What is Catchment Context Challenges and Values (CCCV)?

A CCCV is a compilation of information about the wider catchment that a farm operates in, including the state of the catchment's freshwater, key landform information and local community values.

The CCCV information in this report must be considered when preparing a Freshwater Farm Plan (FWFP). This information provides the context for the farm plan and links the community's freshwater values, water quality and landform information to enable focus on priority contaminants and considerations on-farm. The CCCV information for the Horizons Region is displayed by Catchment sub-areas identified in the One Plan.

Freshwater Management Unit | Rangitīkei-Turakina

Each sub-area sits within one of the region's seven geographical boundaries known as a Freshwater Management Unit (FMU). For more information on this FMU, see Oranga Wai. This site provides further context to the challenges and values in this sub-area. It also includes further information and history of this FMU.

Catchment Sub-area | Coastal Rangitikei (Rang_4a)

Summary of Sub-area Water Quality issues Based on water quality information presented in this document, FWFPs in this sub-zone need to target the following:
Phosphorous needs to be managed to Good Management Practice standards
Run-off of animal waste needs to be managed to Good Management Practice standards
Nitrogen needs to be managed to Good Management Practice standards
Large reductions in erosion and sediment run-off to water ways
Addressing the water quality concerns to the extent required by the Water Quality information will improve freshwater ecosystem health and protect the cultural and freshwater values presented in this document. Where there is 'No Monitoring Data', for a contaminant in the sub-area, please refer to the Downstream sub-area information and/or refer to the property risk assessment and ensure the level of remediation action matches the level of risk.

CULTURAL VALUES

Iwi Interest | Ngā Wairiki Ngāti Apa, Ngati Raukawa, Ngati Toa Rangatira, Rangitāne o Manawatū

For more information on these Iwi and Hapu, including values and rohe (area) boundaries refer, 'Regional Training Module: Tangata Whenua', see Tangata Whenua Document

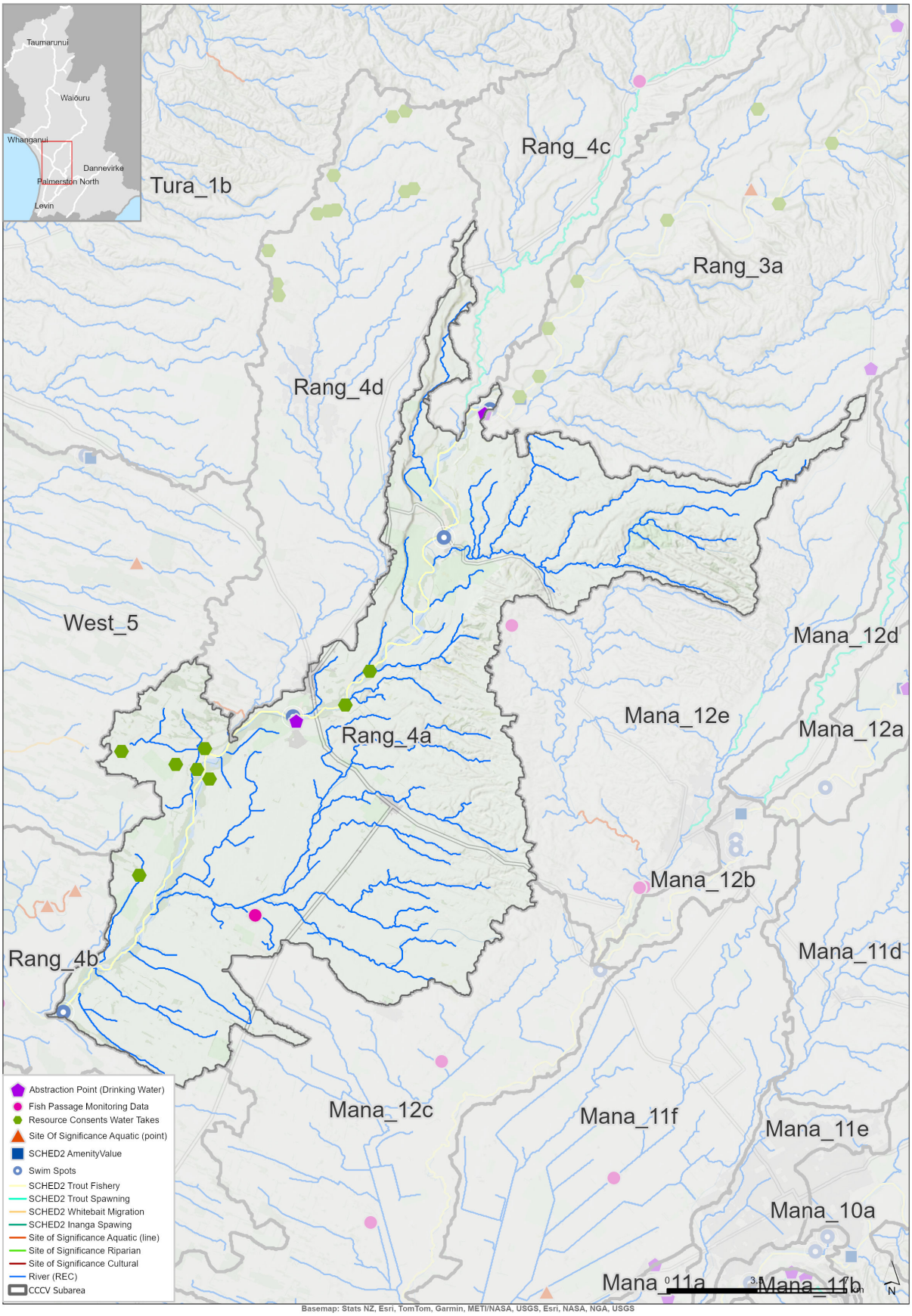
In Sub-areas that are valued for providing mahinga kai, customary resources are available for use, customary practices are able to be exercised to the extent desired, and tikanga and preferred methods are able to practiced.

