds should be based on sampling of MCI during summer low flow conditions (as should also compliance with DO thresholds as discussed in more detail later).
- 7.1.22.5 The group noted that some care is needed around monitoring of different attribute thresholds for the Te Arai River above and below Pykes Weir (as suggested for periphyton, MCI, and E.coli objectives for the Te Arai FMU). Murray Palmer raised the point that the site actually right at Pykes Weir should not be the compliance monitoring point for the upper catchment above the Weir. Murray suggested that an appropriate site would be upstream, possibly at or near the water supply intake. The group agreed with all of Murray's suggestions here based on his local knowledge of the catchment.
- 7.1.23 If there is currently insufficient data to define a numeric objective or limit, what is the monitoring, analysis and timeline required to be able to get to a point where we can define the relevant parameter?
- 7.1.23.1 A good degree of consensus from the group was gained in relation to this issue as follows:
- 7.1.23.2 For periphyton, MCI, % EPT Taxa, deposited sediment, E.coli, benthic cyanobacteria, visual clarity a minimum of 3 years of monthly monitoring data.
- 7.1.23.3 For dissolved oxygen a minimum 1 week of continuous sampling at a site over summer (3 summers was preferable)
- 7.1.23.4 For ecological toxicity (nitrate and ammonia) a 5 year rolling assessment against median and 95th percentile thresholds (using monthly data).
- 7.1.24 In the case of DIN/DRP the group agreed the following statements:
- We don't yet understand relationships between DIN, DRP, periphyton, MCI & flow for this catchment.
 - There is a need to monitor all these (DIN, DRP, periphyton, MCI, flow) to inform the next plan review.
 - Setting periphyton and MCI numeric freshwater objectives in the plan (see options given in rows above) would at least provide clarity around the outcomes intended - although there is risk with doing this for periphyton as we have poor knowledge of current state and we therefore don't understand consequences (for land use) of such objectives (Note: periphyton is a compulsory NOF attribute).
 - There is significant uncertainty around what DIN and DRP concentrations (or loads) would achieve the periphyton and MCI objectives.
 - Further monitoring and information gathered as part of FEP requirements could inform future plan reviews as suggested below.
- 7.1.25 The group reached consensus on an option to include a narrative requirement in the Plan to monitor and report to inform future plan review; the group drafted wording as follows:
- "GDC will:*
- *Keep monitoring DIN, DRP, periphyton, MCI and relevant river flow.*
 - *Report at 3 and 5 years from the date this plan becomes operative including of:*
 - *Periphyton and MCI against numeric plan freshwater objectives;*
 - *State and trends of DIN and DRP compared to current state as at 2017; and*
 - *The relationship between DIN, DRP, flow, and FMU-scale landuse all compared to the numeric plan freshwater objectives for periphyton and MCI.*
 - *Review the freshwater objectives and associated limits as part of scheduled plan review in 2025."*
- 7.1.25.1 The group considered a second option of also putting DIN & DRP numbers into the Plan as "Indicators" only (specifically not as limits). However the group consensus was a preference for the narrative requirement to monitor and report as defined above. It is noted that current state (e.g., existing DIN and DRP medians and 95th percentiles) have been written into the narrative requirement above and act as indicators in this respect. Other observations on the option of putting DIN & DRP numbers as "Indicators" included:
- 7.1.25.2 There would be a risk that numbers put in the plan could be misused.

- 7.1.25.3 What would be the purpose of including the numbers? The group struggled to identify a purpose other than to provide a benchmark of current state or to reflect chosen guideline numbers.
- 7.1.25.4 What policies, rules or other methods would link to the Indicator numbers? The group was unclear on this.
- 7.1.25.5 The group considered a third option of putting DIN & DRP numbers into the Plan as “Limits” (based on either current state monitoring statistics, the thresholds from HortNZ model predictions [evidence of Nic Conland], or literature guideline thresholds such as Biggs 2000 or ANZECC 2000). Observations on this option included:
- 7.1.25.6 Risk of unintended consequences (either under or over-enabling of resource use).
- 7.1.25.7 Any numbers that could be set would not be linked to achieving periphyton or MCI objectives specifically for the Waipaoa catchment.
- 7.1.25.8 While this option would put up DIN & DRP concentration numbers as limits and would thereby at least implicitly define the maximum amount of resource use available, there remained the question as to what policies, rules or other methods would link and give effect to these limit numbers? The group was unclear on this.
- 7.1.26 In the case of visual clarity/suspended sediment/turbidity/deposited fine sediment the group agreed the following statements:
- Of the relevant group of four attributes that indicate sediment and clarity issues (VC, DFS, SS and T) the two attributes with greatest potential for use as freshwater objectives are VC and DFS because these are most directly related to ecological, recreation and aesthetic values. Literature threshold exist relating both VC and DFS to these values (e.g., MfE 1994; Clapcott et al., 2011; Ausseil 2013; Clapcott & Hay 2014; Davies-Colley et al., 2015; Hicks et al., 2016).
 - We don’t have data for either VC or DFS to assess where current state sits for the Waipaoa FMUs.
 - One approach would be to treat the “clear” sub-catchments (e.g., Te Arai and Wharekopae) separately from the “sediment-laden” sub-catchments (e.g., Mangatu and Waipaoa mainstream).
 - It could be possible to set numeric objectives for the “clear” sub-catchments using literature thresholds (e.g., VC>1.6m for recreation values and VC>0.5m for ecosystem values – both to apply only when river flow is less than median; and DFS<20% for ecosystem values – applies at all times). However it is acknowledged there is a risk that we don’t know current state for these attributes even in the “clear” sub-catchments and we therefore don’t understand consequences (for land use) of such objectives.
 - The group does not recommend setting objectives for VC or DFS for the “sediment-laden” sub-catchments because we don’t think that the literature thresholds for these attributes would be achievable in the foreseeable future and there is very limited ability to influence this.
 - The group also does not recommend setting limits for SS or turbidity at this time for any catchment.
 - The group does not recommend turbidity ever for a limit but notes that it is a good tool and can be used as a surrogate monitoring variable when site-specific relationships to VC and SS are established.
 - The group thinks that SS may potentially be a good attribute to use for limits in the future (concentration and/or possibly better as a load) and suggests that further monitoring could inform future plan reviews as suggested below.
- 7.1.26.1 The group reached consensus (OA, NC, AC, MP, NN) on an option to include a narrative requirement in the Plan to monitor and report to inform future plan review; the group drafted wording as follows:
- “GDC will:*
- Keep monitoring visual clarity, deposited fine sediment, suspended sediment, turbidity and relevant river flow.*
- Report at 3 and 5 years from the date this plan becomes operative including of:*
- Visual clarity and deposited fine sediment against any numeric plan freshwater objectives set for these;*

State and trends of suspended sediment and turbidity compared to current state as at 2017; and

The relationship between suspended sediment, turbidity and FMU-scale landuse all compared to visual clarity and deposited fine sediment.

