

Land & Water Regional Plan Governance Group

Agenda item 1A: Setting target and interim target attribute states

Purpose of this Paper

1. This paper provides the Governance Group with an overview of the current attribute states, as derived from the Otago Regional Council's State of the Environment (SoE) monitoring data, and drafts of the proposed target attribute states (TAS) which will form part of the proposed Land and Water Regional Plan (pLWRP). This information will inform your discussion on how to maintain and improve water quality in Otago¹ i.e., the draft planning responses. The paper also seeks your feedback on a proposed approach for setting interim TAS, where interim TAS are required under the National Policy Statement for Freshwater Management (NPS-FM).

Background

2. The National Objectives Framework (NOF) set out in Clause 3.7 of the National Policy Statement for Freshwater Management (NPS-FM) requires regional councils to:
 - a. identify freshwater management units (FMUs) in the region
 - b. identify values for each FMU
 - c. set environmental outcomes for each value and include them as objectives in regional plans
 - d. identify attributes for each value and identify baseline states for those attributes
 - e. set target attribute states, environmental flows and levels, and other criteria to support the achievement of environmental outcomes
 - f. set limits as rules and prepare action plans (as appropriate) to achieve environmental outcomes
3. Clause 3.7 further requires that at each step of the NOF process, every regional council must engage with communities and tangata whenua and apply the hierarchy of obligations set out in Clause 1.3 of the NPS-FM.
4. FMUs and rohe for the Otago region have been identified and have been included in the proposed Regional Policy Statement for Otago 2021 (pORPS). Values for each FMU and rohe have also been identified using the process outlined in Clause 3.9 of the NPS-FM and building on mana whenua input and community feedback collated during the first stage of consultation on the proposed LWRP which occurred over the period November 2021 to April 2022.
5. Draft environmental outcomes for identified values have been developed in partnership with mana whenua and were consulted on during the second stage of community consultation on the pLWRP from October to December 2022.
6. Staff are currently in the process of identifying attributes, identifying baseline states for those attributes and developing TASs. This paper focusses on setting TASs for water quality.

Setting target attribute states and timeframes for achieving them

7. Clause 3.11 of the NPS-FM stipulates that ORC must set a target attribute state (TAS) for every attribute identified for a value and identify the site or sites to which the TAS applies.

¹ As required under the NPSFM, Councils are required to at least maintain, or improve water quality.

8. Target attribute states for every value with attributes (except the value human contact)² must be set at or above the baseline state of that attribute.³ If the baseline state of an attribute is below any national bottom line for that attribute, the TAS must be set at or above the national bottom line.⁴
9. Under Clause 3.11, ORC must also specify a timeframe for achieving the TAS or, if the TAS has already been achieved, state that it will be maintained from a specified date. When setting timeframes for achieving TASs ORC must ensure that these are set in such a way that they will achieve the environmental outcomes for each relevant value set in the pLWRP, as well as the relevant long-term visions set in the pORPS (within the timeframes specified in the pORPS for achieving these visions). The timeframe for achieving the TASs that will be included in the pLWRP will be determined taking into account the final timeframes for achieving the relevant long-term visions set in the pORPS.
10. Staff have developed draft TASs for Otago's FMUs and rohe, which are included in Appendix 1. These are based on achieving the notified visions and the drafts of the environmental outcomes. These are very much draft and so still subject to change, but provide an indication of the need to make substantial progress to improve water quality in several FMUs and rohe. Information on the current states for various attributes, as derived from the ORC's SoE monitoring data is also included in Appendix 1, while Appendix 2 provides a high-level overview of the key observations drawing on SoE monitoring data.

Setting interim TASs

11. Under the NPS-FM timeframes for achieving TASs may be any length or period. However, if timeframes are beyond the 10-year life of the LWRP, they must include interim TASs (set for intervals of not more than 10 years) to be used to assess progress towards achieving the TASs in the long term.
12. Staff have developed guidelines for setting interim TASs for SoE monitoring sites where:
 - a. the TAS is two to three levels above the current state i.e., from a current C to a target A or from a current D to a target A respectively; and
 - b. the TAS is not achievable within the expected ten-year lifespan of the pLWRP.
13. The suggested guidelines are outlined below:
 - If the current SoE site is below the national bottom line for an attribute (that means the site or river is currently in the D- or E-band), the minimum goal in the NPS-FM is to achieve at least the C-band within the expected ten-year lifespan of the pLWRP the given timeframe of the vision (i.e. above the national bottom line).⁵ This applies particularly for the attributes of E. Coli due to human health risks and Dissolved Reactive Phosphorus (DRP) and Macroinvertebrate Community Index (MCI) for ecosystem health.

² The target attribute state for the value human contact must be set above the baseline state of that attribute, unless the baseline state is already within the A band of Tables 9 or 10 in Appendix 2A of the NPS-FM, as applicable.

³ Clause 1.4 of the NPS-FM defines baseline state, in relation to an attribute, as:

the best state out of the following:

- (a) the state of the attribute on the date it is first identified by a regional council under clause 3.10(1)(b) or (c)
- (b) the state of the attribute on the date on which a regional council set a freshwater objective for the attribute under the National Policy Statement for Freshwater Management 2014 (as amended in 2017)
- (c) the state of the attribute on 7 September 2017

⁴ Some exceptions apply. See clauses 3.31, 3.32, and 3.33 of the NPS-FM.

⁵ Following presentation of this paper to the ORC's Environmental Science and Policy Committee on 25 May 2023, a correction was made to the paper.

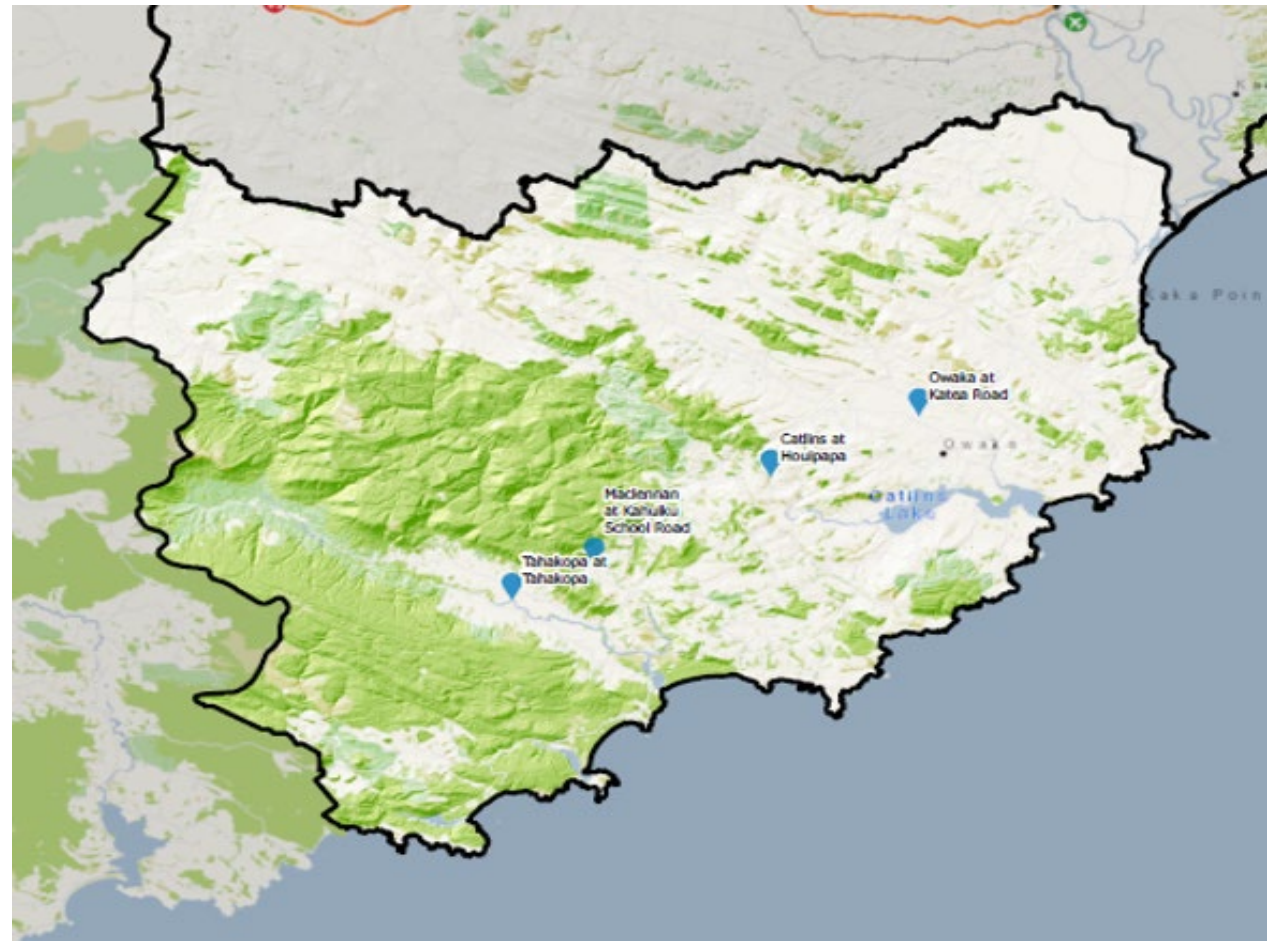
- If the current state is above the national bottom line and the TAS would translate to an increase of two or more attribute bands, the interim target attribute band should be set as the median between the current and target attribute band. This means a site that is currently at the C-band and has a target A-band for any given attribute, should achieve the B-band for the given attribute within the expected ten-year lifespan of the pLWRP.
- If the current trend (20-year or 10-year) for any given attribute, at any given site, indicates that the state is decreasing, the interim target is to reverse the trend to an increasing direction.
- If a SOE site or river currently meets the suggested TAS, the TAS is to be maintained with no declining trend.

