

Tasman District Council Freshwater Management Overview

for the

Te Mana O Te Wai
Te Tau Ihu Collaborative Project

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2 Purpose

This report provides a 'snapshot' overview of Tasman District Council's (TDC) water management approach to date. The report will contribute to a current state report of Te Tau Ihu freshwater management.

The report addresses TDC's current Plan and policy planning processes and provides an overview of freshwater management processes to date.

Further information is available from Council staff on request.

3 Plans and current processes

3.1 Policy and Regulation

TDC's operative Plans are the Tasman Regional Policy Statement (TRPS) and the Tasman Resource Management Plan (TRMP). As unitary plans, these plans incorporate both land based territorial considerations (eg urban and rural development and land use controls) and air, land, water and coastal regional considerations (eg resource allocation and resource use controls).

These plans do not give full effect to the NPS-FM 2020 or all aspects of earlier NPS versions. Efforts to date in giving effect to previous NPS-FM versions are reflected in the freshwater plan changes since the first NPS-FM in 2011 and the collaborative process work undertaken for the Takaka and Waimea catchments since 2014.

Prior to the 2020 NPS-FM, TDC was operating to a Progressive Implementation Programme (PIP) last reviewed in 2018, which included a program of water resource investigations and associated rolling plan changes to be undertaken by Freshwater Management Unit out to a timeframe of 2030. At the time, this program and timeframe was considered workable and affordable by TDC. This has now been superseded by the 2020 amendments to the RMA requiring notification of freshwater plan changes by December 2024.

TDC are in a state of transition having begun a whole-of-plan review of both the TRPS and TRMP in 2019. The new Tasman Environment Plan (TEP) will replace both the TRPS and TRMP to form a single combined plan.

At the time of writing, TDC aims to notify the TEP in December 2024 in line with the NPS-FM and RMA requirements for notification of freshwater plans. This timeline may be subject to change due to RMA and/or local government reform announcements.

We are also anticipating further national instruments signalled prior to the RMA reform to proceed (eg the NPS for Indigenous Biodiversity and NES drinking water review) which may also influence the management of freshwater in the TEP.

3.2 Non-Regulatory Methods

In addition to the provisions and rules in the TRPS/TRMP, TDC also employs a range of non-regulatory methods to achieve the freshwater objectives sought. Some examples of these are outlined in the table below.

Table 1 Non-regulatory methods for freshwater management in Tasman

Non-regulatory method	Examples
Investigations and Monitoring	<ul style="list-style-type: none"> • Regular (monthly/quarterly) river and groundwater State of the Environment monitoring • Synoptic catchment water quality surveys (involving numerous sites, less often eg groundwater every 5-10 years) • Short term (months) issue-based investigations (eg 3 month water clarity in Te Waikoropupū) • Research projects – eg sediment flocculation testing • Freshwater data accounting and reporting
Education and Advocacy	<ul style="list-style-type: none"> • Public education programs and resources – eg “I only drain rain”, what to do with different waste products • Nelson Tasman Erosion and Sediment Control Guidelines and associated industry education workshops and events • Guidance on wetland and river restoration projects
Works and Services	<ul style="list-style-type: none"> • Urban Stormwater Catchment Management Plans (Richmond done with other urban CMPs to come) – in conjunction with global stormwater consenting • Waterbody restoration/enhancement, including as part of stormwater or flood management projects – eg Borck Creek redevelopment and restoration, or as part of the Catchment Enhancement Project eg Motupipi River • River management, including flooding and erosion control and pest species management • Compliance and enforcement services – particularly for discharges to land and water and water permits • Building compliance enforcement for building site erosion and sediment control • Three waters provision (water supply, stormwater and wastewater reticulation and treatment) – subject to three waters reform – and roading where this affects waterbodies (crossings, runoff, access etc). • Parks and reserve management – including water body management and provision of public access to waterbodies • Involvement in the Waimea Community Dam
Financial incentives/assistance	<ul style="list-style-type: none"> • Waterbody Fencing Fund (for stock exclusion) • Catchment Enhancement Fund • External funding also sought (eg Freshwater Improvement funding for fish passage and wetland restoration)
Partnerships	<ul style="list-style-type: none"> • Working with iwi entities specific landowners, community groups, catchment groups, industry groups, etc • Water augmentation for enhancement eg Wai-iti Dam, Waimea Dam range of stakeholders/partners • Waimea Inlet Forum • Takaka Freshwater and Land Advisory Group Process • Manawhenua ki Mohua – Mātauranga Māori report for the Tākaka Catchments • Dry Weather Task Force (drought management discussions involving local stakeholders)
Industry self-regulation	<ul style="list-style-type: none"> • Supporting industry in promoting use of good practice - eg nutrient and irrigation management codes of practice, forestry practice guidelines on Separation Point Granite, industry environmental programs, etc

Further detail can be provided in the “NPS-FM Implementation Program to 2025”. There is also further work planned within the non-regulatory program, some of which has been briefly outlined in Section 7.2.

4 Consenting, compliance and enforcement

TDC’s consenting and compliance teams administer the current operative Tasman Resource Management Plan, and operative National Environmental Standards (NES) and RMA section 360 Regulations. This includes the NES for Freshwater (2020) and the stock exclusion (2020) and water metering (2020) regulations.

Freshwater, land use and discharge related consent applications and compliance and enforcement matters are assessed against relevant Tasman Resource Management Plan provisions, the Tasman Regional Policy Statement and where required, higher level instruments such as the NPS-FM, the NZ Coastal Policy Statement and the RMA itself.

As noted above, the operative Tasman Resource Management Plan does not reflect the NPS-FM 2020 or aspects of earlier versions of it, and will be replaced by the Tasman Environment Plan, which will seek to give effect to the NPS-FM to the fullest extent possible.

5 Community and Iwi processes

Since 2011 TDC has undertaken 13 plan changes¹ related to freshwater. These generally utilised a standard approach of: iwi and stakeholder engagement in determining issues and options; stakeholder, iwi and community engagement on a draft plan change; and the RMA schedule 1 process following public notification of a proposed plan change (including submissions, further submissions, hearing, decisions and rights of appeal).

In 2014, following a growing expectation for further community involvement, the TDC initiated two freshwater collaborative processes – one in each of the Takaka and Waimea catchments. These processes involved 12-14 members of local communities including people with affiliations to local iwi, environmental groups and stakeholder groups or landowners in each catchment area. Under the Terms of Reference members attended the groups as individuals rather than representatives of a specific sector or group. Most members ‘wore multiple hats’ and provided their collective viewpoints to the group during discussions.