Whakapapa (Genealogy) – Our mountains, rivers and tributaries are our tīpuna (ancestors). Therefore, our role is to protect and respect them as taonga (treasure) through the provision of kaitiakitanga (guardianship) to ensure their survival.
In providing for this value, tangata whenua are afforded opportunities to reconnect with tīpuna.

For more information on Iwi and Hapū Management Plans (IMP), see Horizons Regional Council

For more information on Treaty Settlements, see Horizons Regional Council

Map 1 | Catchment Sub-area Freshwater Values and Boundaries



FRESHWATER VALUES

Mauri, Life supporting capacity, Contact recreation and Stock water are all valued in all Horizons sub-areas.

Fish Species at risk (native) | Redfin bully

Long fin eels are 'At Risk - Declining' nationally (DoC) 2017.

Fish Species at risk (recreational) | Brown Trout

Sites of Significance - Aquatic (line) | Rangitikei River (Redfin bully)

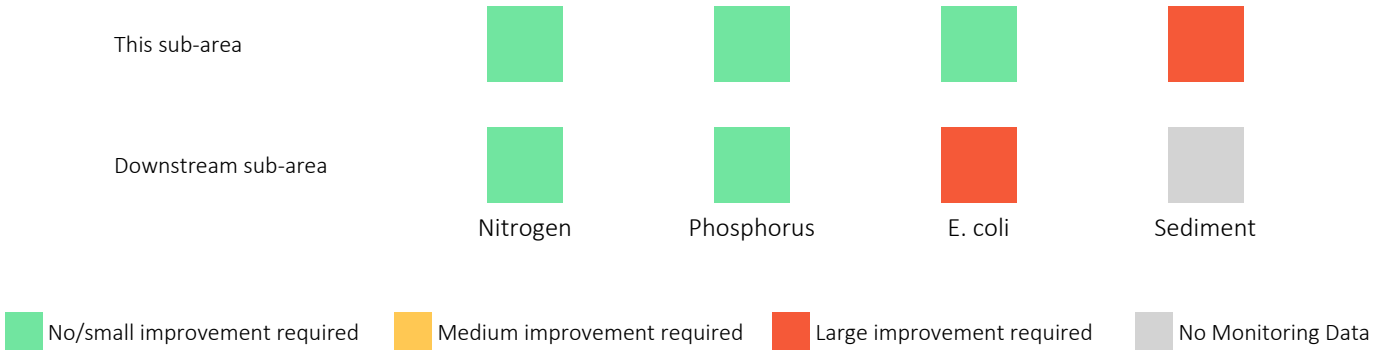
Sites of Significance - Aquatic (point) |

Sites of Significance - Riparian | Rangitīkei River (Gravel and sand (dotterel))

- Nutrient (nitrogen and phosphorous) levels determine algae (periphyton) growth. Too much periphyton reduces fish habitat and food supply and reduces the available oxygen. Nitrogen is typically transferred from land to water via leaching and phosphorous via overland flows.
- *E. coli* represents the presence of pathogens from manure and determines if waterways are safe for swimming or other contact recreation.
- Sediment (suspended or settled) has a negative impact on fish habitat and food supply for fish and whio.

