



# Canterbury Water Management Strategy Targets and Goals

## A collaborative Canterbury process brought to you by:

Ashburton District Council

Christchurch City Council

Environment Canterbury

Hurunui District Council

Kaikōura District Council

Mackenzie District Council

Selwyn District Council

Timaru District Council

Waimakariri District Council

Waimate District Council

Waitaki District Council

Mayoral Forum

The office of Te Rūnanga o Ngāi Tahu

Papatipu Rūnanga

• Te Rūnanga o Arowhenua

• Te Rūnanga o Kaikōura

• Te Rūnanga o Koukourārata

• Te Rūnanga o Moeraki

• Te Ngāi Tūāhuriri Rūnanga

• Ōnuku Rūnanga

• Te Hapū o Ngāti Where (Rāpaki)

• Te Taumutu Rūnanga

• Wairewa Rūnanga

• Te Rūnanga o Waihao



## Introduction

This booklet provides the Canterbury Water Management Strategy Targets and Goals.

The Targets – which cover 10 broad areas – are an agreed way to measure progress against the vision, priorities and principles of the Canterbury Water Management Strategy.

The Targets have a set of goals for 2010, 2015, 2020 and 2040.

In 2019, goals for 2025 and 2030 were added.

The goals cover long-term environment, social, economic and cultural areas reflecting a sustainable development approach.

The organisations listed on the page opposite led the development of the Targets as part of the Canterbury Water Management Strategy process.

For more information and commentary on what the Targets cover and how they were developed read the Annex G of the Canterbury Water Management Strategy, which is available at [www.ecan.govt.nz/canterburywater](http://www.ecan.govt.nz/canterburywater).

## THE TARGETS

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# Environmental Limits

▶ **Environmental flows and catchment load limits**

2010



2015

Set environmental flows for surface streams, rivers and groundwater that are consistent with the fundamental principles of the CWMS and that:

- are consistent with ecosystem health and biodiversity targets
- for all braided rivers include flood peaks, flow variability, flood periodicity, and channel forming flows to maintain their braided river character and ecosystems
- afford protection to instream values identified in Ngāi Tahu policies
- are consistent with the recreational uses of the water body
- consider all the target areas of this strategy.

Set catchment load limits for nutrients for each water management zone that are consistent with the fundamental principles of the CWMS and that:

- are consistent with ecosystem health, drinking water and biodiversity targets
- afford protection to instream values identified in Ngāi Tahu policies
- are consistent with the recreational uses of the water body
- consider all the target areas of this strategy.

Established and begun to implement a programme to apply environmental flows to existing consents,



2020	2025	2030	2040
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Review of environmental flows and catchment load limits in response to changing monitoring information, new understanding and technologies, and if requested by regional and zone committees

Established and begun to implement a programme to review existing consents where such review is necessary in order to achieve catchment load limits



All catchments have planning frameworks that include both environmental flows and catchment load limits that are consistent with the fundamental principles of the CWMS and that:

- are consistent with ecosystem health and biodiversity targets
- for all braided rivers include flood peaks, flow variability, flood periodicity, and channel forming flows to maintain their braided river character and ecosystems
- afford protection to instream values identified in Ngāi Tahu policies
- are consistent with the recreational uses of the water body
- consider all the target areas of this strategy.

All planning processes include consideration of how environmental flows and catchment load limits will be achieved by a mix of regulatory and non-regulatory means that may include consent reviews.

Of those consents that do not comply with plan environmental flows and catchment load limits, 20% have been reviewed to apply plan limits.

Review of environmental flows and catchment load limits in response to changing monitoring information, new understanding and technologies, and if requested by regional and zone committees

All planning processes include consideration of how environmental flows and catchment load limits will be achieved by a mix of regulatory and non-regulatory means that may include consent reviews.

Of those consents that do not comply with plan environmental flows and catchment load limits, 50% have been reviewed to apply plan limits.

Review of environmental flows and catchment load limits in response to changing monitoring information, new understanding and technologies, and if requested by regional and zone committees.

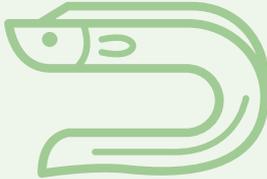
Environmental flow and catchment load limits achieved in all waterbodies.