Key questions for the Governance Group

14. What are your views on aligning the timeframes for achieving the TASs with the timeframes for achieving the relevant long-term visions set in the pORPS?
15. What are your views on the proposed principles for setting interim TASs?

CATLINS FMU

	Catlins at Houipapa						Maclennan at Kahuiku School Road						Owaka at Katea Road						Tahakopa at Tahakopa					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2030	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2030	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2030	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2030
Nitrate-median	A		Improving	Degrading		A	A					A	B		Improving				A	A				A
Nitrate-Q95	A					A	A					A	B						A	A				A
Amonia	A		Improving	Improving		A	A					A	A		Improving				A	A				A
Clarity	D		Indeterminate	Degrading		A	D					A	D		Improving				A	D				A
E.Coli 260	B	B				A	A					A	D						A	D				A
E.Coli 540	C	B				A	C					A	D						A	D				A
E.Coli median	D	B	Improving	Degrading		A	A					A	D		Degrading				A	D				A
E.Coli Q95	D	B				A	B					A	D						A	D				A
DRP-median	C		Improving	Improving		B	B					B	C		Improving				B	B				B
DRP Q95	A					B	A					B	B						B	A				B
MCI	C	B				B	B					B	C		Indeterminate				B	C				B
ASPM	B	A				B	B					B	B						B	B				B
Chlorophyll a						B						B	C						B	B				B
Habitat						A						A	C						A	B				A
Ecosystem respiration													C						B					
FISH IBI						A						A	A											A

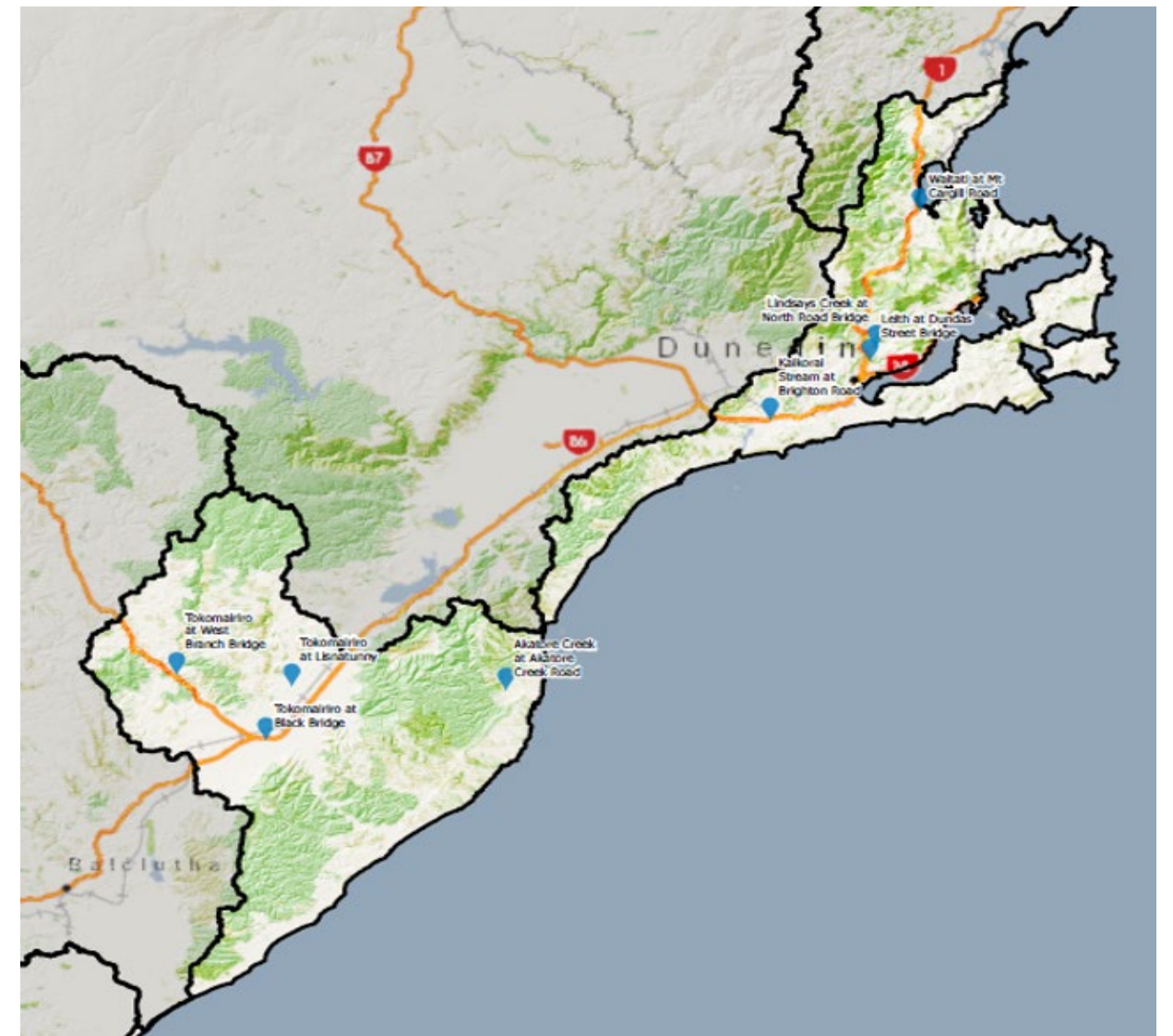


DUNEDIN & COAST FMU

	Kaikorai Stream at Brighton Road						Leith at Dundas Street Bridge						Lindsays Creek at North Road Bridge						Waitati at Mt Cargill Road						
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2040	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2040	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2040	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2040	
Nitrate-median	A		Degrading			A	A		Improving	Degrading		A	A		Improving	Degrading		A	A			Degrading		A	
Nitrate-Q95	A					A	A					A	A					A	A					A	
Amonia	C		Degrading	Improving		A	A		Improving	Improving		A	A		Improving			A	A					A	
Clarity	A		Degrading	Improving		B	A		Degrading	Improving		B	A		Improving			B	A					B	
E.Coli 260	E					C	E					C	E					C	B					C	
E.Coli 540	E					C	E					C	E					C	B					C	
E.Coli median	E		Degrading	Degrading		C	E		Degrading	Degrading		C	E		Degrading			C	A					C	
E.Coli Q95	D					C	D					C	D					C	B					C	
DRP-median	B		Improving	Degrading		B	C		improving	Degrading		B	C		Improving			B	A					B	
DRP Q95	B					B	B					B	B					B	A					B	
MCI	D	D	Improving	Improving		C	D					C	D	D				C	D					C	
ASPM	D	D				C	D					C	D	A				C	C					C	
Chlorophyll a	D					C						C						C						C	
Habitat	B					B						B						B						B	
Ecosystem respiration																									
FISH IBI	A					A						A						A						A	