WATER QUALITY

Based on Horizons One Plan, the relative improvement needed in water quality based on monitoring and modelling of the four contaminants for this sub-area and downstream sub-area is indicated by the diagram below.



Colour	Meaning	Extent of Mitigations required
Green	small gap between current state and what the levels should be	Good Management Practices (GMP) need to be implemented
Orange	moderate gap between current state and what the levels should be	Effort over and above GMP, especially in priority high risk areas may be required
Red	large gap between current state and what the levels should be	Significant effort over and above GMP
Grey	No monitoring data	Refer to the Downstream sub-area and/or the property risk assessment

This table indicates the effort over andabove GMP may be required, especially in high priority risk areas. The extent of **on-farm** mitigations will depend on the risk assessment, identification of relevant actions to mitigate those risks and includes consideration of past effort. Effort over and above GMP includes practices, processes and physical works. If there is no data, a risk assessment needs to be done on the four contaminants and practices need to match the level of risk.

Based on water quality information above, FWFPs in this sub-area need to target the following:

- Phosphorous needs to be managed to Good Management Practice standards
- Run-off of animal waste needs to be managed to Good Management Practice standards
- Nitrogen needs to be managed to Good Management Practice standards
- Large reductions in erosion and sediment run-off to water ways

Further Information:

Surface and ground water quality, and swim spot monitoring: LAWA

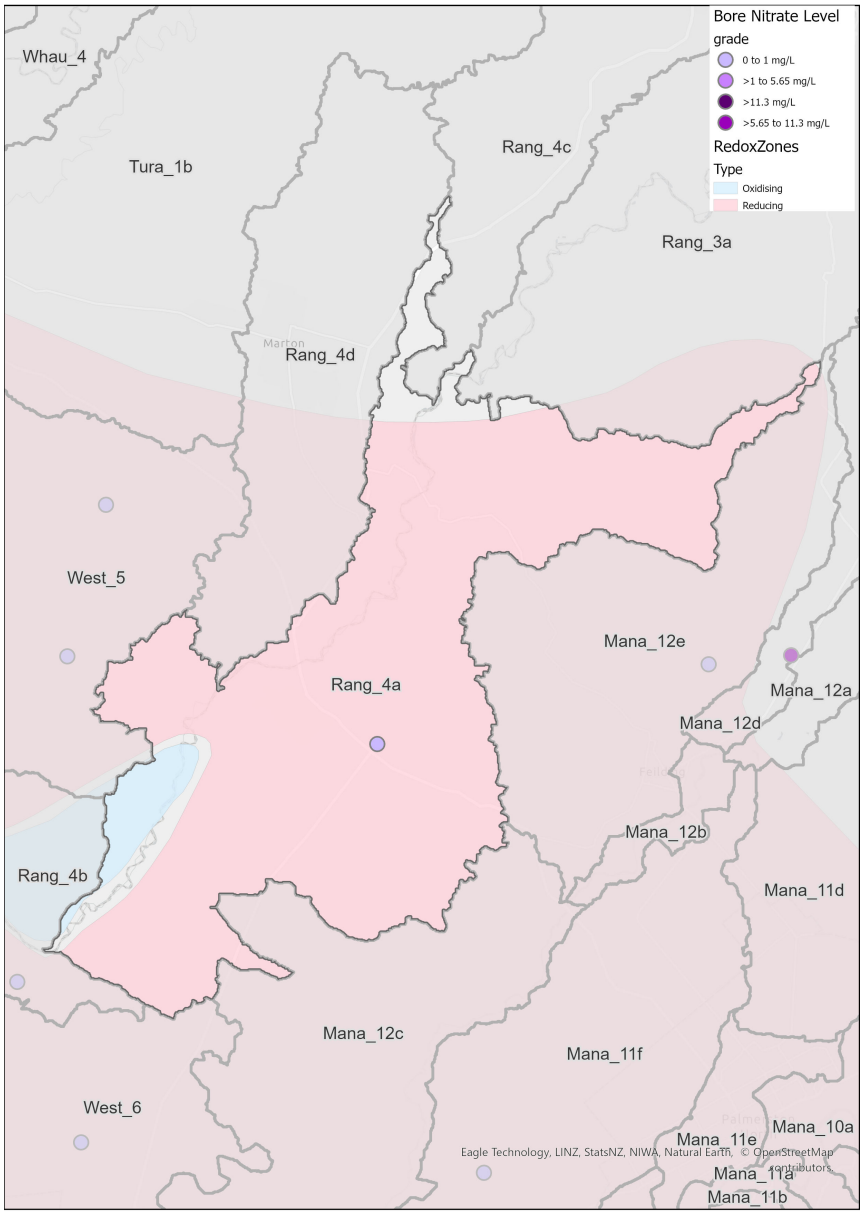
Horizons Environmental data (RF, groundwater, rivers, soil, water quality): https://envirodata.horizons.govt.nz.