# Ecosystem Health/Biodiversity



	2010	2015
▶ <b>Freshwater species and their habitat</b>	Actions implemented to correct the decline in freshwater species, habitat quality or ecosystems.	No further reduction in the number and area of existing salmon spawning sites. *
▶ <b>Drylands</b>	Maintain existing high quality indigenous aquatic and dryland ecosystems in intermontane basins and on the plains	Increasing annual trout spawning counts in identified important areas (based on 5 year average) as an indicator of habitat availability for salmon and indigenous fish species.* (* also covered in Recreation and Amenity Opportunities target)
▶ <b>Wetlands</b>	Prevent further loss of area of naturally occurring wetlands.	Protected all and restored at least two significant wetlands in each zone.
▶ <b>Hāpua, lagoons and estuaries</b>	Implement actions to prevent further loss of ecosystem health in river mouths and coastal lagoons.	Accelerate the current riparian restoration and management programme for Te Waihora/Lake Ellesmere and tributary streams.
▶ <b>Lowland streams and lakes</b>	Identify and prioritise protection for lowland streams ecosystems in each zone.	Protect and enhance the ecological health of the best examples of lowland streams ecosystems in each zone.  Improve ecosystem condition in at least another 10% of lowland streams in each zone.
▶ <b>High country and foothill streams and lakes</b>		Highlighted any high country spring-fed or foothill streams where ecosystem health is declining, and identified the cause with an action plan in place.
▶ <b>Understanding emerging contaminant risks</b>		Emerging contaminant risks are understood and any at risk areas identified for targeted management, and a remedial programme underway.
▶ <b>Catchment nutrient loads (Ecosystem Health/Biodiversity)</b>		Achieved nutrient efficiency targets for the zone on all new irrigated land and 50% of other rural properties (and of properties within urban boundaries that apply nutrients over significant areas).  Identified where environmental flows are not met or require change to meet ecosystem health and biodiversity outcomes and implemented actions to rectify.  Identified areas where catchment load limits for nutrients are not met, prioritised areas and implemented actions to ensure there is no further enrichment.  Demonstrated and included in implementation programmes, how land within the zone will be managed to achieve catchment load limits.

2020	2025	2030	2040
An upward trend in diversity and abundance of native fish populations.	Reduction in threatened or at-risk status of indigenous fish species compared to 2020.	Reduction in threatened or at-risk status of indigenous fish species compared to 2025.	
	Maintain or improve existing high quality indigenous dryland ecosystems in intermontane basins and on the plains.  Water use (irrigation and changing hydrology as a result of water use) results in no further loss of indigenous dryland ecosystems.	Maintain or improve existing high quality indigenous dryland ecosystems in intermontane basins and on the plains.  Water use (irrigation and changing hydrology as a result of water use) results in no further loss of indigenous dryland ecosystems.	
Protected all existing wetlands.	All existing 2020 wetlands are physically protected through active management.	All prioritised wetlands are under active management where required and are in the process of being restored to a self-sustaining system.	Protected all wetlands.
A significant protection and restoration programme is in place on the most ecologically significant river mouth or coastal lagoon in each management zone.	All coastal lagoons, hāpua and estuaries show improvement in key ecosystem health indicators compared to 2010.	All coastal lagoons, hāpua and estuaries show improvement in key ecosystem health indicators compared to 2010.	Examples of thriving coastal lagoons, and lowland or spring-fed ecosystems in each water management zone.
Increased the length of waterway with riparian management appropriate to aquatic ecosystem protection by 50% from 2010 figures.  Improved condition and water quality in at least 60% of lowland streams and 60% of lowland lakes in each zone.	Increase in extent of riparian management to protect aquatic ecosystems along prioritised waterways from 2020 figures.  70% of lowland and spring-fed streams with at least good aquatic ecosystem health or showing an upward trend.	Increase in extent of riparian management to protect aquatic ecosystems along prioritised waterways from 2020 figures.  80% of lowland and spring-fed streams with at least good aquatic ecosystem health or showing an upward trend.	100% of lowland and spring-fed streams with at least good aquatic ecosystem health or showing an upward trend.
All foothill rivers and high country rivers and/or lakes either in good ecological health or better, or showing upward trend.	Maintain or improve aquatic ecosystem health of all foothill and high country rivers and high country lakes.	Maintain or improve aquatic ecosystem health of all foothill and high country rivers and high country lakes..	Maintained upland spring-fed streams and lakes in very good aquatic ecosystem health (no decline from 2010).  80% of other rivers/streams and lakes with very good aquatic ecosystem health.
Understood any emerging contaminant risks and identified any at-risk areas for targeted management and a remedial programme underway.	Emerging contaminant risks are understood and limits are set where appropriate; at risk areas are managed with targeted remedial programme in place.	Emerging contaminant risks are understood and limits are set where appropriate; at risk areas are managed with targeted remedial programme in place.	Understood any emerging contaminant risks and identified any at-risk areas for targeted management and a remedial programme underway.
Achieved nutrient efficiency targets for the zone on all new irrigated land and 80% of other land in major rural uses (pasture, major arable and major horticulture crops) and have 100% of rural properties working towards those targets (and of properties within urban boundaries that apply nutrients over significant areas).  Made progress towards achieving environmental flows and catchment load limits.	Achieved nutrient efficiency targets for the zone on all new irrigated land and 90% of other land in major rural uses (pasture, major arable and major horticulture crops) and have 100% of rural properties working towards those targets (and of properties within urban boundaries that apply nutrients over significant areas).  Made progress towards achieving environmental flows and catchment load limits.	Environmental flow regimes and catchment load limits are in place for all catchments and significant rivers affected by abstraction.	Achieved nutrient efficiency targets for the zone on all new irrigated land and 100% of other rural properties (and of properties within urban boundaries that apply nutrients over significant areas).  Achieved all environmental flow and catchment load limits.
			