Review the freshwater objectives and associated limits as part of scheduled plan review in 2025.”

- 7.1.26.2 The group also notes that having MCI freshwater objectives (as per the options provided earlier in this table) is useful in the meantime as this at least partly reflects the effects of sediment on ecosystem health in the absence of other numeric sediment-related objectives at this time.

8.0 Panel Decisions

Clause 10 of Schedule 1 to the Act sets out the requirements for decisions.

- (1) *A local authority must give a decision on the provisions and matters raised in submissions, whether or not a hearing is held on the proposed policy statement or plan concerned.*
- (2) *The decision—*
 - (a) *must include the reasons for accepting or rejecting the submissions and, for that purpose, may address the submissions by grouping them according to—*
 - (i) *the provisions of the proposed statement or plan to which they relate; or*
 - (ii) *the matters to which they relate; and*
 - (ab) *must include a further evaluation of the proposed policy statement or plan undertaken in accordance with section 32AA; and*
 - (b) *may include—*
 - (i) *matters relating to any consequential alterations necessary to the proposed statement or plan arising from the submissions; and*
 - (ii) *any other matter relevant to the proposed statement or plan arising from the submissions.*
- (3) *To avoid doubt, the local authority is not required to give a decision that addresses each submission individually.*
- (4) *The local authority must—*
 - (aaa) *have particular regard to the further evaluation undertaken in accordance with sub-clause (2)(ab) when making its decision; and*
 - (a) *give its decision no later than 2 years after notifying the proposed policy statement or plan under [clause 5](#); and*
 - (b) *publicly notify the decision within the same time.*
- (5) *On and from the date the decision is publicly notified, the proposed policy statement or plan is amended in accordance with the decision.*

Given the number of submissions points that require addressing it was decided that this report would not give a systematic account of all the issues raised in each submission/further submission, evidence and representations. The Proposed Plan and its accompanying Section 32 Evaluation are both substantial. In combination with the number of submission and further submission points made, evidence and information presented to the Panel by submitters and their experts, related documents such as the driving NPSFM and the Council’s Section 42A reports, the Panel has had cause to reflect on and devise a decision writing approach that can cut through the volume of material before it. In the interests of being time-efficient and producing a decision document for the whole plan that can be reasonably comprehended (in a timely manner) the Panel resolved to focus on the key issues raised that relate to a decision, the decision made, and the key reasons for that decision. In making its decisions the Panel has adopted the Section 42A Report approach and grouped decisions according to topics.

DECISION MAKING PROCESS

8.1.1 The main drivers for the Panel's decisions on objectives; limits; and methods are subject to the specific requirements and tests set out within the Act, were the demonstration or provision of:

- Giving effect to NPSFM;
- Cogent reason(s), where possible supported with actual examples;

- Any deficiencies identified within the Council's Section 32 evaluation;
- Requirements of another RMA Plan or Policy Statement, or relevant enactment;
- Proposed objectives being *ultra vires*;
- Deficiency in the Council's Section 42A Report Evaluation;
- The Panel's own evaluation.

8.1.2 In reaching its' decisions on submissions, the Panel adopted the following process:

- a. Where submissions did not affect a proposed provision, the provision has been retained (unless changes to dependent related provisions require this and it can be accommodated within scope).
- b. Where a submission(s) point supports a provision and there are no submissions in opposition, the provision has been retained.
- c. Where a submission point/s sought changes to provisions with cogent reasons, there were no submissions in opposition, and the changes were supported by the Reporting Officers', the submission point/s have been accepted and the provision has been amended.
- d. Where a submission point/s was not supported by Reporting Officers and where the S.42A recommendation was based on legal requirements to give effect to a superior document (such as the NPSFM), the submission point has been rejected and the S.42A recommendation adopted.
- e. Where a submission point/s was in opposition and/or where there are related submissions on a topic seeking a variety of different outcomes for the same provision(s), key facts, issues and views have been identified and S.32AA analysis completed before a decision is made.
- f. Other amendments to the S42A version of the plan have been made, based on the legal and technical advice we commissioned, to ensure the plan achieves the best implementation of the NPSFM.

8.1.3 All Plan provisions are subject to s.32. The Resource Management Amendment Act 2013 (RMAA 2013) amended s.32 with the aim of improving the quality of s.32 evaluations. It provides greater detail about the requirements for undertaking and reporting evaluations, particularly for the assessment of benefits and costs, including anticipated opportunities for economic growth and employment. The evaluation must be undertaken up-front and early in the plan development process.

8.1.4 The Ministry for the Environment's Guide²³ on s.32 notes:

8.1.4.1 "Section 32 (and section 32AA) is an important part of ensuring clear, robust decision-making. Section 32 provides a process for critical evaluation of proposals, including the appropriateness of objectives and the efficiency and effectiveness of options generated by the plan development process. It also provides a transparent way to assess the range of risks, costs and benefits of introducing new policies and rules.

8.1.4.2 Quality section 32 evaluations will show that local authorities have undertaken a rigorous and comprehensive assessment of policy and plan proposals. It is critical that the evaluation is carried out early in the plan development process to inform plan analysis and decision-making. They should provide a strong incentive based on consistent and reliable data for local authorities to make harder calls up-front."

8.1.5 The Proposed Gisborne Regional Freshwater Plan – Part D (Catchment Plans) is underpinned by a comprehensive s.32 Report the veracity of which was tested by the hearing process.

8.1.6 The Council (and the Hearings Panel) also has an obligation to make a further evaluation under s.32AA as part of the decision-making process in relation to changes to the Proposed Plan since notification. A further evaluation ensures that any changes that are made to the proposal since the initial evaluation are subject to the same analysis and evaluation.

8.1.7 One inescapable consequence of the s.32AA requirements is that the merit of public submissions must also be subject to the relevant s.32 tests. The Panel identified early in its process that submitters should also make their own case as to the benefits, costs and other characteristics of their proposals (as they saw them) to the Panel. A process that did not include such an expectation of submitters would risk being in breach of the principles of natural justice – for example it would not be appropriate for Council officers, and indeed the Panel, to imagine benefits or costs associated with a submission's requested relief that materially affected the decision made on that matter, as it not be in keeping with what the submitter considered was relevant or applicable.