Iwi engagement for these processes was supplemented through the Tasman Iwi Policy Working Group (IPWG), and in the Takaka catchments, through specific engagement with Manawhenua ki Mohua (MKM) and contracts to generate key inputs, including the Mātauranga Māori report for the Tākaka catchments (June 2019) and freshwater cultural tohu development (in progress).

The Takaka FLAG process ran until June 2019 when the group presented their recommendations report to Council alongside the Mātauranga Māori report by MKM. While this collaborative process was every effective in gaining a shared understanding and consensus approach to freshwater management within the group, there were many key lessons learnt through the process. Members and staff were concerned at the length of the process, efficacy of iwi engagement, cost and extent of effort required by both the volunteer members and staff. Subsequently staff recommendations to

¹ Plan changes: 35-36 for water metering, V3-C10 for onsite stormwater, 45-48, 54-56, 63 & 67 for Waimea, 52 for Upper Motueka.

Council have been to look for alternative means of community engagement in the future and to find alternative methods to involve iwi that better reflects our partnership context.

The Waimea FLAG process was put on hold in early 2016 due to staff resourcing constraints and to avoid the FLAG's duplicating effort on management of land practices. Since 2019, incorporating learnings from the Takaka process, TDC staff have re-initiated discussions with Waimea growers and industry representatives (including HortNZ and Federated Farmers) to specifically address the issue of nitrate in groundwaters of the Waimea Plains.

Additional resourcing has since been put into the Waimea nitrate issue, including engagement of consultant Rochelle Selby-Neal for facilitation and planning work, and very recently a new temporary 12-18 month internal position for a soil scientist to provide dedicated grower liaison and outreach to Waimea growers and to work with HortNZ and other industry groups to help all landowners and growers reach good or best practice for nutrient and water management by 2022 when the Waimea Dam is operational. A recommendation from the project will be for Council to seek input from iwi entities that are involved in growing operations to provide Mātauranga Māori advice on operating in ways that meet the requirements of Te Mana O Te Wai.

Concurrently, with the latest Waimea process, staff are also reviewing the entire freshwater framework through the TEP development process. This includes:

- Implementation of the requirements in the National Objective Framework under the NPS-FM with iwi, key stakeholders and communities through 2021-22 – this includes discussion on Te Mana o Te Wai, FMU definition, long term visions, values of water and environmental outcomes sought (initiated through Te Tau Ihu Collaborative Project)
- Development of issues and options for freshwater and land management with iwi and stakeholders, including a summary report for public feedback in early 2022
- Preparation of a draft plan with iwi and stakeholders for public feedback in 2023
- Preparation of a proposed plan for iwi review and public notification by December 2024 (subject to RMA and local government reforms).

Regarding the Tasman IPWG, it is anticipated that this report and the Te Tau Ihu Collaborative Project will direct the future processes of engagement and collaboration with Iwi in development of the Tasman Environment Plan and both the regulatory and non-regulatory approaches to freshwater management in the Tasman region.

6 Iwi involvement in governance and Plan-making processes

Currently iwi authorities have no direct formal involvement in governance regarding freshwater in Tasman District, although there is an open invitation for iwi to sit on the Dry Weather Task Force, which makes decisions on water management during dry periods, including decisions on rationing, cease take and issuing of water shortage directions (under RMA section 329).

Iwi concerns are included in discussions and decisions on freshwater through staff advice to Council, which is derived from operational level discussions between Council staff in various departments and key resource management and regulatory staff within each iwi authority. This occurs in several ways - through the Tasman IPWG, through the resource consent and compliance processes, and on a project basis through direct staff engagement with iwi authority staff, trusts or other entity meetings (for example TDC staff attendance at the MKM and Whakatatu meetings).

Involvement in specific plan making and regulatory processes include the following:

6.1 Involvement in plan making

Iwi involvement in plan making reflects the current statutory obligations for plan making processes. Plan development and review has largely been through the Tasman IPWG, including specific plan topic workshops (eg Regionally Significant Issues workshop) and one-on-one engagement between Environmental Policy staff and iwi authority resource management staff. Previously draft versions of plan changes have been provided for iwi review and feedback. Other statutory obligations include provision of proposed plans for iwi review prior to public notification (ie under RMA Schedule 1 Clause 4A).

6.2 Involvement in resource consenting

A summary of consent applications is sent to all iwi with an interest in areas affected by consent applications (eg in line with statutory acknowledgements) and iwi monitors are identified in resource consent conditions for relevant activities potentially affecting iwi interests.

As part of the consent pre-application process consents staff direct applicants to talk with iwi early in the consent process. Particular emphasis is placed where staff suspect there maybe issues e.g earthworks close to the coast.

Iwi have previously used the ability to seek judicial review of consenting decisions and Council is keen to avoid the need for this in the future.

6.3 Involvement in other plans and strategies

Iwi are also involved in the development of other plans and strategies that may help implement Te Mana O Te Wai across Council functions, for example the Urban Stormwater Catchment Management Plans, Reserve Management Plans, and the Nelson Tasman Erosion and Sediment Control Guidelines. As with the resource plan development, iwi involvement occurs in several ways, but often on a project basis through direct staff engagement with iwi authority resource management staff.

7 Science monitoring programme

7.1 Current monitoring programme

The Environmental Information Team at TDC carry out a range of monitoring services that assist in managing the regions waterbodies, including providing understanding of the nature of the various water resources, current state of water attributes, trends over time and space and investigation of specific issues.

Engineering Services is also proposing additional stormwater runoff and sediment monitoring as part of the network discharge consent and are awaiting a decision from the commissioner before implementing a specific plan.

Where relevant National Environmental Monitoring Standards (NEMS) exist, Council's monitoring programs follow them for approach, method and statistical analysis.

State of the Environment summary reports and data for rainfall, flows and bathing water quality are available on Council's website, as well as the Land, Air, Water Aotearoa website (LAWA).