# Natural Character of Braided Rivers



## Braided river character

2010

- Maintain the braided character of all Canterbury's braided rivers by:
- (1) maintaining upper catchments of Canterbury's alpine braided rivers as largely natural ecosystems and landscapes
  - (2) no new dams on the mainstem of major alpine braided rivers
  - (3) maintaining the extent of active floodplains, flow variability and sediment flow processes including when undertaking river protection works, land-use change or deliberate vegetation stabilisation
  - (4) supporting the dynamics of river mouths and coastal processes.

2015

Identified where environmental flows do not include flood peaks, flow variability, flood periodicity, and channel forming flows and implemented actions to rectify.



## Ecosystems, habitats & species/riparian wetlands, springs & lagoons

Implement actions to correct the decline in usable braided river bird habitat.

Protect the indigenous habitats in riparian wetlands, springs and the lagoons associated with braided rivers.  
  
Enhance and protect breeding populations of indigenous braided river birds.



2020	2025	2030	2040
<p>Made progress towards achieving environmental flows.</p> 	<p>Made progress towards achieving environmental flows that maintain and enhance the dynamic, braided nature and indigenous ecosystems of braided rivers.</p> <p>Continue to report on Target for 2010</p>	<p>Continue to report on Target for 2010 and 2025</p>	<p>Canterbury's braided rivers show the dynamic, braided nature typical of such rivers.</p> <p>Achieved all environmental flows.</p>
<p>Protected significant habitat for a full range of indigenous braided river flora and fauna.</p> <p>Protected and enhanced the habitats in riparian wetlands, springs and the lagoons associated with braided rivers.</p>	<p>Five priority braided rivers are under active management to increase the area of habitat for a full range of indigenous braided river flora and fauna.</p> <p>Increase area of actively managed habitat for indigenous flora and fauna in riparian wetlands, springs and lagoons associated with braided rivers compared to 2020.</p> <p>Five priority braided rivers are under active management to increase habitat area usable by all species of indigenous braided river birds.</p>	<p>Nine priority braided rivers are under active management to increase the area of habitat for a full range of indigenous braided river flora and fauna.</p> <p>Increase area of actively managed habitat for indigenous flora and fauna in riparian wetlands, springs and lagoons associated with braided rivers compared to 2025.</p> <p>Nine priority braided rivers are under active management to increase habitat area usable by all species of indigenous braided river birds.</p> <p>More than 50% of indigenous braided river-dependent species are showing positive trends in abundance and health.</p>	<p>All indigenous braided river-dependent species are showing positive trends in abundance and health.</p> <p>Increase habitat area usable by all species of braided river indigenous birds.</p> 



▶ **Marae water supply**

**2010**

Prevent further decline in the quality or quantity of water bodies used as a drinking water supply to marae and associated papakāinga.

**2015**

▶ **Working together in partnership**

Formally recognise Te Rūnanga o Ngāi Tahu Freshwater Policy and, in each zone, work towards resolving issues related to Ngāi Tahu policies on:

- environmental flows that afford protection to instream values
- direct discharge of point source contaminants to water
- the unnatural mixing of water sourced from different waterbodies
- addressing non-point source pollution through a range of measures including regulatory control.

Protocols for the recognition and exercise of mana, including kaitiakitanga within the Ngāi Tahu rohe, are implemented.

Iwi Management Plans in place for all zonal areas.

Institutional capability within local government to adequately recognise and provide for the principle of kaitiakitanga in water management.

A formal co-governance arrangement for the active management of Te Waihora (Lake Ellesmere) and its catchment.

A system for appointing Ngāi Tahu tangata tiakiwai (water guardians) who have formal recognition and support from local government is established.



▶ **Wāhi Taonga and mahinga kai**

Prevent further loss or degradation of Ngāi Tahu nominated wāhi taonga.

Increase understanding in each zone of the customary values and uses associated with specific waterbodies or parts of waterbodies.

Involve Papatipu Runanga in the Immediate Steps restoration programme and the setting of priorities

A report on the health of all Ngāi Tahu nominated water-bodies using the Ngāi Tahu Cultural Health Monitoring Tool.