	Tokomairiro at Blackbridge						Tokomairiro at Lisnatunny					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2040	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2040
Nitrate-median	A		Degrading			A	A					A
Nitrate-Q95	B					A	A					A
Amonia	B		Degrading			A	A					A
Clarity	D		Degrading			B	A	A				B
E.Coli 260	E					C	E	D				C
E.Coli 540	E					C	D	C				C
E.Coli median	E		Degrading			C	E	D				C
E.Coli Q95	D					C	D	D				C
DRP-median	C	D	Improving			B	B					B
DRP Q95	C					B	B					B
MCI	C					C						C
ASPM	C					C						C
Chlorophyll a						C						C
Habitat						B						B
Ecosystem respiration												
FISH IBI						A						A

	Tokomairiro at West Branch Bridge						Akatore Creek at Akatore Creek Road					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2040	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2040
Nitrate-median	A		Improving			A	A					A
Nitrate-Q95	A					A	B					A
Amonia	A		Improving	Improving		A	A					A
Clarity	A		Improving	Improving		B	A					B
E.Coli 260	D					C	A					C
E.Coli 540	D					C	C					C
E.Coli median	D		Improving	Degrading		C	A					C
E.Coli Q95	D					C	D					C
DRP-median	B	C	Improving	Degrading		B	A					B
DRP Q95	A					B	A					B
MCI	C		Improving	Improving		C	C					C
ASPM	B					C	B					C
Chlorophyll a	C					C	B					C
Habitat	B					B	C					B
Ecosystem respiration	C						B					
FISH IBI						A						A



NORTH OTAGO FMU

	Awamoko at SH83						Kakaho Creek at SH1						Kakanui at Clifton Falls Bridge						Kakanui at McCones						
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2050	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2050	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2050	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2050	
Nitrate-median	A		Degrading			A	A					A	A		Degrading				A	A		Degrading	Degrading		A
Nitrate-Q95	A					A	A					A	A						A	A					A
Amonia	B		Improving			A	B					A	A		Improving	Improving			A	A		Not Analysed	Improving		A
Clarity	A		Improving			A	A					A	A		Improving	Improving			A	A		Improving	Degrading		A
E.Coli 260	D					A	D					A	D						A	B					A
E.Coli 540	D					A	D					A	D	B					A	C					A
E.Coli median	D		Improving			A	D					A	D		Degrading	Degrading			A	A		Improving	Degrading		A
E.Coli Q95	D					A	D					A	D	B					A	D					A
DRP-median	D		Degrading			B	D					B	A		Improving	Improving			B	A		Improving	Improving		B
DRP Q95	D					B	D					B	A						B	A					B
MCI	D					C						C	C	B					C	D	D	Improving	Improving		C
ASPM	D					C						C	C	B					C	C	B				C
Chlorophyll a						B						B	B						B	D					B
Habitat						A						A							B						A
Ecosystem respiration						C						C													C
FISH IBI						A						A	A						A	A					A

	Kauru at Ewings						Kawarau @ Chards Rd						Oamaru Creek at SH1						Pleasant River at Patterson Road Ford						
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2050	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2050	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2050	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2050	
Nitrate-median	A		Improving	Degrading		A	A		Degrading	Improving		A	A				Degrading		A	A					A
Nitrate-Q95	A					A	A					A	A						A	A					A
Amonia	A		Improving			A	A		Improving	Improving		A	B						A	A					A
Clarity	A					A	D		Degrading	Degrading		A	A						A	A					A
E.Coli 260	B					A	A					A	D						A	A					A
E.Coli 540	C					A	A					A	E						A	C					A
E.Coli median	A		Degrading	Degrading		A	A		Improving	Improving		A	D						A	A					A
E.Coli Q95	D					A	A					A	D						A	D					A
DRP-median	A		Improving			B	A		Improving	Improving		B	D						B	A					B
DRP Q95	A					B	A					B	D						B	A					B
MCI	B	B				C	C					C	D						C	D					C
ASPM	B	B				C	B					C	D						C	D					C
Chlorophyll a						B						B	D						B						B
Habitat						A						A	B						A						A
Ecosystem respiration						C						C	C												C
FISH IBI						A						A							A						A

	Shag at Craig Road						Shag at Goodwood Pump						Trotters Creek at Mathesons						Upper Shag at SH85 Culvert						
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2050	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2050	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2050	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2050	
Nitrate-median	A		Improving			A	A		Improving	Degrading		A	A		Degrading	Degrading			A	A					A
Nitrate-Q95	A					A	A					A	A						A	A					A
Amonia	A		Improving	Improving		A	A		Improving	Improving		A	B	A	Degrading	Degrading			A	A					A
Clarity	A		Improving	Degrading		A	A		Improving	Degrading		A	A		Improving	Degrading			A	A					A
E.Coli 260	A					A	B					A	C						A	A					A
E.Coli 540	B					A	C					A	C						A	A					A
E.Coli median	A		Improving	Improving		A	A		Degrading	Degrading		A	D		Degrading	Degrading			A	A					A
E.Coli Q95	B					A	C					A	C						A	B					A
DRP-median	A		Improving	Improving		B	A	B	Improving	Degrading		B	A		Improving				B	A					B
DRP Q95	A					B	A					B	A						B	A					B
MCI	C	C				C	D	D	Degrading	Degrading		C	D	D					C	B					C
ASPM	C	B				C	B	B				C	D	D					C	A					C
Chlorophyll a						B	D					B							B						B
Habitat						A	B					A							A						A
Ecosystem respiration						C	C					C													C
FISH IBI	A					A						A							A						A