²³ 2013. *A guide to section 32 of the Resource Management Act 1991: Incorporating changes as a result of the Resource Management Amendment Act 2013, Interim guidance.* Wellington: Ministry for the Environment.

- 8.1.8 The Panel made its expectation clear to experts by providing a Directive²⁴ on its approach to information that should be provided at the hearings, noting that:

Where experts are providing the panel with change recommendations the panel has the expectation that: wording changes will be provided; and

- Cogent reasons (a Section 32 like approach) will be provided why the Panel should adopt their recommendation

- 8.1.9 This approach was necessary to ensure that the Panel did not unintentionally engage in the 'cherry picking' of *objectives, policies or rules*, but rather remain focused on decision making based on sound information with cogent reasons, provided by the Council Officers and/or submitters.

9.0 Government Direction

In February 2017, the Ministry for the Environment published "Clean Water – 90% of rivers and lakes swimmable by 2040"; this document sets out the Government's further work in the ongoing programme of water reform following consultation on *Next steps for fresh water*. At section 3.3 of the document water quality is addressed and it is noted:

"Regional councils have been required to maintain or improve overall water quality across their regions. This provides regional councils and their communities some flexibility when establishing fresh water objectives in their regions. It is currently unclear how regional councils can demonstrate that water quality will be at least maintained.

We propose limiting the concept of 'maintain or improve' to within freshwater management units, the scale at which regional councils and communities are addressing freshwater management. Freshwater management units are usually catchments or parts of catchments. We also propose clarifying that regional councils can demonstrate water quality is at least maintained if:

Freshwater objectives are set within the same attribute band as the current water quality; or

Where attributes are not described in the Freshwater NPS, if the value is maintained to its current level.

10.0 Issues

At the conclusion the Panel determined that the following issues needed to be further addressed:

Issues related to Freshwater Management Units and their values (section 11.1), including:

- the creation of a separate Te Arai Freshwater Management Unit
- The need to include additional values in the Waipaoa Catchment Plan such as primary production and fishing
- Freshwater Objectives, Targets and Limits for water quality (section 11.2)

The potential costs to landowners and the wider community of achieving some of the objectives and targets (section 11.3)

Should numeric in-stream limits be set in the plan (section 11.4)

What should the numeric values be set at (section 11.5), including:

- the interpretation of maintaining water quality – whether water quality should be maintained within a band or at the current state
- A request to limit freshwater objectives to ammonia, nitrate DO, E.coli and periphyton
- A concern that the use of monitoring data as a basis for objectives as problematic
- how to recognise and provide for statistical variances in the limits
- uncertainty around the current state of ecosystem health and the need for additional objectives and limits to give effect to the NPSFM directive to safeguard the life-supporting capacity of freshwater

And in relation to water quantity

- the quantum of survival water provided for in the Waipaoa Catchment Plan.

²⁴ First Directive of the Hearing Panel, 1 July 2016

11.0 Findings

GENERAL OBSERVATIONS

- 11.1.1 By the conclusion of the second round of hearings it became very evident that some of the sector groups were seeking changes that would ensure that their sector would not be placed in a position of disadvantage by the measures the policy framework that would be put in place and the rules which will support that framework.
- 11.1.2 This section of the PGRFP attracted detailed submissions and we acknowledge the effort and thought that has gone into many of the submissions. The Panel is also very appreciative of the professional manner in which submitters applied themselves to the hearing process. Questions were answered and there were offers of help by providing further information.
- 11.1.3 On reflection, even with the guidance provided by our First Directive, we may not have made our expectation clear enough about the need to provide cogent reasoning for substantive changes requested. The net result was the lack of section 32 like analyses to justify many of the substantive changes requested. While time and cost were certainly referenced there was a general lack of wider cogent reasoning stemming from giving effect to the NPSFM that could help direct the panel's decision-making. A large number of submissions points were put aside because the Panel did not have adequate reason(s) to move beyond that notified or recommended by staff in the Section 42A Report and subsequent updates of that report.
- 11.1.4 That is not to say that all requests were declined. The Panel adopted requested changes where they:
- Gave better effect to the NPSFM;
 - Provided clarification, or promoted a better understanding; and
 - Filled a gap.
- 11.1.5 Changes which: gave better effect to the NPSFM; provided clarification or provided a better understanding do not require a new 32AA analysis as the underpinning 32A analysis remain applicable.
- 11.1.6 Where a change requested addressed a clear gap then it has been picked up as appropriate and a section 32AA analysis completed.
- 11.1.7 Where submitters have noticed a gap, or gaps, in the underpinning 32A analysis, staff have been asked to address those gaps.

DECISION MAKING PHILOSOPHY

- 11.1.8 Decision Report No1 clearly sets out the rationale the Panel adopted in its decision making. While the PGRFP as notified has created more new policies, objectives, methods and rules, the permissive nature of the current planning regime largely remains.
- 11.1.9 The Panel's aim is to give effect to the NPSFM by carefully considering all the submissions and recraft the Plan so that the tenets of the NPS are given effect at the same time providing land-users with an alternative pathway where they can carry out their daily operational requirements without having to get a raft of consents.

PANEL DIRECTION TO STAFF

As a direct result of the hearing process the Panel directed staff to readdress their recommendations which they have done.

12.0 Decisions

FRESHWATER MANAGEMENT UNITS AND VALUES

- 12.1.1 There were fifteen submissions on the freshwater management units and their values. The main issues relate to whether the Te Arai should be in a separate Freshwater Management Unit, whether there should be additional values for the Freshwater Management Units, clarification of what the values are, and having a focus on maintaining values rather than the attributes. The 42A report reviews the range of different additional values for inclusion, or elevation to prominence by submitters. It considers that since a substantial collaborative process (which many submitters were part of) was used to identify the values for each Freshwater Management Unit, and no substantive rationale to expand the values is provided by the submitters, that the values should remain as identified in the Proposed Plan.