The current scope of the monitoring program is briefly outlined in the following table

Table 2 Water monitoring program in Tasman

Waterbody Type	Monitoring Type	Frequency	Aims	No. of sample sites in Tasman	Examples
Rainfall and river flows	Hydrological (telemetered and gauged)	Event based and seasonal	To provide climate information, river flood warnings and low flow and drought information including telemetered rationing triggers for water management To help understand annual and long term trends	124 sites: Rainfall 41 River flow/level 29 Groundwater 50 Sea level 2 Meteorological 2	Rain gauge network Flood flow networks in Takaka Low flow gauging in smaller rivers
Water usage	Compliance monitoring	Seasonally, based on weekly returns	Undertaken for compliance checks against consent conditions	1422 water take permits (including 144 damming permits)	Monitoring water usage against allocation limits, drought restrictions, bore and meter integrity.
Discharge consent	Compliance monitoring	Various	Undertaken for compliance checks against consent conditions	184 discharge permits (including 115 stormwater and 6 diversion permits)	Monitoring discharge quality and other performance standards imposed. Assessment of receiving environment for impacts.
River water quality	State of the Environment monitoring	Monthly	To determine state and trends at key sites. To inform models for determining overall state of Tasman's rivers.	29 (counting the 3 NRWQN sites: Aorere 3; Buller 3 (+ 1 NRWQ); Motueka-Riuwaka 6 (+2 NRWQ); Moutere 2; Takaka 6; Waimea 6; Marahau 1 - set up in 2021)	SOE site Motupipi at Reilly Bridge has shown a marked improvement in phosphorus concentration.
River water quality	State of the Environment monitoring	Seasonal/ periodic	To determine the state of key attributes at at-risk or high value waterways	Various (TDC consistently sample about 15-18 sites per season for DO/temp)	24-7 Dissolved oxygen and water temperature sonde monitoring over summer months Water clarity (3mths every 5 years) at Te Waikoropupū
Ground water quality	State of the Environment monitoring	Quarterly	To help understand annual and long term trends	21	SOE site at Te Waikoropupu Springs Motueka Gravel Aquifer
Ground water quality	Synoptic	Ten yearly samples	To help understand the wider context of key issues	Varies, but typically 40-150 sites depending on the catchment	Waimea plains nitrate sampling (~ 70 – 100 bores)
Both surface & groundwater	Investigative	Various - Responsive to issues	To help understand new issues that arise such as breaches of quality guidelines	Varies – issue and budget dependent	Pohara Beach <i>Enterococci</i> sources

Both surface & groundwater	Research	Typically one-off	To help understand new issues identified or set baselines or programmes for future monitoring	Varies – budget dependent	ESR research into stygofauna communities in Tasman groundwaters Assessment of flocculation efficiency for sediment control
Bathing water / Swimming Spots	State of the Environment monitoring and investigative (if alerts occur)	Seasonal - Weekly / twice weekly between November and March	To identify daily and weekly levels relative to alert and alarm triggers. Proportion of samples complying with NPS-FM or Microbiological Water Quality Guidelines.	7 core sites and a further 8 sampled every second year	Core sites: Pohara Beach, Takaka River, Kaiteriteri Beach, Mapua, Rabbit Island Beach, Roding River, Lee River.
Estuaries	Synoptic / State of the Environment	5-10 yearly	To help understand state and long term trends in habitats (saltmarsh, seagrass, substrate, vegetated margin), macroalgae cover and sedimentation	6 (Waimea, Moutere, Motueka-Riuwaka Deltas, Motupipi, Ruataniwha, Whanganui)	Waimea Motupipi
Lakes	Proposed Synoptic (new)	Monthly sampling for 1 year	Determine state of current lakes with respect to NPS-FM attributes	11 lakes (mostly at-risk coastal lakes in Golden Bay)	Dune and Island Lakes at Wharariki and Kaihoka Lakes.
Freshwater Wetlands	State of the Environment	10 year programme started in 2014	Determine the extent of remaining wetlands and basic assessment of ecological significance.	Desktop mapping of many thousands of wetlands and progressive field surveys with willing landowners.	Mapping wetland boundaries and provide basic ecological assessment.
Freshwater Fish	Synoptic / State of the Environment	Annual survey but 3-5 yearly at core sites	Determine the health of fish communities (abundance and diversity). Investigate the effect of issues such as habitat modification and various in-stream structures on fish migration.	20 per season	Motupipi River downstream dairy factory before and after ecological enhancement work.

7.2 Monitoring programme gaps

There are gaps in the TDC monitoring program in terms of both locations and attributes.

Not all FMU have the desired number of monitoring locations which has historically been limited due to affordability and water pressures eg abstraction. For example in 2016 the river water quality SOE sites were halved in number to enable sampling to be undertaken monthly rather than quarterly to meet new national requirements for sampling without significantly affecting costs.

Staff are undertaking a gap analysis for the NPS-FM 2020 and preparing a freshwater science strategy to work towards addressing them, prioritising those areas necessary to give effect to the NPS-FM 2020 in the Tasman Environment Plan. This will also take into account current monitoring required by the current plans and SOE monitoring. Gaps need to be filled by investigating and developing action plans for catchment water quality/quantity issues.

Some new work is already programmed, for example: a new flow site and groundwater monitoring in Aorere, new seasonal flow sites for Upper Motueka and a new rainfall site for Tapawera plains in response to land use transition to hops, and new groundwater monitoring in Buller.

In estuaries, TDC is moving towards establishing a more integrated ecosystems-based monitoring programme, starting in Waimea and Moutere Inlets. We regularly monitor the invertebrates in and on top of the estuary mud, macro-algae on top of the mud, higher plants (saltmarsh and seagrass) as well as abiotic conditions such as sediment accumulation rates, sediment nutrient concentration and the depth of the anoxic layer in the sediment. This year we have undertaken sampling of estuarine fish and birds and the hope is that it becomes part of regular monitoring.

7.3 Investigations

In addition to regular monitoring, TDC also collect a huge amount of information about freshwater and estuaries on a project by project basis.

These are some key investigation projects in rivers in the last 5 years:

- Targeted kanakana/lamprey sampling at almost 40 sites using sophisticated pheromone samplers. Kanakana is relatively rare and notoriously difficult to sample using traditional fish sampling methods.
- River nesting bird surveys in the Buller catchment (particularly Matakītaki, Buller, Howard). Threatened and declining species such as banded dotterel, black fronted terns and black billed gulls nest on islands within braided rivers and face habitat degradation from pest plant invasion (mainly willow) and rock walls used to narrow river corridors.
- Sediment source tracking in the Waimea and Moutere catchments and in a core sample from the Waimea estuary. To better manage fine sediment discharges from land it is important to know the key activities and land uses that contribute the most.
- Fluvial geomorphology studies in the Moutere catchment, as well as urban Richmond and Kaiteriteri. In order to design catchment enhancement programmes (including channel re-meandering, reconnection to the flood plain and riparian planting) and more ecologically-friendly bank protection structures, it is essential to understand how waterways behave and shape their channels.

8 Freshwater Management Units (FMUs)

Currently the Tasman region is split into water management zones and water management areas. With the development of the TEP there are proposed to be eight FMU covering the whole Tasman region (refer Figure 1). These are:

- Waimea
- Moutere
- Motueka-Riuwaka
- Abel Tasman – Kaiteriteri
- Takaka
- Aorere – West Coast
- Upper Buller / Kawatiri
- Deep Moutere Groundwater

A ninth FMU may be considered for urban areas to align with the Urban Stormwater Catchment Management Plans, which will play a large role in implementing freshwater management in the urban drainage areas.

