21 April 2017

Clean Water Consultation 2017
Ministry for the Environment
PO Box 10362
Wellington 6140

watercomments@submissions.mfe.govt.nz

Dear Minister Smith

RE: Clean Water 2017

1.0 Introduction

1.1 Christchurch City Council (the Council) thanks the Ministry for the Environment and the Ministry for Primary Industries for the opportunity to make a submission on the discussion document *Clean Water 2017*.

1.2 There are five key areas on which the Council is commenting:

- Absence of a proposal for groundwater quality and/or quantity attribute(s)
- Swimmability determination
- Proposed amendments to the National Policy Statement for Freshwater Management
- Freshwater Improvement Fund
- Mapping of swimmable rivers and lakes
- Future work programme.

1.3 Should you require any further information, please contact Ms Helen Beaumont by telephone at 03 941 5190 or by email at helen.beaumont@ccc.govt.nz.

2.0 Background

2.1 In April 2016 Ministry for the Environment and the Ministry for Primary Industries signalled changes to the way in which fresh water is managed in the discussion document *Next Steps for Fresh Water*.

2.2 The Council's submission on that discussion document included the following points:

a) recommended that a programme of work is initiated with urgency to expand the National Policy Statement for Freshwater Management (NPS-FM) to include groundwater-related attributes

b) supported the proposal to apply the requirement to 'maintain or improve water quality' to each freshwater management unit

c) supported the use of the Macroinvertebrate Community Index as a measure of ecosystem health

d) recommended the inclusion of local council representatives in the development of a macroinvertebrate measure and that these include Environment Canterbury and Christchurch City Council

e) supported inclusion of 'intermittently closing and opening lakes and lagoons' in the same thresholds and national bottom lines as lakes

f) supported stock exclusion requirements with some modifications, such as simplifying compliance dates and adding sheep and goats to the list of stock to be excluded.

2.3 We note that some of our recommendations are reflected in the *Clean Water 2017* discussion document.

2.4 Water is a strategic priority for the Council. To that end the Council is working collaboratively with Environment Canterbury and Ngai Tahu to progress freshwater management in Christchurch through means such as a regular Water Forum and the three water management zone committees.

2.5 The Council has undertaken a number of initiatives and programmes[1] to enhance freshwater including, but not limited to:

a) stormwater management plans for the major catchments in Christchurch

b) three water-related Council strategies (water supply, surface water and wastewater) and an integrated water strategy to update and better align the 'three waters'

c) publishing the *Waterways, Wetlands and Drainage Guide*

d) Capital and operational programmes to reduce stormwater contaminants and improve water quality, employing 'six-values' approach – drainage, landscape, ecology, recreation, culture and heritage

e) support of and participation in water management zone committees

f) membership and participation in Te Waihora Co-Governance Group, a partnership between the Council, Environment Canterbury, Ngāi Tahu and Selwyn District Council to enhance sustainable management of the lake and its catchment

g) a water quality monitoring programme:

- waterways monitoring of over 40 sites in urban Christchurch, with Environment Canterbury monitoring waterways on Banks Peninsula
- sediment monitoring on a five-yearly rotating catchment basis
- ecological monitoring of riparian and instream habitat and aquatic biota on a five-yearly rotating catchment basis.

[1] River catchment: vision and values, https://ccc.govt.nz/environment/water/waterways/river-catchment-vision-and-values; *Waterways, Wetlands and Drainage Guide*, https://www.ccc.govt.nz/environment/water/water-policy-and-strategy/waterways-wetlands-and-drainage-guide; Monitoring water quality, https://ccc.govt.nz/environment/water/waterways/waterway-monitoring/water-quality/; Monitoring sediment quality, https://ccc.govt.nz/environment/water/waterways/waterway-monitoring/sediment-quality/; Monitoring waterways ecology, https://ccc.govt.nz/environment/water/waterways/waterway-monitoring/ecology/.