- 12.1.2 The 42a report considers the submissions in relation to the Te Arai River, and concludes that its distinctive ecology, the use of water for both drinking water and for food production and the key cultural values are all features of this sub-catchment that make it suitable to be a separate Freshwater Management Unit.
- 12.1.3 The 42A report also considers some other relatively minor matters, such as the order of the Freshwater Management Units, which it agrees with submitters should take a “mountains to sea” approach.
- 12.1.4 The panel has reviewed the submissions made and the NPSFM and generally concur with the approach taken by staff. However, we have removed “irrigation and food production” as a “value and use” from the Waipaoa Hill Country, as the impression we have gained is that it is not significant in that area relative to the Poverty Bay Flats and Te Arai FMUs. Also, in response to submissions from Rongowhakaata, we recognise that mauri and mahinga kai are prominent values in the Te Arai catchment.
- 12.1.5 In relation to the creation of a Te Arai Freshwater Management Unit the panel considers that the Waipaoa Catchment Plan must put in place values, objectives, limits and targets at this time, but includes a method that for the Te Arai catchment, all of these can be reviewed by 2020 as part of a further Te Arai FMU planning process, recognising that this must have substantial input from Rongowhakaata.

FRESHWATER OBJECTIVES, TARGETS AND LIMITS FOR WATER QUALITY

- 12.1.6 There were seventeen submissions in relation to water quality objectives and targets. There were also forty two submissions in relation to the water quality limits.
- 12.1.7 The 42A report sought to retain the approach within the proposed Waipaoa Catchment Plan in relation to these matters, however the panel considered that the evidence provided by some of the submitters and their technical experts around alternative approaches had significant merit. In particular the evidence of the technical expert from Mangatu Blocks - Dr Ausseil was compelling with regard to the approach taken.
- 12.1.8 In relation to the differences between objectives, limits and indicators of state he states:
- “.. some of these attributes are better suited to define freshwater objectives, and others to define indicators of state, rather than enforceable or allocable limits. In particular, I am of the opinion that temperature and total suspended solids (TSS) are, due to their nature, better suited to be used as indicators of state, whilst periphyton biomass is better suited to be used as an objective.”*
- “objectives relative to periphyton could be defined for the Plan, in spite of a lack of monitoring data, on the basis that the relationships between periphyton abundance and river values are relatively well understood (and form the basis for the thresholds in the NPSFM Periphyton Attribute)”*
- “Nutrients, such as nitrogen and phosphorus are some of the factors controlling periphyton growth. In-stream concentrations or loads of nutrients have been used as in-stream limits in other regional; plans. In my opinion, if nutrient limits are set, it should be done in relation to the periphyton objectives rather than being set at current levels.”*
- 12.1.9 Some of the themes in Dr Ausseil’s evidence were also included in that of other submitters including Federated Farmers, Horticulture New Zealand and the Department of Conservation.
- 12.1.10 The view espoused by Mr Willis on behalf of Mangatu Blocks and that of the Fertiliser Association and Federated Farmers was that numeric limits need not be set at this time. However, the legal advice procured by the panel following the hearing confirmed the view that setting numeric and time bound objectives and limits was a key requirement on the panel. In particular they noted the need to “set freshwater objectives in respect to a broad range of instream attributes, as well as limits that will collectively give effect to all of the objectives. They also advised that it is, “reasonably clear that the NPSFM intends that freshwater limits should generally be numeric values.”
- 12.1.11 There were also a number of submissions which sought clarity or explanation around matters within the Objectives/Targets/Limits section of the Waipaoa Catchment Plan. These submissions prompted us to seek advice from Dr Ned Norton and to commission the Science Working Group (comprised of submitter experts) which has guided our arrangement of Objectives, Limits and Targets within the plan.

POTENTIAL COSTS

We are mindful of the costs that may be imposed on land owners and the community in terms of achieving the Objectives and Limits/ Targets that we specify. However, we are also required to implement the NPSFM. As it has turned out, the vast majority of Objectives and Limits specified in this plan have been set within the water quality band that is currently being achieved, which should avoid any significant cost implications for land owners and the wider community. Furthermore, in terms of the rules throughout the plan we have provided an alternative compliance pathway that allows land owners some flexibility to demonstrate how they are achieving the desired environmental outcome without the need for an onerous consenting process.

SHOULD NUMERIC OBJECTIVES AND LIMITS BE SET AT THIS TIME?

- 12.1.12 In considering the evidence, the 42A report, the further legal advice and comment on this from submitters the panel has decided to set numeric water quality objectives and limits (or targets where limits are not met) where such quantitative values can be defined in a defensible manner based on the NPSFM National Objectives Framework or other well recognised environmental standards. We have achieved that for many of the objectives, based on the agreement amongst the Science Group, however in terms of setting limits, the expert advice we have received is that there is insufficient data at the present time to set numeric limits that clearly link to achievement of the objectives.
- 12.1.13 That is simply a reflection of the current state of knowledge, and we do not see that as a weakness in the plan. We are satisfied that the numeric objectives set a clear reference mark as to what must be achieved and the policies and rules in the plan, the consenting process and the requirement for FEPs provide tools that will enable those objectives to be achieved. The numeric objectives also set a clearly defined reference point for the identification of degraded water bodies so that consent decision makers and the certifiers of FEPs must ensure that improvements are implemented.
- 12.1.14 We have also required the implementation of monitoring to establish numeric limits or targets. This monitoring data is proposed for conversion into limits/ targets into a plan review in 2025 – or in the case of the Te Arai FMU, 2020 as part of the FMU specific process to be undertaken in that sub-catchment. In our view this is a preferable approach, rather than setting arbitrary numeric limits that do not have a strong basis to justify them.

WHAT SHOULD THE OBJECTIVES, LIMITS AND TARGETS FOR WATER QUALITY BE?

- 12.1.15 When turning to what should be the Objectives, Limits and Targets, the panel has found the technical work by Dr Norton and the caucusing undertaken by the submitters' technical representatives to be very useful. The panel believes this approach has considerable merit over the "maintain or improve the current instream values at specific monitoring locations" approach taken in the proposed Plan.
- 12.1.16 The panel is persuaded of the merits of the approach promulgated in Dr Norton's technical work, and supported by the caucusing that the objectives should set the outcomes which are sought for the Freshwater Management Unit in order to support the values that have been determined. Further the panel has taken the approach, as recommended by Dr Norton and the technical caucusing, that the effects based thresholds in the form of the NOF Bands are an appropriate basis to set objectives, where these are attributes included in the NPSFM 2014. This avoids some of the more complex technical issues of characterising natural variability in parameters related to their current state. Where, as in the case of for example MCI, the NOF does not include an attribute, the panel has taken the collective advice of the science experts referring to appropriate literature as the source of the thresholds for inclusion within the Plan.
- 12.1.17 Attributes for which objectives have been set
- 12.1.17.1 Having reviewed the submissions, the 42A report and information on current state, and Dr Norton's technical advice and the outcome of the caucusing the panel has decided that numeric objectives will be provided as follows:
- In the Waipaoa Hill Country, Te Arau and Poverty Bay Flats FMUs Numeric objectives for:
- Periphyton (compulsory attribute)
 - MCI
 - E.coli (compulsory attribute)
 - Dissolved oxygen (compulsory attribute)
 - Ecological toxicity –nitrate (compulsory attribute)
 - Ecological toxicity – ammonia (compulsory attribute)
 - Clarity