Identified customary uses (current and potentially restored) for all waterways.

All degraded wāhi taonga and mahinga kai waterways nominated by Ngāi Tahu have an active restoration programme in place that responds to cultural priorities.

Work and research has commenced on establishing a mahinga kai food gathering standard.

A programme for identifying cultural preferences for river and stream flow agreed in each zone.



2020	2025	2030	2040
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All marae and associated papakāinga have access to high quality drinking water

Maintain or improve, compared to 2020 levels, in the quality or quantity of water bodies used as a drinking water supply to marae and associated papakāinga

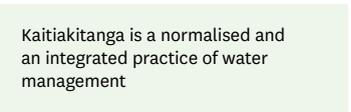
All marae and associated papakāinga have access to high quality drinking water that meets Drinking Water Standards

Kaitiakitanga is a normalised and an integrated practice of water management

Integrated Ki Uta Ki Tai environmental management philosophies into zonal and regional management planning

Develop an integrated Te Rūnanga O Ngāi Tahu/papatipu rūnanga reporting mechanism.

Integrated Te Rūnanga O Ngāi Tahu/papatipu rūnanga reporting mechanism in place.



Further co-governance arrangements (developed in partnership by Ngāi Tahu, the Crown and Canterbury local government) for the active management of nominated waterbodies in North and South Canterbury

An annual mātauranga informed report is provided for rūnanga on the health of all waterways to inform water management decision-making (by councils and Ngāi Tahu)

Outcomes reporting is being informed by Mātauranga Maori Report



At least one Ngāi Tahu tangata tiakiwai is appointed in each zone

All Iwi Management Plans more than 5 years old are refreshed

All Iwi Management Plans are refreshed in relation to the integrated ki uta ki tai action plan and responded to.



A review of the level at which Ki Uta Ki Tai environmental management philosophies have been integrated into zone and regional planning is completed

An integrated ki uta ki tai strategic plan is completed for all catchments that sets out the agreed actions for all participants

Institutional capability within local government to adequately recognise and provide for the principle of kaitiakitanga in water management.

Institutional capability within local government to adequately recognise and provide for the principle of kaitiakitanga in water management.

Succession plans and rangatahi forums are in place to enable the next generation to participate in zone committees and other water management processes

Intergenerational representation is evident and supported, and ongoing development occurs in the CWMS process

Co-governance arrangements developed and being implemented for at least one nominated waterbody in North Canterbury and one in South Canterbury

Co-governance arrangements implemented for at least one nominated waterbody in North Canterbury and one in South Canterbury

At least one Ngāi Tahu Tangata tiakiwai is appointed in each zone

All zones are sufficiently resourced by Tangata tiakiwai

Papatipu Rūnanga are decision makers for allocations of Ngāi Tahu water in each catchment

A mahinga kai food gathering standard is confirmed and implemented as a water quality monitoring tool

Identified customary uses are mapped for all catchments in Canterbury

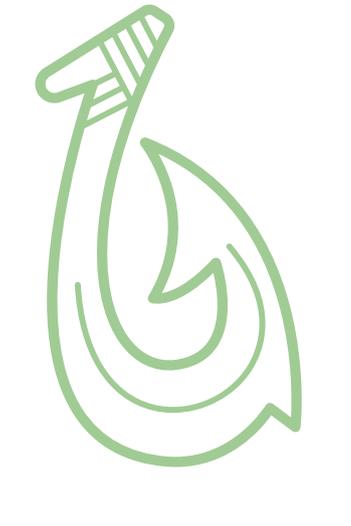
10 sites in each papatipu rūnanga area (including freshwater mātaimai and Fenton Reserves) are being restored or protected in recognition of them as wāhi taonga and/or to support and be accessible to papatipu rūnanga for mahinga kai and resource gathering

Protection, in accordance with Ngāi Tahu values and practices, of wāhi taonga and mahinga kai waterways

Increased the abundance of, access to and use of Mahinga Kai.

5 sites in each papatipu rūnanga area (including freshwater mātaimai and Fenton Reserves) are being restored or protected in recognition of them as wāhi taonga and/or to support and be accessible to papatipu rūnanga for mahinga kai and resource gathering purposes

Mahinga kai is available that is of high quality



At risk freshwater taonga species (e.g. kekewai, kakahi, long finned and short finned tuna) are identified and protection zones are identified and put in place

At risk species are increasing in abundance and the number of at risk species is declining

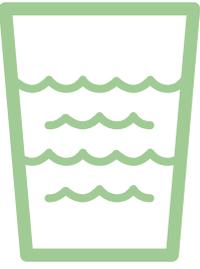
Environmental flows provided for through regional planning processes afford protection to instream values identified in Ngāi Tahu policies