3.0 Submission

General comments

3.1 In the Council's submissions on the proposed 2013 proposed changes to freshwater management 2014 NPS-FM amendments and the 2016 N*ext Steps for Fresh Water* discussion document we recommended that the Government give further consideration to provision of groundwater-related attributes in the NPS-FM.

3.2 With the exception of the Freshwater Improvement Fund, groundwater is excluded from the proposed changes to the NPS-FM and the *Clean Water 2017* discussion document. The 2008 proposed National Environmental Standard on Ecological Flows, still on hold, included groundwater levels, but did not consider groundwater quality.

- Given the importance of groundwater resources both locally within the Canterbury region and nationally, **we strongly recommend** that the Government expand the NPS-FM to include groundwater-related attributes. National guidance for management of groundwater quality and quantity is urgently needed.

Swimmable rivers and lakes

3.3 The discussion document highlights the Government's intention to tie human health for recreation to 'swimmability'. We support the intent of this move as it reflects the desires of our citizens to have swimmable water bodies. However, it is our view that that the goal should be that it should be safe to swim in all of our rivers and lakes.

- **We recommend** that the target for swimmable rivers and lakes should be increased to 100% by 2040.

3.4 We find it difficult to support some of the proposals in the discussion document and the subsequent changes indicated within the NPS-FM where they are poorly presented and explained.

3.5 There is insufficient supporting information that makes it clear how the proposed human health for recreation (*E. coli*) Attribute States or bands were derived. There is no clear link between the scientific reports done by National Institute of Water and Atmospheric Research Ltd (NIWA) or the Land and Water Forum and what has been included in the updated *E. coli* attribute table. Further, it is unclear how the threshold value for *E.coli* relates to Ministry of Health guidelines.

3.6 The discussion document states that the proposals for swimmability are 'comparable with European standards' and the supplemental questions and answers document on the Government web site says that the proposal 'aligns closely with the way European countries and the US assess risk and suitability for swimming.' This is partly true, in that the European Union and the US use a graded system of suitability for recreation. However, the proposed New Zealand system uses different statistics to support each Attribute State 'grade', and it is unclear how that grading system compares internationally; the supporting documentation does not make this analysis.

3.7 It appears that water bodies deemed safe for swimming are water bodies that fall within the excellent, good and fair categories, which are identified as A, B and C in the proposed amendments to the NPS-FM. Elsewhere in the discussion document these are referred to as blue, green and yellow.

- **We suggest** that a consistent nomenclature is used with respect to the swimmability criteria in both the NPS-FM and in discussion documents, and that the terminology used is

descriptive of the state of the water body (e.g., good or poor) rather than the use of colour names (e.g. green or red).

3.8 The discussion document states that the 'E. coli guideline value for rivers is 540 E. coli per 100 mls' later referring to this as a 'threshold' in proposed amendments to the NPS-FM. It is confusing to read on the Ministry's web site[2] that:

> *'All swimmable categories (Blue, Green, Yellow) must also meet another test, which is to have a median of ≤130 E. coli per 100 ml. This ensures the risk of infection people face when swimming is less than 1 in 1000 at least half of the time*.'

Nowhere in the discussion document is there mention of the requirement for water bodies in bands A, B and C (swimmable categories Blue, Green and Yellow) to meet this test for a median of less than 130 E. coli per 100 millilitres.

- **We recommend** that all requirements for determining swimmability based on *E.coli* are clear, unambiguous and included within the NPS-FM rather than distributed over different documents, regulations and web pages.

3.9 The discussion document describes two dissimilar means by which the swimmability target would apply to rivers. In the narrative portion of the discussion document (page 10) it is proposed that the target applies to 'rivers than are deep enough to swim in' and lakes with perimeters longer than 1500 metres. However proposed amendments to the NPS-FW would seem to indicate that the target applies to 'large rivers and lakes'. We discuss this further in our comments about the proposed amendments to the NPS-FM below.

