

# Developing a freshwater management framework for the Catlins FMU

STAGE 1 COMMUNITY CONSULTATION - OVERVIEW REPORT  
OF FEEDBACK RECEIVED (FEBRUARY 2022)

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# 1 Introduction

## 1.1 Purpose of the Report

This report summarises the results from the first stage of community consultation undertaken to develop a planning framework for managing freshwater in the Catlins FMU.

## 1.2 Regulatory context

In 2019, Otago Regional Council (ORC) committed to develop and notify a new Land and Water Regional Plan (LWRP), that gives effect to the National Policy Statement for Freshwater Management 2020 (NPSFM) by 31 December 2023.<sup>1</sup>

Under the NPSFM regional councils are required to identify Freshwater Management Units (FMUs) for the region at an appropriate spatial scale for freshwater management. Each FMU must reflect the unique circumstances of each region, as these circumstances will dictate what freshwater objectives and limits will be set within the FMU.<sup>2</sup> Five FMUs have been identified for the Otago region, these are: Clutha-Mata-au, Taieri, North Otago, Dunedin & Coast and Catlins. The Clutha-Mata-au FMU has been further subdivided into five rohe. (A map showing the boundary of the Catlins FMU is shown in Appendix 1.)

Under the NPSFM regional councils are also required to identify values related to freshwater applying to an FMU or part of an FMU. Regional councils must develop environmental outcomes for each of these values and set these as objectives in a plan. Attributes must then be identified for each value, along with baseline and target attribute states and environmental flows/levels and limits designed to support the achievement of the environmental outcomes. These environmental outcomes and limits must be developed through engagement with the community and active involvement of takata whenua regarding their values and aspirations.<sup>3</sup>

The NPSFM has identified 4 compulsory values that apply to every FMU and 9 other values that must also be considered as applying to an FMU or part of an FMU.<sup>4</sup> Other values identified by the community are also to be considered.<sup>5</sup> Appendices 2A and 2B of the NPSFM list attributes that need to be managed, e.g. total nitrogen is an example of a relevant attribute.

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<sup>1</sup> NPSFM 2020 <https://environment.govt.nz/publications/national-policy-statement-for-freshwater-management-2020/>.

<sup>2</sup> NPSFM Clauses 1.4 and 3.8(1).

<sup>3</sup> While environmental outcomes (and target attribute states, environmental flows/levels and limits) set in the new LWRP need to be developed through engagement with the community and active involvement of takata whenua, the outcomes achieved must meet the national bottom lines set in the NPSFM, achieve the objective of the NPSFM and fulfil the relevant long-term visions set in the regional policy statement.

<sup>4</sup> NPSFM Clause 3.9(1), Appendix 1A Ecosystem Health, Human contact, Threatened species, and Mahinga kai, and NPSFM Appendix 1B Natural form and character, Drinking water supply, Wai tapu, Transport and tauranga waka, Fishing, Hydro-electric power generation, Animal drinking water, Irrigation, cultivation, and production of food and beverages, and Commercial and industrial use

<sup>5</sup> NPSFM Clause 3.9 (2)

### 1.3 Purpose of the Consultation

The first stage of community consultation on the new LWRP in the Catlins FMU took place in November and December 2021. This stage was aimed at identifying community values related to freshwater that will inform the setting of environmental outcomes for each value.

By undertaking this community consultation process, ORC is meeting its obligation to engage with communities under Clause 3.7 (National Objectives Framework process) of the NPSFM.

The process will also assist ORC with fulfilling its statutory requirements under Clause 3 of Schedule 1 of the RMA, including ensuring that consultation is undertaken in accordance with the principles set out in section 82 of the Local Government Act 2002.

### 1.4 Future consultation stages

The next consultation stage in the Catlins FMU is scheduled to take place later in 2022. It will focus on presenting environmental outcomes for all values identified as well as management options to achieve these outcomes.

## 2 Consultation approach

### 2.1 Consultation methods

The first consultation stage for the Catlins FMU consisted of:

- An in-person interactive drop-in session, which took place in Owaka in the afternoon and evening of Monday 29 November 2021.
- An online survey questionnaire that was published and available on the ORC website over the period 29 November 2021 to 20 December 2021.

The purpose of the in-person interactive sessions and online questionnaire was firstly, to gain an understanding of what characteristics for each value matter to the community and secondly, whether the community thought those characteristics are currently being provided for. Participants were also asked to identify locations on maps where they enjoy each value and to identify any characteristics or values that were not identified.

This feedback will be used to identify all the values that are important to the community, while also helping to inform the setting of environmental outcomes for each value and the identification of attributes for assessing the achievement of these outcomes.

During consultation people were asked to comment on characteristics of a value instead of attributes, as this allowed them to provide feedback in simple plain terms on easy-to-understand concepts. Attributes (as referred to in the NPSFM) are a representation of these characteristics in more technical terms, allowing the condition or state of this value to be assessed in objective and, where practicable, numeric terms. Examples of characteristics for the value of swimming include water clarity and risk of getting sick. Attributes that correspond to these characteristics are suspended fine sediment and *Escherichia coli* (*E. coli*).

An estimated total of 95 people attended the drop-in session in Owaka.

Two responses with written feedback were received by ORC via email, while 18 people provided feedback via the online questionnaire on the ORC website.

### 2.2 Methodology

#### 2.2.1 In-person interactive drop-in session

Thirteen values, each with their own set of characteristics, were presented for feedback during the drop-in sessions. These values were:

- Swimming (and other primary contact recreational water activities)
- Fishing (and other secondary contact recreational water activities)
- Non-contact recreation (e.g. walking, sightseeing, camping)
- Aquatic species
- Threatened species
- Habitat (Aquatic/Riparian)
- Ecosystem functions and processes
- Water Quality
- Flow regime and river behaviour
- Natural Character
- Water Take/Use
- Wetlands
- Groundwater

Each of the values had their own respective poster and corresponding map (see Appendices 2 & 3 for examples). The poster for each value listed specific characteristics for that value. Participants were asked to identify, from the list of characteristics provided, which characteristics matter to them for that value by placing a blue dot sticker next to the relevant characteristic shown on the poster. There was no limit as to how many characteristics a participant could select. Participants were also able to record on the poster any other any characteristics that matter to them that were not listed. Participants were then asked if they thought each characteristic, from the list provided for that value, was currently okay using a green sticker dot for 'yes' and a red dot for 'no'.

On the corresponding map, participants were asked to identify where they want to enjoy the value with a yellow dot sticker. They were able to identify as many locations as they wished on the map.

Finally, participants were able to note on a poster labelled 'Is there anything else missing?' any other values that matter to them that were not stated on any of the 13 posters. They were also able to note whether they thought the additional value that they identified was currently well looked after (using a green dot for 'yes' and a red dot for 'no'). (See Appendix 4 for the 'Is there anything else missing?' poster).

### 2.2.2 Online survey

From 29 November 2021 to 20 December 2021 people were able to respond to an online questionnaire published on ORC's Yoursay webpage (see Appendix 5 for a copy of the online survey). The questions in the online survey were similar (but not identical) to those shown on the posters that were used during the drop-in sessions.<sup>6</sup>

### 2.2.3 Feedback via email

ORC received two emails with feedback. A summary of the key points made in these emailed responses is shown in section 4 of this report.

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<sup>6</sup> Question 3 in the online survey asked respondents to rate the condition of each characteristic. The wording of this question differed slightly to that of the corresponding question shown on the poster used during the interactive sessions. Question 3 of the online survey asked respondents to rate the condition of each characteristic as either 'Good', 'Okay' or 'Poor'. During the interactive session participants were asked if they thought the characteristics were currently OK and were able to answer either 'Yes' or 'No' using the corresponding dots. Question 5 of the online survey asked respondents to list locations where they want to enjoy the value, by writing the location in a text box. Participants at the interactive session were asked to identify locations where they want to enjoy the value by placing a yellow dot on a A0 map (see Appendix 6 for an example of the online survey).



### 3 Results from the interactive drop-in session and online survey

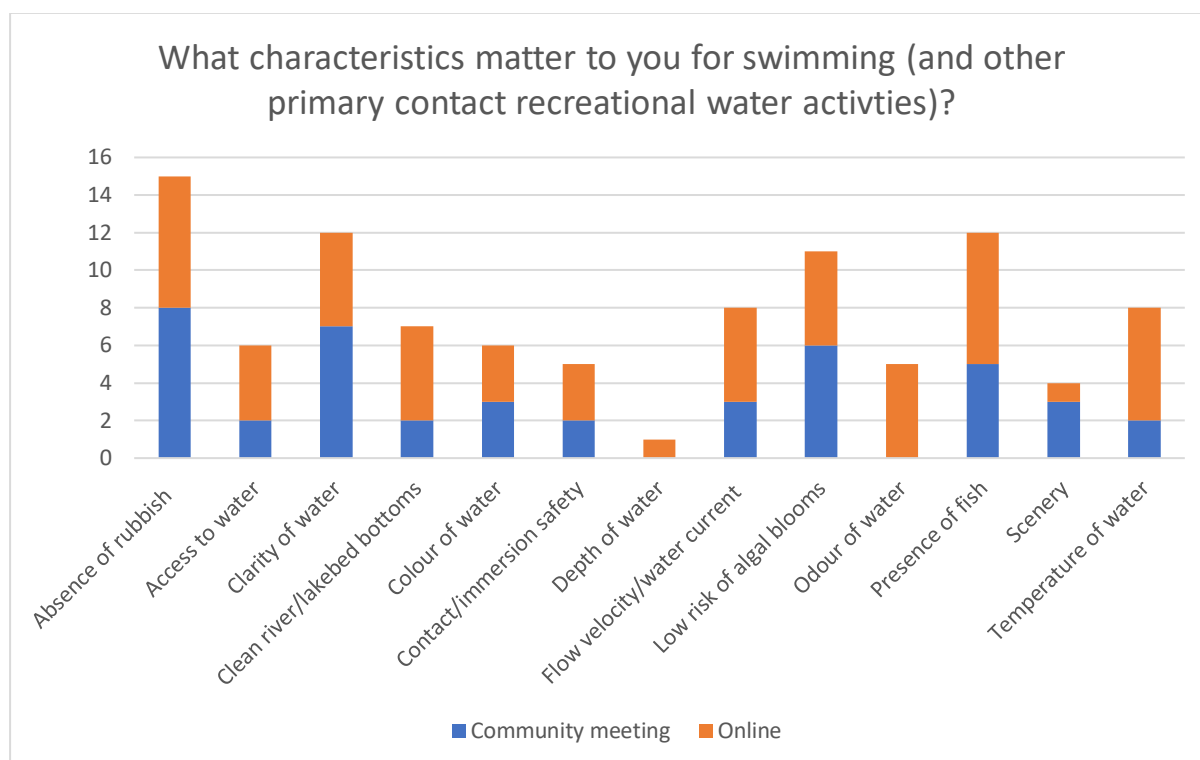
This section provides an overview of the feedback that was received over the period 29 November 2021 to 20 December 2021 (end of the Stage 1 community consultation period):

- during the in-person interactive drop-in session, and
- via the online survey published on the website.

Results are grouped by value.<sup>7</sup>

#### 3.1 Swimming (and other primary contact recreational water activities)

Primary contact recreational water activities are activities in which your body or your face are frequently underwater, wetted by spray, and where you are likely to swallow water.



<sup>7</sup> Note that

- Text comments under the headings *Comments on specific characteristics* and *Comments on other characteristics* are lightly edited. Text comments under the heading *Other comments* are summarised.
- Labels along the horizontal axes of the bar graphs may not be visible in full, but the full text of the questions can be seen in the tables beneath each bar graph.

Characteristic	Do you think this characteristic for swimming (and other primary contact recreational activities) is OK (community meeting)?		How would you rate the condition of this characteristic for swimming (and other primary contact recreational activities) (online survey)?		
	Yes	No	Good	Okay	Poor
Absence of rubbish	1	3	2	3	0
Access to water	2	0	2	3	0
Clarity of water	4	0	3	2	0
Clean river/lakebed bottoms	1	1	1	4	0
Colour of water	3	0	0	5	0
Contact/immersion safety "Risk of getting sick"	4	1	1	4	0
Depth of water	0	0	2	3	0
Flow velocity/water current "speed at which water flows"	0	0	2	3	0
Low risk of algal blooms	0	0	3	2	0
Odour of water "Water doesn't smell bad"	4	2	2	3	0
Presence of fish	1	0	1	4	0
Scenery "'pleasantness' of surrounding area"	3	0	2	3	0
Temperature of water	1	1	3	2	0

### 3.1.1 Comments on specific characteristics

The table below includes comments made by respondents on specific characteristics for this value.

Characteristic	Comment
Access to water	<ul style="list-style-type: none"> <li>Clean, safe. Easy to access swimming spots important.</li> </ul>

### 3.1.2 Additional characteristics identified

Additional characteristics that were identified by respondents:

- Good surf

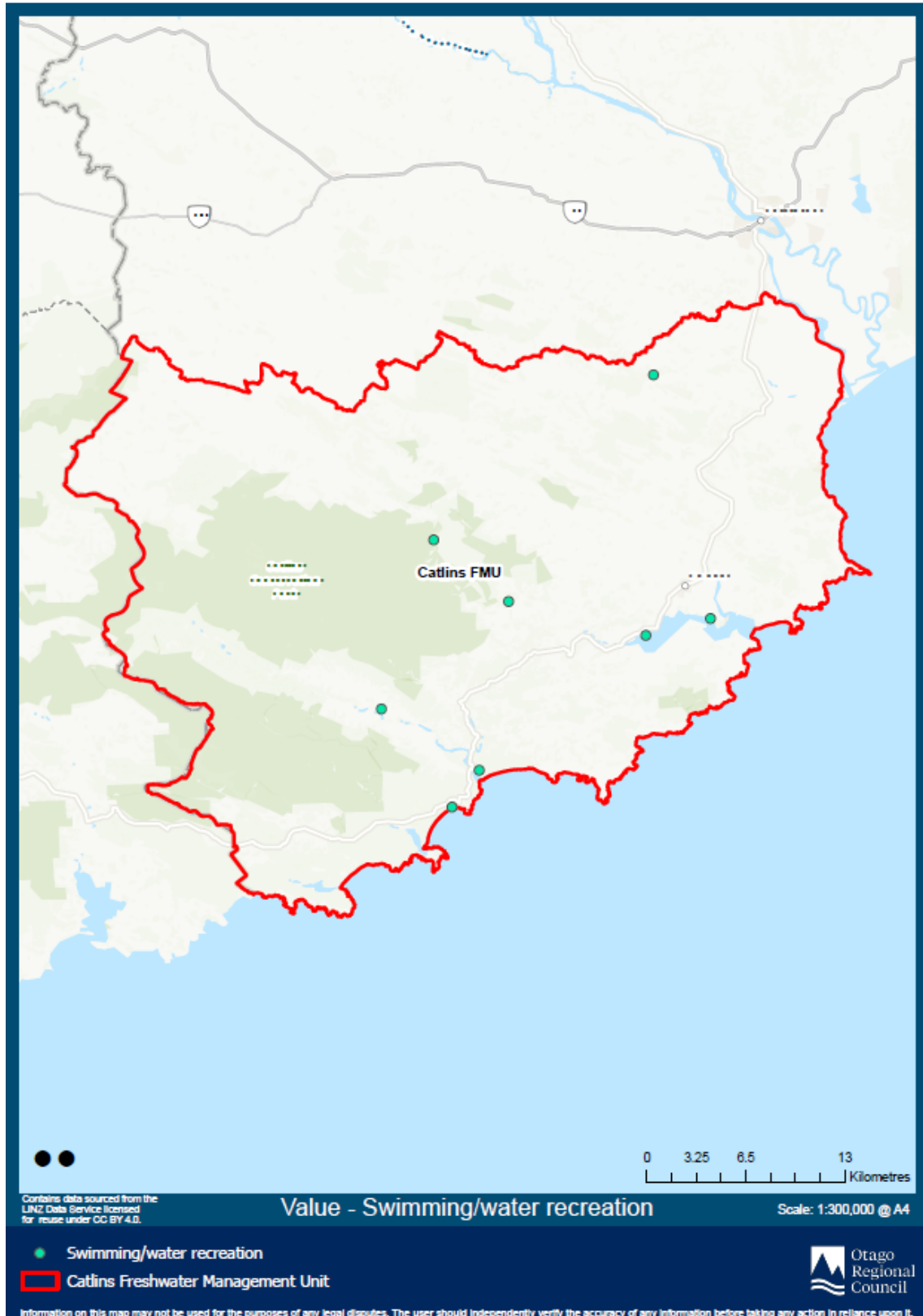
### 3.1.3 Other comments

Other comments provided by respondents:

- Catlins area in general has low water immersion human activity, so 'swimmability' should not feature highly on priority charts.
- Need signage in areas which have sewage outfalls i.e., entrance to Kaka Point. There will be other areas of concern.
- Haven't swum in our waterways for decades, but in childhood it was integral to a good summers' day. I wish that current and future generations may safely have the same pleasure.

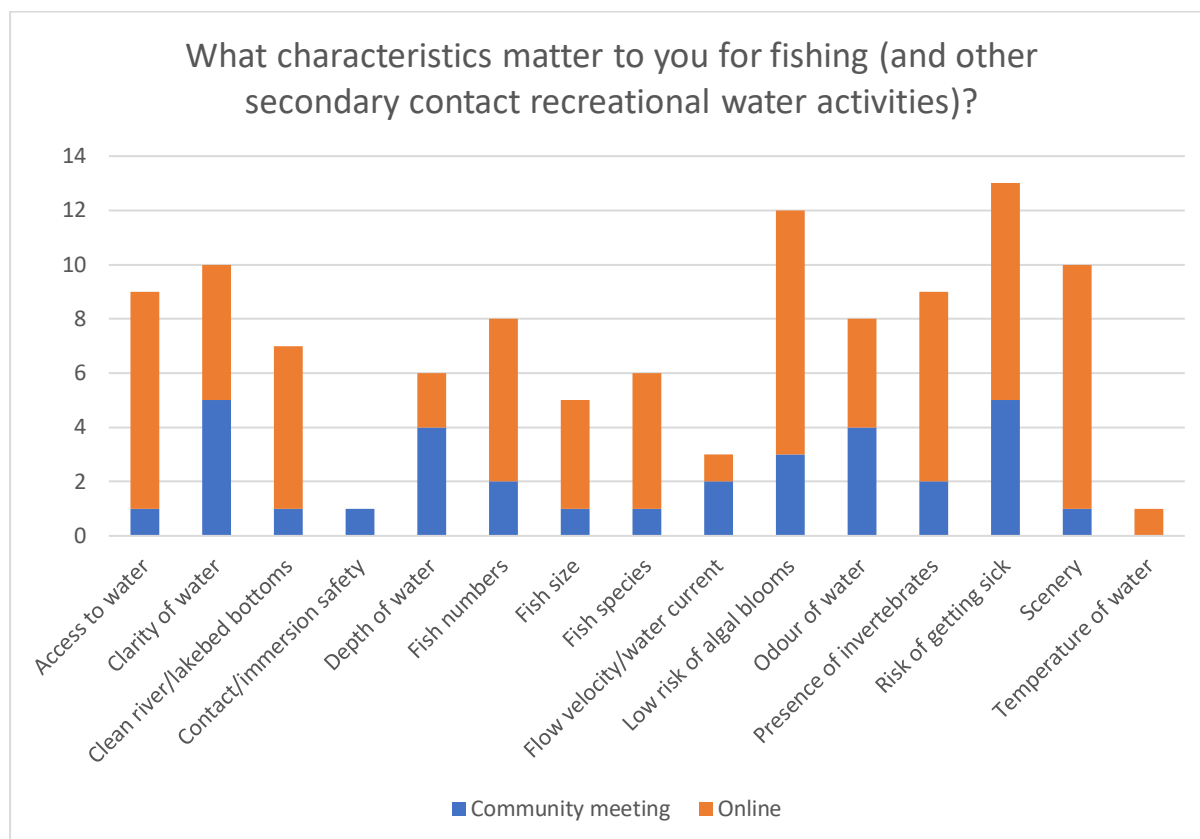
### 3.1.4 Locations identified for value: swimming (and other primary contact recreational activities)

The map below shows locations for swimming and other primary contact recreational activities identified by participants at the in-person interactive drop-in session and, in some cases, respondents to the online survey.