An increase in the number of papatipu runanga whanau who are learning and carrying forward intergenerational cultural knowledge and practice

No further loss of intergenerational cultural knowledge and practice

# Drinking Water

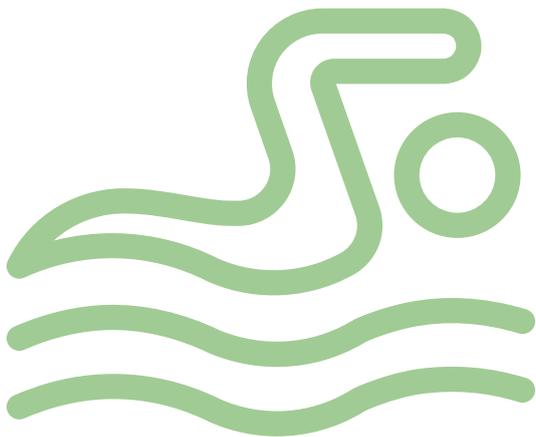
	2010	2015
<p>▶ <b>Source water quality targets</b></p>	<p>For those communities that currently have access to untreated and safe drinking water, implement actions to ensure the source water quality remains high enough to meet the current Drinking Water Standards for New Zealand without treatment</p> <p>Prevent further decline in source water quality for those communities that currently have to treat drinking-water, such that this requires increased level of treatment or monitoring requirements</p> <p>No new activities in a drinking water catchment that reduce access to sufficient quantities of drinking water supplies</p>	
<p>▶ <b>Catchment nutrient loads (Drinking Water)</b></p>		<p>Demonstrated, and included in implementation programmes, how land within the zone will be managed to achieve catchment load limits</p> <p>Identify areas where catchment load limits for nutrients are not met, prioritised areas and implemented actions to ensure there is no further enrichment.</p> <p>Achieved nutrient efficiency targets for the zone on all new irrigated land and 50% of other rural properties (and of properties within urban boundaries that apply nutrients over significant areas).</p> <p>Set catchment load limits for nitrate consistent with drinking water quality targets for each zone, identified priority areas where targets are not met and implemented actions to ensure there is no further enrichment.</p>

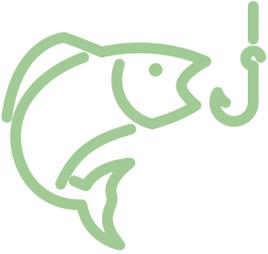
2020	2025	2030	2040
<p>There is an increase in the percentage of the population supplied with water that meets the New Zealand Drinking Water Standards for health-based determinants.</p> <p>A demonstrable decrease in nitrate concentrations in shallow groundwater in priority areas is achieved.</p> 	<p>Communities that, at 2010, had access to untreated and safe drinking water continue to have access to source water that does not require treatment.</p> <p>Communities that, at 2010, were treating drinking water supplies require no new treatment or increased monitoring requirements.</p> <p>Priority is given to drinking water (including stockwater) over other uses in LWRP.</p> <p>All community drinking water supplies and self-supplied bores meet the New Zealand Drinking Water Standards for health-based determinants.</p> <p>Emerging contaminant risks are identified with targeted remedial programmes in place and evaluated.</p> <p>No new activities in a drinking water catchment/ groundwater zone that reduce access to sufficient quantities of drinking water supplies including stockwater</p> <p>Drinking water has priority over other uses in the Land and Water Regional Plan and territorial authorities' district plans.</p> <p>Decrease in the number of wells with increasing trends in nitrate level concentrations from 2020.</p>	<p>Communities that, at 2010, had access to untreated and safe drinking water continue to have access to source water that does not require treatment.</p> <p>All drinking water supplies and self-supplied bores meet the New Zealand Drinking Water Standards for health-based determinants.</p> <p>Drinking water supplies (community use and stockwater) are maintained as a first order priority when reviewing regional policies and planning.</p> <p>Decrease in the number of wells with increasing trends in nitrate level concentrations from 2025.</p>	<p>Understood any emerging contaminant risks and identified any at risk areas for targeted management and a remedial programme underway.</p> <p>Nitrate levels in community drinking water wells are below the maximum allowable values of drinking water.</p> <p>Average annual nitrate levels in all groundwater wells in Canterbury are below 50% of the maximum allowable value for drinking water.</p>
<p>Achieved nutrient efficiency targets for the zone on all new irrigated land and 80% of other land in major rural land uses (pasture, major arable and major horticulture crops), and have 100% of rural properties working towards those targets (and of properties within urban boundaries that apply nutrients over significant areas).</p>	<p>Detailed dynamic groundwater modelling provides data that ensures policy recognises impact of contaminants, land use and climate change.</p> <p>Implementation programmes in place for each zone to achieve catchment load limits.</p> <p>Reviewed progress towards achieving catchment load limits in catchments where limits have been in place for at least five years</p> <p>Achieved nutrient efficiency targets for the zone on all new irrigated land and 80% of other land in major rural land uses (pasture, major arable and major horticulture crops), and have 100% of rural properties working towards those targets (and of properties within urban boundaries that apply nutrients over significant areas).</p>	<p>Refine, define and utilise detailed dynamic groundwater modelling to provide data that informs regional and district policies and rules that recognise impact of contaminants, land use and climate change.</p> <p>Catchment load limits are met (timeframes set in implementation programmes).</p> <p>Achieved nutrient efficiency targets for all zones as set out in plans.</p>	<p>Achieved nutrient efficiency targets for the zone on all new irrigated land and 100% of other rural properties (and of properties within urban boundaries that apply nutrients over significant areas).</p>