Access to interactive Farm Maps can be found here: Freshwater Farm Plan Map Viewer

GROUND WATER QUALITY

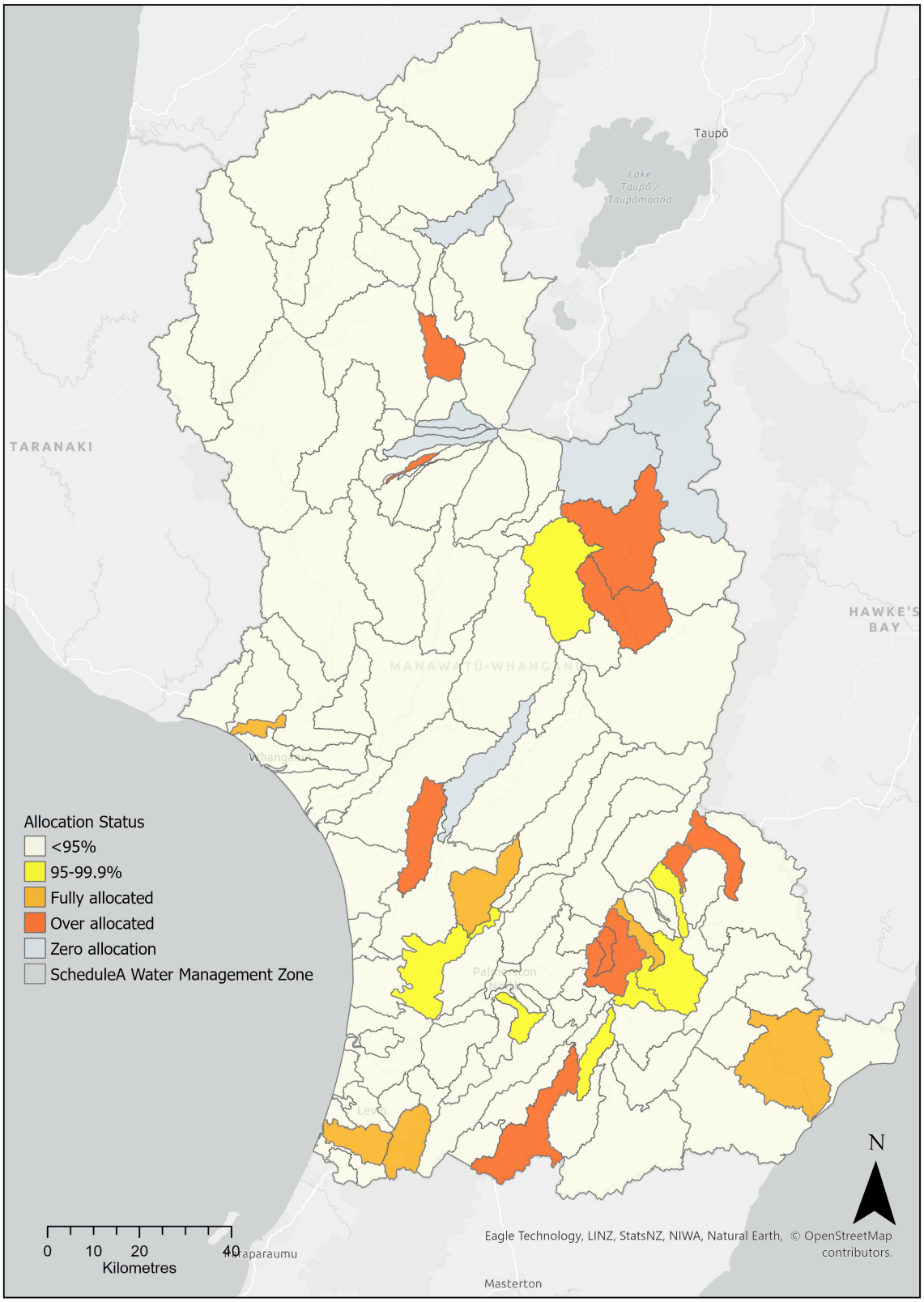
The maximum acceptable value (MAV) for nitrate-nitrogen (NO3- - N) in drinking water is 11.3 mg/L after treatment.
The map below shows groundwater monitoring bores in relation to this surface water sub-area.
The concentrations of NO3- - N in each bore are indicated by colour of the circle marker and the legend.
The background shading on the map shows the natural Redox characteristics of groundwater and indicates the prominent conditions in the water:

- Under oxidizing conditions (shaded in blue on the map), groundwater is well-aerated, allowing nitrates to persist for extended periods and travel long distances.
- Under reducing conditions (shaded in pink on the map), oxygen concentration is limited, which promotes the conversion/attenuation of nitrate into harmless nitrogen gas (N_2). These areas typically show low nitrate concentrations. However, some metals e.g., iron and manganese, can become more soluble under reducing conditions, potentially leading to higher metal concentrations in the reduced groundwater than the oxidized groundwater.



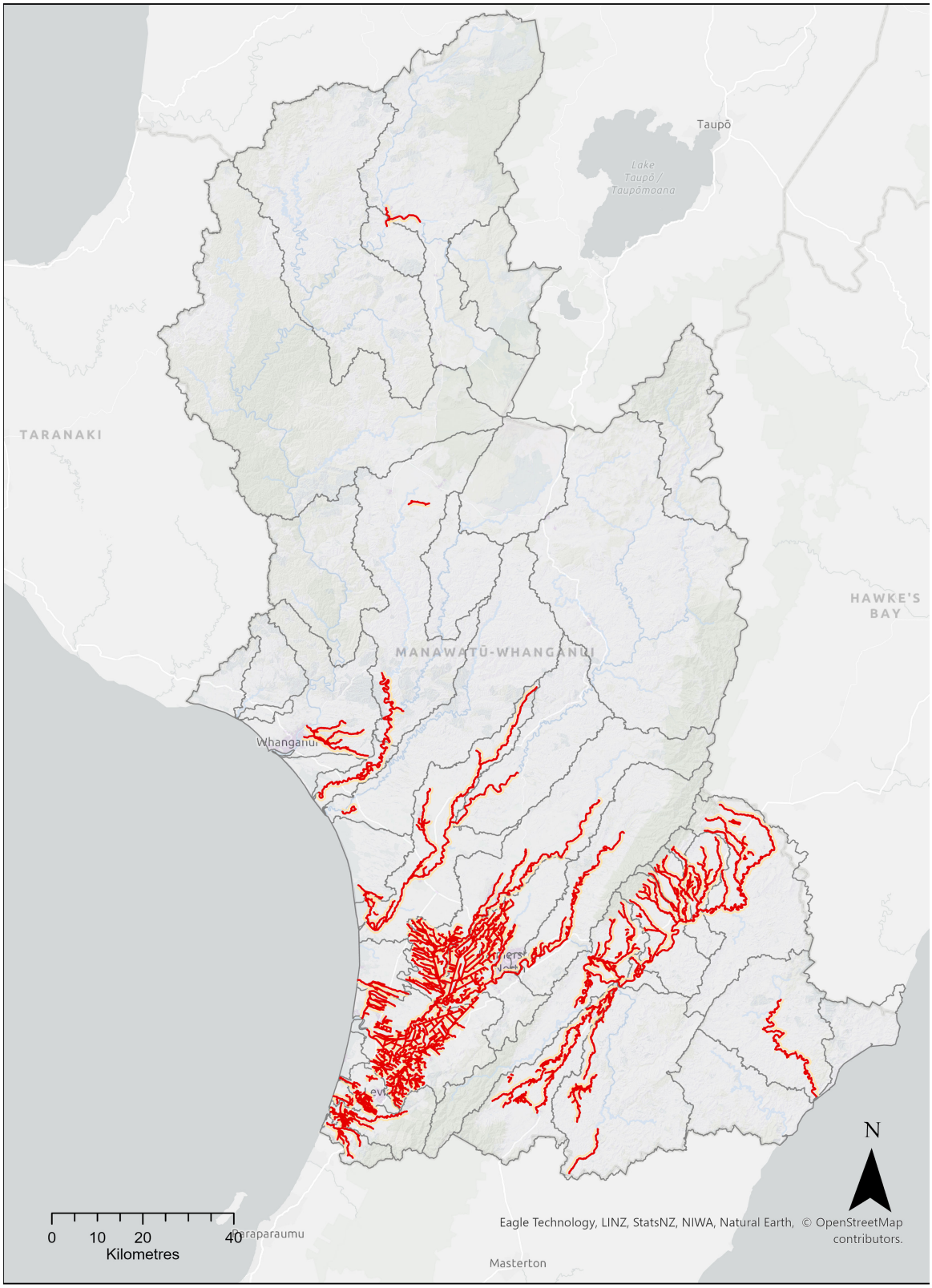
SURFACE WATER QUANTITY

The map below shows the surface water allocation status by Surface Water Management Sub-area as identified in the One Plan. This information is