- **We recommend** that the consideration of 'swimmability' is subjected to a more robust analysis. If the basis for determining swimmability is to use *E.coli* as an indicator species, the information and reasoning behind this determination should be provided.

3.10 There is no indication in either the narrative portion of the discussion document or in the proposed amendments to the NPS-FM concerning artificial water bodies and whether they are included in scope of water bodies subject to the swimmability target.

- **We recommend** that the status of artificial water bodies is clarified.

Proposed amendment to the NPS-FM - Human Health for Recreation

3.11 As noted above in our comments on swimmability proposals, the amendments to the NPS-FM regarding human health for recreation are flawed.

3.12 Based on the proposed amendments to the NPS-FM swimmability only applies to larger water bodies, as:

a) The proposed amendment to the Preamble states:

'For large lakes and rivers, the water quality in terms of E. coli levels must be improved. '

b) The proposed new Objective A3 is:

'*The quality of fresh water in large rivers and lakes is improved so the risk to human health is reduced and they are suitable for immersion more often.*'

c) The proposed new Policy A5 states:

[2] Water quality for swimming categories (attribute states) in detail; http://www.mfe.govt.nz/fresh-water/freshwater-management-reforms/water-quality-swimming-categories-attribute-states-detail

'*By every regional council making or changing regional plans to the extent needed to ensure the plans*

a) identify large rivers and lakes and whether they are suitable for immersion and;

b) state what improvements will be made to large rivers and lakes so they are suitable for immersion more often and over what timeframe.

For purposes of A5(a), suitable for immersion means large rivers and lakes in Attribute State A, B or C in the E. coli attribute table in Appendix 2 of this national policy statement.'

d) Amendments to Policy CA2 adds a new section (f) direct Regional Councils to consider:

'*iaaa. how to improve the quality of fresh water in large rivers and lakes so the human health risk is reduced and they are suitable for immersion more often;*'

3.13 Large rivers and lakes are defined as '*rivers that are fourth order and above and lakes larger than 1.5 kilometres in perimeter on average*'.

3.14 As we noted in our comments above, the narrative portion of the discussion document indicates that the swimmability standard would apply to rivers 'deep enough to swim in' and lakes with perimeters greater than 1500 metres. If the swimmability target is intended to apply to bodies of water than are large and deep enough in which to swim, the proposed NPS-FM should be written in a way that makes this clear.

- **We recommend** that the wording in the NPS-FM is amended to that here is no confusion over about the bodies of water to which the swimmability attribute applies and the bodies of water for which a sampling and monitoring scheme applies.

3.15 Concerns have been raised that freshwater bodies not meeting the definition of 'large rivers and lakes' routinely used for swimming will not be included in the Human Health for Recreation requirements in the NPS-FM. It is our view that freshwater bodies that are routinely used for swimming should not be excluded because they are not 'large rivers and lakes'.

- **We recommend** that freshwater bodies subject to the NPS-FM Human Health for Recreation requirements should not be limited to 'large rivers and lakes' but rather that there is recognition in the NPS-FM where those freshwater bodies have routinely been used for swimming.

3.16 The threshold for *E.coli* in the Human Health for Recreation attribute table is proposed as 540 per 100 millilitres. The proposed A (Blue) band would be for waters that exceed this threshold less than five percent of the time. The current NPS-FM Human Health for Recreation attribute table has an A band for which the annual median and 95th percentile is not more than 260 *E. coli*. It appears that the proposed A (Blue) band is less stringent than the current A band.

3.17 The proposed *E. coli* Attribute States appear to be excessively complicated, especially when compared with the supporting NIWA report available on the Ministry's website, or when compared with other guidelines, such as the European Union Bathing Water Directive (2006).

3.18 The proposed amendments to the *E. coli* Attribute in the NPS-FM do not include all of the qualifiers to calculate inclusion in each Attribute State. Absent from the proposed *E. coli* attribute table are: median *E. coli* counts, 95th percentile limits, and percentage of samples exceeding 260 *E. coli*.