### 3.2 Fishing (and other secondary contact recreational water activities)

Secondary contact recreational water activities are activities where only your limbs (arms and legs) are in contact with the water. Canoeing, kayaking, boating, sailing rowing and wading are other examples of secondary contact recreational water activities.



Characteristic	Do you think this characteristic for fishing (and other secondary contact recreational water activities) is OK (community meeting)?		How would you rate the condition of this characteristic for fishing (and other secondary contact recreational water activities) (online survey)?		
	Yes	No	Good	Okay	Poor
Access to water	1	0	5	4	0
Clarity of water	5	0	5	3	1
Clean river/lakebed bottoms	0	0	4	5	0
Contact/immersion safety "Risk of getting sick"	1	0	4	3	2
Depth of water	0	0	6	3	0
Fish numbers	1	0	4	5	0
Fish size	0	0	2	5	2
Fish species	0	0	4	4	1
Flow velocity/water current "speed at which water flows"	0	0	4	5	0
Low risk of algal blooms	1	0	4	4	1

Odour of water “Water doesn’t smell bad”	1	0	6	3	0
Presence of food sources for fish e.g., invertebrates”	1	0	5	3	1
Scenery “‘pleasantness’ of surrounding area”	6	0	5	4	0
Temperature of water	0	1	2	7	0

### 3.2.1 Comments on specific characteristics

The table below includes comments made by respondents on specific characteristics for this value.

Characteristic	Comment
<b>Access to water</b>	<ul style="list-style-type: none"> <li>Farmers have to record who comes on the farm, when they are there and when they leave. Health and Safety makes giving access difficult.</li> </ul>
<b>Scenery</b> “‘pleasantness’ of surrounding area”	<ul style="list-style-type: none"> <li>Plenty of native bush around and a nice natural waterway [is important to me]</li> </ul>
<b>Fish numbers</b>	<ul style="list-style-type: none"> <li>Decreased flounder numbers.</li> </ul>

### 3.2.2 Additional characteristics identified

Additional characteristics that were identified by respondents:

- The sea is a receiving environment, and the good surf spots are often associated with river mouths. The quality of the experience in the sea is closely related to the quality of water going into it.
- Changes in sand and sediment levels in Tahakopa Estuary; secondary to reduced flushing from Tahakopa River; secondary to increased forestry.

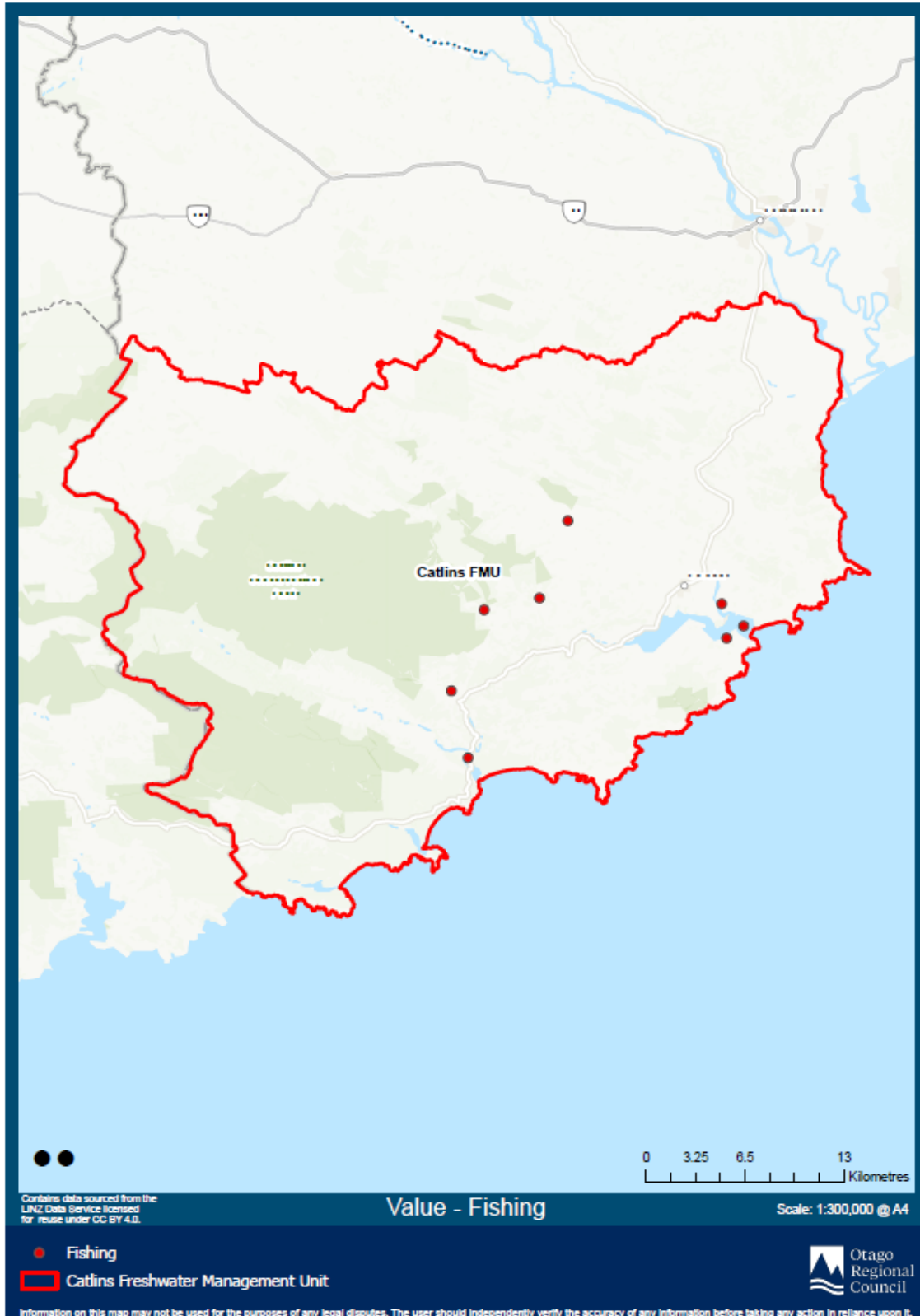
### 3.2.3 Other comments

Other comments made by respondents:

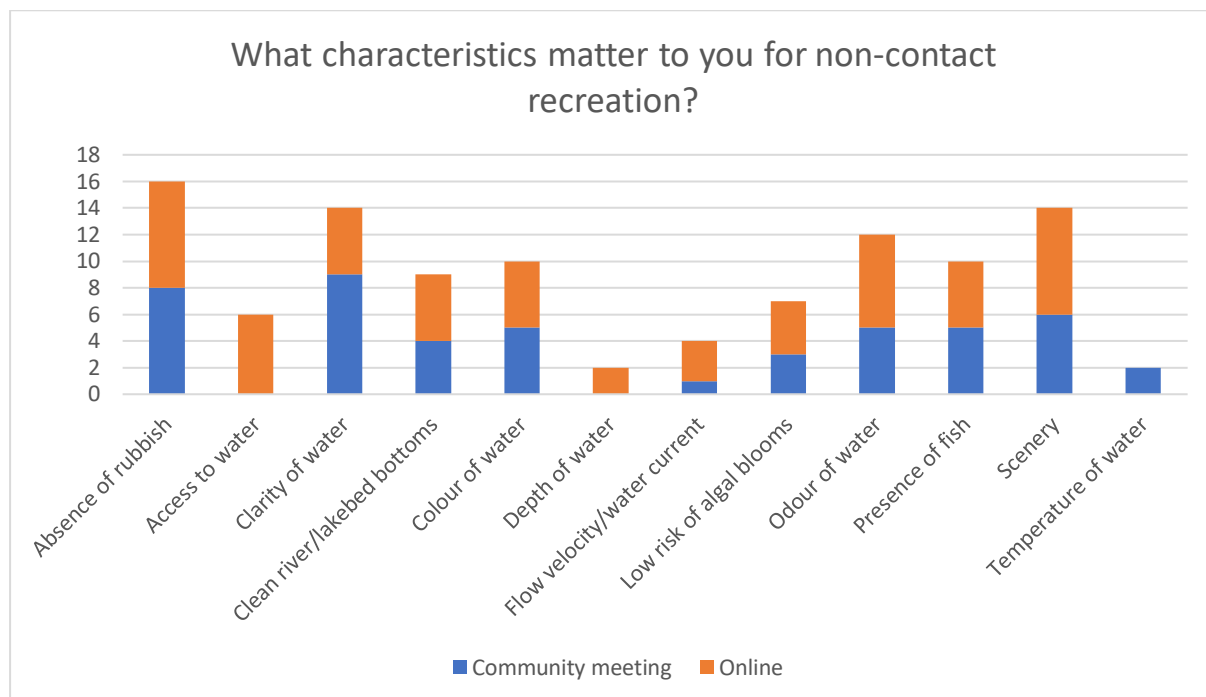
- Diving or snorkelling or shellfish collecting or fishing [is important to me]

### 3.2.4 Locations identified for value: fishing (and other secondary contact recreational water activities)

The map below shows locations for fishing and other secondary contact recreational water activities identified by participants at the in-person interactive drop-in session and, in some cases, respondents to the online survey.



### 3.3 Non-contact recreation (e.g., walking, sightseeing, camping)



Characteristic	Do you think this characteristic for non-contact recreation is OK (community meeting)?		How would you rate the condition of this characteristic for non-contact recreation (online survey)?		
	Yes	No	Good	Okay	Poor
Absence of rubbish	6	2	2	4	1
Access to water	2	0	4	3	0
Clarity of water	5	0	4	2	1
Clean river/lakebed bottoms	2	1	4	2	1
Colour of water	8	0	4	1	2
Depth of water	1	0	3	4	0
Flow velocity/water current	3	0	3	4	0
Low risk of algal blooms	1	0	3	4	0
Odour of water	3	0	5	1	1
Presence of fish	3	2	2	3	1
Scenery “pleasantness’ of surrounding area”	5	0	4	3	0
Temperature of water	4	0	4	3	0

### 3.3.1 Comments from participants on specific characteristics

The table below includes comments made by respondents on specific characteristics for this value.

Characteristic	Comment
Clarity of water	<ul style="list-style-type: none"><li>• Farm runoff contamination resulting in a visible scum on the Owaka River.</li></ul>
Temperature of water	<ul style="list-style-type: none"><li>• How does anyone know the water temperature?</li></ul>
Scenery “pleasantness’ of surrounding area”	<ul style="list-style-type: none"><li>• Freedom from weed species e.g. gorse/broom or willows could be important.</li></ul>

### 3.3.2 Additional characteristics identified

Additional characteristics that were identified by respondents:

- Access to beaches, rivers and lakes, facilities that reduce impacts from visitors and use (eg toilets, recycling and rubbish disposal, defined boat access areas etc) [are all important to me].

### 3.3.3 Other comments

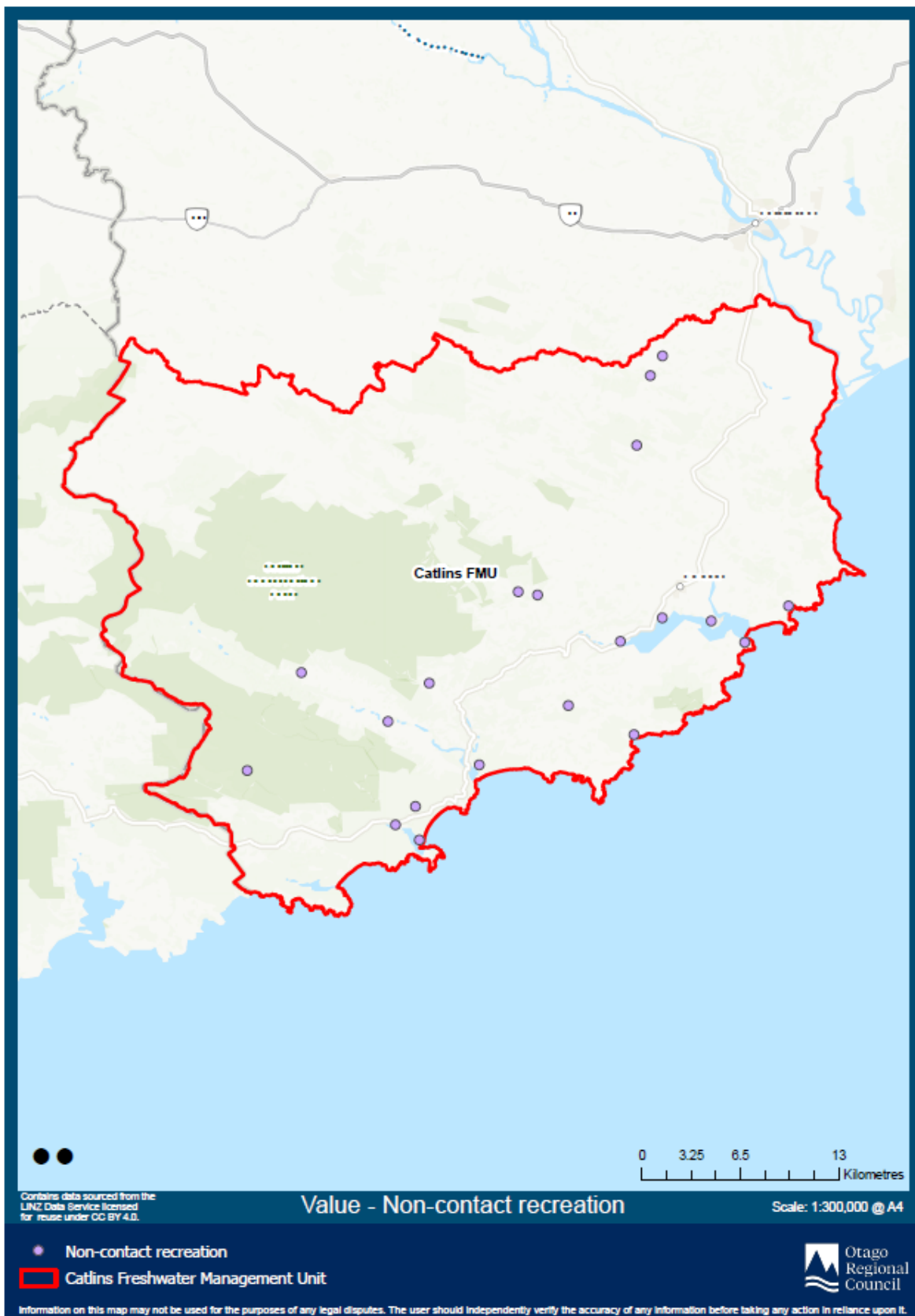
Other comments made by respondents:

- Bird watching Fungi collecting [are important to me]



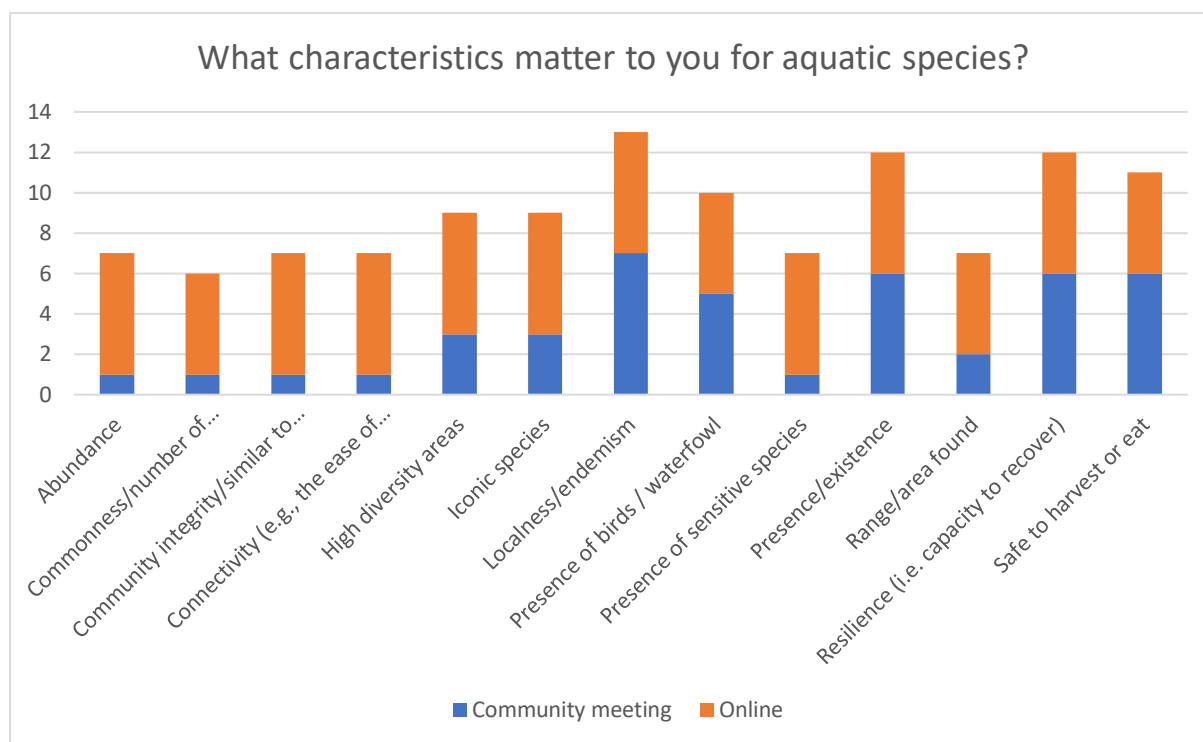
### 3.3.4 Locations identified for value: non-contact recreation

The map below shows locations for non-contact recreation identified by participants at the in-person interactive drop-in session and, in some cases, respondents to the online survey.



### 3.4 Aquatic species

An aquatic species is any type of plant (water cress, raupo, or submerged water plants) or animal (such as a fish, microbe, mussel, or frog) growing, living or found in water



Characteristic	Do you think this characteristic for aquatic species is OK (community meeting)?		How would you rate the condition of this characteristic for aquatic species (online survey)?		
	Yes	No	Good	Okay	Poor
Abundance "Size of population"	0	0	0	1	4
Commonness/number of populations	1	0	1	3	1
Community integrity/similar to natural state	1	0	1	1	3
Connectivity (e.g., the ease of species being able to move between habitats)	0	0	2	2	1
High diversity areas "Areas with high diversity of species"	0	0	1	3	1
Iconic species (presence)	2	0	1	2	2
Localness/endemism "Presence of endemic species"	2	2	1	1	3
Presence of birds / waterfowl	3	1	3	1	1
Presence of pollution sensitive species	1	1	1	1	3
Presence/existence	3	0	1	2	2
Range/area found	0	1	1	3	0

Resilience (i.e. capacity to recover “or survive in stressed environments...”)	2	2	0	3	2
Safe to harvest or eat	4	0	1	3	1

### 3.4.1 Comments on specific characteristics

The table below includes comments made by respondents on specific characteristics for this value.