subject to change. For further information, please email the science team: Science.DataRequests@horizons.govt.nz or call us on 0508 800 800.



FlOOD CONTROL AND DRAINAGE VALUE

Flood Control and Drainage (FC/DI) Value



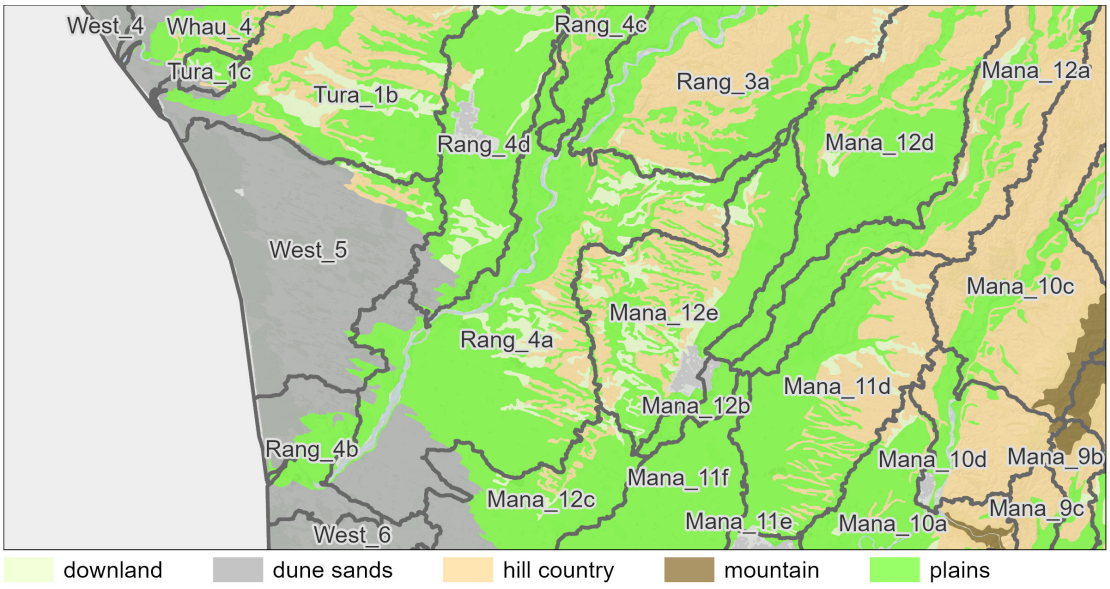
Visual Guide to the Distribution of the Flood Control and Drainage (FC/D) Value information in this map is indicative only. For further information please email: COAssetInformationRequests@horizons.govt.nz

LANDFORM and EROSION

The landform and erosion information is at regional scale (not at farm scale). It is helpful for understanding the key landform and soil related risks in your sub-area and how your farm compares to others for contaminant risk. The information should not be relied on for determining the specific risks or actions on your farm.