- **We strongly recommend** that the *E.coli* attribute is not relaxed or diminished compared to the current NPS-FM.
- **We also recommend** that as a preferred option the method for calculating the *E. coli* Attribute State is simplified. Alternatively we recommend that tables 1 and 2 on the Ministry's web site[3] are used in the NPS-FM.

Other amendments to NPS-FM

3.19 The Preamble clarifies that national bottom lines are not standards to aim for but minimums to be achieved where water quality is currently below national bottom lines. The Preamble also clarifies that improvements in water quality are for each freshwater management unit not averaged over the region as a whole, and this is reflected in proposed changes to Objective A2.

- **We support** these clarifications in the NPS-FM.

3.20 We note that the NPS-FM is silent on declining water quality changes in fresh water quality within a band. For example a water body might over time show an increased concentration of ammoniacal-nitrogen from 0.05 milligrams per litre to 0.22 grams per litre, a decline within the B band for the Ammonia attribute, with concentrations above 0.24 milligrams and at or below 1.30 milligrams per litre of ammoniacal-nitrogen falling into the C band. It is our view that significant downward trends over time towards the next lower quality band should be prevented.

- **We recommend** that the NPS-FM is amended to include a provision to prevent significant long-term downward water quality trending within a band towards the next lower band.

3.21 Current policy CA3 in the NPS-FM allows regional councils to set one or more objectives for a freshwater body below national bottom lines where the water quality is already below the national bottom lines and is caused by naturally occurring processes or existing infrastructure listed in Appendix 3 (currently empty) contributes to the existing water quality.

3.22 Amendments are proposed to this policy to add that setting objectives below national bottom lines must be when it is 'reasonably necessary' to realise the benefits provided by the listed infrastructure. 'Benefits' are defined as 'the positive effects of the infrastructure on the well-being of the community and can include but are not limited to renewable electricity generation, employment and economic well-being.' There is no mention made of a requirement to investigate ways to reduce impacts of infrastructure on aquatic ecosystems.

- **We recommend** that the amendments to Policy CA3 of the NPS-FM include a requirement to consider options to reduce impacts of infrastructure on freshwater ecosystems.

3.23 In the 2016 discussion document the question was raised as to whether attributes and attribute bands for lakes should be applied to intermittently losing and opening and lakes and lagoons (ICOLLs). In the current discussion document three water quality attribute tables for lakes related to trophic state (phytoplankton, total nitrogen and total phosphorous) have had text added for ICOLLs.

3.24 We understand the need for and support the introduction of standards for ICOLLs, although we have some reservations about the application of freshwater lake standards to brackish water bodies.

[3]Water quality for swimming categories (attribute states) in detail. http://www.mfe.govt.nz/fresh-water/freshwater-management-reforms/water-quality-swimming-categories-attribute-states-detail

- While **we support** the setting of limits for ICOLLs **we recommend** that the Ministry work with regional councils in which these water bodies are located to develop the most appropriate limits for ICOLLs.

3.25 A proposed amendment to Policy CB1 adds a requirement for regional councils to include macroinvertebrate monitoring in their water quality monitoring plan, although the macroinvertebrate monitoring method and criteria for assessing the results of the macroinvertebrate monitoring are not included. Earlier in the discussion document it states that macroinvertebrate monitoring can only be done in rivers and streams where it is 'possible for someone to wade into the river and gather the necessary data'. Since this limitation is not noted in the proposed amendment to Policy CB1 it is presumably feasible for a regional council to undertake macroinvertebrate sampling in water in which it is too deep to wade.

Stock exclusion from waterways

3.26 We supported stock exclusion from waterways in our submission on the 2016 discussion document. We note that steeper land, with slopes greater than 15 degrees, has been included in the proposals for stock exclusion. We had suggested this change in our 2016 submission and support this addition in the current discussion document.