The boundaries of the proposed FMUs (with the exception of the Deep Moutere Groundwater FMU) are based firstly on the main surface water catchments taking into consideration ground and surface water interactions within and between catchments. Smaller adjacent coastal catchments are grouped with the main catchments that drain to the same coastal receiving environments (eg the catchments west of the Waimea River in the Waimea FMU). In some areas amendments have been made to include management considerations such as shared communities of interest (for example inclusion of Wainui in the Takaka FMU rather than the Able Tasman – Kaiteriteri FMU) and specific management requirements (eg Deep Moutere Groundwater and a potential urban FMU). The boundaries of the FMU are yet to be fully discussed with iwi, stakeholders and the community.

The FMU are generally intended to manage both surface and groundwater in an integrated manner and historically have been split further into water management zones to reflect the detail needed for different water management at different locations due to catchment or sub-catchment hydrology. This seeks to strike a balance between the number of administrative and management considerations to achieve effective water management, while minimising costs.

MfE guidance suggests that the scale of an FMU needs to be appropriate for objective and limit-setting, freshwater accounting, and monitoring. An FMU should not be so large that it prevents the setting of objectives that are specific enough to be effective. Equally, an FMU should not be so small that it results in undue complexity and cost in either the planning process or in the management of the FMU.

The Deep Moutere Groundwater FMU is a groundwater-only FMU to address management of the large aquifers that underlie several of the surface FMU and shallower aquifers through the Motueka – Moutere - Waimea areas. There are two main aquifers – the Deep Moutere Aquifer and the Waimea Deep Moutere Aquifer (refer Figure 2). These aquifers are considered confined aquifers with respect to water quality as they have limited influence from land use and surface waters in the overlying catchments. The aquifers are recharged from very slow rainfall recharge in the western margins of the Moutere and from fault zones around the Waimea and Motueka valley areas. The water is very old with a range of 400-20,000 years residence time. There is only very limited use of these aquifers for takes (both due to cost and poor flow availability from many of these deep sources) - typically where there are not alternative water supplies (bores need to be many hundreds of meters deep – with the deepest over 800m). Current water take management triggers are designed to protect the physical nature of the aquifers.

Figure 1 Draft Tasman Freshwater Management Units

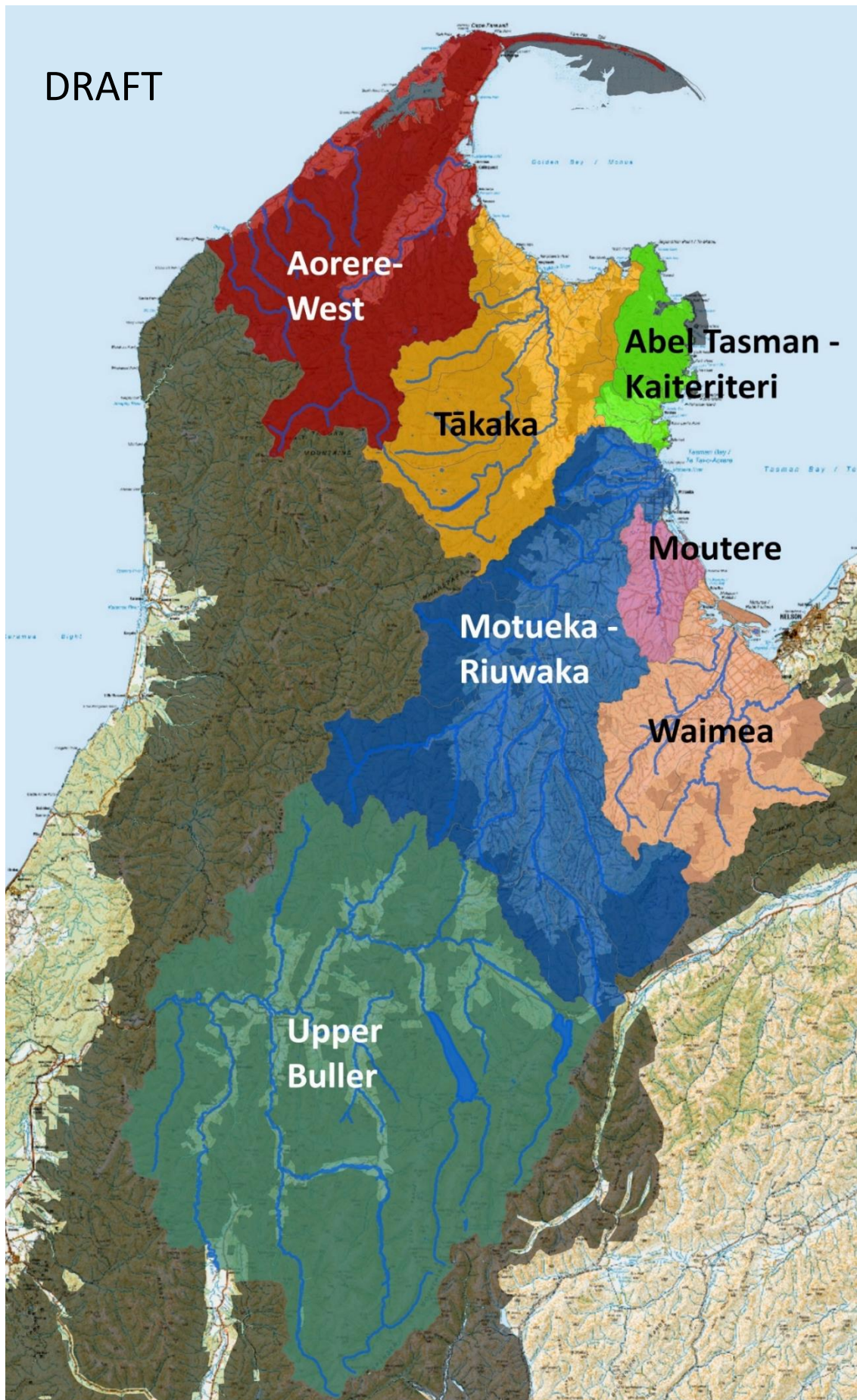
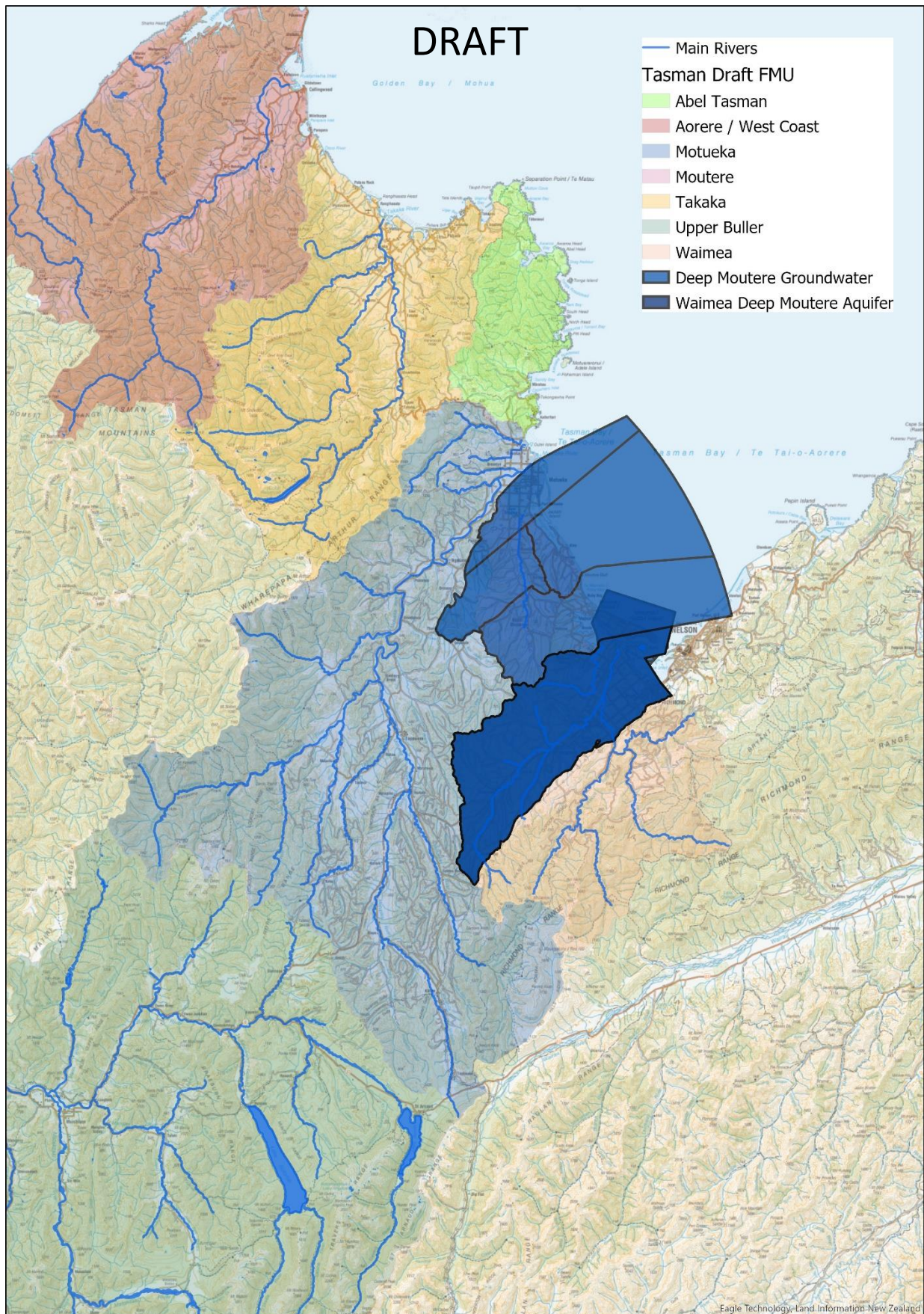