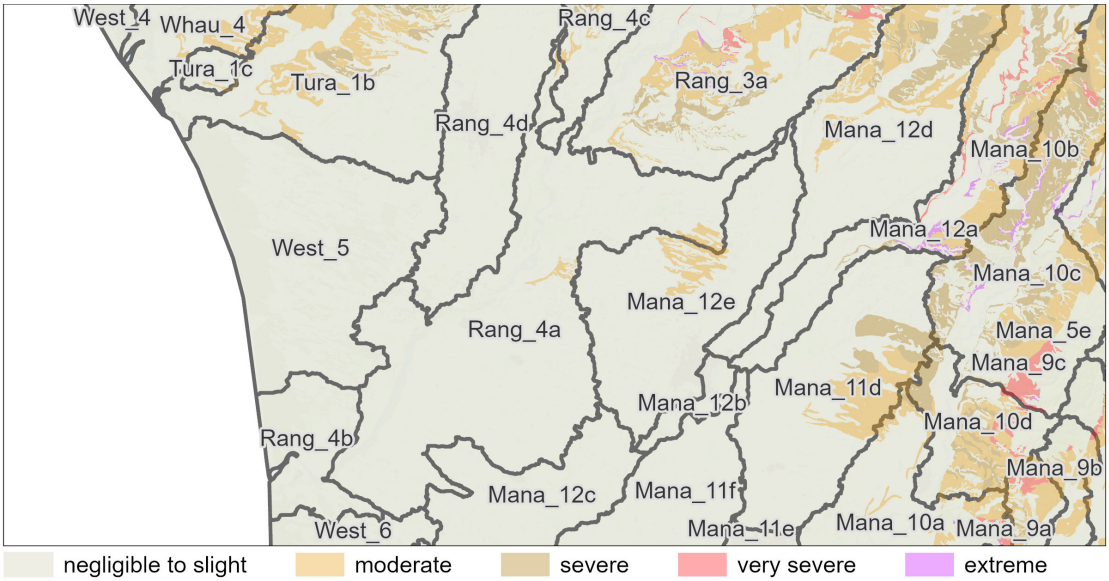
Landform

Map 2 | Coastal Rangitikei (Rang_4a) is dominated by plains with Foxton dune land and loess covered moderately consolidated sandstone hill country. Manawatu soil and Rangitikei soil may be prone to N leaching. Poorly drained Marton and Ohakea soils are prone to overland and bypass flow.



Hill Country Erosion

Map 3 | Most of the hill country is moderately steep with potential for slight to moderate slip erosion. Topsoil erosion is also a significant risk when cropping or winter grazing on rolling land.



This map shows erosion risk on hill country farmland, focusing on those types of accelerated erosion with the greatest potential for sediment transfer and therefore where FWFP actions can have the greatest mitigation effect. It shows farmland with potential for moderate to extreme hill-country erosion from gully, slip, earthflow and slump.