3.27 We note that there are policies and rules in place in the Canterbury Land and Water Regional Plan to exclude stock from water bodies[4].

- **We support** the proposal to draft regulations to exclude stock from waterways, but **suggest**, as we did in 2016, that the regulation is simplified, to reduce or eliminate the multiple timeframes shown.
- **We recommend** that regulations for stock exclusion from waterways should include setback distances for fencing.

Funding to improve fresh water

3.28 The Freshwater Improvement Fund will make $100 million available to improve freshwater management over 10 years. Page 23 of the discussion document states that the fund is focussed on water bodies in 'vulnerable catchments' that are '…showing signs of stress but have not yet reached a 'tipping point' where it becomes more expensive and more difficult to restore these water bodies to good health.'

3.29 The four criteria used to identify vulnerable catchments (water quality, pressures, economic significance and ecological significance[5]) could arguably apply to other catchments in Christchurch. For example, spring-fed streams in Christchurch are vulnerable to nitrate-enriched groundwater from upgradient farmland, and their flows are vulnerable to groundwater extraction for irrigation and water supply.

- **We recommend** that the Ministry further consider catchments eligible for the Freshwater Improvement Fund.
- **We also recommend** that priority for allocation of funding should first and foremost focus on projects that will enhance water quality.

Swimmability maps

3.30 Annex 2 of the discussion document provides maps of water bodies showing water quality rankings from excellent to poor. The discussion document also references the Ministry's

[4] *Land and Water Regional Plan*, policies 4.31 and 4.32 and rules 5.68 through 5.71.
[5] Summary of data used to identify vulnerable catchments. http://www.mfe.govt.nz/sites/default/files/media/summary-data-vulnerable-catchments_0.pdf

online Water Quality for Swimming maps. It is unclear how these maps were created. It appears that the modelling for these maps did not follow the requirement of weekly summer monitoring and a minimum of monthly monitoring for the rest of the year, as recommended by new Appendix 5 in the proposed changes to the NPS. Further, it is unclear whether the water bodies shown on these maps are intended to be the 'large rivers and lakes' as described in the proposed changes to the NPS-FM (rivers that are fourth order and above and lakes with perimeters greater than 1500 metres).

3.31 The water bodies within Christchurch's boundaries shown in Annex 2 and on the Ministry's Water Quality for Swimming maps are Otukaikino Creek, Ōpāwaho/Heathcote River, Te Waihora/Lake Ellesmere and Te Roto o Wairewa/Lake Forsyth.

3.32 We question why other fourth order rivers and streams rivers within Christchurch's boundaries are missing from the Ministry's maps. The River Environment Classification (2010 version) has been used by Council staff to identify stream orders. The map accompanying this submission in Attachment A shows that in addition to Otukaikino Creek and Ōpāwaho/Heathcote River the following rivers and streams within Christchurch's boundaries are fourth order or larger: Pūharakekenu/Styx River (lower reaches), Ōtākaro/Avon River (downstream of Wairarapa Stream), Kaituna River, Prices Stream (lower reaches), Okana River, and Opara Stream in Okains Bay.

- **We suggest** that greater clarity is provided concerning the water bodies shown in the Ministry's online Water Quality for Swimming maps

3.33 If artificial water bodies are to be included on the Water Quality for Swimming maps there is an additional water body that may need to be included within Christchurch: Lake Kaikainui, the largest lake at Clearwater Golf Resort, has a perimeter of just over 1500 metres.

- **We suggest** that the Ministry clarify whether artificial water bodies are to be included on the Water Quality for Swimming maps.

Future work programme

3.34 Many low-land urban water bodies have impaired water quality and have been affected by contaminants over which local councils have limited control. Infrastructure such as detention basins, swales and stormwater filtration systems may not be completely effective in removing urban contaminants such as copper and zinc.