Characteristic	Comment
<b>Localness/endemism “Presence of endemic species”</b>	<ul style="list-style-type: none"> <li>• Over representation of introduced waterfowl compared to native species,</li> <li>• The population crash of endemic fish, shrimp and freshwater crayfish where trout are present,</li> <li>• The overwhelming negative impact on endemic species by the extent that fostering sport fishing and bird shooting opportunities shapes management policy and ecological outcomes</li> </ul>
<b>Resilience (i.e. capacity to recover)</b>	<ul style="list-style-type: none"> <li>• We should be ranking the factors in 6. They are all important. Lay people do not have the information to say whether resilience is good or otherwise. This appears to be written by scientists for scientists.</li> </ul>
<b>Iconic species</b>	<ul style="list-style-type: none"> <li>• I know where eels and koura are often in small tributaries, but we are not electric fishing to find what other species are there.</li> </ul>
<b>Safe to harvest or eat</b>	<ul style="list-style-type: none"> <li>• I want to be able to safely forage and traverse anywhere. Ideally this would not lead to an increase in sharks and sea lions in the line up.</li> </ul>
<b>Presence existence</b>	<ul style="list-style-type: none"> <li>• Too many trout damage the native fish species and ecosystem; [trout] should be classed as a pest.</li> <li>• [Aquatic species are] hopefully well distributed right though the aquatic environment in the Catlins.</li> </ul>

### 3.4.2 Additional characteristics

Additional characteristics that were identified by respondents:

Nil

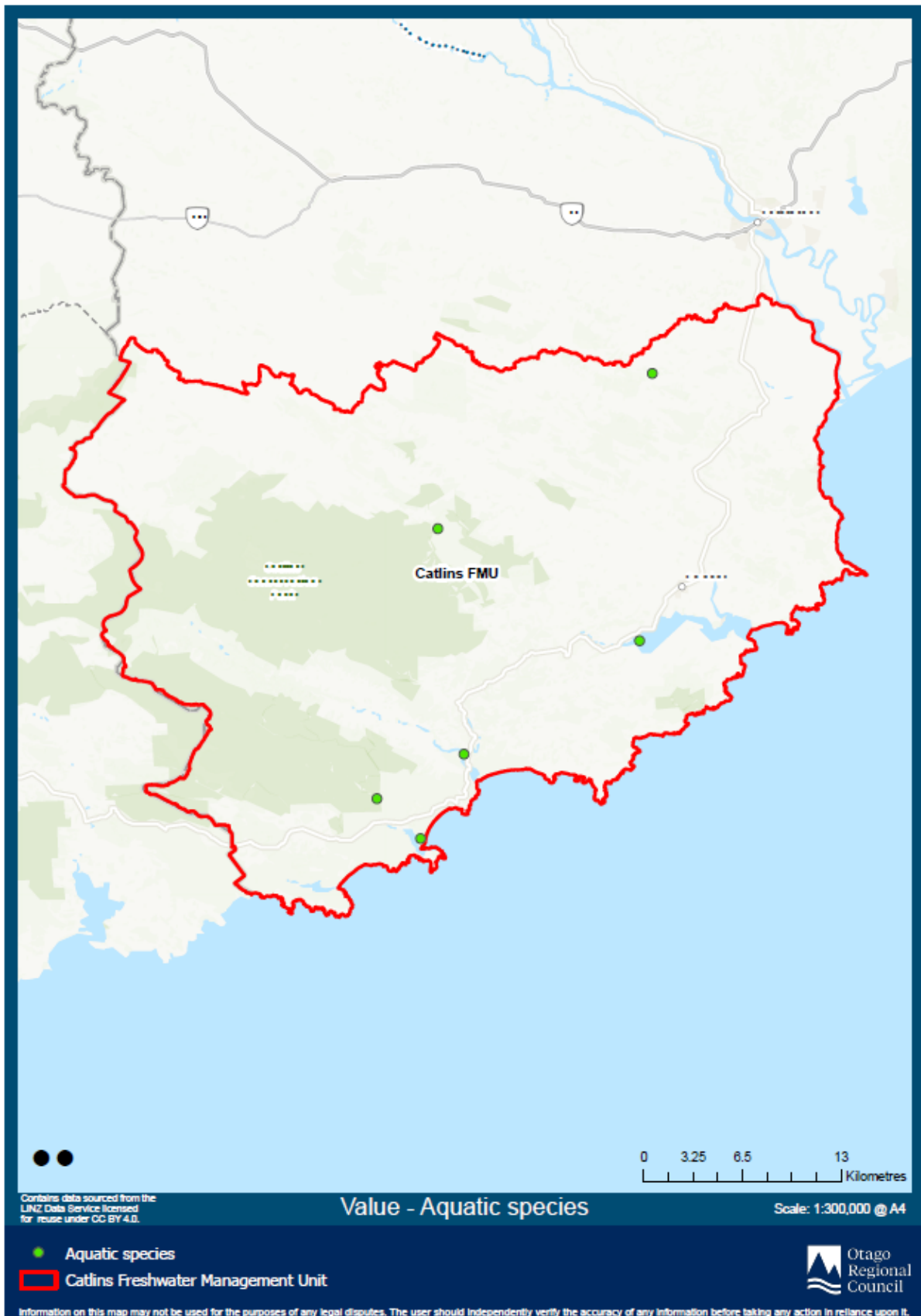
### 3.4.3 Other comments

Other comments made by respondents:

- Impossible to comment without reliable survey information.

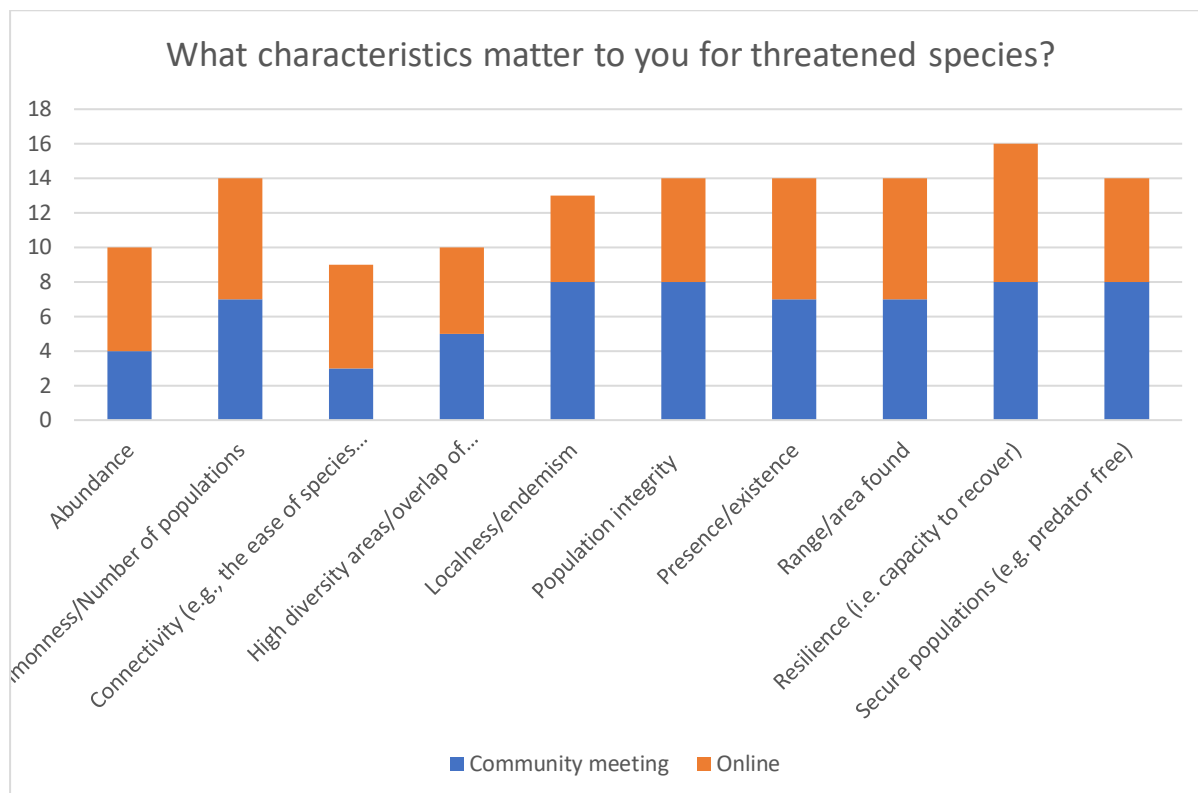
### 3.4.4 Locations identified for value: aquatic species

The map below shows locations with aquatic species identified by participants at the in-person interactive drop-in session and, in some cases, respondents to the online survey.



### 3.5 Threatened species

Any aquatic plant or animal species that is vulnerable, endangered, critically endangered.



Characteristic	Do you think this characteristic for threatened species is OK (community meeting)?		How would you rate the condition of this characteristic for threatened species (online survey)?		
	Yes	No	Good	Okay	Poor
Abundance	0	2	0	3	3
Commonness/number of populations	1	5	0	5	2
Connectivity (e.g., the ease of species being able to move between habitats)	1	1	0	6	1
High diversity areas/overlap of multiple threatened species	1	0	1	2	3
Localness/endemism "Presence of endemic species"	0	6	1	3	2
Population integrity "Community integrity"	0	2	0	3	3
Presence/existence	1	5	1	4	2
Range/area found	1	5	0	5	2
Resilience (i.e. capacity to recover "or survive")	1	4	0	3	3
"Presence of" Secure populations (e.g. predator free)	1	4	1	2	4

### 3.5.1 Comments on specific characteristics

The table below includes comments made by respondents on specific characteristics for this value.

Characteristic	Comment
<b>“Presence of” Secure populations (e.g. predator free)</b>	<ul style="list-style-type: none"> <li>• Predators are a natural part of any ecosystem, especially in the inshore coastal environment but for freshwater accept that the question probably refers to pest and sport fish (trout), but this is not clear</li> <li>• Many waterways have dwindling populations threatened by over-fishing, predation by introduced pest fish (eg, trout), and habitat destruction.</li> </ul>
<b>Resilience (i.e. capacity to recover “or survive”)</b>	<ul style="list-style-type: none"> <li>• Human interaction [is important to the resilience of threatened species]</li> </ul>
<b>Connectivity (e.g., the ease of species being able to move between habitats)</b>	<ul style="list-style-type: none"> <li>• Some very rare species are present, but connectivity is critical.</li> </ul>
<b>Presence/existence</b>	<ul style="list-style-type: none"> <li>• All species, that is:             <ul style="list-style-type: none"> <li>• Plants in or adjacent</li> <li>• Insects (Caddis etc)</li> <li>• Birds</li> <li>• Fish</li> <li>• Bats.</li> </ul> </li> </ul>

### 3.5.2 Additional characteristics identified

Additional characteristics identified by respondents:

Nil

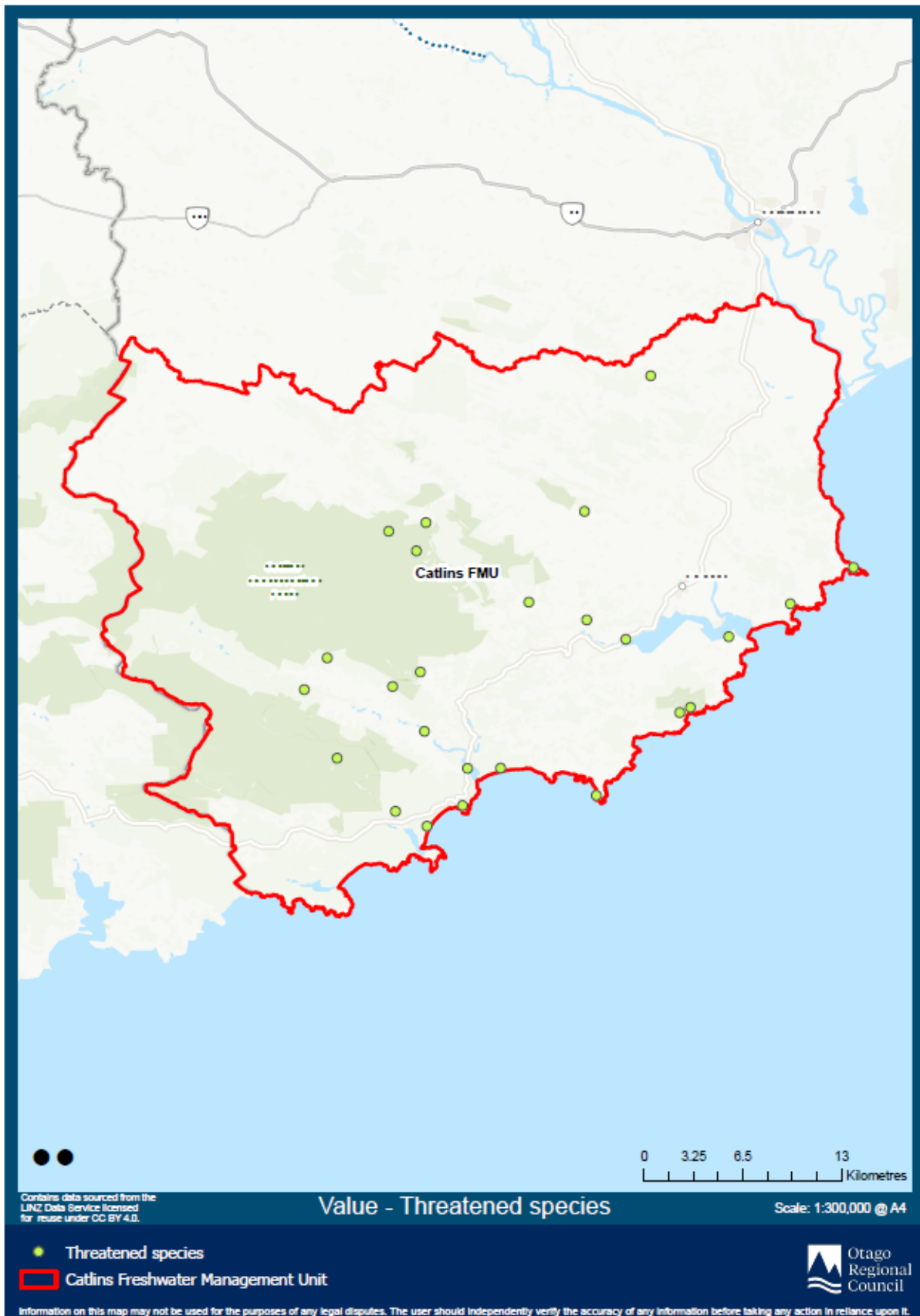
### 3.5.3 Other comments

Other comments made by respondents:

- Needs more monitoring.
- [What is important for threatened species is] that they’re protected.
- We need to keep these areas secure and protected. They have been over exposed to tourism.
- Prohibit commercial fishing. Need marine reserve (Mataitai).

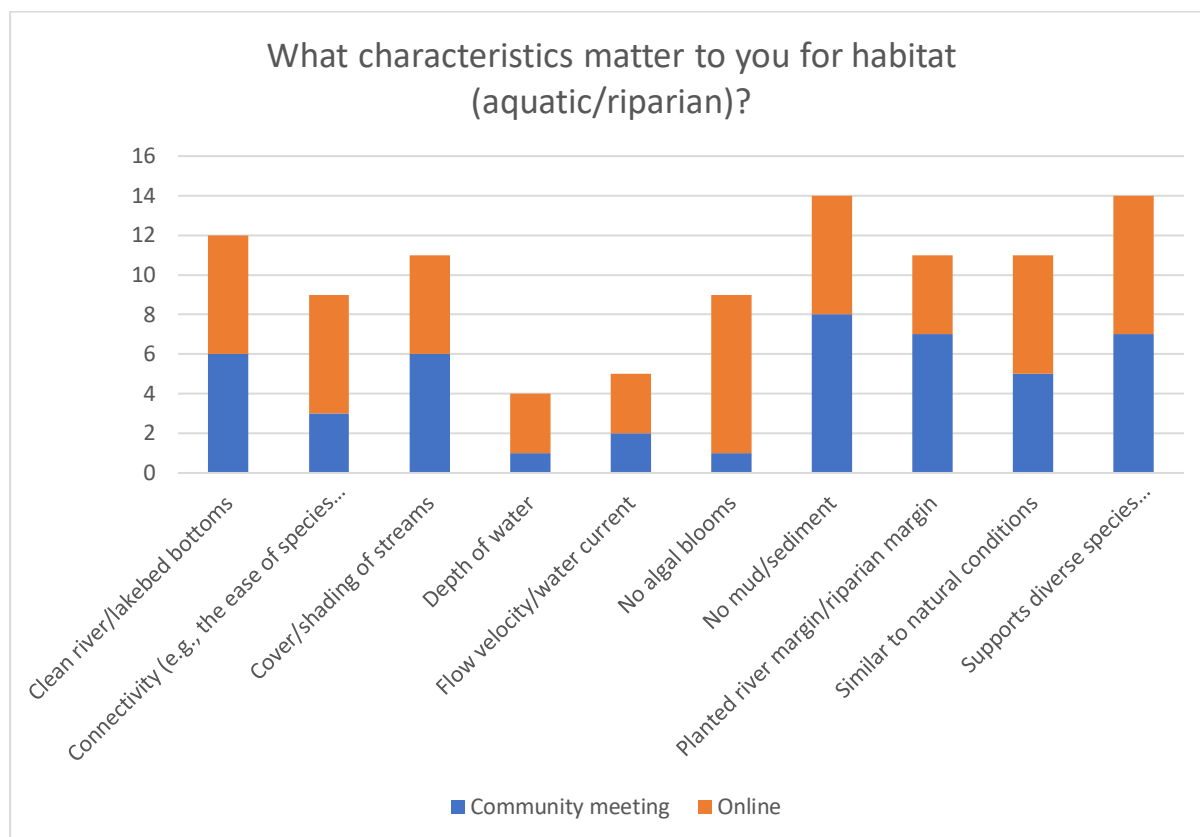
### 3.5.4 Locations identified for value: threatened species

The map below shows locations with threatened species identified by participants at the in-person interactive drop-in session and, in some cases, respondents to the online survey.



### 3.6 Habitat (aquatic/riparian)

The environment which supports fish or other organisms which live in or near the water and which includes the land area and vegetation adjacent to water (riparian habitat) that provides shade, food, and/or protection for those organisms.