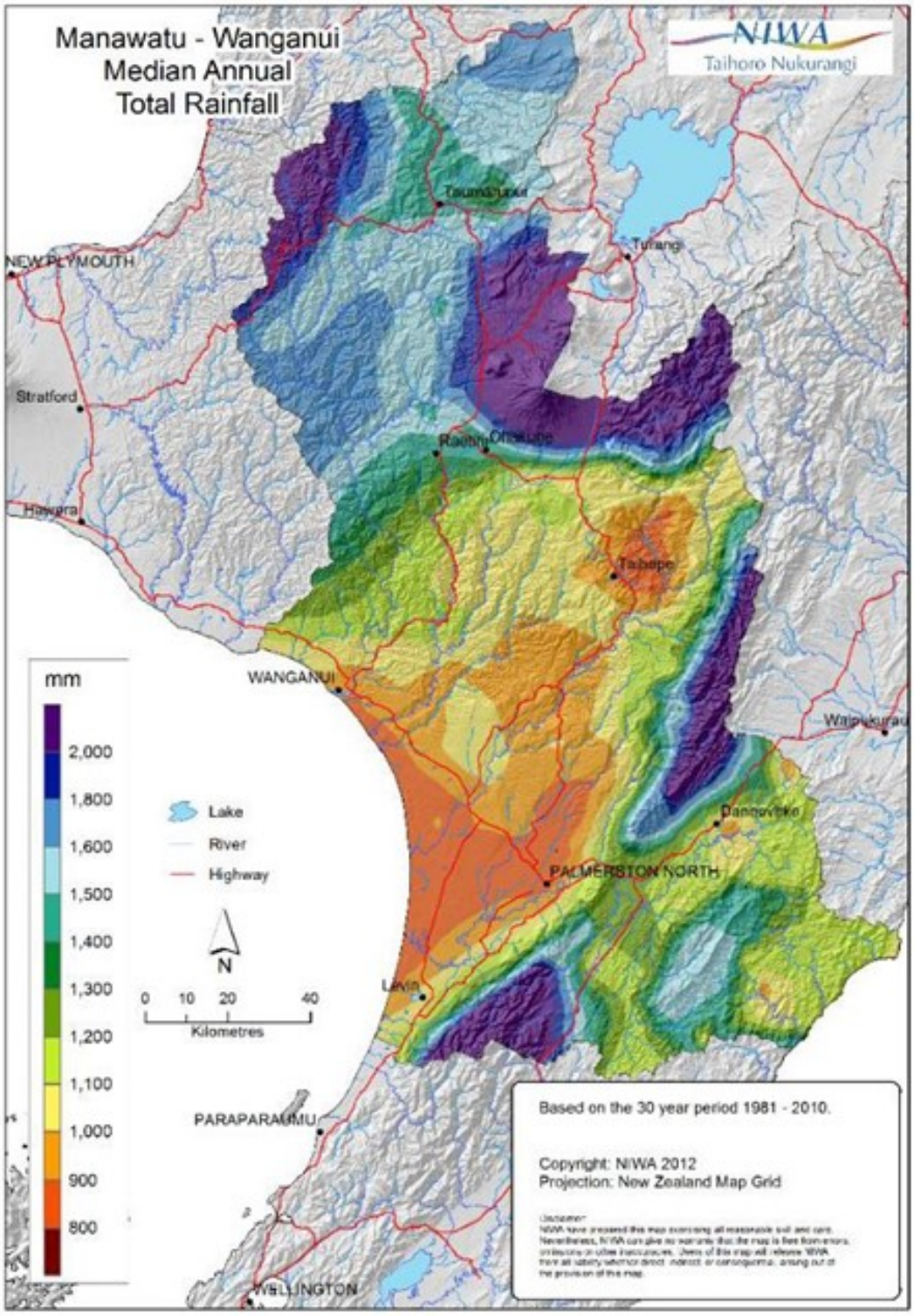
It does not include erosion types that are not significant sediment sources; nor does it include forested land or DoC or Defence lands.

The map also does not include sheet erosion or erosion under cultivation (both relevant for IWG, but able to be assessed by slope and on-farm at paddock scale).

CLIMATE INFORMATION

Rainfall is the most important climate value that affects soil type, leaching and runoff. The map below shows the Median Annual Total Rainfall for the Manawatū-Whanganui Region.

More detailed information can found on Horizons EnviroDate site https://envirodata.horizons.govt.nz/



Source | Figure 4-1: Annual rainfall for the Horizons Region (median for 1981-2010).
Climate Change and Variability – Horizons Region 2016. ©NIWA

FRESHWATER POLICY AND REGULATIONS

All FWFPs must adhere to freshwater regulations from local and/or central government. The following is a summary of regulations that need to be considered as part of a FWFP Action Plan in Horizons region.

HORIZONS ONE PLAN | One Plan

The One Plan identified four main environmental issues:

- Surface Water degradation – nutrient loads (N & P), sediment and *E. coli*
- Increasing water demand– how much ground and surface water is available or being used
- Hill country erosion
- Threatened Indigenous Biodiversity

One Plan Target Catchments | Farmers undertaking any of the existing intensive land uses set out below in a target catchment are required to apply for an Intensive Land Use consent whereby they will need to meet N-leaching limits and other performance standards.

Intensive Land uses

- Cropping (greater than 20ha)
- Commercial vegetable growing (greater than 4ha)
- Dairy farming (greater than 4ha)
- Intensive (irrigated) sheep and beef (greater than 4ha)

Conversions to intensive land use over the allowed hectares anywhere in Horizons region also requires an Intensive Land Use consent.

Other Regulations

Other One Plan freshwater regulations that need to be observed in a FWFP

- RCP-CMA Coastal marine area
- RPS-LF-Land and Freshwater
- RP-ECO-Ecosystems and indigenous biodiversity

NATIONAL FRESHWATER REGULATIONS

Information on National freshwater regulations that need to be observed in a FWFP can be found on Horizons web site:

- National Environmental Standards for Freshwater 2020
- Stock Exclusion Regulations 2020

Forestry Regulations (NES-CF)

It is also recommended that regulations regarding forestry harvesting are understood. A link to the National Environmental Standards for Commercial Forestry 2023, NES-CF, can be found on the Ministry for the Environment (MfE) web site

- National Environmental Standards for Commercial Forestry 2023