3.35 The Government needs to take leadership on eliminating sources of urban waterway contaminants such as brake pads and building materials that leach metals into waterways.

- **We strongly recommend** that the future work programme includes initiatives aimed at reducing urban contaminants at source, such as heavy metals from brake pads and building materials.

4.0 Concluding Remarks

4.1 In summary, the Council makes the following submission. We:

a) strongly recommend that the Government expand the NPS-FM to include groundwater-related attributes;

b) recommend that the target for swimmable rivers and lakes should be increased to 100% by 2040;

c) suggest that a consistent nomenclature is used with respect to the swimmability criteria in both the NPS-FM and in discussion documents, and that the terminology used is descriptive of the state of the water body (e.g., good or poor);

d) recommend that all requirements for determining swimmability based on E.coli are clear, unambiguous and included within the NPS-FM;

e) recommend that the consideration of 'swimmability' is subjected to a more robust analysis;

f) recommend that the status of artificial water bodies is clarified;

g) recommend that the wording in the NPS-FM is amended to that here is no confusion over about the bodies of water to which the swimmability attribute applies and the bodies of water for which a sampling and monitoring scheme applies;

h) recommend that freshwater bodies subject to the Human Health for Recreation requirements should not be limited to 'large rivers and lakes' but rather that there is recognition in the NPS-FM where those freshwater bodies have routinely been used for swimming;

i) strongly recommend that the *E.coli* attribute is not relaxed or diminished compared to the current NPS-FM;

j) recommend that as a preferred option the method for calculating the E. coli Attribute State is simplified;

k) support the clarification of the NPS-FM that national bottom lines are not standards to aim for but minimums to be achieved where water quality is currently below national bottom lines;

l) recommend that the NPS-FM is amended to include a provision to prevent significant long-term downward water quality trending within a band towards the next lower band;

m) recommend that the amendments to Policy CA3 of the NPS-FM include a requirement to consider options to reduce impacts of infrastructure on freshwater ecosystems;

n) support the setting of limits for ICOLLs and recommend that the Ministry work with regional councils in which these water bodies are located;

o) support the proposal to draft regulations to exclude stock from waterways, but suggest, as we did in 2016, that the regulation is simplified, to reduce or eliminate multiple timeframes;

p) recommend that regulations for stock exclusion from waterways should include setback distances for fencing;

q) recommend that the Ministry further consider catchments eligible for the Freshwater Improvement Fund;

r) recommend that priority for allocation of funding should first and foremost focus on projects that will enhance water quality;

s) suggest that greater clarity is provided concerning the water bodies shown in the Ministry's online Water Quality for Swimming maps ;

t) suggest that the Ministry clarify whether artificial water bodies are to be included on the Water Quality for Swimming maps.

u) strongly recommend that the future work programme includes initiatives aimed at reducing urban contaminants at source, such as heavy metals from brake pads and building materials.