Characteristic	Do you think this characteristic for habitat (aquatic/riparian) is OK (community meeting)?		How would you rate the condition of this characteristic for habitat (aquatic/riparian) (online survey)?		
	Yes	No	Good	Okay	Poor
Clean river/lakebed bottoms	2	2	1	3	3
Connectivity (e.g., the ease of species being able to move between habitats)	0	3	1	4	1
Shading of rivers and streams by riparian tree or plant cover	2	0	1	4	2
Depth of water	0	1	0	5	1
Flow velocity/water current	0	1	0	5	1
Absence of algal blooms	0	0	2	3	2
Absence of mud or sediment deposits on river or lake bed	0	3	1	2	4
Planted river margin/riparian margin	6	0	1	2	3
State and health of the habitat provided by the river, lake or its margins [are] similar to natural conditions	4	4	1	4	2



Ability to support diverse species”	2	1	2	4	1
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### 3.6.1 Comments on specific characteristics

Characteristic	Comment
<b>State and health of the habitat provided by the river, lake or its margins [are] similar to natural conditions</b>	<ul style="list-style-type: none"> <li>• Needs restoration and wider areas.</li> <li>• Very poor water quality in the Owaka River. Surface scum is visible.</li> <li>• Weed free</li> <li>• Mat-like grassy weed growing along the riverbank [of the Owaka River]. Young stock confuse this mat for a continuation of the paddock and can fall through into the shallows, unable to get out.</li> </ul>
<b>Planted river margin</b>	<ul style="list-style-type: none"> <li>• Remove Crack willow, replace with alternative shading tree.</li> <li>• We fence off our rivers and have terrific growth of broom and gorse between fence and river, e.g., Owaka River banks are in a terrible mess in places.</li> <li>• Assistance to spray broom and gorse on fenced-off river margins; it grows very quickly once fenced off.</li> <li>• Remove crack willow replace with alternative shading tree.</li> <li>• Exasperation on the futility of fencing some waterways where regular flooding brought vegetation down from higher in the catchment. Branches and weeds get caught in the fences and require clearing at best or fence repair at worst.</li> <li>• Manuka and other plants dying, adjacent to Tahakopa Estuary. Secondary to intensive forestry reducing river flushing and change in height of river bed and course of water.</li> <li>• Barberry and gorse are encroaching on rivers. Riparian protection is needed, and avoidance of bank degradation.</li> <li>• Riparian plantings need management and regulation. This does not exist and will create future pest plant problems.</li> <li>• The river floods too much for riparian planting or fencing.</li> </ul>
<b>Flow velocity/water current</b>	<ul style="list-style-type: none"> <li>• Change in water flow in the Owaka River after clearing of willow. Lower water levels and fewer flood events anecdotally.</li> </ul>
<b>Absence of mud or sediment deposits on the river or lake bed</b>	<ul style="list-style-type: none"> <li>• Sedimentation and river enrichment is a risk.</li> <li>• Concern over sediment originating on gravel roads and entering waterways that pass through the farm. Rain events can discharge water from the roadways onto the farm, causing increased bogging.</li> </ul>

### 3.6.2 Additional characteristics identified

Additional characteristics that were identified by respondents:

- [What is important for river and riverbed habitat is] any farming cropping or cultivation very close to runoff into river; or pine forest pollen overload, or forestry slash.
- All rivers and riverbed habitats are important.

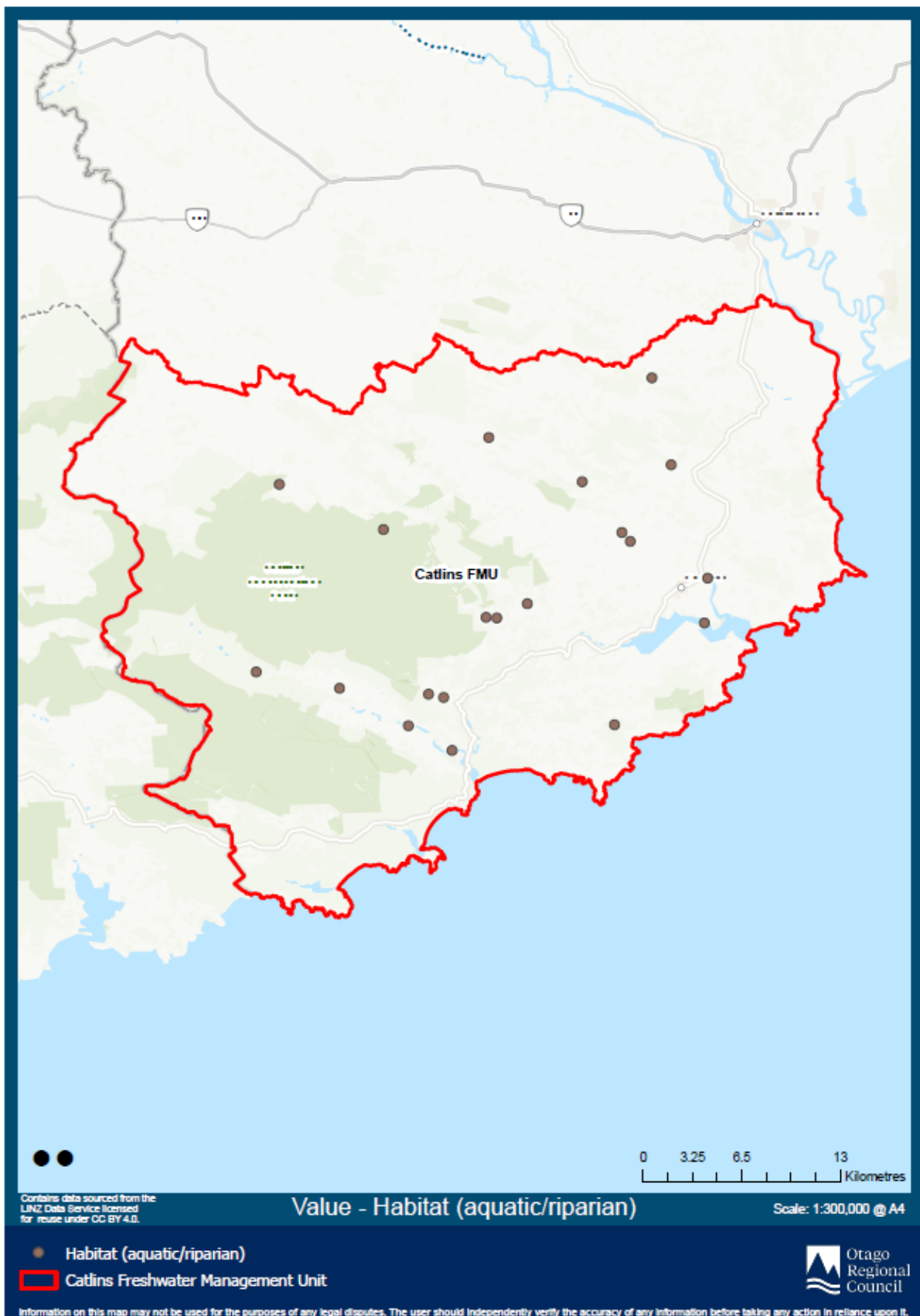
### 3.6.3 Other comments

Other comments made by respondents:

Nil

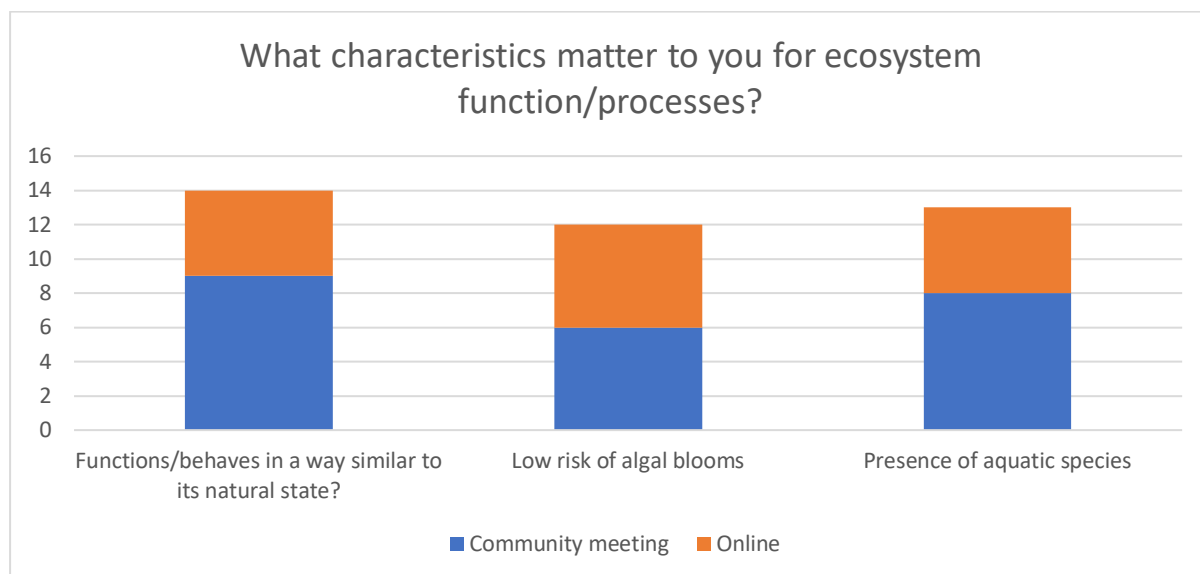
### 3.6.4 Locations identified for value: habitat (aquatic/riparian)

The map below shows locations providing aquatic and riparian habitat identified by participants at the in-person interactive drop-in session and, in some cases, respondents to the online survey.



### 3.7 Ecosystem function and processes

The physical and biological processes that occur within river and lake ecosystems to maintain aquatic life. These include ecological processes that control the movement of species, sediment, nutrients and organic matter through the environment.



Characteristic	Do you think this characteristic for ecosystem function/processes is OK (community meeting)?		How would you rate the condition of this characteristic for ecosystem function/processes (online survey)?		
	Yes	No	Good	Okay	Poor
The river or lake ecosystem currently behaves in a way that is similar to its natural state	10	6	1	2	2
Low risk of algal blooms	5	5	2	1	1
Presence of aquatic species	7	8	1	2	2

### 3.7.1 Comments on specific characteristics

The table below includes comments made by respondents on specific characteristics for this value.

Characteristic	Comment
<b>The river or lake ecosystem currently behaves in a way that is similar to its natural state</b>	<ul style="list-style-type: none"> <li>• Altered height of riverbed and changed water course of Tahakopa Estuary, secondary to intensive forestry.</li> <li>• Ecosystems evolve. Part of our current ecosystem has evolved to provide more food for more humans, for better 'living standards'. Our current thinking must reflect this need and allow for changing ecosystems.</li> <li>• Well-managed farmland is an 'altered' ecosystem but it doesn't mean that it is a bad one. 'Original' and 'altered' systems, can be 'complementary' and 'symbiotic'. Let's not lose sight of that.</li> <li>• All estuaries, tidal ranges of freshwater systems, swamps, soakages, headwaters from the tiniest trickle to the sea: all parts have unique niche, housing important ecosystem functions and processes.</li> <li>• Those with the least direct or indirect contemporary human disturbance are today arguably more valuable for their extent of endemic purity. All parts of all catchments have an ecological importance.</li> </ul>
<b>Low risk of algal blooms</b>	<ul style="list-style-type: none"> <li>• Algal bloom risk increases as forestry removes water from rivers, and climate change increases temperatures</li> </ul>

### 3.7.2 Additional characteristics identified

Additional characteristics that were identified by respondents:

- [An important ecosystem characteristic ] is the mixing of tidal zones.
- [An ecosystem important characteristic] is the presence and health of endemic riparian ecotones.
- How will pines and gums [eucalypts] plantings affect ecosystem functions/processes?
- Impacts of exotic plantation species need to be considered.

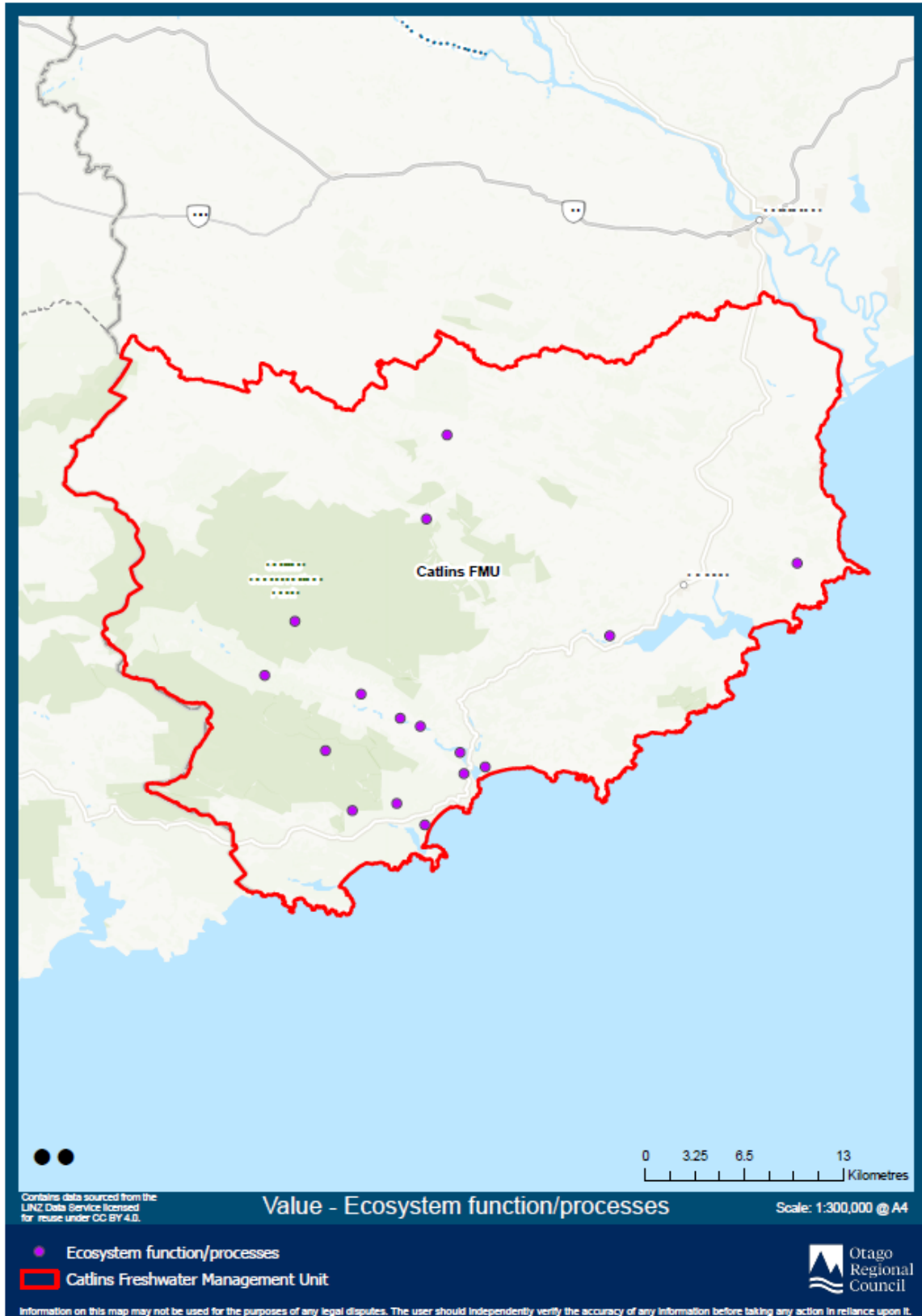
### 3.7.3 Other comments

Other comments made by respondents:

- The evolution of management systems and societal mandate to achieve a sustainable relationship with our environment will take generations.

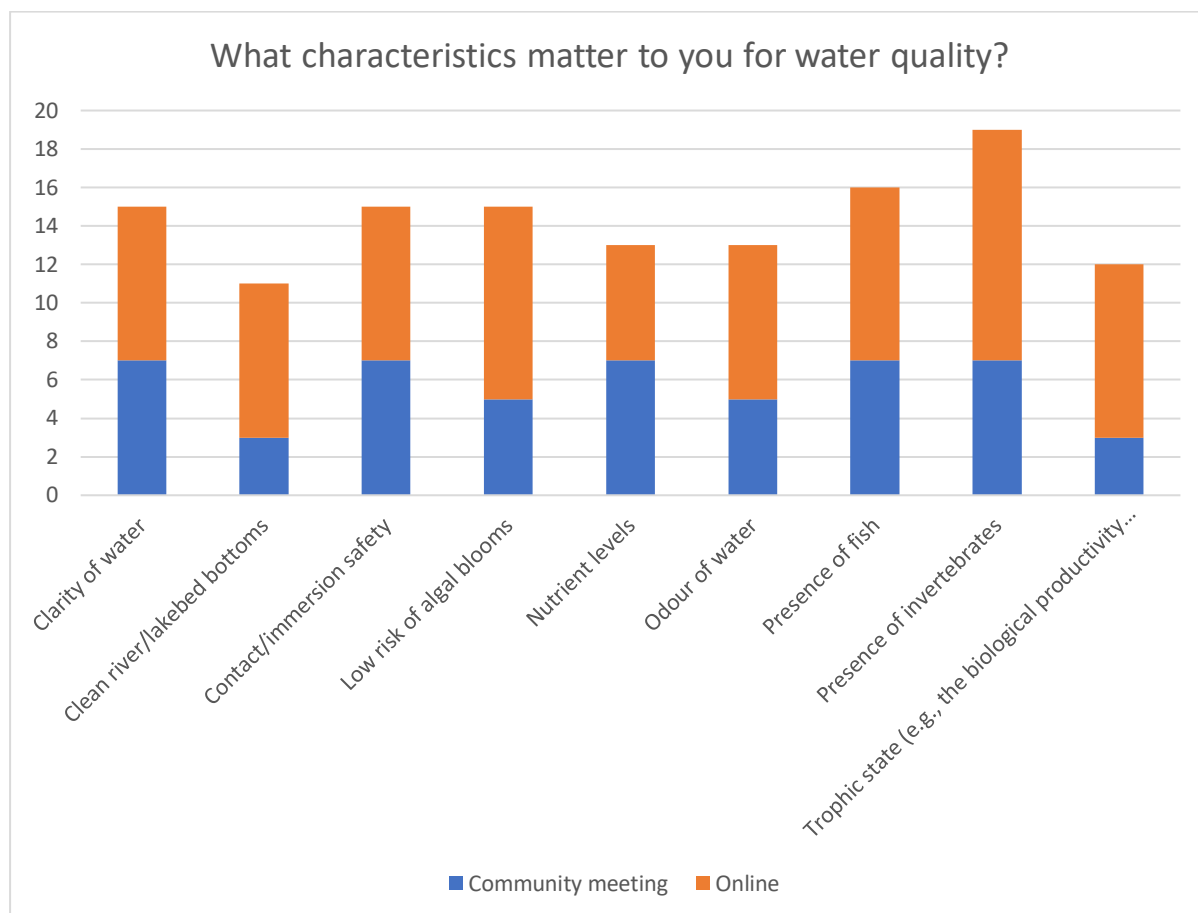
### 3.7.4 Locations identified for value: ecosystem function/processes

The map below shows locations with an ecosystem function or providing for ecosystem processes identified by participants at the in-person interactive drop-in session and, in some cases, respondents to the online survey.



### 3.8 Water quality

Water quality describes the condition of the water, including chemical, physical, and biological characteristics, usually with respect to its suitability for a particular purpose such as drinking or swimming.