# Recreation and Amenity Opportunities

	2010	2015
▶ <b>Water based recreational opportunities</b>	Maintain existing diversity and quality of water based recreation sites, opportunities and experiences.	A positive trend in the availability and/or quality of recreational opportunities in each zone.  
▶ <b>Recreational water flows</b>		Identify where environmental flows are not met or require change to meet recreational outcomes and implemented actions to rectify.
▶ <b>Freshwater Angling</b>		A positive trend in the availability and/or quality of freshwater angling opportunities. An increase in freshwater angler numbers (or catch rate) assessed over a five year average. No further reduction in the number and areas of existing salmon spawning sites.* Increasing annual trout spawning counts in identified important areas (based on a 5-year average) as an indicator of habitat availability for salmonid and indigenous fish species.* (*also covered in Ecosystem Health/ Biodiversity)
▶ <b>Recreational water quality</b>		At least 80% of river bathing sites graded as suitable for contact recreation.



2020	2025	2030	2040
<p>A positive trend in the availability and/or quality of recreational opportunities in each zone.</p>	<p>A continuing and measurable positive trend, against baseline information, in the diversity, availability and quality of recreational opportunities in each zone.</p> <p>Identify the restoration of priority freshwater recreational opportunities in each zone, developing plans to achieve and show measurable progress.</p> <p>Understand threats and act to reduce risk to freshwater recreational opportunities.</p>	<p>A continuing and measurable positive trend, against baseline information, in the diversity, availability and quality of recreational opportunities in each zone.</p> <p>Plans in place that recognise the values and provide protection for recreation and amenity opportunities.</p> <p>Priority freshwater recreational opportunities in each zone (identified by 2025) show progress towards restoration and protection.</p> <p>Potential threats to freshwater recreational opportunities are understood and plans in place to reduce risk.</p>	<p>Restored at least one major fresh water recreational opportunity in each zone that was not currently available in 2010.</p> 
<p>Made progress toward achieving environmental flows</p>	<p>Environmental flows, which support recreational requirements, are set as part of the rule setting process in new plans and included in existing plans when up for review.</p>	<p>Environmental flows, which support recreational requirements, are set as part of the rule setting process in new plans and included in existing plans when up for review.</p> <p>All new and existing consents in review are linked to environmental flows.</p>	<p>Achieved all environmental flows</p>
	<p>Advocate for and support measures to effectively restore and protect fishing opportunities in each water management zone.</p> <p>Health of lowland streams, rivers and lakes in Canterbury show improving habitat and an increase in fishing opportunities.</p> <p>20% increase in the number and area of protected salmonid spawning sites from 2009 baseline in identified important areas.</p>	<p>Freshwater fishing opportunities in each zone are restored and protected.</p> <p>Sustained improvement in health of lowland streams, rivers and lakes in Canterbury.</p> <p>40% increase in the number and area of protected salmonid spawning sites from 2009 baseline in identified important areas.</p>	<p>Restored fishing opportunities in most lowland streams in each water management zone</p>
<p>Of the lake and river sites used for contact recreation, an increase in the percentage that meet recreational water quality guidelines.</p>	<p>Improve on percentage of rivers and lakes being swimmable since 2020 using consistent water quality monitoring and real-time results.</p> <p>Cyanobacteria risk for priority contact recreation sites in Canterbury rivers and lakes is understood and managed for public health</p>	<p>Achieve the National Policy Statement for Freshwater Management target of 92 percent of rivers and 81 percent of lakes in Canterbury being swimmable by 2030.</p> <p>Progress is made towards achieving identified reduction targets for cyanobacteria.</p>	



# Water Use Efficiency

## Best Practice and Benchmarking

2010

Initiate the development of models/benchmarks of reasonable and efficient use of water in irrigation.  
No decline in the efficiency of water use.

2015

Established and reported against a benchmark of current water use efficiency for irrigation, community (potable, industrial and commercial) and stockwater.  
60% of water used for irrigation is operating according to best practice water use.