TAIERI FMU

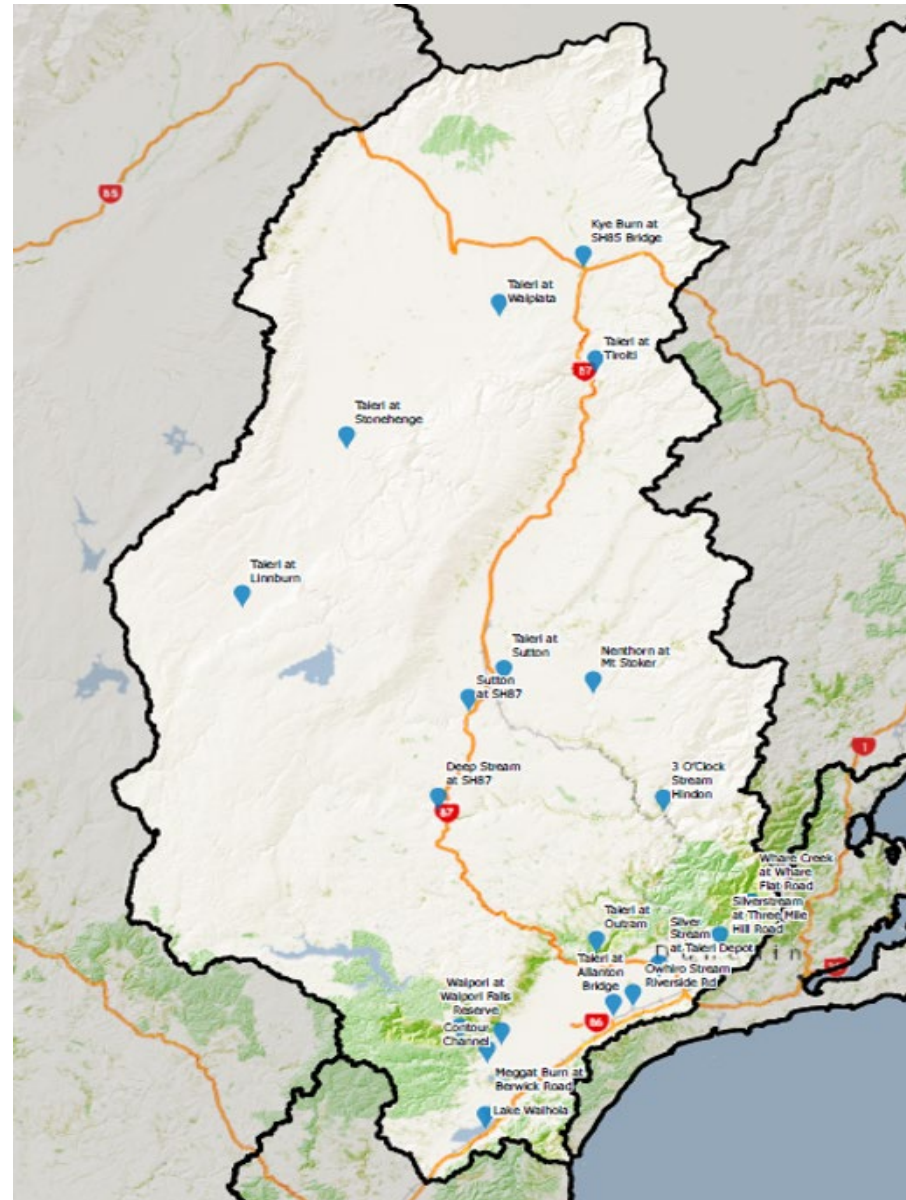
	Contour Channel at No. 4 Bridge						Deep Stream at SH87						Kye Burn at SH85 Bridge						Meggat Burn at Berwick Road					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2050	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2050	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2050	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2050
Nitrate-median	A		Degrading			A	A		Not Analysed			A	A		Degrading			A	A			Degrading		A
Nitrate-Q95	A					A	A					A	A					A	A					A
Amonia	B		Improving			A	A	B	Improving			A	A		Improving	Improving		A	A					A
Clarity	D		Degrading			B	A		Improving			B	A	C	Improving			B	D					B
E.Coli 260	E					A	A					A	A					A	C					A
E.Coli 540	E					A	A					A	A					A	C					A
E.Coli median	E		Degrading			A	A		Degrading			A	A		Degrading	Degrading		A	D					A
E.Coli Q95	D					A	A					A	A					A	C					A
DRP-median	C	D	Improving			B	A		Improving			B	A		Improving	Improving		B	B					B
DRP Q95	D	D				B	A					B	A					B	A					B
MCI	D					C	C					C	C	Degrading				C	D					C
ASPM	D					C	B					C	B	B				C	D					C
Chlorophyll a						B						B	A					B						B
Habitat						B						B	B					B						B
Ecosystem respiration						C						C						C						C
FISH IBI						B						B	C					B						B

	Nenthorn at Mt Stoker Road						Silverstream at Taieri Depot						Silverstream at Three Mile Hill Road						Sutton Stream at SH87					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2050	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2050	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2050	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2050
Nitrate-median	A		Not Analysed			A	A		Indeterminate			A	A			Degrading		A	A					A
Nitrate-Q95	A					A	A					A	A					A	A					A
Amonia	A		Improving			A	B		Improving	Improving		A	A					A	A					A
Clarity	A		Improving			B	A		Improving	Improving		B	A					B	A					B
E.Coli 260	A					A	C					A	A					A	D					A
E.Coli 540	A					A	D	B				A	A					A	C					A
E.Coli median	A		Degrading			A	D	D	Degrading	Degrading		A	A					A	D					A
E.Coli Q95	A					A	D					A	A					A	B					A
DRP-median	A		Improving			B	A		Improving	Improving		B	A					B	A					B
DRP Q95	A					B	B	A				B	A					B	A					B
MCI	D					C	D	D	Degrading	Degrading		C	C					C	C					C
ASPM	D					C	C					C	D					C	B					C
Chlorophyll a						B	D					B						B						B
Habitat						B	B					B						B						B
Ecosystem respiration						C	B					C						C						C
FISH IBI						B	B					B						B						B

	Taieri at Allanton Bridge						Taieri at Linnburn Runs Road						Taieri at Outram						Taieri at Stonehenge					
	Current State	Baseline 2017	10y Trend	20y Trend	Interim Target	Target 2050	Current State	Baseline 2017	10y Trend	20y Trend	Interim Target	Target 2050	Current State	Baseline 2017	10y Trend	20y Trend	Interim Target	Target 2050	Current State	Baseline 2017	10y Trend	20y Trend	Interim Target	Target 2050
Nitrate-median	A		Improving			A	A		Not Analysed	Degrading		A	A		Improving	Not Analysed		A	A			Degrading		A
Nitrate-Q95	A					A	A					A	A					A	A					A
Amonia	A		Improving	Improving		A	A		Improving	Improving		A	A		Improving			A	A			Degrading	Improving	A
Clarity	D		Improving	Degrading		B	B	C	Improving	Degrading		B	C		Improving			B	B	C	Improving	Degrading		B
E.Coli 260	B					A	A	B				A	A					A	A					A
E.Coli 540	C					A	B					A	B					A	A					A
E.Coli median	A		Degrading	Degrading		A	A		Degrading	Degrading		A	A		Degrading			A	A			Improving	Degrading	A
E.Coli Q95	D	B				A	B					A	A					A	A					A
DRP-median	B	C	Improving	Degrading		B	A		Improving	Improving		B	B		Improving			B	A	B	Improving	Degrading		B
DRP Q95	B					B	A					B	A					B	A					B
MCI	D					C	D					C	C					C	C					C
ASPM	D					C	C					C	B					C	B					C
Chlorophyll a						B						B	C					B						B
Habitat						B						B						B						B
Ecosystem respiration						C						C	C					C						C
FISH IBI						B						B						B						B

	Taieri at Sutton						Taieri at Tiroiti						Taieri at Waipiata						Waipori at Waipori Falls Reserve					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2050	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2050	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2050	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2050
Nitrate-median	A		Improving	Degrading		A	A		Degrading	Degrading		A	A		Improving			A	A		Degrading	Degrading		A
Nitrate-Q95	A					A	A					A	A					A	A					A
Amonia	A		Improving	Improving		A	A		Improving			A	A		Degrading	Improving		A	A		Improving	Improving		A
Clarity	D		Improving			B	D		Improving			B	D		Improving	Improving		B	D		Improving	Improving		B
E.Coli 260	B	B				A	A					A	B					A	A					A
E.Coli 540	C	C				A	A					A	C					A	A					A
E.Coli median	D		Degrading	Degrading		A	A		Improving			A	A		Improving	Degrading		A	A		Indeterminat	Degrading		A
E.Coli Q95	C					A	A					A	B					A	A					A
DRP-median	B	C	Improving	Improving		B	C		Improving			B	C	D	Improving	Degrading		B	A		Degrading	Not Analysed		B
DRP Q95	B	B				B	C					B	C	D				B	A					B
MCI	C					C	C					C						C	C	C				C
ASPM	B					C	C					C						C	C					C
Chlorophyll a	C					B						B						B						B
Habitat						B						B						B						B
Ecosystem respiration	B					C						C						C						C
FISH IBI						B						B						B						B

	Whare Creek at Whare Flat Road					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2050
Nitrate-median	A			Improving		A
Nitrate-Q95	A					A
Amonia	A					A
Clarity	A					B
E.Coli 260	A					A
E.Coli 540	A					A
E.Coli median	A					A
E.Coli Q95	A					A
DRP-median	A					B
DRP Q95	A					B
MCI	B					C
ASPM	B					C
Chlorophyll a						B
Habitat						B
Ecosystem respiration						C
FISH IBI						B