Characteristic	Do you think this characteristic for water quality is OK (community meeting)?		How would you rate the condition of this water quality characteristic (online survey)?		
	Yes	No	Good	Okay	Poor
Clarity of water	9	0	4	4	2
Clean river/lakebed bottoms	2	0	4	5	1
Contact/immersion safety "Risk of getting sick"	4	0	5	3	2
Low risk of algal blooms	1	0	5	5	0
Low nutrient levels	5	3	4	4	1
Odour of water "Water doesn't smell bad"	5	0	6	4	0
Presence of fish	3	0	3	6	1
Presence of food sources for fish e.g., invertebrates"	2	0	5	4	1
Trophic state (e.g., the biological productivity of the water) "The state of the lake resembles natural state"	0	1	5	4	1

### 3.8.1 Comments on specific characteristics

The table below includes comments made by respondents on specific characteristics for this value.

Characteristic	Comment
Clarity of water	<ul style="list-style-type: none"> <li>• Tannins in the river – cannot see the bottom for whitebaiting.</li> </ul>
Low risk of algal blooms	<ul style="list-style-type: none"> <li>• Enrichment leads to algae</li> </ul>
Low nutrient levels	<ul style="list-style-type: none"> <li>• Local catchment nutrient levels [limits?] must be used to protect our local characteristics.</li> <li>• Fertiliser is a problem – needs to be controlled</li> <li>• Nutrient tracing – attention to fertiliser applying rates and methods.</li> <li>• Stopping dairy farm effluent leaching into the estuary. River at Pounaweia also important.</li> </ul>

### 3.8.2 Additional characteristics identified

Additional characteristics that were identified by respondents:

Nil

### 3.8.3 Other comments

Other comments made by respondents:

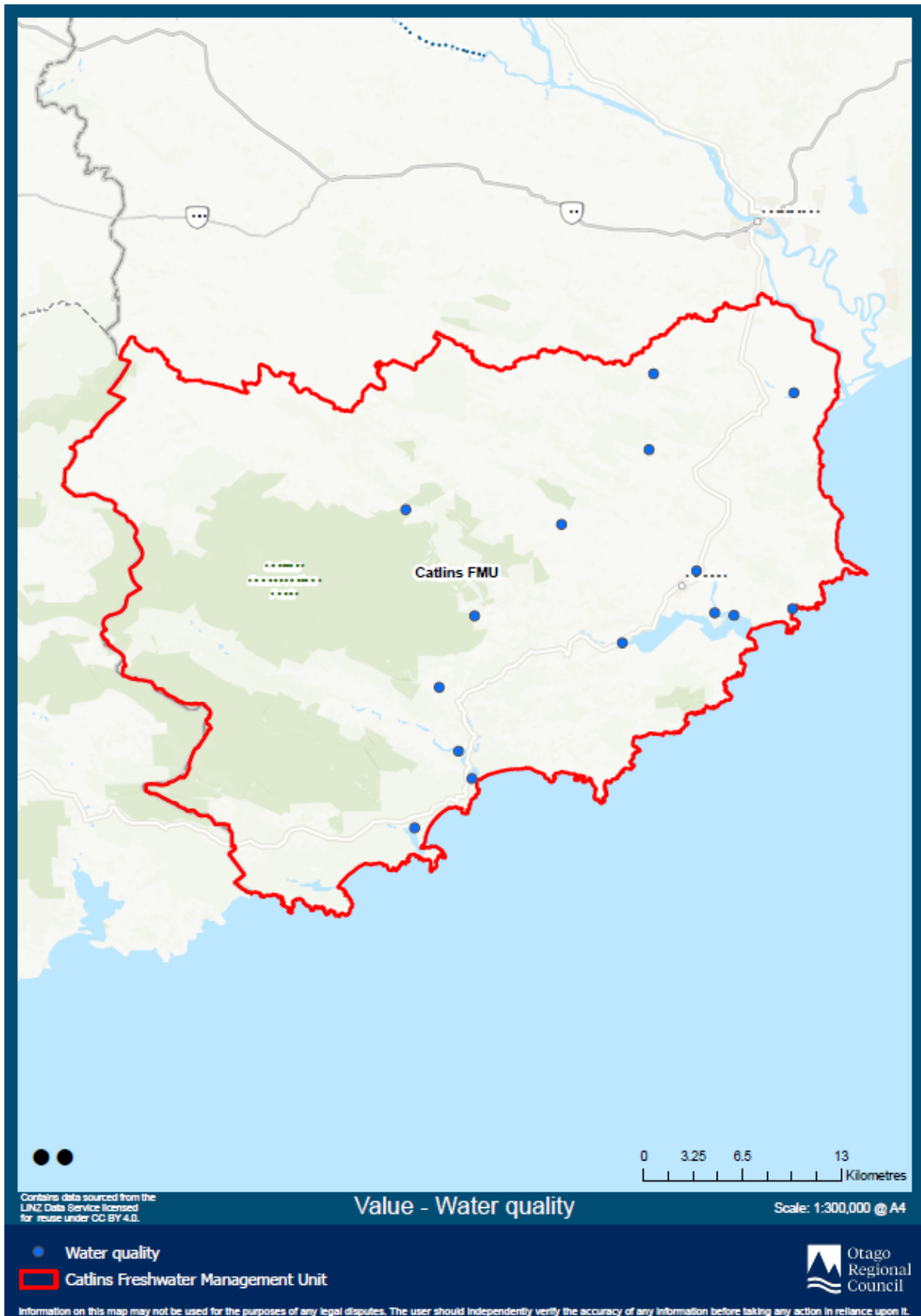
- [What is important for water quality is to be] free of contaminants from introduced waterfowl.
- Maintain water flow levels so that water can stay fresh and healthy. Increased forestry is a major concern as it reduces water flow by up to 30% making everything else worse
- [Water quality must] support the human community which lives within the catchment, ensuring businesses can still remain profitable.
- Everyone needs to be accountable for water quality.
- Water from [Department of Conservation estate] not the best.
- Most of the sediment is coming from DoC land.
- Still plenty of possums, indigenous forest floor is bare and dug up (pigs, deer).
- Weeds in DoC land [are] out of control.
- Pest control is important
- Accurate chemical testing of each catchment at the head waters to ensure that each river has the data relating to that location, to ensure the best outcome for the native species of that area. Instead of using the current “National Water Standards”.
- We need good water quality everywhere.
- [Need good water quality], whenever water is part of the natural ecosystem.
- All waterways to have good water quality free from pollution by humans, feral and farmed introduced mammals, sediment run off from insufficiently vegetated landscapes. Waterways, not sewers.
- [Water quality is important] especially at high-risk contamination sites like stormwater exits; sewage outlets, industry locations, camping sites, previous dump sites;
- Many private houses still have the old sewage systems.
- The river needs to be cleaned out and the willows taken off the edge.
- Monitoring cultivation on steep slopes and riparian areas is needed.
- Concerns that water testing is a snapshot in time and might be captured at inopportune times (e.g. within 24 hrs of a rain event – of which there are many in the Catlins)
- Mud and sediment accumulating.

- Past dumping is a problem. Needs clean-ups.
- Pollution due to Territorial Authorities not performing
- [Concern about] the continual polluting of the Owaka River, despite the matter being raised with Clutha District Council.
- Wastewater needs better treatment.
- Development/protection of riparian planting [is important for water quality:]
- Native [forest] only for perpetuity. Pine trees are a problem [for water quality:].
- [What is important for water quality is] not being impacted by excessive agricultural runoff or sedimentation including from pine forestry.



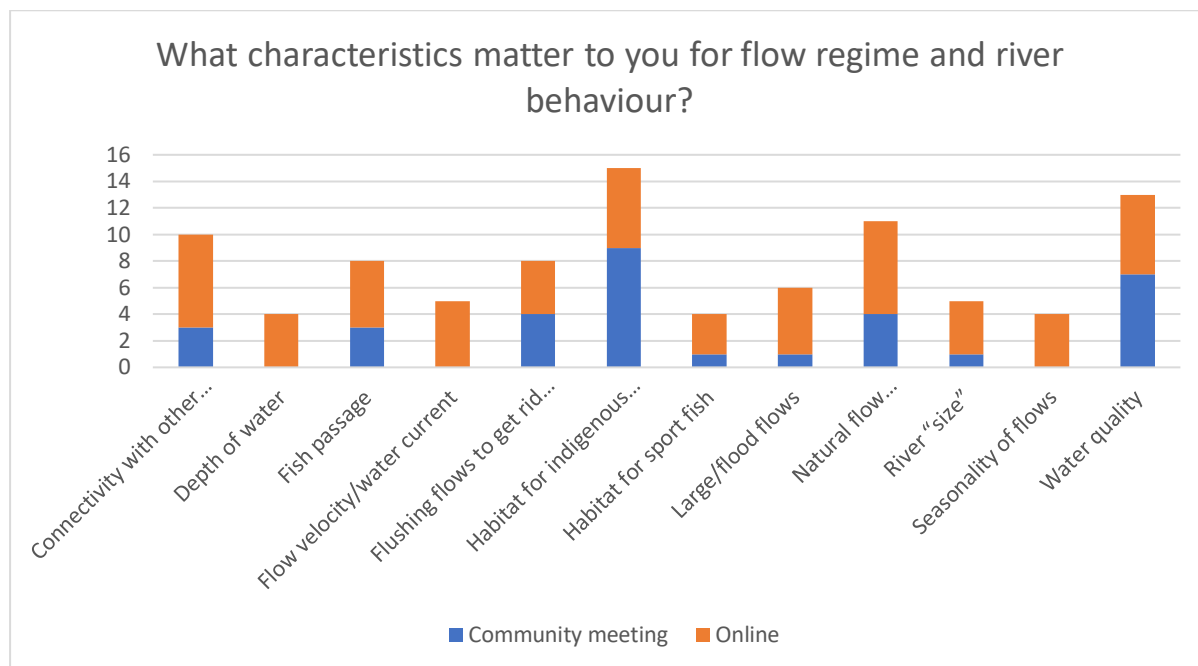
### 3.8.4 Locations identified for value: water quality

The map below shows locations with important water quality values identified by participants at the in-person interactive drop-in session and, in some cases, respondents to the online survey.



### 3.9 Flow regime and river behaviour

The patterns of high and low flows and processes that shape river channels and floodplains.



Characteristic	Do you think this characteristic for flow regime and river behaviour is OK (community meeting)?		How would you rate the condition of this flow regime and river behaviour characteristic (online survey)?		
	Yes	No	Good	Okay	Poor
Connectivity of the river or lake with other water bodies	0	0	2	3	0
Depth of water	0	0	0	5	0
Fish passage "Fish can move freely"	0	0	2	2	1
Flow velocity/water current	0	0	0	5	0
Occurrence of flushing flows to get rid of algae	3	0	0	5	0
Availability of habitat for native/indigenous species	5	1	2	2	1
Availability of habitat for sport fish	1	0	2	3	0
Occurrence of large flows or food events	2	0	0	5	0
Flow regime and river behaviour is similar to natural flow regime and behaviour	7	1	2	3	0
River 'size'	3	0	2	3	0
Seasonality of flows	0	0	1	4	0
Water quality	5	0	2	2	1

### 3.9.1 Comments on specific characteristics

The table below includes comments made by respondents on specific characteristics for this value.

Characteristic	Comment
Occurrence of flushing to get rid of algae	<ul style="list-style-type: none"><li>• Need those big flushes to maintain waterways. Have found that fenced off small waterways block up with grass removing much habitat and then when it flushes the grass blocks culverts.</li></ul>
Water quality	<ul style="list-style-type: none"><li>• Could berms and vegetated buffers between pine plantations and waterways retain this sediment where it is useful?</li><li>• Diggers [are needed] to take out sediment in estuaries.</li><li>• Recent logging up the Tahakopa Valley has led to a layer of sedimentary mud forming over the estuary bed. Flounder no longer use the channel in front of Shanks Bush. What other impacts has this sediment run off caused? What loss is there to the source lands' future productivity? Will the estuary be clear again in my lifetime?</li></ul>

### 3.9.2 Additional characteristics identified

Additional characteristics that were identified by respondents:

Nil

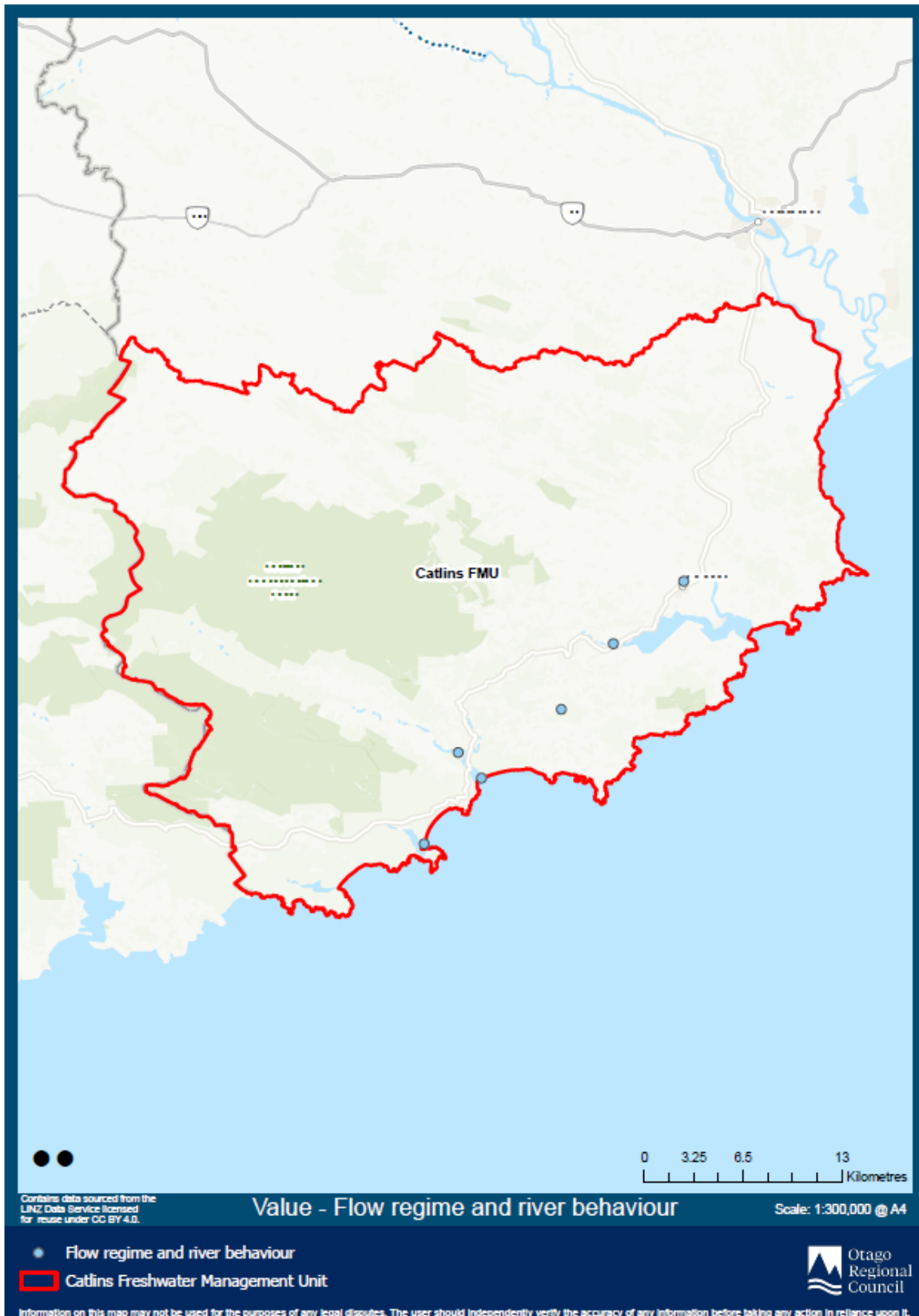
### 3.9.3 Other comments

Other comments made by respondents:

- River flow is important everywhere.
- Need to be able to get longer than 1 year consents to clean ditches. At a fair and reasonable price. (- often dealing with others e.g., DoC sediment)
- Is private profit supreme over environmental health.

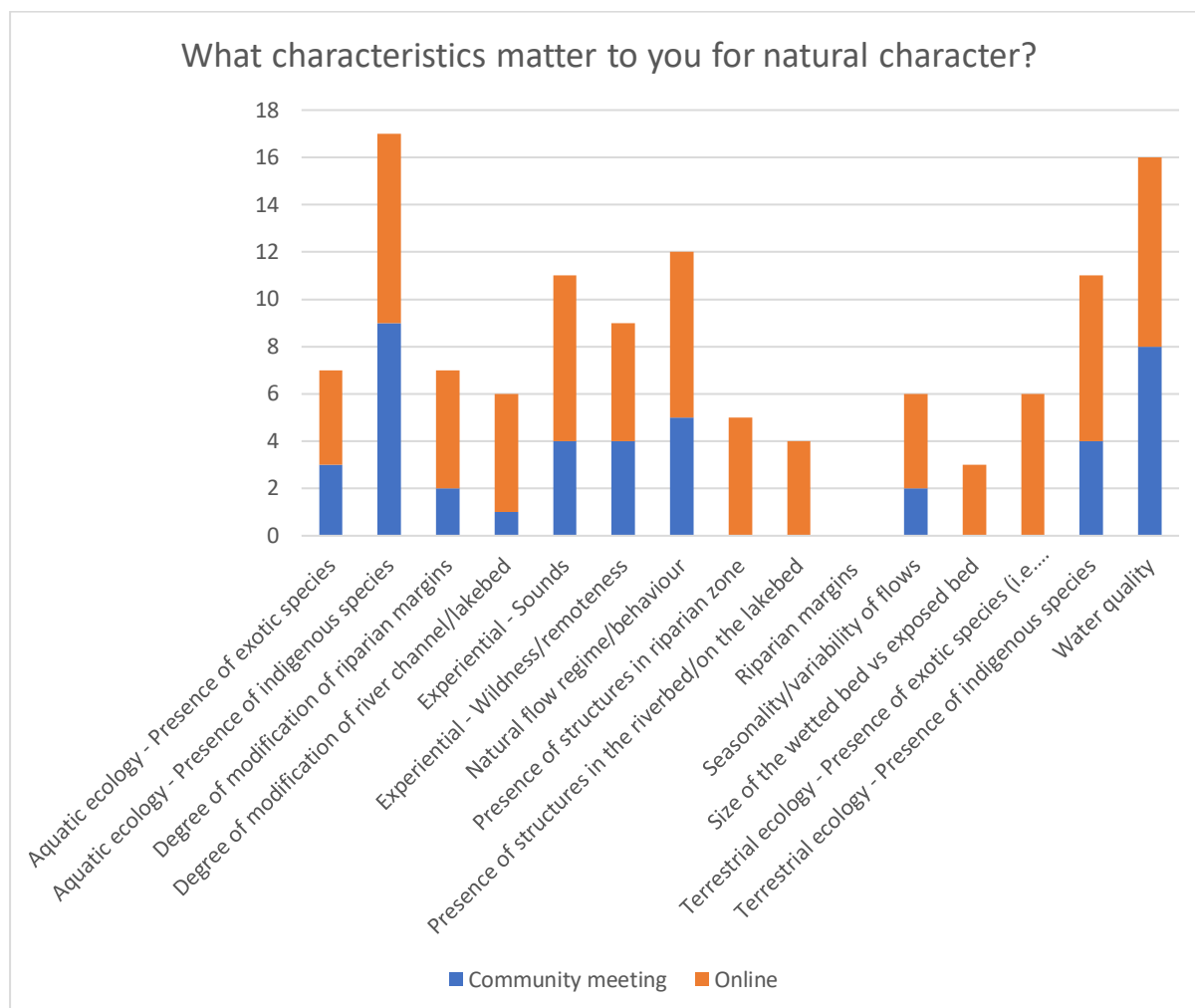
### 3.9.4 Locations identified for value: flow regime and river behaviour

The map below shows locations with important flow regime and river behaviour values identified by participants at the in-person interactive drop-in session and, in some cases, respondents to the online survey.