Figure 2 Draft Deep Moutere Groundwater FMU



9 Long term Visions

There are currently no long-term visions formally adopted in any FMU in Tasman or provided in the TRMP.

The Waimea FLAG developed a vision for freshwater (under the NPS-FM 2014), while the Takaka FLAG specifically chose not to develop a vision.

The Waimea FLAG draft vision is:

“To protect and over time enhance the quality of the Waimea Freshwater Catchment Ecosystems so as to meet the current and future cultural, social, environmental and economic needs and values of the communities which use or otherwise relate to them.”

For comparison, the Kawatiri FMU Catchment Group which spent 2019-2020 looking at freshwater management in the lower Kawatiri (lower Buller) has recently developed a vision (Kawatiri FMU Group recommendations October 2020):

“In the Kawatiri FMU, freshwater is valued and will be managed utilising the ki uta ki tai (mountains to the sea) philosophy. The health and mauri of water is to be sustained for our community’s future wellbeing.”

TDC staff are anticipating visions for FMUs to be part of the discussions in Te Tau Ihu Collaborative Project.

10 Value setting

The TRMP currently includes a list of uses and values of water in Schedules 30A and 30B. These schedules are incomplete and are intended to be reviewed and replaced through the TEP process with the outcomes from the iwi and community engagement processes initiated through Te Tau Ihu Collaborative Project.

A process of identifying community values for water under the NPS-FM was undertaken with both the Takaka and Waimea FLAGs. This included consideration of the national values in the applicable NPS-FM version at the time, descriptions of the values that reflected the groups’ preferred language and interests, and definitions of management objectives sought for each value.

A comparison of the FLAG values against the NPS-FM 2020 values list and the values in the NCC draft plan and Kawatiri FMU recommendations (WCRC) is included in Appendix 1.

The Takaka FLAG recommendations report (June 2019) describes the values identified for the Takaka catchment which may also be applicable elsewhere in Tasman and includes the management objectives and values specifically for Te Waikoropupū as an Outstanding Freshwater Body (the report is available on TDC’s website [here](#) - refer pdf pages 50 to 59). The Mātauranga Māori report by MKM (June 2019) provides further context on manawhenua iwi values, interests and aspirations for freshwater and should be read in addition to the Takaka FLAG report (available on TDC’s website [here](#)).

11 Water health

Council’s understanding of the health of waterbodies in Tasman is informed by the information in the water monitoring programme, as well as the professional experience of staff who regularly travel the district and are familiar with our waterbodies.

Due to the targeted nature of the water monitoring program, most waterbodies are not regularly monitored and management relies on a combination of interpretation and extrapolation of monitoring data, responses to issues identified, and proactive ‘searching’ for issues undertaken using wider, but less frequent, synoptic surveys. This reflects the challenges of managing freshwater over a relatively large region, with complex water catchments and with a comparably small rating base to pay for monitoring and research.

Regarding water health in Tasman, overall it is considered that water quality and flows are in a reasonably good state, however there are known ongoing issues at specific locations across the region and at a range of scales. For example: over-allocation of water on the Waimea Plains - intended to be addressed by the Waimea Dam, and elevated *Enterococci* at Pohara Beach - which has been extensively researched, but as yet unresolved as to the source.

Additionally, across all FMU’s there is an identified issue with riparian and aquatic habitat loss and degradation in lowland waterbodies (ie below 150m elevation). This has occurred historically from channel straightening, armouring, excessive sedimentation and loss of riparian vegetation and can be exacerbated or continued by current riparian and waterbody management practices. Staff are seeking ways to quantify the current state of waterbody habitat at a regional level across Tasman, including use of LiDAR to determine stream sinuosity (as a measure of channel modification) and riparian margin cover (as a measure of riparian habitat and shading). Degradation of fish spawning habitat is also common.