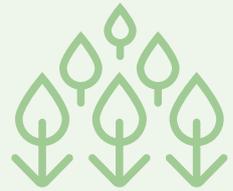


# Irrigated Land Area

## Land Area and Reliability

No reduction in irrigated land area in Canterbury or in overall reliability with each zone.

Increased the area of irrigated land and/or reliability of irrigation.



## Infrastructure



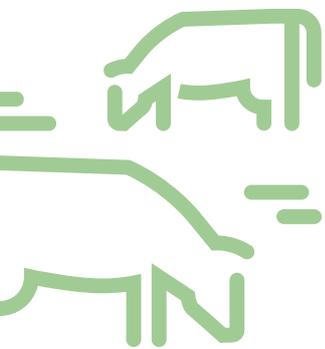
A system of regionally distributed rural water infrastructure for the storage and distribution of water that provides reliable water to all irrigated land has been designed, timetabled, costed and staged.

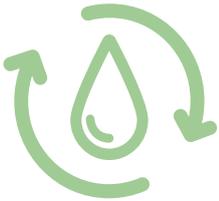
The system has been demonstrated to align with the principles and targets of this strategy

Decided mechanisms for funding infrastructure and the ongoing operation of the strategy

Started on the infrastructure (or reconfiguration of existing consents) that facilitates efficiency improvements and is linked into the regional storage plan

Specified, for each zone, their infrastructure requirements consistent with the regional storage plan, and the principles and targets of the strategy



2020	2025	2030	2040
<p>80% of water used for irrigation and stockwater is operating according to best practice water use</p> <p>Reduced water used for community water supply by 10% (measured in litres per person for day) compared to that used in 2010</p> <p>Increased the benefits gained per unit of water so that the volume of water beneficially used (used in production of crops, electricity, or commercial uses) in each zone as a proportion of the volume of water take is, on average, 5% greater than that achieved in 2010.</p> 	<p>90% of water users meeting or exceeding the agreed water use benchmarks</p> <p>100% of water used for irrigation and stockwater is operating according to water use Good Management Practices</p> <p>Continued updating of best practice as industry makes advances.</p> <p>Drinking water suppliers have demand management programmes in place as part of good infrastructure practices.</p> <p>Policy mechanisms are in place to ensure that efficiency gains are returned to the environment where there is overallocation of the water resource</p>	<p>100% of water users meeting or exceeding the agreed water use benchmarks</p> <p>100% of water used for irrigation and stockwater is operating according to water use Good Management Practices.</p> <p>Drinking water suppliers implementing demand management programmes as part of good infrastructure practices.</p> <p>A percentage of the water saved through water use efficiency is returned back to the environment or is allocated to other uses.</p> <p>Increased the benefits gained per unit of water so that the volume of water beneficially used (used in production of crops, electricity, or commercial uses) in each zone as a proportion of the volume of water take is, on average, 10% greater than that achieved in 2020.</p>	<p>Implemented best practice water use on all irrigation, stockwater and industrial/commercial use in Canterbury</p> <p>Reduced water used for community water supply by 20% (measured in litres per person per day) compared to that used in 2010.</p> <p>Increased the benefits gained per unit of water so that the volume of water beneficially used (used in production of crops, electricity, or commercial uses) in each zone as a proportion of the volume of water take is, on average, 25% greater than that achieved in 2010.</p>

<p>Improved reliability of supply for at least 50% of irrigated land.</p>	<p>Improved reliability of supply for at least 65% of irrigated land.</p>	<p>Achieved 95% reliability of supply for 75% of irrigated land while also ensuring all target area water uses (including ecosystem health/ biodiversity, drinking water and kaitiakitanga targets) are met as per CWMS priorities.</p>	<p>A substantial increase in the reliability of supply and the area of land irrigated in Canterbury all of which has demonstrated high standards of riparian, nutrient and water use management, and has been shown to be consistent with the principles of the strategy. An indicative target is 850,000 hectares of irrigated land with at least 95% reliability</p> <p>Improved reliability of supply for all irrigated land.</p>
<p>Started construction of regional storage and improved reliability of supply for at least 50% of irrigated land</p> <p>Started construction of infrastructure identified in zonal implementation programmes.</p> 	<p>Reviewed regional infrastructure needs (including storage and distribution) based on revised supply and demand factors (including climate change) to meet 2040 goals with a focus on reliability.</p> <p>Establish a reliability of supply metric methodology for economic and environmental outcomes of this strategy.</p> <p>Reviewed progress on the funding of infrastructure development and/or the reconfiguration of existing consents that aligns with the principles and targets of this strategy</p> <p>Reviewed progress on infrastructure development and/ or the reconfiguration of existing consents that facilitates reliability improvements and is linked into the regional storage plan.</p> <p>Progress made in construction of integrated infrastructure identified in zone implementation programmes (Integrated - both irrigation and environmental)</p>	<p>Reviewed regional infrastructure needs (including storage and distribution) based on revised supply and demand factors (including climate change) to meet 2040 goals with a focus on reliability.</p> <p>Establish a reliability of supply metric methodology for economic and environmental outcomes of this strategy.</p> <p>Reviewed progress on the funding of infrastructure development and/or the reconfiguration of existing consents that aligns with the principles and targets of this strategy</p> <p>Reviewed progress on infrastructure development and/ or the reconfiguration of existing consents that facilitates reliability improvements and is linked into the regional storage plan.</p> <p>Progress made in construction of integrated infrastructure identified in zone implementation programmes (Integrated - both irrigation and environmental)</p>	