### 3.10 Natural character

Natural character refers to the presence of natural processes, such as the action of rivers or wave action on lakes, the movement of animals and the natural succession of plant species, and natural elements, such as water, adjacent landforms, and vegetation cover.



Characteristic	Do you think this characteristic for natural character is OK (community meeting)?		How would you rate the condition of this natural character characteristic (online survey)?		
	Yes	No	Good	Okay	Poor
Aquatic ecology "Presence of exotic aquatic species"	0	0	2	2	1
Aquatic ecology "Presence of native/indigenous aquatic species"	3	1	4	2	0
Degree of modification of riparian margins	0	2	3	2	0
Degree of modification of river channel/lakebed	1	0	3	2	0
Experiential – Sounds "The presence of sounds such as the	1	0	2	2	1

sound of water riffles and vegetation, birdsong”					
Experiential - Wildness/remoteness	0	1	2	2	1
Flow regime and river behaviour is similar to natural state	4	1	4	2	0
Presence of structures in river or lake margins	0	0	3	2	0
Presence of structures in the riverbed/on the lakebed	0	0	3	2	0
Seasonality/variability of flows	0	0	4	1	0
Size of the wetted bed vs exposed bed	0	0	4	1	0
Terrestrial ecology - Presence of exotic species (i.e. pest plants)	0	3	1	3	2
Terrestrial ecology - Presence of native/indigenous species	0	3	3	2	0
Water quality	6	3	4	1	1

### 3.10.1 Comments on specific characteristics

The table below includes comments made by respondents on specific characteristics for this value.

Characteristic	Comment
Water quality	<ul style="list-style-type: none"> <li>Coastal mixing zones [are important to me]</li> </ul>
Presence of exotic terrestrial species	<ul style="list-style-type: none"> <li>Replace crack willow. Replace with fast growing tree, e.g. Matsudana willow in short term, interplant with native vegetation removing Matsudana later. This keeps river shaded and cool.</li> </ul>
Wildness/remoteness	<ul style="list-style-type: none"> <li>Keep the rivers natural don't trash them with farming and other forms of modification</li> </ul>
The presence of sounds such as the sound of water riffles and vegetation, birdsong	<ul style="list-style-type: none"> <li>It is lovely to hear the sound of native birds. We have provided a winter haven and breeding ground for Bellbirds by planting <i>Eucalyptus cordata</i> (We must view 'natural' in its many manifestations, and embrace them.</li> </ul>

### 3.10.2 Additional characteristics identified

Additional characteristics that were identified by respondents:

Nil

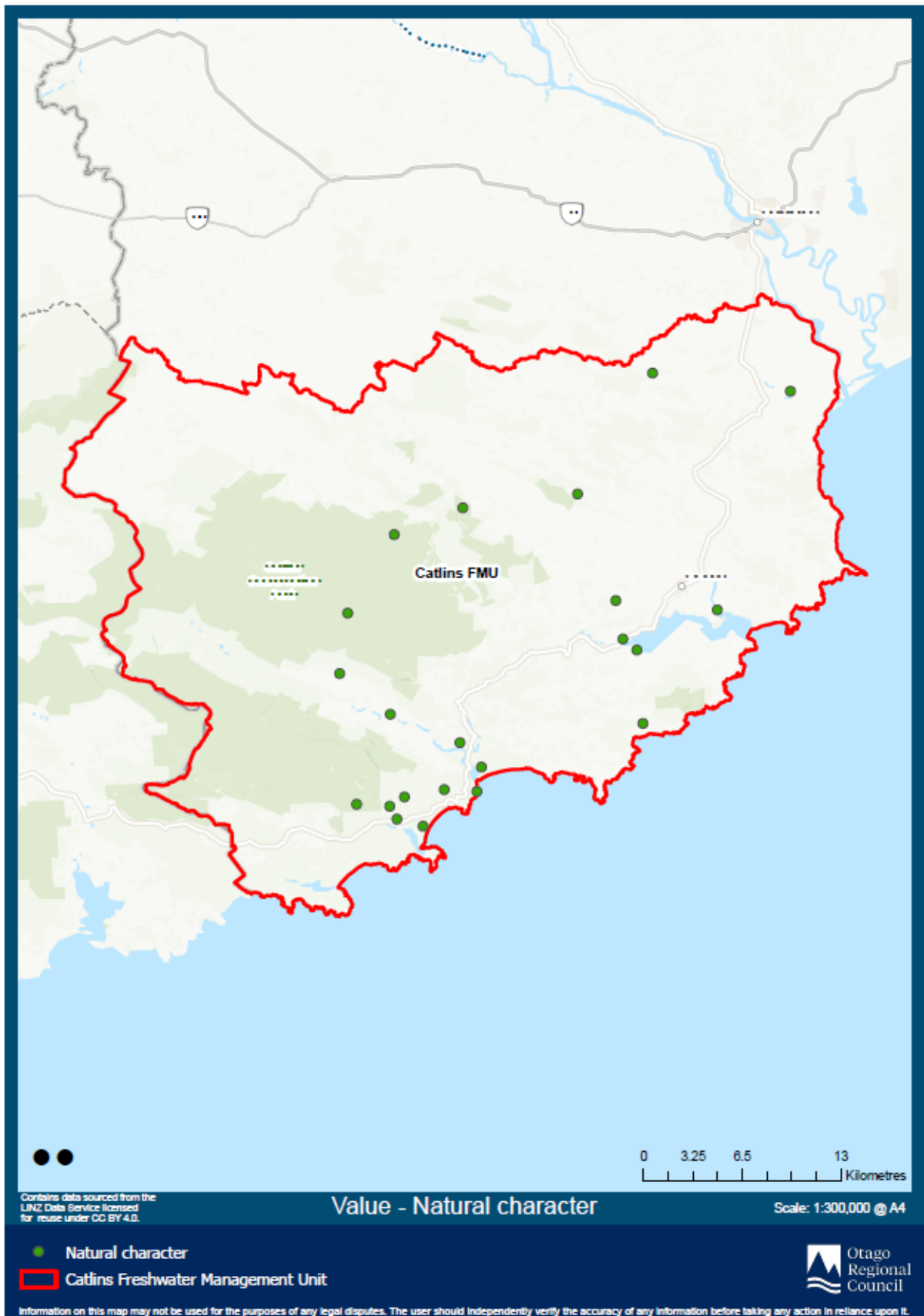
### 3.10.3 Other comments

Other comments made by respondents:

- DoC land needs better management (water quality; pests)
- [Natural character values are important] everywhere in the Catlins
- Natural character values are important] everywhere in New Zealand.
- Natural character values are important] within every catchment

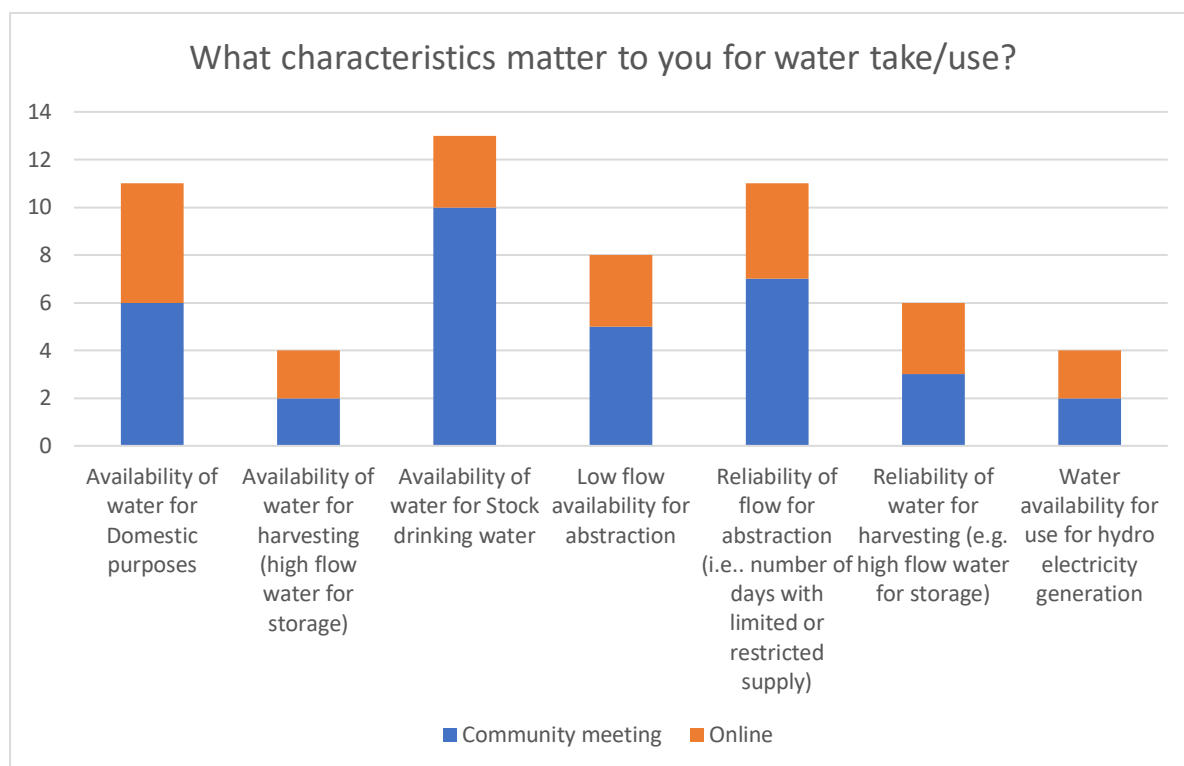
### 3.10.5 Locations identified for value: natural character

The map below shows locations with natural character values identified by participants at the in-person interactive drop-in session and, in some cases, respondents to the online survey.



### 3.11 Water take/use

The taking of water for a variety of uses, including for human consumption, stock drinking water, hydro-electricity generation, irrigation and a variety of other commercial or industrial uses.



Characteristic	Do you think this characteristic for water take/use is OK (community meeting)?		How would you rate the condition of this characteristic for water take/use (online survey)?		
	Yes	No	Good	Okay	Poor
Availability of water for domestic purposes	4	0	0	4	1
Availability of water for harvesting (high flow water for storage) “	1	2	1	3	1
Availability of drinking water for livestock and domestic animals	10	0	0	4	1
Low flow availability for abstraction “Availability of water for taking during summer months”	7	0	1	3	1
Reliability of flow for abstraction (i.e. number of days with limited or restricted supply)	6	0	2	2	1
Reliability of water for harvesting (i.e. storage for future use) during high flows	1	0	1	3	1



Availability of water for hydro electricity generation	0	0	0	3	1
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### 3.11.1 Further comments on specific characteristics

The table below includes comments made by respondents on specific characteristics for this value.

Characteristic	Comment
<b>Availability of water for household uses</b>	<ul style="list-style-type: none"> <li>• [Regarding locations for water take and use] our own spring for grey water and off-roof rainwater.</li> </ul>
<b>Low flow availability for abstraction “Availability of water for taking during summer months”</b>	<ul style="list-style-type: none"> <li>• Irrigation for climate change – future proofing</li> </ul>

### 3.11.2 Other characteristics identified

Any additional characteristics that were identified by respondents are listed below:

- [What is important to me] is to factor in the use of grey water.

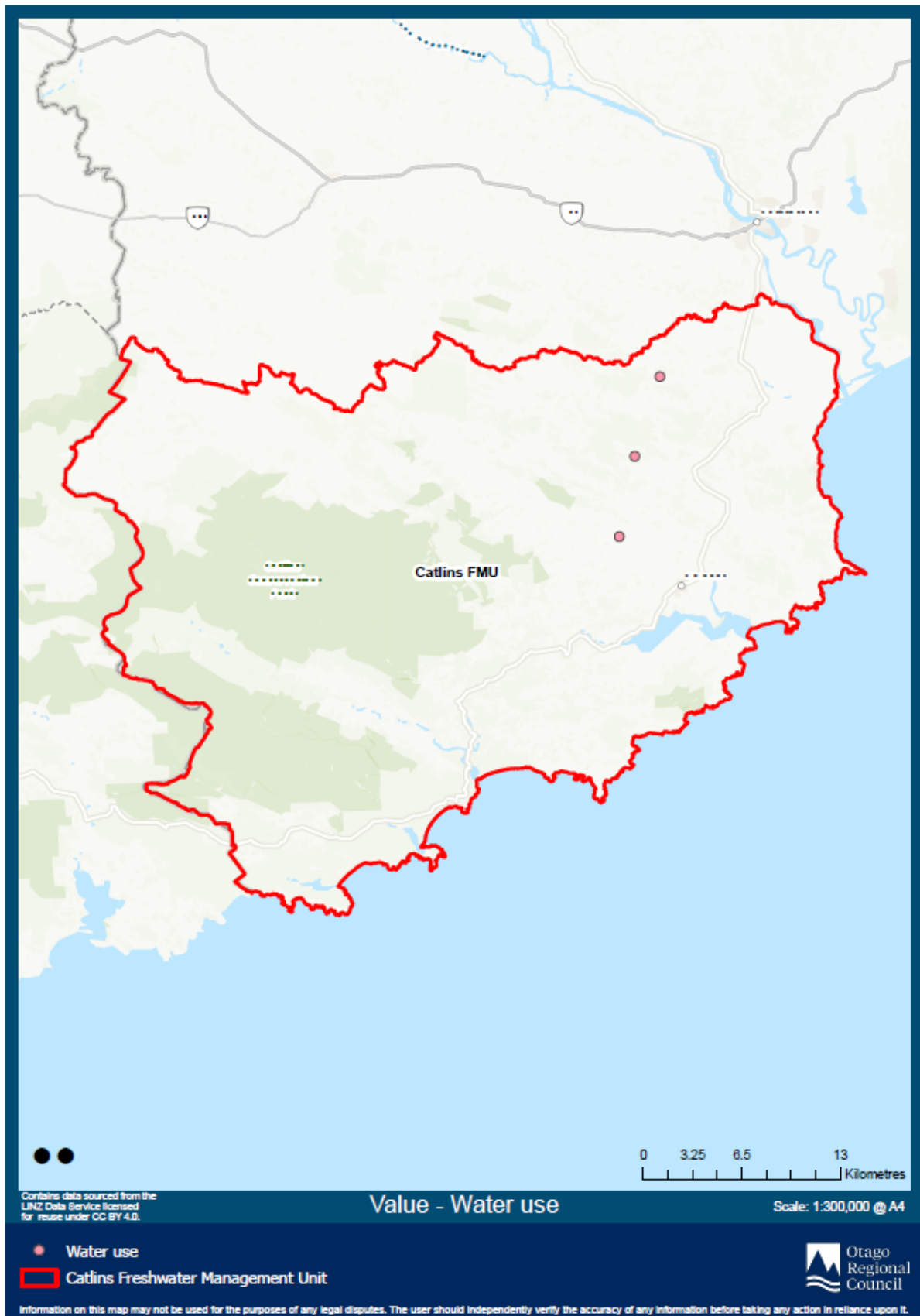
### 3.11.3 Other comments

Other comments made by respondents:

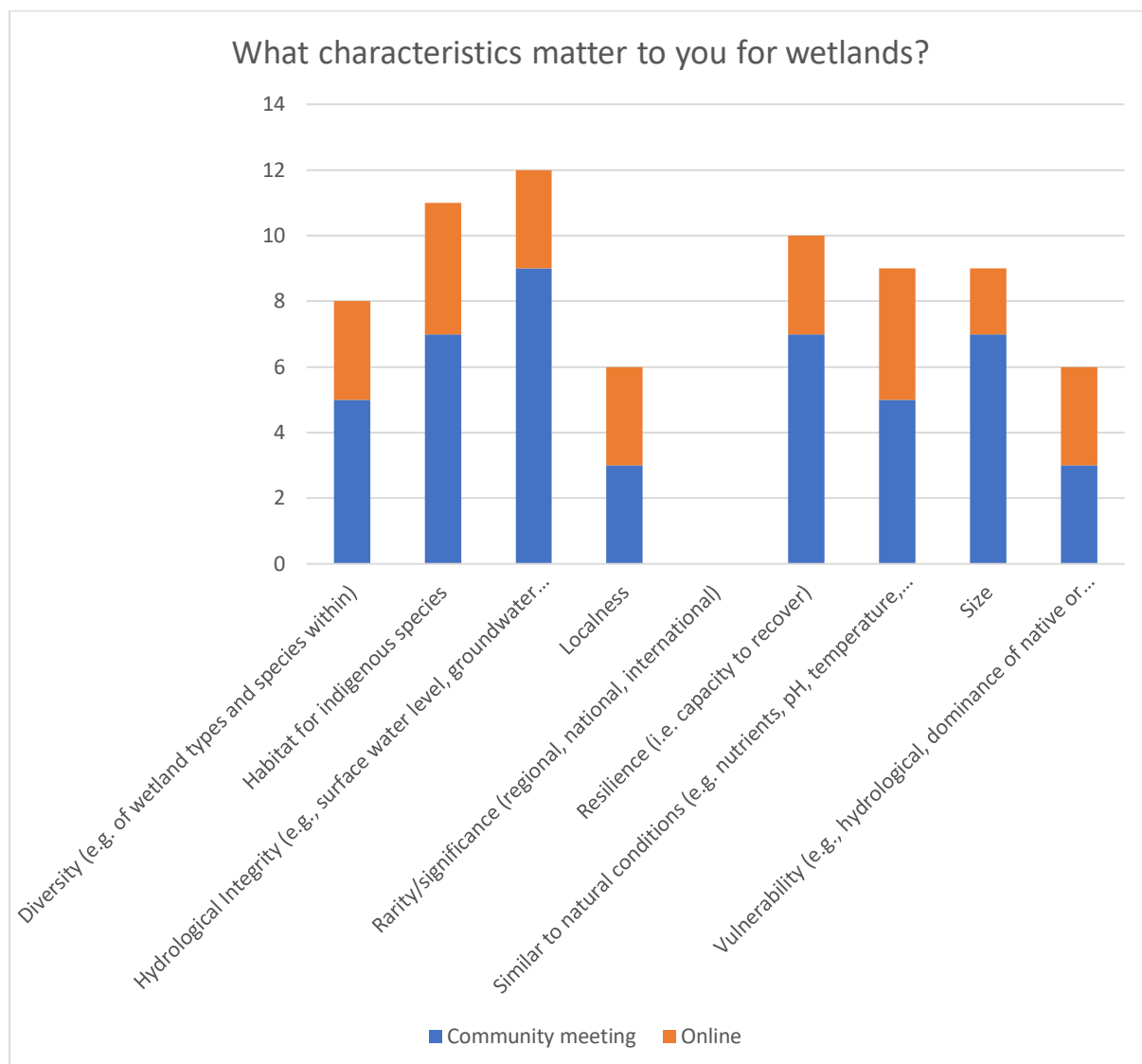
- [Regarding locations for water take and use] anywhere I’m camping or staying.

### 3.11.4 Locations identified for value: water take/use

The map below shows locations with water take or water use values identified by participants at the in-person interactive drop-in session and, in some cases, respondents to the online survey.