Fine sediment discharges, loss of wetlands and fish passage at in-stream structures are also major issues in the working landscape across the district.

At an FMU level the following issues have been identified (list not exhaustive):

Table 3 Key water health issues by FMU

FMU	Issue to be addressed	Potential risk to address
Waimea	<ul style="list-style-type: none"> Nitrate levels in groundwater Water over-allocation (to be addressed by the Waimea dam) High nutrient, low dissolved oxygen and pathogen levels in smaller lowland streams (Wai-iti, Neimann, Reservoir) Toxic chemicals from discharges in urban catchments. 	<ul style="list-style-type: none"> Nitrate exacerbation by dam operation
Moutere	<ul style="list-style-type: none"> surface water over-allocated (sinking lid policy in place) Very high loss of wetlands (>95%) leading to low river flow Temperature, dissolved oxygen and shading issues High nutrient, nuisance algae, sediment and pathogen levels in smaller lowland streams (Tasman) 	

Mouteka-Riuwaka	<ul style="list-style-type: none"> Potential over-allocation in some sub-catchments (Humphries creek, Dove catchment) 	<ul style="list-style-type: none"> Risks to aquifer under Motueka used by private bores for domestic supply Baleage wrap pollution Water quality from land use changes
Upper Buller / Kawatiri	<ul style="list-style-type: none"> High flow <i>E.coli</i> for contact recreation <i>E.coli</i> at Ned's Creek in Murchison 	<ul style="list-style-type: none"> Baleage wrap pollution Natural Character (WCO)
Abel Tasman - Kaiteriteri	<ul style="list-style-type: none"> Hill-country erosion and sedimentation 	<ul style="list-style-type: none"> Incompatible wastewater disposal and bore water supply in Marahau
Takaka	<ul style="list-style-type: none"> High <i>E. coli</i> and dissolved reactive phosphorus values in smaller lowland streams (Powell, Motupipi, Onekaka, Burton Ale) 	<ul style="list-style-type: none"> Protection of Te Waikoropupū springs Reservation of water for potential community supplies Baleage wrap pollution
Aorere – West Coast	<ul style="list-style-type: none"> Lack of allocation regime in Aorere High <i>E. coli</i> values in lowland (Kaituna, Aorere) 	<ul style="list-style-type: none"> Baleage wrap pollution Loss of sea grass in Whanganui Inlet (emerging issue)
Deep Moutere Groundwater	<ul style="list-style-type: none"> Triggers are set to protect the aquifer integrity and long term aquifer recharge/recovery 	<ul style="list-style-type: none"> Limited abstraction, but lack of data due to limited bores creates unknowns in aquifer wide sense
Urban areas	<ul style="list-style-type: none"> Stormwater contamination Groundwater recharge protection Water temperature 	<ul style="list-style-type: none"> Groundwater levels affecting flow in waterways such as Borck Creek.

11.1 Water quality (attributes and limits)

Staff are undertaking a gap analysis for the NPS-FM 2020 and preparing a freshwater science strategy to work towards addressing them. However the following table summarises the overall state of information with regards to the attributes in the NPS-FM 2020. There are also a range of SOE determinands (other than the NOF attributes) that are monitoring for SOE for long term trends and have long term importance. The level of data available across each FMU will differ, with some FMU or zones within FMU having limited data available (eg Buller, Aorere). This is generally reflective of the past demand for water use and level of intensification of land development, with less populous and developed areas having less monitoring data.

Information is considered 'sufficient' when Council holds verified data in the correct metric/unit and over a suitably long period to allow robust statistical analysis – this meets the requirements in the NPS-FM and National Environmental Monitoring Standard (NEMS).

Table 4 Status of attribute data

Attributes with sufficient information	Attributes with insufficient information	Attributes with no information
<ul style="list-style-type: none"> • Ammonia (Toxicity; rivers) • Nitrate (Toxicity; rivers) • Escherichia coli (Rivers) • Escherichia coli (Primary contact sites) • Dissolved Reactive Phosphorus (Rivers) • Macroinvertebrates (Wadeable rivers) 	<ul style="list-style-type: none"> • Suspended Fine Sediment (Rivers) REC classes required, easy fix • Deposited Fine Sediment (Wadeable rivers) Measured using incorrect protocol, may be able to convert • Dissolved oxygen (Rivers) • Fish (Rivers) 	<ul style="list-style-type: none"> • Phytoplankton (Trophic state; lakes) • Total Nitrogen (Trophic state; lakes) • Total Phosphorus (Trophic state; lakes) • (Ammonia (Toxicity; Lakes) • Escherichia coli (Lakes) • Escherichia coli (Primary contact sites; lakes) • Periphyton-Chlorophyll-α (Trophic state; rivers) • Dissolved oxygen (Below point sources; rivers) • Dissolved oxygen (Lake bottoms) • Dissolved Oxygen (Mid-Hypolimnic; Seasonally stratifying lakes) • Cyanobacteria (Lakes and lake fed rivers) • Submerged plants (Natives; lakes) • Submerged plants (Invasive species; lakes) • Ecosystem metabolism (Rivers)

Draft water quality limits for some of these attributes (based on the 2017 NPS-FM) were developed through the Takaka FLAG process, however this will need review as part of the TEP development to ensure consistency with the NPS-FM 2020 and the final values and environmental outcomes determined through iwi and community engagement.

11.2 Quantity (allocation and limits)

There have been two methods for setting of water allocation regimes including allocation limits in Tasman:

- Instream Flow Incremental Flow monitoring (IFIM) studies
- Historic Flow method using a percentage of Mean Annual Low Flow (MALF).

In many cases detailed modelling has been undertaken to couple surface water to groundwater and a range of groundwater allocation limits have also been determined. A large portion of water is taken from groundwater in the district. Drivers for integrated limit setting needs to account for links between river and aquifer, protecting aquifer integrity from drawdowns and cross pumping effects, and also saline intrusion in coastal aquifers.

The IFIM method is scientifically based looking at the vulnerability of specific indicator species to flow reduction effects in order to determine flows. This approach has previously been used in the Riuwaka/Motueka and Waimea FMUs and was also used in the Buller Water Conservation Order.

The Historic Flow Method using MALF was used in the Takaka FLAG work on advice from Cawthron that this provided sufficiently robust outputs compared to more detailed approaches, particularly where there is limited data available.

The Historic Flow Method is more conservative than the IFIM approach (the IFIM numbers tend to be closer to the 1 in 5yr low flow) and is driven by the entire range of water values.