12.1.17.2 Narrative objectives for:

All matters with numeric objectives
Physical habitat
Fish
Birds (except for the Poverty Bay Flats FMU)

12.1.17.3 In the Gisborne Urban FMU (estuarine) Numeric objectives for the following parameters:

Enterococci (as E.coli is a freshwater faecal indicator)
Dissolved oxygen (compulsory attribute)
Ecological toxicity –nitrate (compulsory attribute)
Ecological toxicity – ammonia (compulsory attribute)
Clarity

12.1.17.4 Narrative objectives for:

All matters with numeric objectives
Physical habitat
Fish
Birds

12.1.17.5 No numeric objectives for periphyton or MCI are included in the Gisborne Urban FMU as there is not a scientifically valid estuarine assessment methodology for these attributes.

12.1.17.6 Objectives are set at the FMU level – unlike the approach in the proposed Plan where specific monitoring locations were identified for the objectives. The panel considers that this better reflects the intent of the NPSFM and NOF. If however it is clearly identified from SOE monitoring data that there is an anomalous situation with regard to an individual waterbody (eg for periphyton in the Taruheru River/Poverty Bay Flats FMU) then a waterbody specific objective for that exception has been included.

12.1.18 Thresholds for Numeric Objectives

12.1.18.1 In deciding which “band” or threshold should be applied for the objectives, the panel has tried to be consistent with the principles established in the proposed Waipaoa Catchment Plan about where to maintain and where to improve water quality, i.e. if an attribute is currently in the “A band” then the objectives seek to retain the attribute within that band. If the proposed Waipaoa Catchment Plan identified that an improvement in water quality in relation to that attribute was required to reflect the values of the FMU, then the panel has identified the objective to achieve the next higher band. The panel has taken this approach as there were no submissions seeking to alter this aspect of the proposed Plan.

12.1.18.2 Where the proposed Waipaoa Catchment Plan did not include objectives or limits in relation to attributes (i.e. periphyton and MCI) then the panel has taken cognisance of both the views of the caucusing meeting and also the submissions presented to the panel. As a general principle however the panel has taken a “maintain” approach in relation to those matters in terms of the thresholds set, unless the periphyton attribute falls below the national bottom line. In this case, an objective of bringing the attribute up to meet the national bottom line is included.

12.1.18.3 Where objectives are specified as a statistical criteria, such as median or 95th percentile, we have also specified the frequency of samples over a certain time period which are to be used to calculate the median or 95th percentile, based on the advice from the Science group.

12.1.18.4 In terms of Dissolved Oxygen, we are aware that Gisborne District Council does not have extensive resources for continuous DO monitoring throughout the region, so we have modified the specification of those objectives to match an achievable monitoring regime.

12.1.18.5 Some members of the Science group favoured the setting of an objective for benthic cyanobacteria bed cover, however due to the lack of data we were not comfortable with that approach due to the lack of available data regarding this parameter. It is not an attribute specified in the NOF for the rivers that we are considering. Instead we have recommended a method to ensure that Council respond to reports of benthic cyanobacteria and manage the risks arising from any occurrences, which is an appropriately pragmatic way to deal with this issue.

12.1.18.6 We have also specified methods to recommend monitoring of factors that affect the objectives and that Council will support the use of FEPs, which are an important tool to achieve the objectives. It will be important that the people who certify FEPs and who make decisions on resource consent applications are mindful of the objectives that are specified in each FMU and that they only grant consents or approve FEPs that have sufficient conditions and details to ensure the objective is achieved.

12.1.19 Water Quality Targets

12.1.19.1 When turning to setting targets, with clear objectives in place this should become less complex when sufficient monitoring data has been collected to establish links between the target attribute and the objective. The panel has described some targets where objectives are not met, based on the Council SOE water quality monitoring data. Targets are considered by the panel to be a time-bound numeric limit.

12.1.19.2 For setting dates to meet the targets where possible the approach included in the proposed Waipaoa Catchment Plan has been kept. In most cases this means that the date of 2030 is set to achieve objectives that are not currently met, but in relation to some matters, where the proposed Plan identified that 2035 was the date to achieve targets, this date has been used.

12.1.19.3 In relation to sediment, and bearing in mind the submissions on that matter – targets and limits are not set at this time as this reflects the unique situation in the rivers where sediment loads are driven by massive landscape scale erosion (Mangatu, Waingaromia and Waipaoa Rivers in the Waipaoa Hill Country FMU and the Waipaoa River in the Poverty Bay Flats FMU).

12.1.20 Water Quality Limits

12.1.20.1 In terms of which attributes there should be limits set which support the objectives, the panel has considered the submissions, 42A report, advice from Dr Norton and the outcome of the technical caucusing. There was less agreement through the technical caucusing on the limits however when considering all the evidence, and the current knowledge of water quality in the catchment, the panel has decided to indicate the need to set limits in relation to the following attributes:

- DIN (to support the periphyton trophic state objective)
- DRP (to support the periphyton trophic state objective)
- temperature
- suspended sediment

12.1.20.2 However, based on the agreed position from the Science Group, there is insufficient information on the relationship between DIN, DRP and suspended sediment and the objectives we have specified to establish a defensible numeric limit at the present time. For the time being we are setting limits that specify that these attributes must be managed through FEPs so that the objectives are achieved. We are also specifying a monitoring programme within a required time frame to establish numeric limits. Consideration of suitable numeric limits can then be made at a later date when sufficient monitoring data is in place.

12.1.20.3 A tabular summary of the Objectives, Limits and Targets for the Waipaoa Catchment Plan has been included at the end of this decision report as an easy reference for the values and descriptions that have been chosen.

WATER QUANTITY OBJECTIVES, LIMITS AND TARGETS

There were two submissions in relation to the water quantity objectives and targets. There were also six submissions in relation to the water quantity limits. Generally the panel considers that the 42A report analysis and recommendations are coherent and appropriate and the officers' recommendations are incorporated for the reasons outlined in the 42A report.

12.1.21 CROP SURVIVAL WATER

12.1.22 The matter of crop survival water is the key point of contention. Horticulture NZ sought that this be applied to both permanent and annual crops, and provided evidence from Mr Ford as to the amount of water required to enable such crops to survive. Mr Conland, their technical expert provided a possible statistical approach to determine a survival water quantum.