### 3.12 Wetlands



Characteristic	Do you think this characteristic for wetlands is OK (community meeting)?		How would you rate the condition of this characteristic for wetlands (online survey)?		
	Yes	No	Good	Okay	Poor
Diversity (e.g. of wetland types and species within)	2	3	0	2	0
Habitat for native/indigenous species	1	5	0	2	0
Hydrological Integrity (e.g., surface water level, groundwater level)	2	3	0	2	0
Localness	0	1	1	2	0
Resilience (i.e. capacity to recover)	3	3	0	2	0

State of the wetland is similar to its natural state (e.g., nutrients, pH, temperature, eutrophic/oligotrophic)	3	2	1	2	0
Size of the wetland	2	6	1	2	0
Vulnerability (e.g., hydrological, dominance of native or invasive species, tenure, proximity to human pressures)	3	4	0	2	0

### 3.12.1 Comments on specific characteristics

The table below includes comments made by respondents on specific characteristics for this value.

Characteristic	Comment
<b>Diversity</b>	<ul style="list-style-type: none"> <li>Willow spraying kills a lot of small invertebrates and affects fish life / bird life</li> <li>Impact of planting pines and gums [Eucalypts] on water, both amount and quality of, which will impact our rivers and wildlife.</li> </ul>
<b>Vulnerability (e.g., hydrological, dominance of native or invasive species, tenure, proximity to human pressures)</b>	<ul style="list-style-type: none"> <li>Encouraging protection is necessary due to drainage and conversion</li> <li>Weed control is needed because we see encroachment for example by birch, rowan, gorse, spartina.</li> </ul>

### 3.12.2 Other characteristics identified

Any additional characteristics that were identified by respondents are listed below:

Nil

### 3.12.3 Other comments

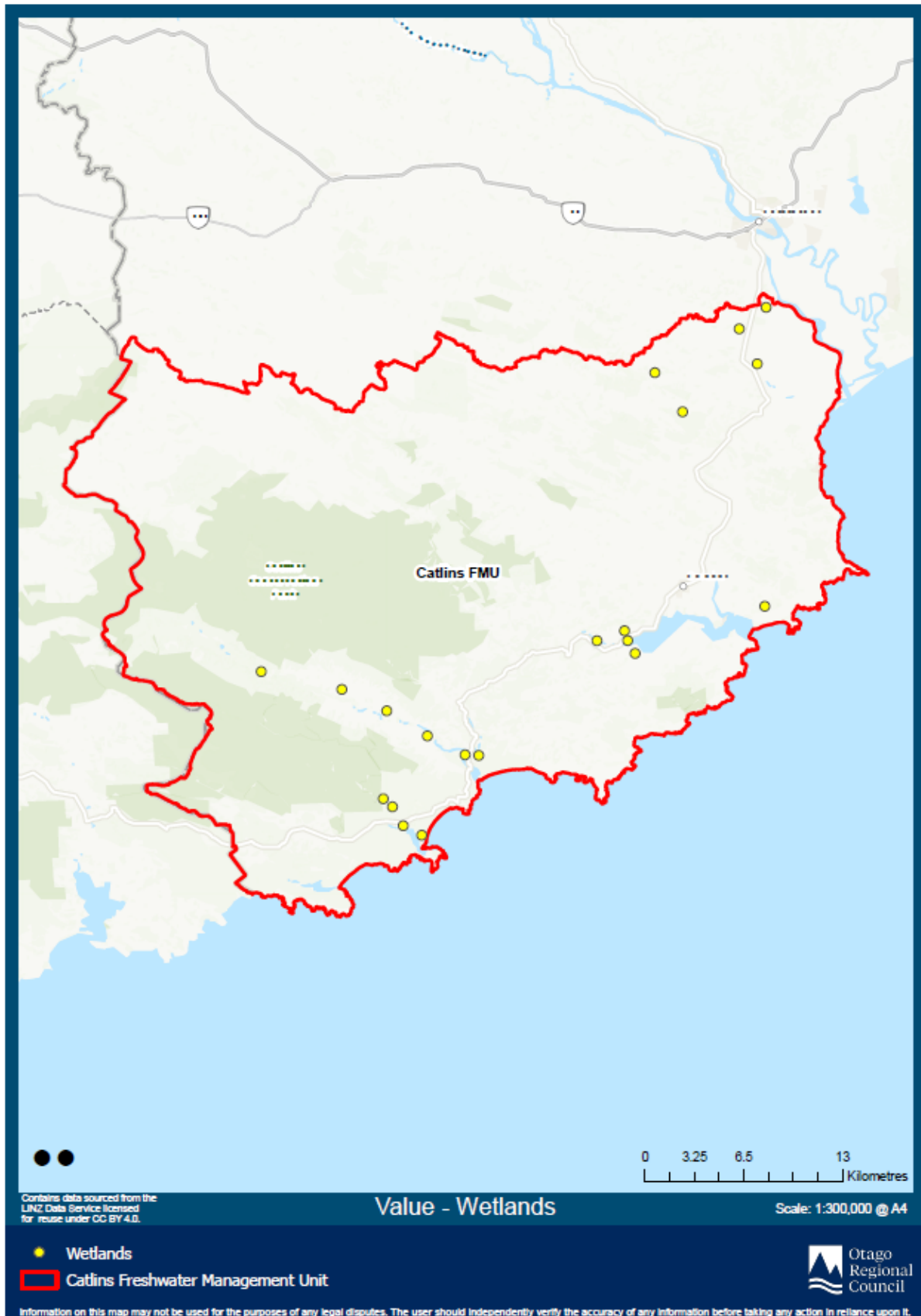
Other comments made by respondents:

- ORC have not taken notice of the degradation of these wetlands.
- More monitoring needed.

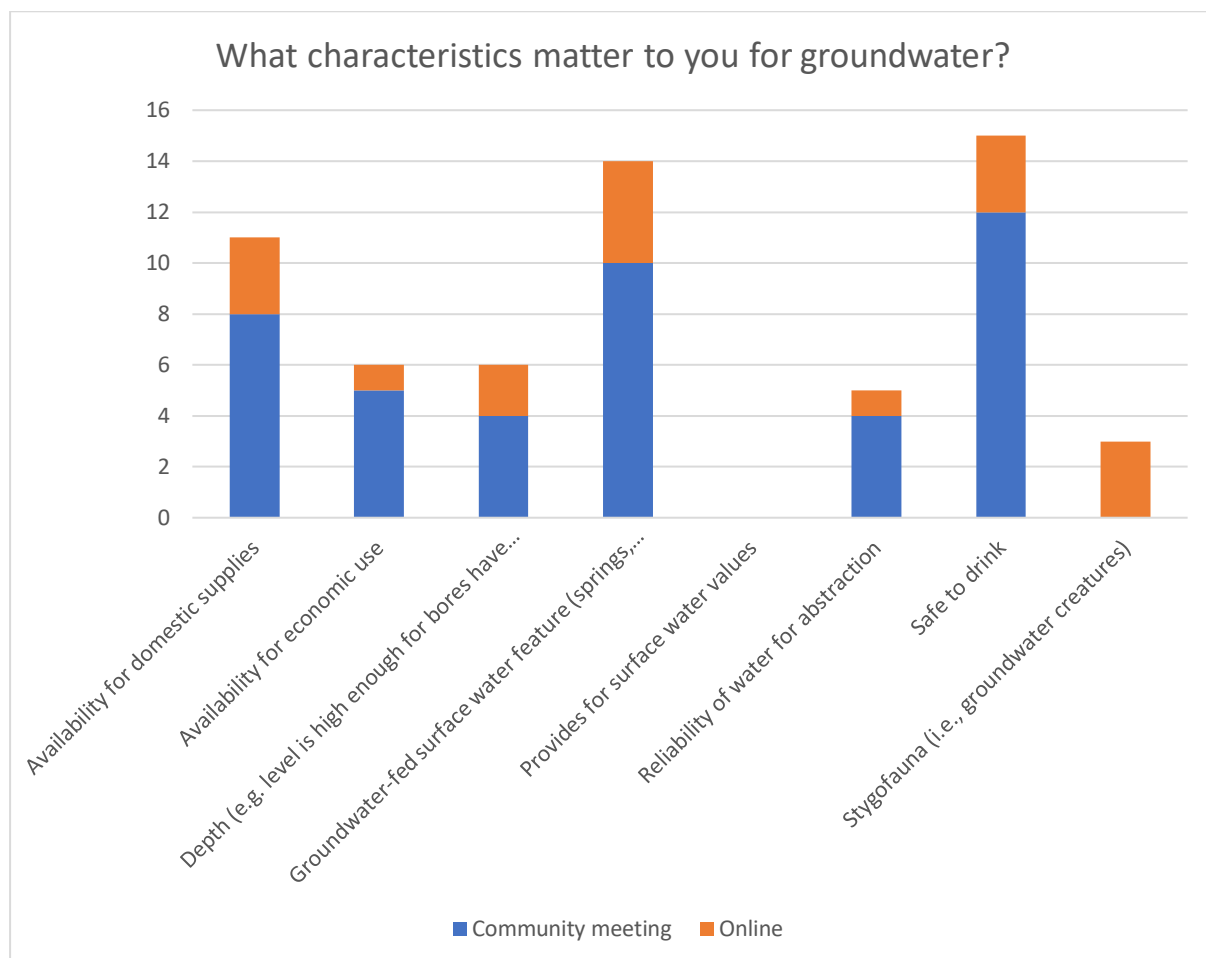
Lack of fencing off by the majority of farmers; can be seen

### 3.12.4 Locations identified for value: wetlands

The map below shows locations with wetland values identified by participants at the in-person interactive drop-in session and, in some cases, respondents to the online survey.



### 3.13 Groundwater



Characteristic	Do you think this characteristic for groundwater is OK (community meeting)?		How would you rate the condition of this groundwater characteristic (online survey)?		
	Yes	No	Good	Okay	Poor
Availability of water for household use (such as water for drinking, hygiene, cooking)	10	1	0	1	1
Availability for economic use, such as irrigation or industrial use	3	0	0	2	0
Groundwater level depth (e.g. level is high enough for bores to have water)	2	0	0	2	0
Groundwater supports connected surface water feature (springs, wetland) – hydrological, cultural values “	8	1	0	1	1
Reliability of water for abstraction	4	0	0	2	0
Safe to drink	10	2	0	1	1

Stygofauna (i.e., groundwater creatures)	1	0	0	2	0
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### 3.13.1 Comments on specific characteristics

The table below includes comments made by respondents on specific characteristics for this value.

Characteristics	Comment
<b>Availability of water for household use (such as water for drinking, hygiene, cooking)</b>	<ul style="list-style-type: none"> <li>Groundwater is important. No rural water scheme. Tools in your toolkit installing scheme as riparian excludes</li> </ul>
<b>Safe to drink</b>	<ul style="list-style-type: none"> <li>If the groundwater emerges above legal nitrogen level, is it in good state?</li> </ul>

### 3.13.2 Other characteristics identified

Any additional characteristics that were identified by respondents are listed below:

Nil

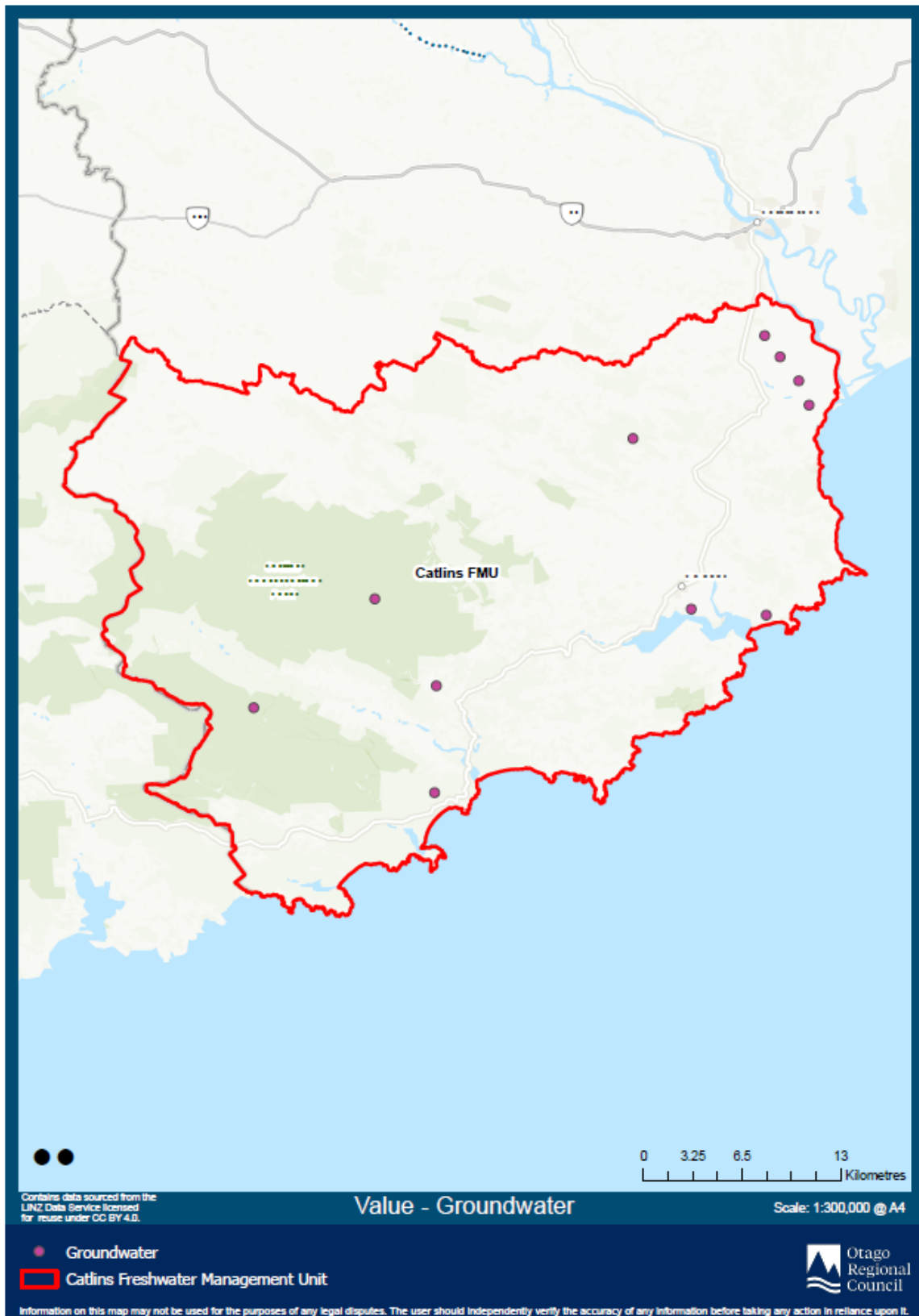
### 3.13.3 Other comments

Other comments made by respondents:

Nil

### 3.13.4 Locations identified for value: groundwater

The map below shows locations with groundwater values identified by participants at the in-person interactive drop-in session and, in some cases, respondents to the online survey.





### 3.14 Other values and matters that were identified

The table below lists other matters that were raised by people participating in the online survey and interactive drop-in session. Several of these relate to land use activities and the appearance of land.

<ul style="list-style-type: none"> <li>• People who live and work in these environment not well looked after</li> </ul>
<ul style="list-style-type: none"> <li>• Economic values. Farmers need to make a living.</li> </ul>
<ul style="list-style-type: none"> <li>• Let's not put a too-narrow focus on this issue</li> </ul>
<ul style="list-style-type: none"> <li>• Problem at getting public to interact. They feel so strongly about issues but can't begin to put it on paper, i.e., they hate the idea of forestry!</li> </ul>
<ul style="list-style-type: none"> <li>• Forestry has taken up the pastoral land.</li> </ul>
<ul style="list-style-type: none"> <li>• Tahakopa River – filled with logs. Can't get a boat up the river.</li> </ul>
<ul style="list-style-type: none"> <li>• A farmer with solid best-practices in winter grazing (top to bottom of paddock) discouraged by forestry actions above his farm. 93 mm rain in 4 days, so he moved stock off a vulnerable paddock. Above, forestry continued felling which resulted in significant impact on waterways passing through his farm and seeming to make his good work negligible. He wanted better control over forestry practice during rain events. No way to anonymously report this forestry practice</li> </ul>
<ul style="list-style-type: none"> <li>• Pine plantations (Exotic Conifer) are an issue (for water and community) and landowners need to be held accountable.</li> </ul>
<ul style="list-style-type: none"> <li>• How can we hold foreign landowners accountable for managing their land?</li> </ul>
<ul style="list-style-type: none"> <li>• Monitoring of forestry operations is needed.</li> </ul>
<ul style="list-style-type: none"> <li>• Work with the people who live and work within these catchments, they are who pays the rate and tax and know the area best. We need to ensure these communities can still function and thrive too</li> </ul>
<ul style="list-style-type: none"> <li>• Commercial responsibility. If someone is profiting off the use of water, i.e. Chinese water bottling company, timber mill or Aurora Energy they can be responsible for the local wellbeing of waterways and ecosystem.</li> </ul>
<ul style="list-style-type: none"> <li>• The entire area is important. - how do we prioritise?</li> </ul>
<ul style="list-style-type: none"> <li>• Uncertainty about maintaining historic drains from old railway that now are on private land. Without maintenance (i.e. clearing debris/sediment) these drains create bogging in paddocks. Unsure if there is a record of these historic drains and whether they have rules around what you can and cannot do regarding maintenance and if consent is needed.</li> </ul>
<ul style="list-style-type: none"> <li>• I am concerned by the incapacity of native forests to retain sediment due to the damage caused by feral deer, goats and pigs.</li> <li>• Observed population size in this matter is less important than impact, eg; regular pig rooting along a bank above a stream prohibits revegetation between established plants of a size unaffected by the pigs feeding behaviour.</li> <li>• Deer and goats contribute to this by their browsing of seedlings and ring barking of selected species.</li> <li>• Farmers rotate their stock around paddocks to allow grass regeneration.</li> <li>• The feral animals of our forests make no such allowance and the result is areas of forest with no new plant recruitment to replace existing trees, bare ground which would otherwise be covered in a profusion of plants.</li> <li>• This can readily be observed throughout Otago, It's easy to admire the appearance of forest health when viewing from a car window. Away from the corridors used by people is a harsh difference.</li> </ul>
<ul style="list-style-type: none"> <li>• What happens on land affects marine wildlife and fishing. Thank you for telling us TMOTW is not [just] a te reo or Maori concept, but one with wide application. Ki uta ki tai is integrated catchment management Maori involvement is not always appreciated. These [concepts] are of general importance.</li> </ul>

<ul style="list-style-type: none"> <li>• More detailed introductions before presentation requested (especially referenced Aukaha)</li> </ul>
<ul style="list-style-type: none"> <li>• A local regional rep is needed in this area.</li> </ul>
<ul style="list-style-type: none"> <li>• Feedback on the costs of seeking advice for different farm plans as well as consent costs adding up and good management that farmers want to be doing is confusing and cost prohibitive.</li> </ul>
<ul style="list-style-type: none"> <li>• Got some bottom lines to deliver. Make it as practical as possible with minimum bureaucracy/cost.</li> </ul>
<ul style="list-style-type: none"> <li>• Can [community] feedback on forestry, change central govt. direction?</li> </ul>

Matters relating to the on-line survey and the material presented at the community meetings:

<ul style="list-style-type: none"> <li>• This survey is poorly designed. The format and questions make very little sense.</li> </ul>
<ul style="list-style-type: none"> <li>• [What is important to me is] having surveys that are designed by people who know about surveys so that they make sense and provide good data for your decision-making process.</li> </ul>
<ul style="list-style-type: none"> <li>• Please revise this survey and make one that's better at collecting meaningful and useful data and is more user friendly</li> </ul>
<ul style="list-style-type: none"> <li>• Cannot justify the 48% rates increase – to employ more staff.</li> </ul>
<ul style="list-style-type: none"> <li>• This survey seems poorly structured. Some of the terms are undefined.</li> </ul>
<ul style="list-style-type: none"> <li>• I'm not sure that most people are equipped with the info to be able to answer these in any meaningful way</li> </ul>

## 4 Feedback received by email

This section provides a summary of the feedback that was received via email over the period 29 November 2021 to 20 December 2021.