This Historic Flow Method has been outlined in a methodology report for the Takaka FMU (Young & Hay - Cawthron, 2017 – report 2977 available online [here](#)). This approach identifies the ecological

value of a waterbody and assigns a range of percentages of MALF as a sustainable range for minimum flows and for allocation limits eg:

- minimum flow of 90-100% of 7-day MALF at sites with significant instream ecological values
- minimum flow of 70-90% of 7-day MALF at sites with moderate-high instream ecological values
- allocation limit of 10-20% of 7-day MALF at sites with significant instream ecological values
- allocation limit of 20-30% of 7-day MALF at sites with moderate-high instream ecological values

The approach also protects minimum flows with cease take conditions so that abstraction stops when minimum flows are reached to ensure abstraction does not influence drought low flows.

TDC has good information on river flows and groundwater levels within the major rivers and aquifers, with much of this information telemetered (eg real-time online data available at 15min intervals). Other smaller waterbodies have regular manual gauging or gauging during low flows and in some cases these have been correlated to a telemetered site to allow water managers and users to take advantage of real-time, online data.

There is sparse data for the Buller and Aorere/West Coast FMU, largely because of the low population and respective low demand meaning these FMU have been given a lower priority for monitoring expenditure.

Many other smaller water bodies do not have sufficient flow data to define Mean Annual Low Flows (MALF) to allow determination of associated minimum flow and allocation limits.

11.2.1 Current consents and allocation status

There are 1209 effective consents for water take in the Tasman region – 296 from surface water and 886 from groundwater (the remaining 27 being takes to storage from either surface or groundwater).

Allocation is typically accounted for by zone rather than over an entire FMU as different water bodies and water body reaches have different capacity for abstraction. Zones can be at different statuses (ie fully allocated, over-allocated or under allocated) within the same FMU.

Most zones in the Tasman FMUs are either under allocated or fully allocated. There are instances of confirmed water quantity over-allocation in Tasman. This includes the Waimea Plains (over-allocation to be addressed by Waimea Dam), and instances of creeks going dry over summer due to abstraction (eg Humphries Creek in the Dove catchment) which indicates over-allocation.

- **Motueka/Riuwaka:** most zones are under allocated, some zones in the upper Motueka area are fully allocated, most zones in the middle Motueka are under allocated, but the Dove catchment is over-allocated
- **Abel Tasman – Kaiteriteri:** Marahau zone is under allocated
- **Waimea:** the plains zones (without dam) are over-allocated
- **Moutere:** most are fully allocated
- **Upper Buller / Kawatiri:** under allocated
- **Takaka:** based on the FLAG work most zones are either fully allocated or under allocated. There is a small 'on paper' over-allocation in the Tukuruia catchment that is expected to be resolved upon consent renewal as the consent includes a non-consumptive portion
- **Aorere – West Coast:** under allocated, with the exception of the Kaituna River

- **Deep Moutere Groundwater:** under allocated

12 Te Mana o Te Wai

The TRMP does not include specific reference to Te Mana O Te Wai (TMOTW) and the content and approach to water management does not yet fully reflect the philosophy, although aspects of the current provisions do support the hierarchy of obligations. This will be fully addressed through the TEP development process.

12.1 Staff questions on Te Mana o Te Wai application

TDC staff have identified a number of questions for discussion around TMOTW and its application in an RMA planning framework (this may need to be reviewed under an NBA framework). Staff will also be seeking clarification on some of these from Central Government/MfE (ie the first three bullets) as further clarity may be provided through legislation.

- 1 How is the hierarchy of obligations to be applied in the NBA planning framework?
- 2 Does the hierarchy of obligations set up a priority order of the national/regional values of water?
 - a. And if so, is there a hierarchy between values within each of the obligations?
- 3 Does human health needs (obligation 2) include:
 - a. Local food production for local/national consumption in the context of food security? - And if so, what implications are there for a hierarchy for consent applications for water use related to food production?
 - b. Provisions for future generations?
 - c. Climate change accounting and adaptation action?
- 4 Where do iwi consider mahinga kai sit in the hierarchy?
- 5 TRMP policy 30.2.3. 1 (excerpt in Appendix 2) includes provision for minimum water needs for maintenance of public health during drought – do iwi consider this policy is consistent with the hierarchy of obligations?
 - a. If not, what are iwi expectations for management of water for human health needs during extreme droughts?

13 Future areas of work

Following agreement of the FMU extent and boundaries, further work is needed with iwi, stakeholders and the community on the long term visions for each FMU, which water values apply and the environmental outcomes sought.

With respect to iwi discussions the TRMP policy 30.2.3.27 (excerpt below) also identifies the need to define water needs for returned settlement land which need to be considered in the TEP freshwater framework.

TRMP 30.2.3.27 *To examine the necessity and opportunities for meeting:*
(a) identified water needs, including for frost protection in respect of lands of the Crown returned to Māori as part of the settlement of claims under the Treaty of Waitangi Act 1975 and to review water management methods, including plan provisions (including consideration of reserving water for such lands), as appropriate; and

(b) identified water needs for frost protection of crops on Māori perpetual lease land.

14 Other considerations that may be out of scope

There are some aspects of water management that have been identified through iwi and community discussions to date that are important for consideration but are outside the scope of councils' current functions or legislative framework. They may not be easily addressed through this process and may warrant further discussion once the proposed Natural and Built Environments Act is in place.

- The “first in first served” approach to water allocation – this is driven by section 124B of the RMA and may be amended through the RMA reform as indicated in the Randerson report.
- “Best value use of water” – this has not yet been defined nationally (although the TRMP policy 30.1.3.22 refers to enabling water to be used for the “highest social or economic values” through reservation, permit transfer and water sharing), but may provide an alternative approach to first-in-first served allocation.
- Overseas or out of region take and use of water with little or no reciprocity to local communities or the environment (ie the ability to charge for water).