- 12.1.23 When we firstly consider the matter of what crops should have access to survival water, we do not consider that the rationale provided by Horticulture NZ, that annual crops should be included, is appropriate for a quantum of water allowed to be taken below the minimum flow of the Waipaoa River. The justification for survival water is clear – to allow rootstock of permanent crops not to be lost, thereby reducing the risk of multi-year economic damage as a result of water takes from the river ceasing.
- 12.1.24 When considering the quantum of water to be allocated we considered the statistical methodology proposed by Mr Conland. As well as being complex, we were not persuaded that it reflected an effects based methodology. We note that the minimum flow for the Waipaoa River, at 1300 l/s is 65% of MALF, and therefore the methodology proposed by Mr Conland may not assist in identifying an appropriate statistical basis for a survival water allocation.
- 12.1.25 The evidence of Mr Ford for Horticulture NZ referred to 19.92m³/ha/day based on data from Nelson apple orchards as being a survival water quantum necessary to support the survival of permanent root stock. We have sought advice from Mr Trevor Lupton of Lewis Wright in relation to other permanent crops and in particular kiwifruit in Gisborne and this advice confirms 20 m³/ha/day as an appropriate quantum for crop survival. We understand from analysis provided by the Council staff that 780 ha of permanent horticultural and viticultural crops currently have water takes from a fully allocated Waipaoa River.
- 12.1.26 We are also mindful of the limitations on the instream environment to accommodate an allocation block below the minimum flow, which in the Waipaoa River is already set at quite a low value of 65% of the MALF. Taking all these factors into consideration we are comfortable to establish a root stock survival allocation block of 50 L/s, but cannot support any larger number than that. Whilst there may be a requirement for a larger abstraction for root stock if everyone sought to abstract 20 m³/ha/day at the same time, that would place an unwarranted burden on the instream environment. We are of the view that the requirements of both the instream environment and root stock survival can best be achieved during these times of low flow by the Council rostering the abstraction of root stock abstraction water to spread the load so that the combined abstraction does not exceed 50L/s at any particular time. Furthermore, during extreme climatic drought conditions, the allocation of this water would be subject to the approval of the Water Shortage Task Force in operation at any such time when that is required (as set out in Method 4.1.7).

METHODS TO ACHIEVE THE OBJECTIVES

- 12.1.27 There were 10 submissions in relation to the non-regulatory projects in the catchment plan. Alongside this a number of the submissions on the objectives, targets and limits either sought additional methods, additional methods were recommended through the 42A report, or the panel considers methods should be included to reflect the changed approach to the objectives/limits/targets in the catchment plan.
- 12.1.28 The analysis and recommendations in the 42A officers' report in relation to the non-regulatory methods are generally accepted by the panel, as are the additional methods proposed for inclusion in response to other submissions as per the 42A analysis.
- 12.1.29 The panel does however note that the proposed Plan contains no method to address the identified temperature issues in the Waingaromia River.
- 12.1.30 The panel's approach to objectives/limits/targets also identifies the Waingaromia River needing reduced periphyton levels – despite its low nutrient status, and improvements in MCI and temperature. We therefore consider that an additional non regulatory project – focussed on improving the physical water quality of the river is required. We have specified a method require that a Waingaromia riparian planting programme is undertaken to address periphyton, MCI and temperature levels in the river.
- 12.1.31 On the basis of many land owner and forestry representative submissions, the panel recognises the significant adverse impact this industry has on the surface water resources at particular times in the forestry cycle. We are therefore keen to see the implementation of a method to help the industry reduce this undesirable impact. To this end, the following method has been added to the plan:
- “Forestry harvest mitigation project
- 12.1.32 Work with the forestry sector to identify key methods to reduce sediment loss and forestry slash migration into waterways during and post-harvest. This will include research and field trials of different operating methods and riparian buffers in order to develop and implement good practice guidelines for the sector.
- 12.1.33 To be undertaken from 2018 with implementation of improved approaches from 2020.”

13.0 Panel Decisions Validation

It is the Panel's decision to adopt the Reporting Officers' discussion, and recommendations in on the Waipaoa Catchment Plan as relates to matters other than the setting of Objectives, limits and targets in the Section 42A Report²⁵. With regard to those Objectives, Limits and Targets, we have been guided by the legal advice from Buddle Findlay and the technical advice from Dr Ned Norton and the Science caucus group. We found that information to be very helpful and provides a sound basis to formulate those aspects of the plan.

Amendments have been made; which are discussed in section 11 above.

14.0 Section 32AA Evaluation

For the purposes of S.32AA, the S.42A version of the Plan has been considered in terms of S.32(1) to S.32(4). The Panel accepts the Reporting Officers' recommendations and finds that Sections on the Waipaoa Catchment Plan as amended in the S.42A report and subsequent advice from Dr Ned Norton are the most appropriate in terms of:

- Giving effect to NPSFM. The Panel clearly understands the cost implications of having to give effect to the NPSFM and has endeavoured to put in place a regime that gives effect to the intent of the NPS at the same time allowing economic activities to continue.
- the potential costs (including effects) and benefits.
- In the terms of the Freshwater Management Units where over allocation has occurred in terms of water quantity or water quality there needs to be a recognition that further water demand or discharges of contaminants of concern may not be possible and that measures will have to be taken to address the over allocation which could potentially negatively impact on economic activity.

The changes proposed by the Reporting Officer to the notified version of the Plan will make the Plan more efficient and effective.

Mark Farnsworth MNZM
(Panel Chair)