Value	Comment
<p><b>Swimming (and other primary contact recreational water activities)</b></p> <p><b>Fishing (and other secondary contact recreational water activities)</b></p> <p><b>Non-contact recreation (e.g. walking, sightseeing, camping)</b></p>	<ul style="list-style-type: none"> <li>Concern with the protection and enhancement of: <ul style="list-style-type: none"> <li>Recreational amenity values of waterways, which are often neglected in water planning and should be given a high profile within the FMU.</li> <li>Public access to waterways for recreation, because it allows the public to use and enjoy natural resource opportunities.</li> <li>Conditions for contact recreation including swimming, kayaking, fishing, and waterfowl deserve separate mention.</li> </ul> </li> <li>The act of fishing and game hunting involves human contact with the water body, whether it be through physically getting into the waterbody or touching and eating food from it. Both these activities are forms of contact recreation.</li> <li>Contact, or the potential for contact, with water and animals living in water can cause health issues if water is not properly managed – especially in when entering water bodies and eating wild harvested food.</li> </ul>
<b>Harvesting of food from waterways</b>	<ul style="list-style-type: none"> <li>Fishing, waterfowl hunting, mahinga kai gathering – is a specific category of value has a human health element to it.</li> </ul>
<b>Aquatic species</b>	<ul style="list-style-type: none"> <li>Ecosystem values including sports fish, waterfowl including gamebirds, indigenous fish species (both threatened and non-threatened) are all important values.</li> <li>Sports fish and waterfowl game species, whether they are introduced or indigenous, all into the ecosystem health value as they form part of the aquatic life biophysical component and they rely upon the habitat biophysical component to survive.</li> <li>While a benchmark for ecosystem health references indigenous aquatic life, this does not mean that the value excludes non-indigenous species. Prioritising ecosystem health will not always lead to indigenous only ecosystems. When considering outcomes for ecosystem health, all biophysical components must be considered and managed.</li> <li>In many places, ecosystems retain a high degree of health with the presence of salmonids.</li> <li>The incredible biodiversity values of the FMU need to be recognised and protected with restoration undertaken where these are degraded.</li> <li>This FMU has significant biodiversity values which need to be protected and improved.</li> <li>The bush, streams, birdlife, and estuaries [in the Lenz Reserve in the Fleming River catchment] are highly valued.</li> <li>Giant kokopu have been found in the lower Fleming river.</li> </ul>
<b>Threatened species</b>	<ul style="list-style-type: none"> <li>Conservation of threatened species (particularly non-migratory galaxiids) is a priority value and may well require interventions by statutory agencies or interests where populations are at risk.</li> <li>Nationally significant populations of the threatened non migratory Galaxid fish <i>Galaxis golumoides</i> in the upper reaches of the Tautuku and</li> </ul>

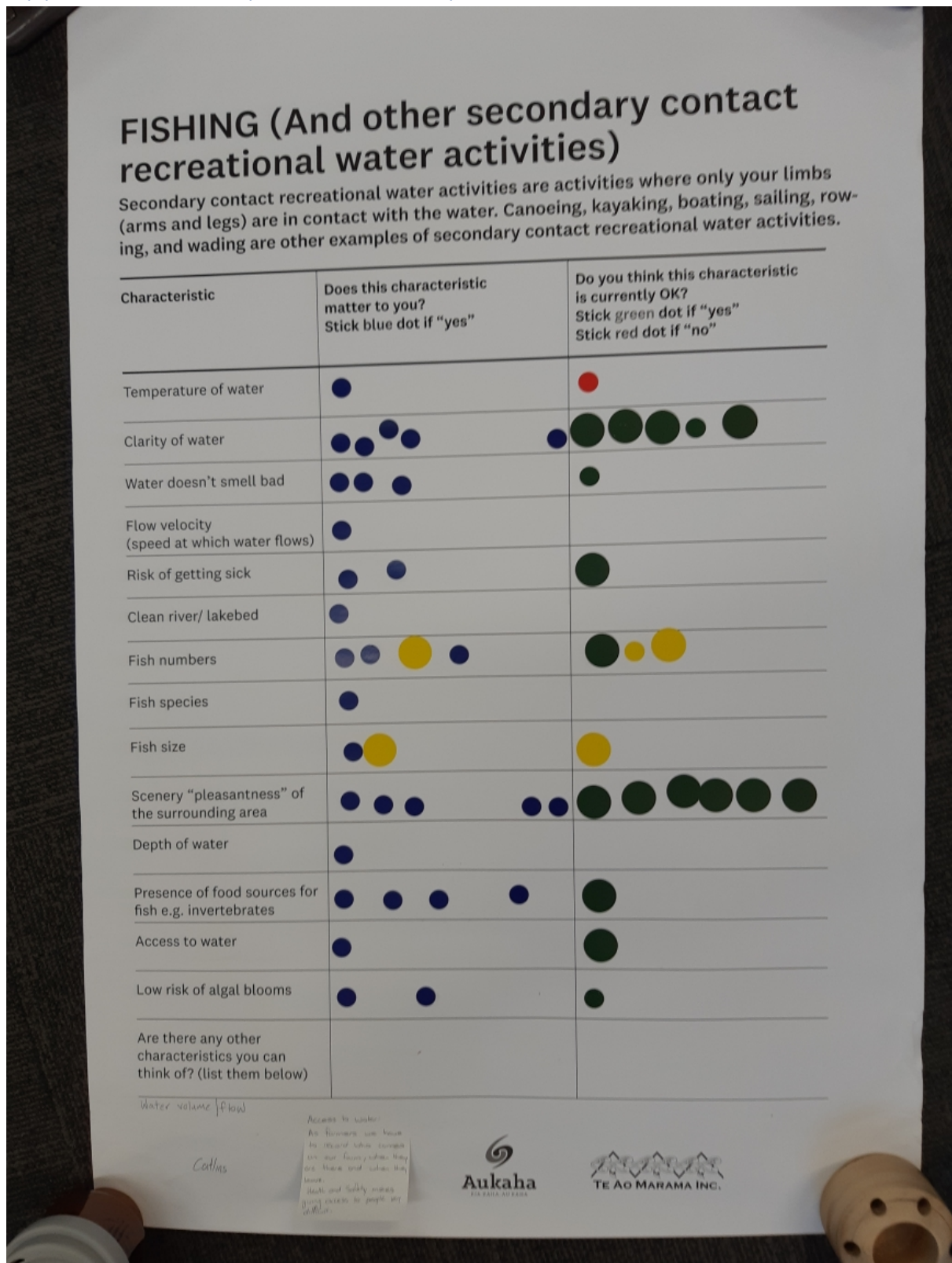
	<p>Fleming rivers, where, above the waterfall barriers, the rivers remain free from introduced trout.</p> <ul style="list-style-type: none"> <li>• Benefit would be gained by establishing marine reserves or mātaihai in the lower reaches of Flemming and Tautuku rivers which could enable the conservation of any threatened species.</li> </ul>
<b>Natural character</b>	<ul style="list-style-type: none"> <li>• The natural character of the rohe is renowned of being of high quality. There is a great deal of diversity for natural character between catchments, with some being highly natural and others being modified.</li> <li>• Indigenous game species form part of natural form and character.</li> <li>• This FMU has significant landscape values which need to be protected and improved.</li> </ul>
<b>Ecosystem functions and processes</b>	<ul style="list-style-type: none"> <li>• This FMU has significant freshwater values which need to be protected and improved.</li> </ul>
<b>Habitat</b>	<ul style="list-style-type: none"> <li>• Aquatic and terrestrial habitat is an important value. River, lake, wetland and estuary habitat deserve special mention.</li> <li>• The incredible biodiversity values of the FMU need to be recognised and protected with restoration undertaken where these are degraded.</li> <li>• This FMU has significant biodiversity values which need to be protected and improved.</li> <li>• The bush, streams, birdlife, and estuaries [in the Lenz Reserve in the Fleming River catchment] are highly valued.</li> <li>• The pristine nature of the upper reaches of the Flemming and Tautuku rivers further highlight their importance in terms of native freshwater biodiversity.</li> <li>• ORC should fully consider the values riparian habitats have for wider biodiversity value (such as avifauna) when assessing the health and wellbeing of waterbodies and freshwater ecosystems in addition to the attributes of the freshwater itself.</li> <li>• Predator control is a major issue and cannot be left solely to NGOs.</li> <li>• Rules about clearance of native vegetation and wetlands are not always clearcut and appear to be easily circumvented. With so much native vegetation already lost, any further clearance should be prevented.</li> </ul>
<b>Water quality</b>	<ul style="list-style-type: none"> <li>• Water quality is at times impacted by agricultural intensification.</li> <li>• The FMU has a large amount of conservation land and water sourced from these catchments is of better quality.</li> <li>• This FMU has significant freshwater values which need to be protected and improved.</li> <li>• Concern remains at the degraded states of monitored waterways in the FMU. These need urgent action to restore the health and wellbeing of waterbodies and freshwater ecosystems.</li> <li>• It's critical to take a ki uta ki tai/mountains to sea approach and recognise the interconnectedness of the ecosystems. For example, hoiho are highly valued critically endangered species which live on the Catlins coastline. Pollution from on land activities flowing into their habitat from fresh waterbodies is having a known and established effect exasperating their decline. Factors like this should be considered and justify a far stronger approach to improving the health of Caitlin's waterways then is required by national bottom lines.</li> </ul>

	<ul style="list-style-type: none"> <li>• Despite some recent improvements, intensive winter grazing is still evident in the Catlins, resulting in degraded soils and waterways.</li> <li>• Sediment and pollution from logged areas, and from pasture and natural environments impacted by the destructive activities of feral deer, pigs and goats, ends up in waterways.</li> <li>• Concern at the impact increasing pressures on land use from subdivision and development is having on indigenous biodiversity and resulting effects of sedimentation from earthworks and pollution from any increase in intensity of agriculture.</li> <li>• More needs to be done to reduce the harmful impacts of intensive agriculture, which, apart from its effect on greenhouse gas emissions such as methane and nitrous oxide, causes nitrate pollution and eutrophication of waterways.</li> <li>• Water quality standards should be set with reference to parameters in pristine – or near pristine – water bodies such as the Fleming River.</li> </ul>
<p><b>Flow regime and river behaviour</b></p>	<ul style="list-style-type: none"> <li>• It is assumed water quantity is not as great an issue as in other parts of Otago, such as Central Otago. With the impact of climate change in coming years, increased abstractive pressure may be experienced.</li> <li>• Recommend setting limits on abstraction prior to water quantity issues being experienced in the catchment. This is particularly relevant in the face of climate change.</li> <li>• Needs to be more Council boots on the ground monitoring compliance – and Council employees themselves must clearly understand the regulations.</li> <li>• In the case of infringements, education is undoubtedly important, but a slap on the wrist with the proverbial wet bus ticket will embolden rather than change non-compliant behaviour.</li> </ul>
<p><b>Other comments</b></p>	<ul style="list-style-type: none"> <li>• Pleased to see that the ORC has expanded its programme of groundwater level monitoring at the Clutha Delta. Results of modelling about future impacts of sea level rise in the Catlins would be useful.</li> <li>• There doesn't appear to be any monitoring of groundwater quality taking place in the Catlins.</li> </ul>

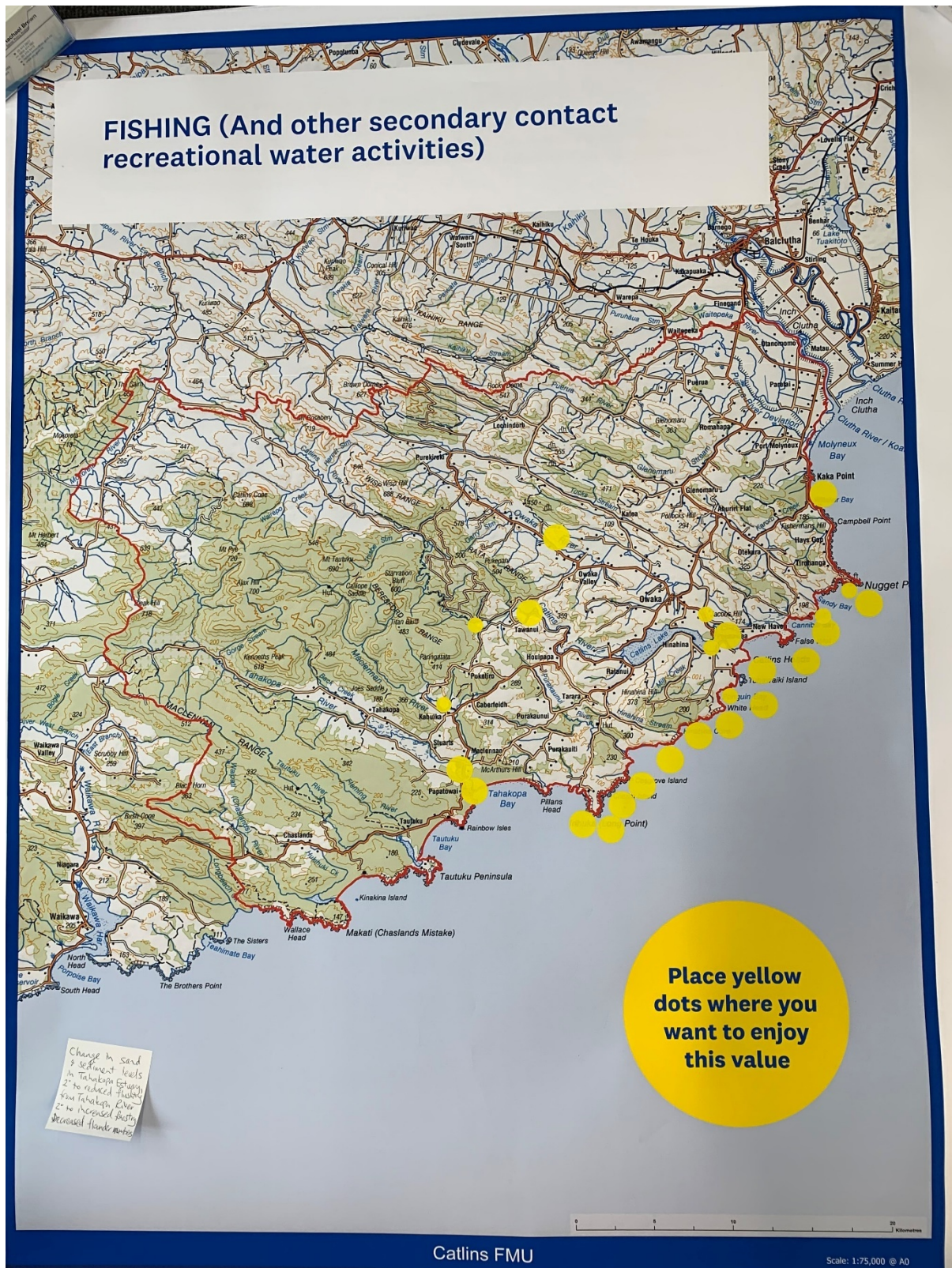
# Appendix 1: Map of the Catlins FMU



Appendix 2: Example of a values poster



### Appendix 3: Example of a values map





Appendix 4: 'Is there anything else missing?' poster

CATLINS

## IS THERE ANYTHING ELSE MISSING?

What other values matter to you?	Is this value currently well looked after? Stick green dot if "yes" Stick red dot if "no"
People who live and work in these environments	
As above	
Economic Wellbeing: Farmers need to make a living.	

## Appendix 5: Online survey

### Question 1<sup>8</sup>:

1. Select the things that matter to you.

- |  |   |
|--|---|
| <input type="checkbox"/> Swimming / Contact recreation (e.g., kayaking)                  | <input type="checkbox"/> Fishing                    |
| <input type="checkbox"/> Non-contact recreation (e.g., walking or biking near waterways) | <input type="checkbox"/> Aquatic species            |
| <input type="checkbox"/> Threatened species  | <input type="checkbox"/> River and riverbed habitat |
| <input type="checkbox"/> Ecosystems  | <input type="checkbox"/> Water quality              |
| <input type="checkbox"/> River flow  | <input type="checkbox"/> Natural character          |
| <input type="checkbox"/> Water use   | <input type="checkbox"/> Wetlands                   |
| <input type="checkbox"/> Groundwater   |   |

### Question 2<sup>9</sup>:

2. When swimming or using a waterway for recreation (such as kayaking), which of the following matters to you?

	Yes	No
Temperature of water	<input type="radio"/>	<input type="radio"/>
Depth of water	<input type="radio"/>	<input type="radio"/>
Clarity of water	<input type="radio"/>	<input type="radio"/>
Odour of water	<input type="radio"/>	<input type="radio"/>
Flow velocity/water current	<input type="radio"/>	<input type="radio"/>
Contact/immersion safety	<input type="radio"/>	<input type="radio"/>
Clean river/lakebed bottoms	<input type="radio"/>	<input type="radio"/>
Colour of water	<input type="radio"/>	<input type="radio"/>
Presence of fish	<input type="radio"/>	<input type="radio"/>
Scenery	<input type="radio"/>	<input type="radio"/>
Absence of rubbish	<input type="radio"/>	<input type="radio"/>
Access to water	<input type="radio"/>	<input type="radio"/>
Low risk of algal blooms	<input type="radio"/>	<input type="radio"/>

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<sup>8</sup> Respondents were able to select as many values as they wished.

<sup>9</sup> Respondents were only able to select either 'Yes' or 'No'

Question 3<sup>10</sup>:

3. When swimming or using a waterway for recreation, how would you rate the conditions?

	Good	Okay	Poor
Temperature of water	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Depth of water	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clarity of water	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Odour of water	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Flow velocity/water current	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Contact/immersion safety	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clean river/lakebed bottoms	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Colour of water	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Presence of fish	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Scenery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Absence of rubbish	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access to water	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Low risk of algal blooms	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Question 4:

4. Is there another swimming or recreational waterway characteristic that is important to you? If so, please list the characteristic(s).

Please add your comment here...

Question 5:

5. Where do you want to swim or do water-based activities? Please list names of swimming locations.

Please add your comment here...

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<sup>10</sup> Respondents were only able to select either 'Good', 'Okay' or 'Poor'

Question 6:

6. Are there any other waterway related things that matter to you? If so, please enter them below.

Please add your comment here...

Question 7:

7. Let us know if there is anything else you would like to tell us.

Please add your comment here...

Question 8:

8. Would you be interested in keeping up to date with the latest Land and Water Regional Plan news for Upper Lakes?

Yes

No