15 Appendix 1 – Values of water comparison: TDC-NCC-WCRC & NPS-FM 2020

Suggested priority under Te Mana O Te Wai Hierarchy	NPS-FM 2020	Takaka FLAG (NPS-FM 2017)	Waimea FLAG (NPS-FM 2014)	NCC (NPS-FM 2017+)	WCRC (Kawatiri FMU, NPS-FM 2017+)
NA	Long Term Vision (by FMU)	[FLAG choose not to have a vision]	“To protect and over time enhance the quality of the Waimea Freshwater Catchment Ecosystems so as to meet the current and future cultural, social, environmental and economic needs and values of the communities which use or otherwise relate to them.”	[to be developed over 2021]	“In the Kawatiri FMU, freshwater is valued and will be managed utilising the ki uta ki tai (mountains to the sea) philosophy. The health and mauri of water is to be sustained for our community’s future wellbeing.”
Obligation 1 (and 2-3)	[only referenced in TMOTW principles]	[aspects referenced in other values]	[not referenced]	Kaitiakitanga – overarching freshwater value linked to all other values	[not referenced]
Obligation 1	Ecosystem Health*	Ecosystem Health*	Ecosystem Health*	Ecosystem Health*	Ecosystem Health* (biodiversity, wetlands, biosecurity, habitat quality)
Obligation 1	Natural Form and Character [ie natural form and natural character]	Natural Form and Character	[considered but not selected]	Natural form and character	Amenity and natural character (amenity, natural character, tourism, physical access)
Obligation 1	[not referenced]	[not referenced]	[not referenced]	Natural state	[not referenced]
Obligation 1	Threatened species*	[included in ecosystem health]	[included in ecosystem health]	Threatened species habitat*	[not referenced]
Obligation 1	[not referenced]	[included in ecosystem health]	[included in ecosystem health]	Īnanga spawning	[not referenced]
Obligation 1	[some aspects referenced in other parts]	[some aspects referenced in other values]	[some aspects referenced in other values]	Kaitiakitanga, Mauri, Wairua & Mana (Pākohe, Taonga, Kaitiaki species, Tohu species, Taonga species, Iconic species, Kai species, Taniwha, Whakapapa – freshwater with land and coast, Fish passage, Tūpuna awa, Mahinga kai)	[not referenced]
Obligation 1 (2-3)	[some aspects referenced in other parts]	[some aspects referenced in other values]	[some aspects referenced in other values]	Mauri (Natural character and capital Ecosystem health, Recreation, Swimming, washing and cleansing, Wai māori)	[not referenced]
Obligation 1 (2-3)	[some aspects referenced in other parts]	[some aspects referenced in other values]	[some aspects referenced in other values]	Wairua (Karakia and Wairuatanga, Sensory and aesthetic values including sight, touch/feel, taste, sound/voice, smell, flow, History and heritage, Rongoā and healing properties)	[not referenced]
Obligation 2	Drinking water supply	Municipal and Domestic Water Supply	Municipal and Domestic Water Supply	Community water supply	Drinking (community supply, stockwater, when outdoors)
Obligation 2	Mahinga kai* (kai is safe to harvest and eat; and Kei te ora te mauri - the mauri of the place is intact)	[included in fishing and food gathering]	[included in fishing and food gathering]	Mahinga kai*	Mahinga kai* and fishing
Obligation 2?	[not referenced]	[not referenced]	[not referenced]	Wai māori	[not referenced]

Obligation 2-3?	Human contact* [for recreation]	Recreation (Human Health contact)*	Recreation (Human Health contact)*	Human health for recreation*	Contact recreation* (primary and secondary contact)
Obligation 2-3	Fishing	Fishing, Food and Resource Gathering	Fishing and Food Gathering	Fishing Trout habitat and spawning	(Included in Mahinga kai* and fishing)
Obligation 2-3	[reflected in mahinga kai]	[not referenced]	[not referenced]	[not referenced]	Food safety (toxin free)
Obligation 2-3?	Irrigation, cultivation, and production of food and beverages	[included in Livelihood and Economic Use]	[included in Livelihood and Economic Use]	Irrigation, cultivation and food production	(included in industrial and commercial)
Obligation 2-3?	[some aspects referenced in other values]	[some aspects referenced in other values]	[some aspects referenced in other values]	Mana (Access He ara haere/navigation Manaakitanga)	[not referenced]
Obligation 2-3?	[not referenced]	[access referenced in fishing, food and resource gathering value management objectives]	[not referenced]	Public access	(Included in amenity and natural character)
Obligation 3	Wai Tapu	Cultural and Spiritual Values	Cultural and Spiritual Values	[refer separately defined values set]	Cultural and Spiritual Values
Obligation 3	[not referenced]	[not referenced]	[not referenced]	Educational sites	Education
Obligation 3?	[not referenced]	[not referenced]	[not referenced]	Existing infrastructure	[not referenced]
Obligation 3?	[not referenced]	[not referenced]	[not referenced]	Flood capacity and drainage	(Included in industrial and commercial)
Obligation 3	Animal Drinking water	[included in Livelihood and Economic Use]	[included in Livelihood and Economic Use]	Animal drinking water	(Included in Drinking)
Obligation 3	Hydro-electric Power Generation	Hydro-electric Power Generation	[considered, but not selected]	[not referenced]	Included in Flow regimes (hydroelectric clean energy, pounamu, jet boating)
Obligation 3	[covered in separate values]	Livelihood and Economic Use	Livelihood and Economic Use	[covered in separate values]	[covered in separate values]
Obligation 3	Commercial and industrial use	[included in Livelihood and Economic Use]	[included in Livelihood and Economic Use]	Commercial and industrial use	Industrial and Commercial (drainage, fire-fighting, industrial use, irrigation, aquaculture)
Obligation 3	Transport and tauranga waka	[considered, but not selected]	[considered, but not selected]	He ara haere/navigation Transport and tauranga waka	(jet boating included in Flow regimes)
Obligation 3	[not referenced]	[not referenced]	[not referenced]	Amenity	Amenity and natural character (amenity, natural character, tourism, physical access)
Obligation 3	[not referenced]	[not referenced]	[not referenced]	Aesthetics	[not referenced]
Obligation 3	[some aspects referenced in other values]	[some aspects referenced in other values]	[some aspects referenced in other values]	[not referenced]	Flow regimes (hydroelectric clean energy, pounamu, jet boating)

16 Appendix 2 – Policy 30.2.3.1 excerpt from TRMP

Existing TRMP Policy:

30.2.3.1 *During times of low flow beyond the provisions of any rationing or rostering regime or when implementing a water shortage direction under Section 329 of the Act, Council will give priority to the following uses, whether they are authorised by a permit or through a rule in the Plan (in order of priority from highest to lowest) in requiring reduction or greater restrictions, including cessation for authorised takes:*

- (a) water for the maintenance of public health;*
- (b) prevention of significant long term or irreversible damage to the water resource or related ecosystems or specified significant instream values;*
- (c) water necessary for the maintenance of animal welfare;*
- (d) uses for which water is essential for the continued operation of a business, such as irrigation of horticultural crops or water essential to industrial activities;*

and the following uses will not be authorised during such a drought:

- (e) irrigation and other uses not associated with commercial production such as irrigation of amenity plantings;*
- (f) non-essential uses such as recreational use, for example, swimming pools and car washing.*

Takes not subject to any rationing are:

- (i) firefighting uses;*
- (ii) non-consumptive uses;*
- (iii) takes from storage.*

Note: *An allowance of 125 litres per person per day is used to calculate the amount required for maintenance of human health.*