Rehette Stoltz



Craig Bauld



Peter Callander



Antoine Coffin



²⁵ Hearing Agenda: 5-6 December 2016

Water Quality Objectives, Limits and Targets Summary Tables

Summary of Numeric Objectives²⁶

	OBJECTIVE ATTRIBUTE	NUMERIC OBJECTIVE	OBJECTIVE STATUS
Waipaoa Hill Country FMU	Periphyton (trophic state)	Chlorophyll A ≤ 120mg chl-a/m ² (NOF Band B)	Current state ²⁷
	Macroinvertebrate Community Index (MCI)	MCI >100	Current state except in Waingaromia and Mangatu Rivers ² where the Objective is not currently met
	Dissolved Oxygen INTERIM OBJECTIVE (a default position until sufficient monitoring data has been collected to confirm the current state)	Summer 1-day minimum ≥ 7.5mg/L Summer 7-day minimum ≥ 5.0mg/L (NOF Band C)	Expected to be current state ²⁷
	Ecosystem toxicity - nitrate	Annual median ≤1.0mg/L Annual 95 th Percentile ≤1.5mg/L (NOF Band A)	Current state
	Ecosystem toxicity - ammonia	Annual median ≤0.03mg/L NH ₄ -N/L Annual Maximum ≤0.05 mg/L NH ₄ -N/L (NOF Band A)	Current state
	E.coli	Annual median and 95 th percentile ≤ 260 cfu/100mL (NOF Band A)	Current state
		In the Wharekopae River Annual median ≤ 260 cfu/100mL and Annual 95 th Percentile ≤540 cfu/100mL (NOF Band B)	Objective not currently met
	Enterococci	N/A	
	Clarity	With the exception of the Waingaromia, Upper Waipaoa and Mangatu Rivers, visual clarity ≥0.5m at less than median flows	Current state ²⁷
	Deposited fine sediment	No numeric objective set at this time	Thought to be met – more monitoring needed
	Fish	Narrative Objective	Current state ²⁸
Birds	Narrative Objective	Current state ²⁸	

²⁶ This is a summary of the metric however the full objective should be read in the relevant section of the Waipaoa Catchment Plan

²⁷ Based on limited monitoring data currently held, however more monitoring will be needed to confirm this

Te Arai FMU	OBJECTIVE ATTRIBUTE	NUMERIC OBJECTIVE	OBJECTIVE STATUS
	Periphyton (trophic state)	Chlorophyll A \leq 50mg chl-a/m ² above Pykes Weir (NOF Band A) and \leq 120mg chl-a/m ² below Pykes Weir (NOF Band B)	Current state ²⁷
	Macroinvertebrate Community Index (MCI)	MCI \geq 100 above Pykes Weir. MCI \geq 80 below Pykes Weir	Not currently met below Pykes Weir ²⁷
	Dissolved Oxygen INTERIM OBJECTIVE (a default position until sufficient monitoring data has been collected to confirm the current state)	Summer 1-day minimum \geq 5mg/L Summer 7-day mean minimum \geq 5.0mg/L (NOF Band C)	Expected to be current state ²⁷
	Ecosystem toxicity - nitrate	Annual median \leq 1.0mg/L Annual 95 th Percentile \leq 1.5mg/L (NOF Band A)	Current state
	Ecosystem toxicity - ammonia	Annual median \leq 0.03mg/L NH ₄ -N/L Annual Maximum \leq 0.05 mg/L NH ₄ -N/L (NOF Band A)	Current state
	E.coli	Annual median and 95th percentile \leq 540 cfu/100ML (NOF Band B)	Current state
	Enterococci	N/A	
	Clarity	Visual clarity \geq 0.5m at less than median flows	Current state ²⁷
	Deposited fine sediment	No numeric objective set at this time	Thought to be met – more monitoring needed
	Fish	Narrative Objective	Current state ²⁸
	Birds	Narrative Objective	Current state ²⁸

Poverty Bay Flats FMU	OBJECTIVE ATTRIBUTE	NUMERIC OBJECTIVE	OBJECTIVE STATUS
	Periphyton (trophic state)	Chlorophyll A $\leq 120\text{mg chl-a/m}^2$ (NOF Band B) In the Whakaahu Stream and in the Taruheru River Chlorophyll A $\leq 200\text{mg chl-a/m}^2$ (NOF Band C)	Not met at this time in Whakaahu Stream and Taruheru River ²⁷
	Macroinvertebrate Community Index (MCI)	MCI ≥ 80	Not currently met ²
	Dissolved Oxygen INTERIM OBJECTIVE (a default position until sufficient monitoring data has been collected to confirm the current state)	Waipaoa Water Quality Zone Summer 1-day minimum $\geq 7.5\text{mg/L}$ Summer 7-day minimum $\geq 5.0\text{mg/L}$ (NOF Band C)	Expected to be current state ²⁷
		Taruheru Water Quality Zone Summer 1-day minimum $\geq 4\text{mg/L}$ Summer 7-day minimum $\geq 5.0\text{mg/L}$ (NOF Band C)	Not currently met ²⁷
	Ecosystem toxicity - nitrate	Waipaoa Water Quality Zone Annual median $\leq 1.0\text{mg/L}$ Annual 95 th Percentile $\leq 1.5\text{mg/L}$ (NOF Band A)	Current state
		Taruheru Water Quality Zone Annual median $\leq 1.0\text{mg/L}$ Annual 95 th Percentile $\leq 3.5\text{mg/L}$ (NOF Band B)	95 th Percentile Objective not currently met
	Ecosystem toxicity - ammonia	Waipaoa Water Quality Zone Annual median $\leq 0.03\text{mg/L NH}_4\text{-N/L}$ Annual Maximum $\leq 0.40\text{mg/L NH}_4\text{-N/L}$ (NOF Band B)	Current state
		Taruheru Water Quality Zone Annual median $\leq 0.24\text{mg/L NH}_4\text{-N/L}$ Annual Maximum $\leq 0.40\text{mg/L NH}_4\text{-N/L}$ (NOF Band B)	Objective not currently met
	E.coli	Annual median and 95 th percentile $\leq 540\text{cfu/100mL}$ (NOF Band B)	Current state
	Enterococci	N/A	
	Clarity	Except for the Waipaoa River mainstem visual clarity $\geq 0.5\text{m}$ at less than median flows	Current state ²
	Deposited fine sediment	No numeric or narrative objective set at this time	
	Fish	Narrative Objective	Objective not currently met ²⁹
Birds	-	-	

Gisborne Urban FMU	OBJECTIVE ATTRIBUTE	NUMERIC OBJECTIVE	OBJECTIVE STATUS
	Periphyton (trophic state)	N/A	
	Macroinvertebrate Community Index (MCI)	N/A	
	Dissolved Oxygen INTERIM OBJECTIVE (a default position until sufficient monitoring data has been collected to confirm the current state)	Summer 1-day minimum $\geq 5\text{mg/L}$ Summer 7-day mean minimum $\geq 5.0\text{mg/L}$ (NOF Band C)	Expected to be current state ²⁷
		In the Waikanae Stream and Awapuni Moana Summer 1-day minimum $\geq 4\text{mg/L}$ Summer 7-day mean minimum $\geq 5.0\text{mg/L}$ (NOF Band C)	Not currently met ²⁷
	Ecosystem toxicity - nitrate	Annual median $\leq 1.0\text{mg/L}$ Annual 95th Percentile $\leq 1.5\text{mg/L}$ (NOF Band A)	Current state ²⁷
		Awapuni Moana Annual median $\leq 2.4\text{mg/L}$ Annual 95th Percentile $\leq 3.5\text{mg/L}$ (NOF Band B)	Current state ²⁷
	Ecosystem toxicity - ammonia	Annual median $\leq 1.3\text{mg/L}$ NH ₄ –N/L Annual Maximum $\leq 2.20\text{ mg/L}$ NH ₄ –N/L (NOF Band C)	Current state
	E.coli	N/A	
	Enterococci	Annual median $\leq 280\text{ cfu/100mL}$ Annual 95th percentile $\leq 500\text{ cfu/100mL}$	Not currently met
	Clarity	Visual Clarity in freshwater streams $\geq 0.5\text{m}$ at less than median flows	Current state ²⁷
Deposited fine sediment	N/A		
Fish	Narrative Objective	Current state ²⁸	
Birds	Narrative Objective	Current state ²⁸	