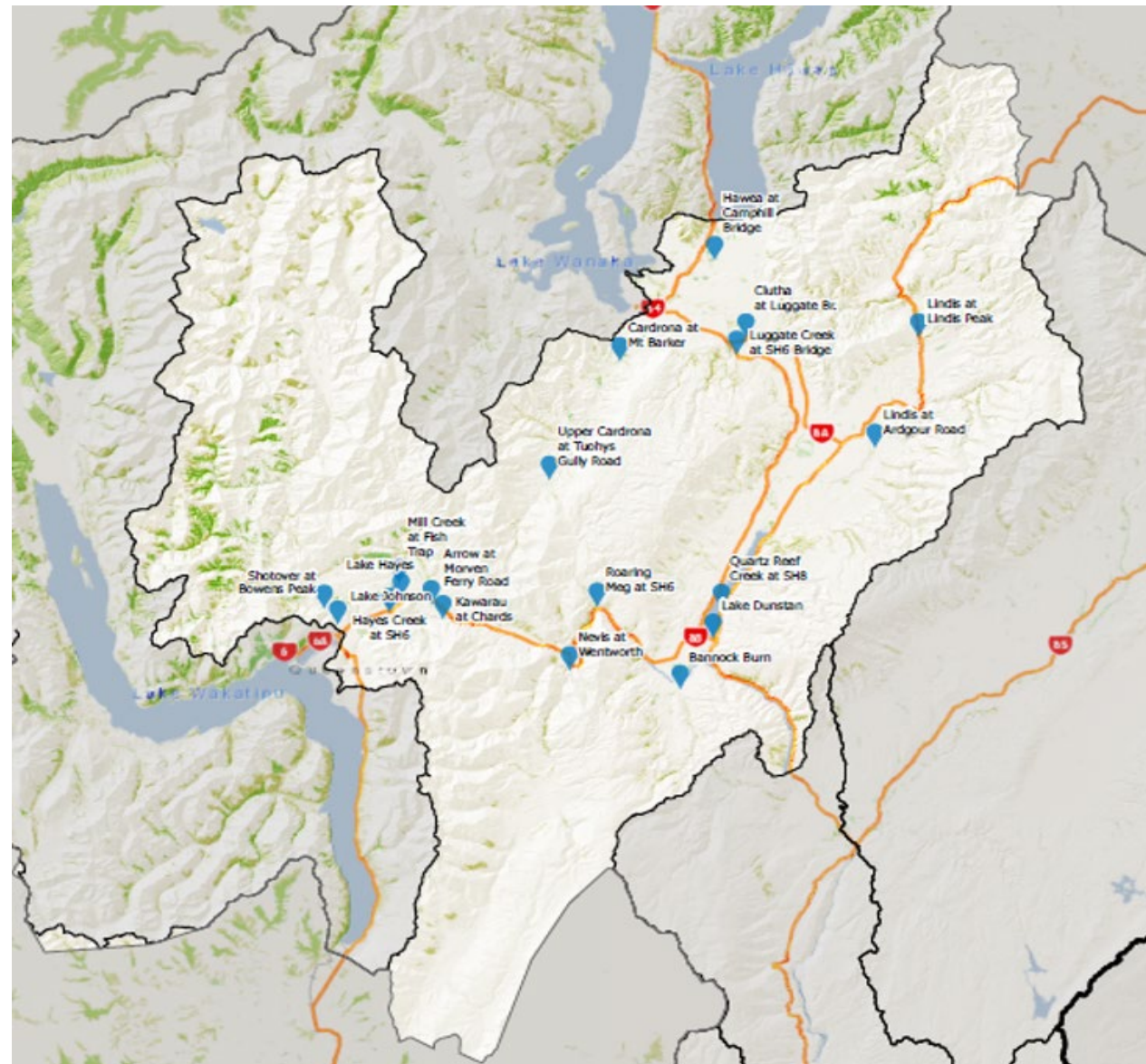
DUNSTAN ROHE

	Arrow at Arrow Gorge Track						Arrow at Morven Ferry Road						Bannockburn at Lake Dunstan						Cardrona at Mt Barker					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2045	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2045	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2045	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2045
Nitrate-median						A	A					A	A		Improving			A	A		Degrading			A
Nitrate-Q95						A	A					A	A					A	A					A
Amonia						A	A					A	A		Not Analysed			A	A		Improving	Improving		A
Clarity						B	B					B	A		Degrading			B	D	B	Degrading	Degrading		B
E.Coli 260						C	A					C	A					C	A					C
E.Coli 540						C	A					C	A					C	B					C
E.Coli median						C	A					C	A		Degrading			C	A		Degrading	Degrading		C
E.Coli Q95						C	A					C	A					C	B					C
DRP-median						B	A					B	A		Improving			B	A		Improving	Improving		B
DRP Q95						B	A					B	A					B	A					B
MCI						C	B					C	C					C	C	C	Degrading	Improving		C
ASPM						C	B					C	B					C	B					C
Chlorophyll a						C	A					C						C	B					C
Habitat						B	A					B						B	A					B
Ecosystem respiration	A						A												A					
FISH IBI						A						A						A	A					A

	Clutha at Luggate Bridge						Lindis at Ardour Road						Lindis at Lindis Peak						Luggate Creek at SH6 Bridge					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2045	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2045	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2045	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2045
Nitrate-median	A	A	Degrading	Improving		A	A		Improving			A	A		Degrading	Improving		A	A		Degrading			A
Nitrate-Q95	A	A				A	A					A	A					A	A					A
Amonia	A	A	Improving	Improving		A	A		Improving	Not Analysed		A	A		Not Analysed	Not Analysed		A	A		Improving	Improving		A
Clarity	A		Improving	Improving		B	C	B	Improving	Degrading		B	D	C	Degrading	Degrading		B	A		Degrading	Degrading		B
E.Coli 260	A					C	A					C	A					C	A					C
E.Coli 540	A					C	A					C	A					C	B					C
E.Coli median	A		Improving	Improving		C	A		Degrading	Degrading		C	A		Degrading	Degrading		C	A		Degrading	Degrading		C
E.Coli Q95	A					C	A					C	A					C	B					C
DRP-median	A	B	Improving	Improving		B	A		Improving	Improving		B	A		Improving	Improving		B	B	C	Improving			B
DRP Q95	A	B				B	A					B	A					B	A					B
MCI	D					C	C	C	Improving	Improving		C	C					C	C	C	Indeterminate	Improving		C
ASPM	D					C	B					C	B					C	B					C
Chlorophyll a						C	B					C						C	B					C
Habitat						B	A					B						B	A					B
Ecosystem respiration																			A					
FISH IBI						A	C					A	B					A	D					A

	Mill Creek at Fish Trap						Nevis at Wentworth Station						Quartz Reef Creek at SH8						Roaring Meg at SH6					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2045	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2045	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2045	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2045
Nitrate-median	A		Degrading			A	A		Improving			A	A					A	A					A
Nitrate-Q95	A					A	A					A	A					A	A					A
Amonia	B	B	Not Analysed	Not Analysed		A	A		Improving			A	A					A	A					A
Clarity	D		Degrading	Degrading		B	A		Improving			B	C					B	A					B
E.Coli 260	B	C				C	A					C	A					C	A					C
E.Coli 540	C					C	A					C	A					C	A					C
E.Coli median	A	D	Improving	Indeterminate		C	A		Degrading			C	A					C	A					C
E.Coli Q95	D					C	A					C	A					C	A					C
DRP-median	A		Improving	Improving		B	A		Improving			B	A					B	B					B
DRP Q95	A					B	A					B	A					B	A					B
MCI	D	D				C	C					C	C					C	C					C
ASPM	C					C	B					C	B					C	B					C
Chlorophyll a						C						C						C						C
Habitat						B						B						B						B
Ecosystem respiration																								
FISH IBI	A					A						A						A						A

	Shotover at Bowers Peak						Upper Cardrona at Tuohys Gully Road					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2045	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2045
Nitrate-median	A	A	Improving			A	A					A
Nitrate-Q95	A	A				A	A					A
Amonia	A	A	Improving	Improving		A	A					A
Clarity	D		Degrading	Degrading		B	B					B
E.Coli 260	A					C	A					C
E.Coli 540	A					C	A					C
E.Coli median	A		Improving	Improving		C	A					C
E.Coli Q95	A					C	B					C
DRP-median	A	B	Improving	Improving		B	A					B
DRP Q95	A	A				B	A					B
MCI	C					C	C					C
ASPM	B					C	B					C
Chlorophyll a						C						C
Habitat						B						B
Ecosystem respiration												
FISH IBI						A						A