# Energy Security and Efficiency

## Energy Security and Efficiency



2010

Maintain Canterbury's existing contribution to New Zealand's security of electricity supply

Seek opportunities, as part of design and planning for new infrastructure, to reduce electricity used in the use of water, to provide for multiple use, and to factor generation into existing irrigation infrastructure.

2015

Started projects to generate electricity from existing irrigation infrastructure.

Identified and implemented opportunities to reduce electricity used in the use of water.



# Indicators of Regional and National Economies

## Added-value from water

No decline in the contribution water makes to the Canterbury economy as measured through 'value added' (economic impact)

Increase the value added and employment per unit of water

## Externalities and Opportunity Costs

Any assessments of regional economic value factor in externalities (e.g. water quality treatment costs, climate change emissions, changed recreational values) as well as the costs of environmental repair and restorations



2020	2025	2030	2040
<p>Generate at least 40-45% of the power used by irrigation in Canterbury from irrigation infrastructure (including multi-use hydro and irrigation systems) within Canterbury and other renewable on-farm sources</p> <p>Maintain or increase Canterbury's contribution to New Zealand's security of electricity supply.</p> 	<p>Established measures for the productivity of electricity - per hectare consumption for irrigation sector and equivalent measures in other sectors.</p> <p>Factored efficient use of electricity in all irrigation infrastructure</p> <p>Continue to maintain or increase Canterbury's contribution to New Zealand's security of electricity supply.</p>	<p>Increased the productivity per unit of energy by 10% from 2025 (downward trend in energy use per hectare).</p> <p>Factored efficient use of electricity in all irrigation infrastructure</p> <p>Continue to maintain or increase Canterbury's contribution to New Zealand's security of electricity supply.</p>	<p>Factored efficient use of electricity in all irrigation infrastructure</p> <p>Reduced the energy used per hectare for irrigation in Canterbury compared to that used in the 2010/11 season.</p> 

<p>Increased production through the direct application of water to agriculture contributes an additional \$0.4 billion per annum value added to the Canterbury economy</p>	<p>Increase the value-add per unit of water uses in consumptive activities</p> <p>Productivity of water use grows by 3% per annum.</p> <p>No decline in rural economic and social vitality from that measured at 2010.</p> <p>Canterbury household income is maintained or expanded relative to national household income.</p>	<p>Increase the value-add per unit of water uses in consumptive activities</p> <p>Productivity of water use grows by 3% per annum.</p> <p>No decline in rural economic and social vitality from that measured at 2010.</p> <p>Canterbury household income is maintained or expanded relative to national household income.</p>	<p>Increased Canterbury's contribution to national GDP from 15% to 20% of which 2% is attributable to increased production and better water management</p> <p>Increased production through the direct application of water to agriculture contributes an additional \$1.7 billion per annum value-added to the Canterbury economy</p>
<p>Measures in place to assess the economic wealth benefits of freshwater biodiversity (and other ecosystem services) and recreational use of water</p>	<p>Develop a way of assessing costs and benefits using a capitals approach that recognises externalities and opportunity costs</p> <p>Develop options (including a preferred option) for funding the reinvestment in natural capital, including addressing legacy issues and future opportunity costs.</p> <p>Measures in place to assess the economic wealth benefits of freshwater biodiversity (and other ecosystem services) and recreational use of water</p>	<p>Develop a way of assessing costs and benefits using a capitals approach that recognises externalities and opportunity costs</p> <p>Develop options (including a preferred option) for funding the reinvestment in natural capital, including addressing legacy issues and future opportunity costs.</p> <p>Measures in place to assess the economic wealth benefits of freshwater biodiversity (and other ecosystem services) and recreational use of water</p>	<p>A demonstrable increase in economic wealth due to biodiversity protection and improvement, and increased recreational use of water resulting from implementation of the CWMS</p> <p>Recognised and reported on the employment benefits (direct and indirect) that arose from the CWMS</p>



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