Summary of Limits and Targets

Waipaoa Hill Country FMU	LIMIT ATTRIBUTES	OBJECTIVE TO BE ACHIEVED	NUMERIC LIMITS	TARGETS	MATTERS TO CONTROL TO ACHIEVE TARGETS
	Temperature	Physical habitat Fish DO	Annual summer 1 day hottest day temperature $\leq 21^{\circ}\text{C}$	In the Waingaromia River temperature limit achieved by 2030	Riparian cover
	Suspended sediment and/or turbidity	Physical habitat Clarity Deposited fine sediment Fish Birds	No numeric limit set at this time	Improve the median suspended sediment levels in the Waingaromia, Upper Waipaoa and Mangatu Rivers by 2067	Controlled through Tairāwhiti Plan Land Disturbance Controls, FEPs and resource consents.
	Dissolved Inorganic Nitrogen (DIN)	Periphyton MCI DO Nitrate toxicity Ammonia toxicity Physical habitat Fish Birds	No numeric limit set at this time	Achieve periphyton objective in Waingaromia Catchment by 2030 and MCI objective in both the Waingaromia and Mangatu Rivers by 2030	Controlled through nutrient budgets in FEPs and resource consents
	Dissolved Reactive Phosphorus (DRP)	Periphyton MCI DO Physical habitat Fish Birds	No numeric limit set at this time	DRP to be controlled to achieve periphyton objective in Waingaromia Catchment by 2030 and MCI objective in both the Waingaromia and Mangatu Rivers by 2030	Controlled through nutrient budgets in FEPs and resource consents

Te Arai FMU	LIMIT ATTRIBUTES	OBJECTIVE TO BE ACHIEVED	NUMERIC LIMITS	TARGETS	MATTERS TO CONTROL TO ACHIEVE TARGETS
	Temperature	Physical habitat Fish DO	Annual summer 1 day hottest day temperature ≤ 21°C	-	Riparian cover
	Suspended sediment and/or turbidity	Physical habitat Clarity Deposited fine sediment Fish Birds	No numeric limit set at this time	-	Controlled through Tairawhiti Plan Land Disturbance Controls, FEPs and resource consents.
	Dissolved Inorganic Nitrogen (DIN)	Periphyton MCI DO Nitrate toxicity Ammonia toxicity Physical habitat Fish Birds	No numeric limit set at this time	DIN to be controlled through FEPs and resource consents to achieve MCI objective below Pykes weir by 2030	Controlled through nutrient budgets in FEPs and resource consents
	Dissolved Reactive Phosphorus (DRP)	Periphyton MCI DO Physical habitat Fish Birds	No numeric limit set at this time	DRP to be controlled to achieve MCI objective below Pykes weir by 2030	Controlled through nutrient budgets in FEPs and resource consents

Poverty Bay Flats FMU	LIMIT ATTRIBUTES	OBJECTIVE TO BE ACHIEVED	NUMERIC LIMITS	TARGETS	MATTERS TO CONTROL TO ACHIEVE TARGETS
	Temperature	Physical habitat Fish DO	Annual summer 1 day hottest day temperature ≤ 250C	-	Riparian cover
	Suspended sediment and/or turbidity	Physical habitat Clarity Deposited fine sediment Fish Birds	No numeric limit set at this time	-	Controlled through Tairawhiti Plan Land Disturbance Controls, FEPs and resource consents.
	Dissolved Inorganic Nitrogen (DIN)	Periphyton MCI DO Nitrate toxicity Ammonia toxicity Physical habitat Fish Birds	No numeric limit set at this time	DIN to be controlled through FEPs and resource consents to achieve MCI objective by 2035 and periphyton, DO, nitrate toxicity and ammonia toxicity objectives in the Taruheru River by 2035	Controlled through nutrient budgets in FEPs and resource consents
	Dissolved Reactive Phosphorus (DRP)	Periphyton MCI DO Physical habitat Fish Birds	No numeric limit set at this time	DRP to be controlled to achieve MCI objective by 2035, the periphyton objective in the Whakaahu and Taruheru by 2035 and the DO and nitrate toxicity objectives in the Taruheru River by 2035	Controlled through nutrient budgets in FEPs and resource consents

Gisborne Urban FMU	LIMIT ATTRIBUTES	OBJECTIVE TO BE ACHIEVED	NUMERIC LIMITS	TARGETS	MATTERS TO CONTROL TO ACHIEVE TARGETS
	Temperature	Physical habitat Fish DO	Annual summer 1 day hottest day temperature $\leq 21^{\circ}\text{C}$	Improve Taruheru River Waikanae Stream and Awapuni Moana so that 1 day hottest day temperatures are $\leq 21^{\circ}\text{C}$ and to achieve DO objective by 2030	Riparian cover
	Suspended sediment and/or turbidity	Physical habitat Clarity Deposited fine sediment Fish Birds	No numeric limit set at this time	No numeric limit set at this time	Controlled through Tairāwhiti Plan Land Disturbance Controls, FEPs and resource consents.
	Dissolved Inorganic Nitrogen (DIN)	Periphyton MCI DO Nitrate toxicity Ammonia toxicity Physical habitat Fish Birds	N/A		Controlled through nutrient budgets in FEPs and resource consents
	Dissolved Reactive Phosphorus (DRP)	Periphyton MCI DO Physical habitat Fish Birds	N/A		Controlled through nutrient budgets in FEPs and resource consents

Note: Whilst no numeric Limits/ Targets are set to achieve the E.coli and Enterococci objectives, they will be achieved through policies and rules that control stock access to waterways, riparian management and point source discharges of wastewater, stormwater and other contaminants alongside the non-regulatory projects identified in the Plan.