LOWER CLUTHA ROHE

	Blackcleugh Burn at Rongahere Road					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2045
Nitrate-median	A					A
Nitrate-Q95	A					A
Amonia	A					A
Clarity	A					B
E.Coli 260	A					A
E.Coli 540	A					A
E.Coli median	A					A
E.Coli Q95	A					A
DRP-median	C					B
DRP Q95	A					B
MCI	B					C
ASPM	B					C
Chlorophyll a	A					C
Habitat	A					B
Ecosystem respiration	D					C
FISH IBI						B

	Clutha at Balclutha					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2045
Nitrate-median	A		Degrading	Degrading		A
Nitrate-Q95	A					A
Amonia	A		Improving	Degrading		A
Clarity	D		Improving	Degrading		B
E.Coli 260	A					A
E.Coli 540	B					A
E.Coli median	A		Degrading	Degrading		A
E.Coli Q95	D					A
DRP-median	A		Improving	Improving		B
DRP Q95	A					B
MCI	D					C
ASPM	D					C
Chlorophyll a						C
Habitat						B
Ecosystem respiration						C
FISH IBI						B

	Crookston Burn at Kelso Road					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2045
Nitrate-median	B		Improving			A
Nitrate-Q95	B					A
Amonia	B		Improving	Improving		A
Clarity	D		Degrading	Degrading		B
E.Coli 260	E					A
E.Coli 540	E					A
E.Coli median	E		Improving			A
E.Coli Q95	D					A
DRP-median	D		Degrading	Degrading		B
DRP Q95	D					B
MCI	D					C
ASPM	D					C
Chlorophyll a						C
Habitat						B
Ecosystem respiration						C
FISH IBI						B

	Heriot Burn at Park Hill Road					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2045
Nitrate-median	B		Improving	Degrading		A
Nitrate-Q95	B					A
Amonia	A		Improving	Improving		A
Clarity	D		Improving	Degrading		B
E.Coli 260	E					A
E.Coli 540	E					A
E.Coli median	E		Improving	Degrading		A
E.Coli Q95	D					A
DRP-median	D		Improving	Degrading		B
DRP Q95	C					B
MCI	C	C				C
ASPM	B	B				C
Chlorophyll a						C
Habitat						B
Ecosystem respiration						C
FISH IBI	A					B

	Lovells Creek at Station Road					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2045
Nitrate-median	B		Degrading	Degrading		A
Nitrate-Q95	C					A
Amonia	A		Improving			A
Clarity	C		Improving			B
E.Coli 260	E	E				A
E.Coli 540	E					A
E.Coli median	E	E	Improving			A
E.Coli Q95	D					A
DRP-median	B	C	Improving			B
DRP Q95	C					B
MCI	D					C
ASPM	D					C
Chlorophyll a						C
Habitat						B
Ecosystem respiration						C
FISH IBI						B

	Pomahaka at Burkes Ford					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2045
Nitrate-median	A		Improving			A
Nitrate-Q95	B					A
Amonia	A		Improving	Improving		A
Clarity	D		Improving	Degrading		B
E.Coli 260	B					A
E.Coli 540	C					A
E.Coli median	A		Degrading	Degrading		A
E.Coli Q95	D					A
DRP-median	C		Improving	Degrading		B
DRP Q95	B					B
MCI	D					C
ASPM	C					C
Chlorophyll a						C
Habitat						B
Ecosystem respiration						C
FISH IBI						B

	Pomahaka at Glenken					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2045
Nitrate-median	A		Improving	Degrading		A
Nitrate-Q95	A					A
Amonia	A	D	Improving	Improving		A
Clarity	C	D	Improving	Degrading		B
E.Coli 260	D	C				A
E.Coli 540	B					A
E.Coli median	D		Improving	Degrading		A
E.Coli Q95	B					A
DRP-median	A		Improving	Improving		B
DRP Q95	A					B
MCI	B					C
ASPM	B					C
Chlorophyll a						C
Habitat						B
Ecosystem respiration						C
FISH IBI						B

	Tuapeka at 700m u/s bridge					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2045
Nitrate-median	A					A
Nitrate-Q95	A					A
Amonia	A					A
Clarity	C					B
E.Coli 260	D					A
E.Coli 540	D					A
E.Coli median	D					A
E.Coli Q95	D					A
DRP-median	D					B
DRP Q95	C					B
MCI	C					C
ASPM	C					C
Chlorophyll a						C
Habitat						B
Ecosystem respiration						C
FISH IBI						B

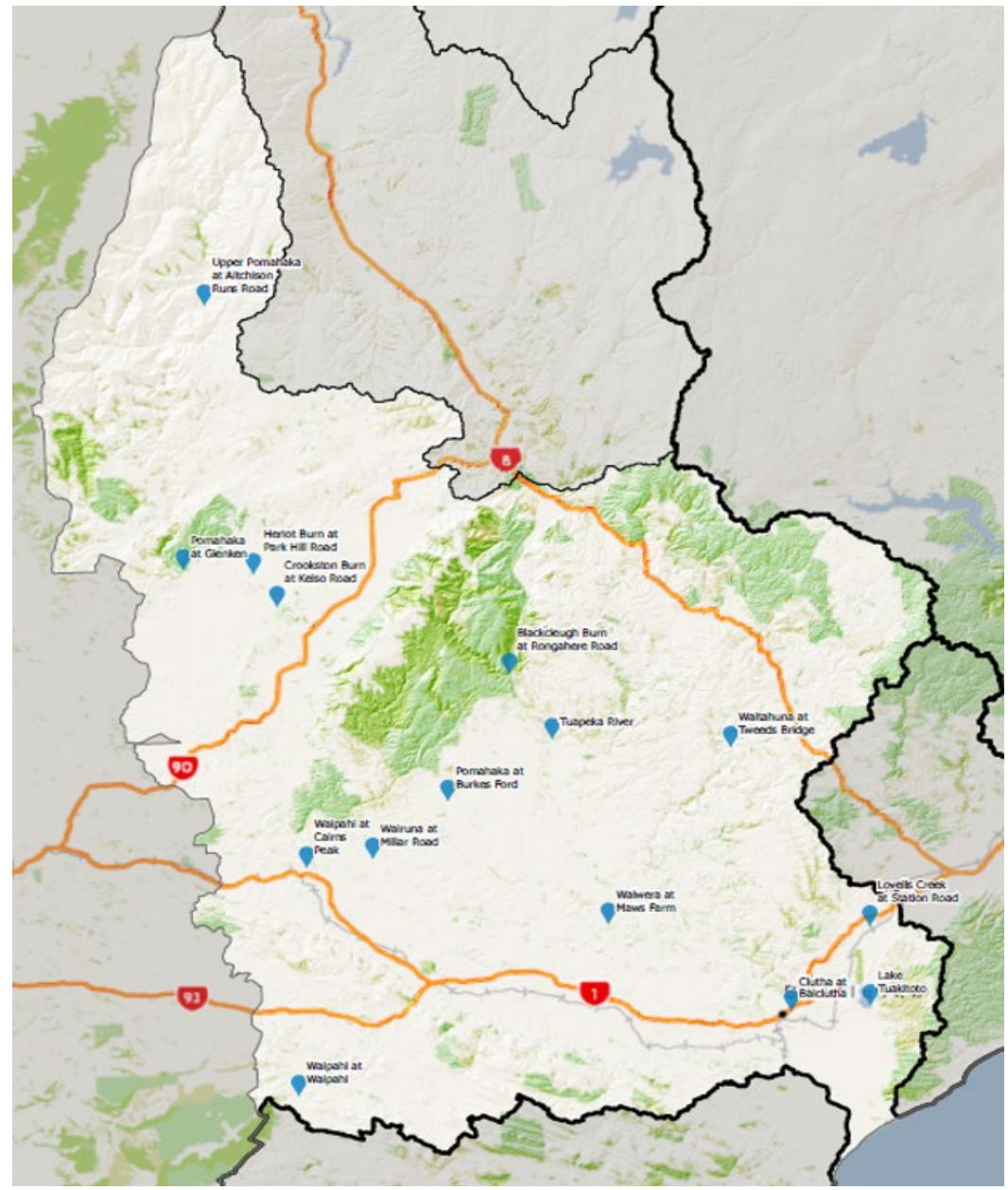
	Upper Pomahaka at Aitchison Runs Road					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2045
Nitrate-median	A					A
Nitrate-Q95	A					A
Amonia	A					A
Clarity	A					B
E.Coli 260	A					A
E.Coli 540	A					A
E.Coli median	A					A
E.Coli Q95	A					A
DRP-median	A					B
DRP Q95	A					B
MCI	B					C
ASPM	B					C
Chlorophyll a	A					C
Habitat	C					B
Ecosystem respiration	C					C
FISH IBI						B