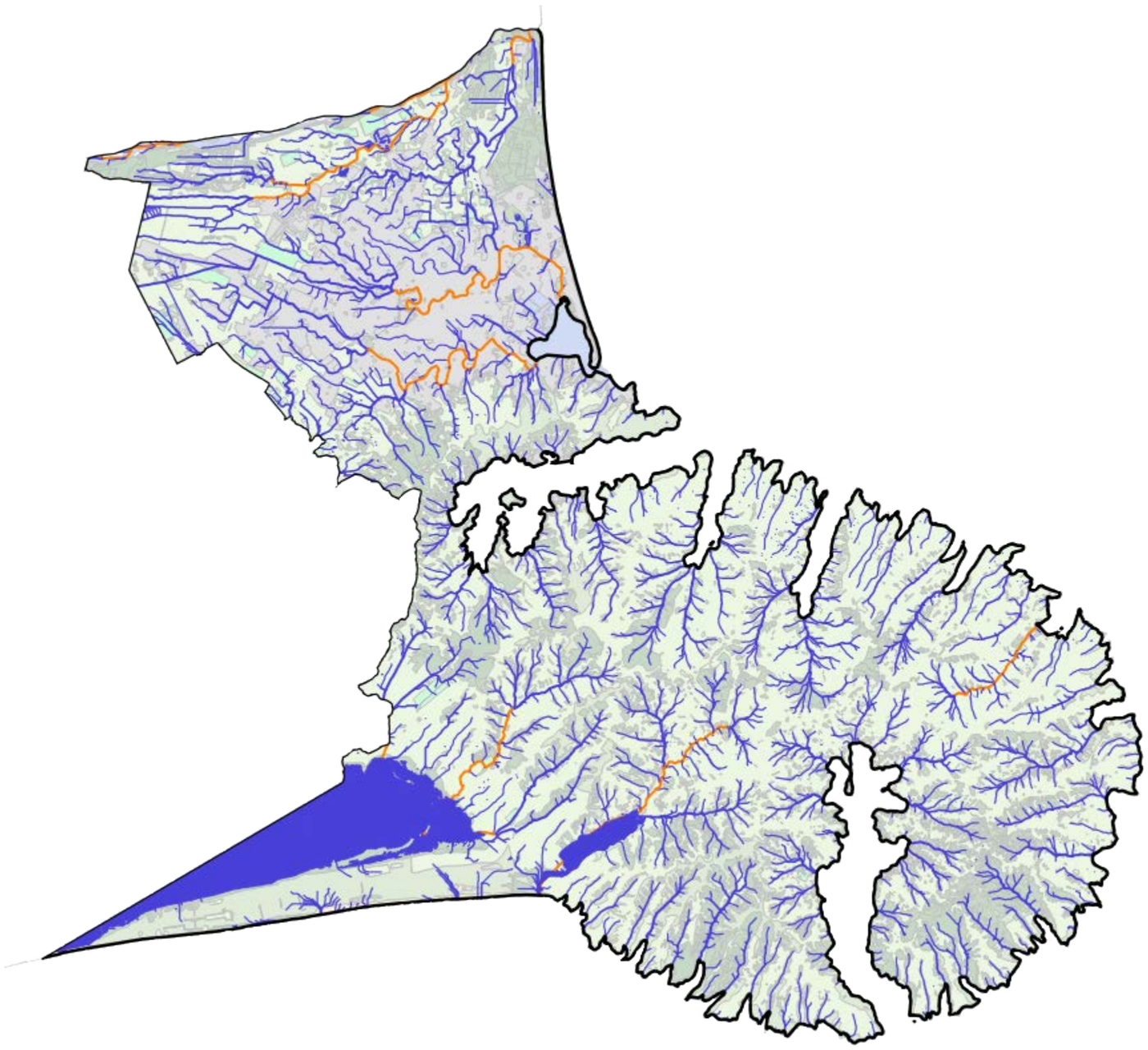
4.2 If you require clarification of the points raised in this submission, or additional information, please contact Helen Beaumont, Strategic Policy Unit Manager, by phone 03 941 8812 or by email at helen.beaumont@ccc.govt.nz.

Yours faithfully

Hon Lianne Dalziel
Mayor of Christchurch

On behalf of CHRISTCHRUCH CITY COUNCIL

Attachment A
Rivers and Streams in Christchurch



From *River Environment Classification* (2010 version). Rivers and streams that are fourth order or larger are shown in orange, while third order and smaller rivers and streams are in blue. The following rivers within Christchurch City's boundaries are 4th order or larger for some part of them: Otukaikino Creek; Styx River (lower reaches); Avon River (downstream of Wairarapa Stream); Heathcote River (downstream of Curletts Road); Kaituna River; Prices Stream (lower reaches); Okana Rive; and Opara Stream (Okains Bay). The Halswell River 4th order reach is mostly within Selwyn District, except for the old river channel near the lake.