	Waipahi at Cairns Peak					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2045
Nitrate-median	A		Improving			A
Nitrate-Q95	B					A
Amonia	A		Improving	Improving		A
Clarity	D		Improving	Improving		B
E.Coli 260	D					A
E.Coli 540	D	E				A
E.Coli median	D		Improving	Improving		A
E.Coli Q95	D					A
DRP-median	C		Improving	Improving		B
DRP Q95	C	B				B
MCI	C	C				C
ASPM	C	C				C
Chlorophyll a						C
Habitat						B
Ecosystem respiration						C
FISH IBI	A					B

	Waipahi at Waipahi					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2045
Nitrate-median	B		Improving	Degrading		A
Nitrate-Q95	B					A
Amonia	A		Improving	Improving		A
Clarity	A		Improving	Improving		B
E.Coli 260	D					A
E.Coli 540	C	C				A
E.Coli median	D		Degrading	Degrading		A
E.Coli Q95	D	D				A
DRP-median	C	C	Improving	Degrading		B
DRP Q95	C					B
MCI	D	D	Degrading	Degrading		C
ASPM	D	C				C
Chlorophyll a	C					B
Habitat						C
Ecosystem respiration	C					C
FISH IBI						B

	Wairuna at Millar Road					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2045
Nitrate-median	B		Degrading	Degrading		A
Nitrate-Q95	C					A
Amonia	B		Improving			A
Clarity	D		Improving			B
E.Coli 260	E					A
E.Coli 540	E					A
E.Coli median	E		Improving			A
E.Coli Q95	D					A
DRP-median	D		Improving			B
DRP Q95	D					B
MCI	D	D				C
ASPM	D					C
Chlorophyll a						C
Habitat						B
Ecosystem respiration						C
FISH IBI	A					B

	Waitahuna at Tweeds Bridge						Waiwera at Clutha confluence u/s 1km						Waiwera at Maws Farm					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2045	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2045	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2045
Nitrate-median	A		Improving			A						A	A		Improving			A
Nitrate-Q95	A					A						A	B					A
Amonia	B		Improving	Improving		A						A	B	B	Improving			A
Clarity	C		Improving	Degrading		B						B	A		Improving			B
E.Coli 260	E					A						A	D	C				A
E.Coli 540	E	C				A						A	D					A
E.Coli median	E		Improving	Degrading		A						A	D		Improving			A
E.Coli Q95	D					A						A	D					A
DRP-median	C		Improving	Degrading		B						B	D		Degrading			B
DRP Q95	C					B						B	D					B
MCI	C	B	Degrading	Degrading		C	D	D				C	C					C
ASPM	B	C				C	D	D				C	C					C
Chlorophyll a	A					C						C						C
Habitat	C					B						B						B
Ecosystem respiration	C					C						C						C
FISH IBI						B						B						B



MANUHEREKIA ROHE

	Dunstan at St Bathans Loop Rd					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2050
Nitrate-median	A					
Nitrate-Q95	A					
Amonia	A					
Clarity	B					
E.Coli 260	A					
E.Coli 540	A					
E.Coli median	A					
E.Coli Q95	A					
DRP-median	B					
DRP Q95	B					
MCI	C					
ASPM	C					
Chlorophyll a	C					
Habitat	B					
Ecosystem respiration	C					
FISH IBI	B					

	Dunstan Creek at Beattie Road					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2050
Nitrate-median	A		Degrading			
Nitrate-Q95	A					
Amonia	A		Improving	Improving		
Clarity	A		Improving	Degrading		
E.Coli 260	A					
E.Coli 540	B	A				
E.Coli median	A		Degrading	Degrading		
E.Coli Q95	B	A				
DRP-median	A		Improving	Improving		
DRP Q95	A					
MCI	B	C	Improving			
ASPM	A					
Chlorophyll a	A					
Habitat	A					
Ecosystem respiration	B					
FISH IBI	A					

	Hills Creek at SH85					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2050
Nitrate-median	A			Degrading		
Nitrate-Q95	A					
Amonia	B					
Clarity	B					
E.Coli 260	B					
E.Coli 540	C					
E.Coli median	A					
E.Coli Q95	B					
DRP-median	A					
DRP Q95	A					
MCI	D					
ASPM	D					
Chlorophyll a						
Habitat						
Ecosystem respiration						
FISH IBI						

	Manuherikia at Blackstone Hill					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2050
Nitrate-median	A		Degrading			
Nitrate-Q95	A					
Amonia	A		Improving			
Clarity	D		Degrading			
E.Coli 260	A					
E.Coli 540	B					
E.Coli median	A		Improving			
E.Coli Q95	B					
DRP-median	A		Improving			
DRP Q95	A					
MCI	C		Improving			
ASPM	B					
Chlorophyll a	B					
Habitat	B					
Ecosystem respiration	B					
FISH IBI	B					

	Manuherikia at Galloway					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2050
Nitrate-median	A		Degrading			
Nitrate-Q95	A					
Amonia	A		Improving	Improving		
Clarity	D		Degrading	Degrading		
E.Coli 260	B					
E.Coli 540	C	B				
E.Coli median	A		Degrading	Degrading		
E.Coli Q95	D	B				
DRP-median	B	C	Improving	Improving		
DRP Q95	B					
MCI	C					
ASPM	B					
Chlorophyll a	B					
Habitat	B					
Ecosystem respiration						
FISH IBI						

	Manuherikia at Ophir					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2050
Nitrate-median	A		Degrading	Degrading		
Nitrate-Q95	A					
Amonia	A		Improving	Degrading		
Clarity	D		Degrading	Degrading		
E.Coli 260	D					
E.Coli 540	D					
E.Coli median	D		Degrading	Degrading		
E.Coli Q95	D	B				
DRP-median	C		Improving	Improving		
DRP Q95	C					
MCI	B		Improving			
ASPM	B					
Chlorophyll a	B					
Habitat	B					
Ecosystem respiration						
FISH IBI	C					

	Manuherikia downstream of Fork					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2050
Nitrate-median	A			Degrading		
Nitrate-Q95	A					
Amonia	A					
Clarity	A					
E.Coli 260	A					
E.Coli 540	A					
E.Coli median	A					
E.Coli Q95	A					
DRP-median	A					
DRP Q95	A					
MCI	B					
ASPM	B					
Chlorophyll a						
Habitat						
Ecosystem respiration						
FISH IBI						

	Poolburn at Cob Cottage					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2050
Nitrate-median	A			Improving		
Nitrate-Q95	A					
Amonia	A					
Clarity	D					
E.Coli 260	D					
E.Coli 540	C					
E.Coli median	D					
E.Coli Q95	D					
DRP-median	D					
DRP Q95	D					
MCI	C					
ASPM	B					
Chlorophyll a						
Habitat						
Ecosystem respiration						
FISH IBI						

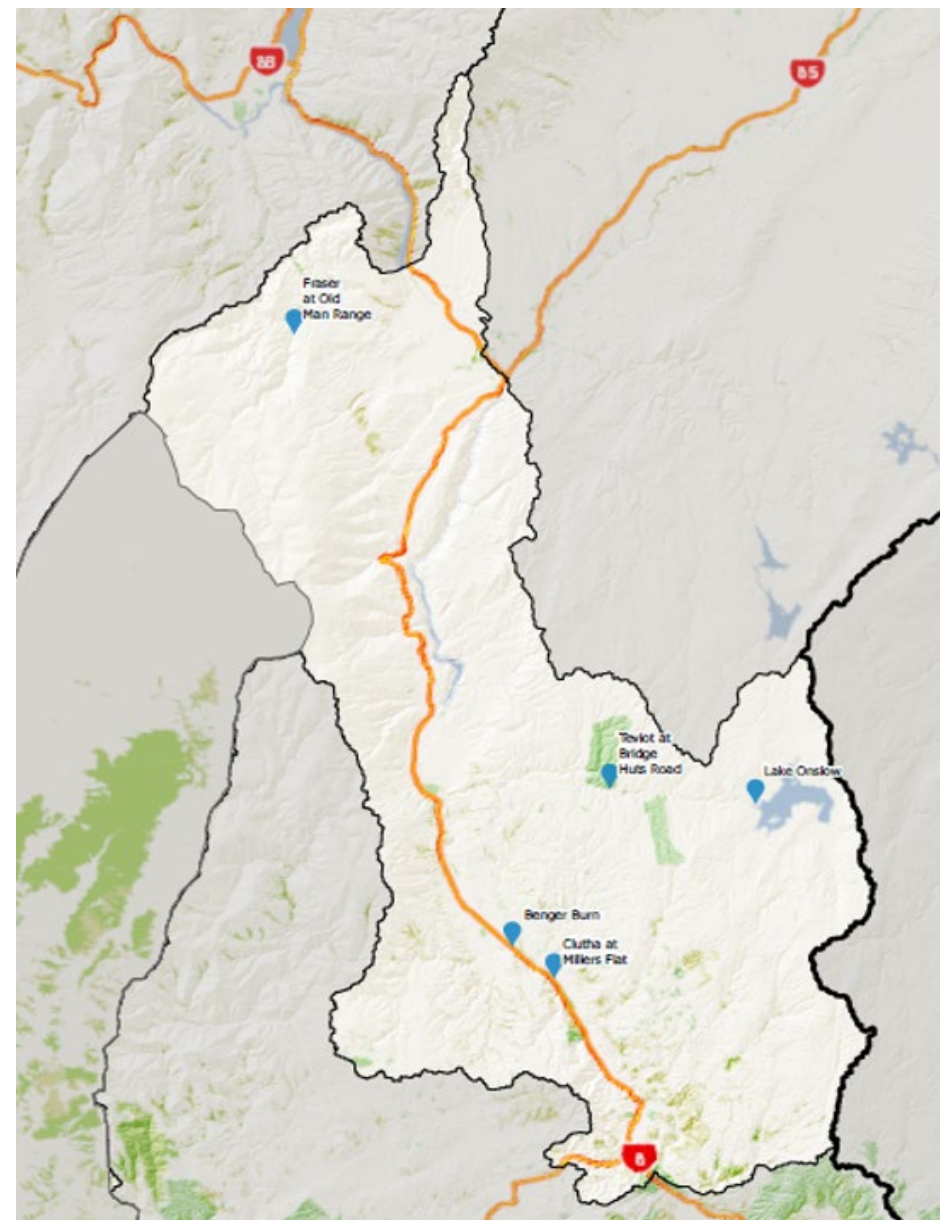
	Thomsons Creek at SH85					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2050
Nitrate-median	A		Degrading			
Nitrate-Q95	A					
Amonia	B		Improving			
Clarity	D		Degrading			
E.Coli 260	E					
E.Coli 540	E					
E.Coli median	E		Indeterminate			
E.Coli Q95	D					
DRP-median	D		Improving			
DRP Q95	D					
MCI	D					
ASPM	D					
Chlorophyll a						
Habitat						
Ecosystem respiration						
FISH IBI	B					



ROXBURGH ROHE

	Benger burn at Booths						Benger burn at SH8						Clutha at Millers Flat						Fraser at Old Man Range					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2045	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2045	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2045	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2045
Nitrate-median	A					A	A					A			Improving	Degrading		A	A			Degrading		A
Nitrate-Q95	A					A	A					A						A	A					A
Amonia	A					A	A					A			Improving	Degrading		A	A					A
Clarity	D					A	B					C	D	Improving	Degrading		A	A						A
E.Coli 260	D					A	A					A						A	A					A
E.Coli 540	D					A	B					A						A	A					A
E.Coli median	D					A	A					A			Degrading	Degrading		A	A					A
E.Coli Q95	D					A	D					A						A	A					A
DRP-median	C					A	C					A			Not Analysed	Not Analysed		A	A					A
DRP Q95	A					A	C					A						A	A					A
MCI	C					B						D						B	C					B
ASPM	B					B						D						B	C					B
Chlorophyll a						B												B						B
Habitat						B												B						B
Ecosystem respiration						A												A						A
FISH IBI						B												B						B

	Teviot at Bridge Huts Road					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2045
Nitrate-median	A			Improving		A
Nitrate-Q95	A					A
Amonia	A					A
Clarity	D					A
E.Coli 260	A					A
E.Coli 540	A					A
E.Coli median	A					A
E.Coli Q95	B					A
DRP-median	A					A
DRP Q95	A					A
MCI	C					B
ASPM	C					B
Chlorophyll a						B
Habitat						B
Ecosystem respiration						A
FISH IBI						B



UPPER LAKES ROHE

	12 Mile Creek at Glenorchy Queenstown Road						25 Mile Creek at Glenorchy Queenstown Road						Alpha Burn at Glendhu Bay						Buckler Burn at Glenorchy Queenstown Road					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2030	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2030	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2030	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2030
Nitrate-median	A					A	A					A						A	A					A
Nitrate-Q95	A					A	A					A						A	A					A
Amonia	A					A	A					A						A	A					A
Clarity	A					A	A					A						A	A					B
E.Coli 260	A					A	A					D						A	A					A
E.Coli 540	A					A	A					D						A	A					A
E.Coli median	A					A	A					D						A	A					A
E.Coli Q95	A					A	A					D						A	A					A
DRP-median	A					A	A					A						A	A					A
DRP Q95	A					A	A					A						A	A					A
MCI	B					B	B					B						B	A					C
ASPM	B					B	B					B						B	A					C
Chlorophyll a	A					A	A					A						A	A					A
Habitat	A					A	A					A						A	A					A
Ecosystem respiration	B						A																	A
FISH IBI	A					B						B						B						B

	Bullock Creek at Dunmore Street Footbridge						Craig Burn at SH6						Dart at The Hillocks						Dundas Creek at Mill Flat					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2030	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2030	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2030	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2030
Nitrate-median	A					A	A					A						A	A					A
Nitrate-Q95	A					A	A					A						A	A					A
Amonia	A					A	A					A						A	A					A
Clarity	A					A	A					A						A	A					A
E.Coli 260	D					A	A					A						A	A					A
E.Coli 540	E					A	A					A						A	A					A
E.Coli median	D					A	A					A						A	A					A
E.Coli Q95	D					A	A					A						A	A					A
DRP-median	A					A	A					A						A	A					A
DRP Q95	A					A	A					A						A	A					A
MCI	C					B	D					B						B	A					B
ASPM	C					B	D					B						B	A					B
Chlorophyll a	D					A						A						A	A					A
Habitat	A					A						A						A	A					A
Ecosystem respiration	A																							A
FISH IBI						B						B						B						B

	Greenstone at Greenstone Station Road						Hawea at Camphill Bridge						Horn Creek at Queenstown Bay						Invincible Creek at Rees Valley Road					
	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2030	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2030	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2030	Current State	2017 Baseline	10y Trend	20y Trend	Interim Target	Target 2030
Nitrate-median	A					A	A					A						A	A					A
Nitrate-Q95	A					A	A					A						A	A					A
Amonia	A					A	A					A						A	A					A
Clarity	A					A	A					A						A	A					A
E.Coli 260	A					A	A					A						A	A					A
E.Coli 540	A					A	A					A						A	A					A
E.Coli median	A					A	A					A						A	A					A
E.Coli Q95	A					A	A					A						A	A					A
DRP-median	A					A	A					A						A	A					A
DRP Q95	A					A	A					A						A	A					A
MCI	B					B	D					B						B	A					B
ASPM	B					B	D					B						B	A					B
Chlorophyll a	A					A						A						A	A					A
Habitat	A					A						A						A	A					A
Ecosystem respiration	A																							A
FISH IBI						B						B						B						B

