

**Before the Canterbury Regional Council
Hearing Commissioners**

In the Matter of the Environment Canterbury (Temporary
Commissioners and Improved Water Management)
Act 2010 and the Resource Management Act 1991

And

In the Matter of Submissions and further submissions on proposed
plan change 4 (omnibus) to the partly operative
Canterbury Land and Water Regional Plan

**STATEMENT OF EVIDENCE OF DR BELINDA ISOBEL MARGETTS FOR
THE CHRISTCHURCH CITY COUNCIL**

29 January 2016

CHRISTCHURCH CITY COUNCIL
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INTRODUCTION

Qualifications and Role

1. My full name is Belinda Isobel Margetts. I have been requested by the Christchurch City Council (CCC) to give evidence in relation to inanga (*Galaxias maculatus*) spawning sites.
2. I hold a Bachelor of Science First Class Honours degree majoring in Zoology from Canterbury University and a PhD in Ecology from Lincoln University.
3. I have almost fifteen years' experience working as an ecologist in research institutes, consultancies, and regional and local councils, within New Zealand, Ireland and Africa. The majority of this work has been in the realm of freshwater ecology, including assessment of effects and planning.
4. I am employed as a Waterways Ecologist at the CCC. I have been working in this role at the Council since June 2013. I am tasked with managing the ecological monitoring program and providing advice on such as matters as the ecological effects of activities.
5. In particular, I have been involved in the mapping, monitoring and development of restoration projects of inanga spawning sites within CCC's area of jurisdiction.

Scope of Evidence

6. This variation to the Environment Canterbury (ECan) Land and Water Regional Plan (LWRP) includes an updated schedule of inanga spawning sites, to provide protection to this 'At-Risk Declining' species (Goodman *et al.*, 2014)¹. These sites are outlined in Schedule 17² of the LWRP (provided in Attachment A of this document), which details known spawning sites, as

¹ Goodman J.M., Dunn N.R., Ravenscroft P.J., Allibone R.M., Boubée J.A.T., David B.O., Griffiths, M., Ling, N., Hitchmough, R.A. & Rolfe, J.R. (2014) Conservation status of New Zealand freshwater fish, 2013. New Zealand Threat Classification Series 7. Department of Conservation, Wellington, New Zealand.

² Pages 16-11 to 16-13 of Plan Change 4 document, which can be accessed from:
<http://files.ecan.govt.nz/public/lwrp/pc4/pc4-plan/Part-2-PC4-LWRP-Plan.pdf>

well as LWRP planning maps³, which further include potential inanga spawning habitat. Rules within the plan have been amended to include these schedules and maps.

7. My evidence specifically addresses the accuracy of the known inanga spawning sites within Schedule 17 and the associated planning maps, within the CCC's area of jurisdiction for Christchurch City and Banks Peninsula. This is in relation to the CCC's following submission:

Part of plan	Page number	Submission	Relief sought
<i>Section 4: Policies. Activity and Resource Policies Activities in the Beds of lakes and Rivers 4.86A and 4.86B</i>	p. 4-7	<p>The stronger provisions with regards to both inanga spawning and inanga habitat site provisions are supported by the Council.</p> <p>The Council has collated survey work on inanga and trout spawning sites as part of the Council's global consent works within waterways, consent CRC146620. The Council has noted that there may be anomalies between Council data and the data in Schedule 17 which lists significant inanga spawning sites within Christchurch. It is important that there is consistency between Council and Environment Canterbury with regard to significant sites, and therefore more analysis and discussion between the two councils is required.</p>	<p><i>Oppose.</i></p> <p>If further investigations identify anomalies, amend Schedule 17 to ensure that all significant inanga spawning sites within Christchurch and Banks Peninsula are identified correctly and consistently.</p>

8. The key documents I have used, or referred to, in forming my view while preparing this brief of evidence are:

8.1 ECan Section 32 report;

8.2 ECan Section 42A report;

³ These maps are detailed in the plan and a GIS version can be accessed from this website:

http://www.arcgis.com/home/webmap/viewer.html?url=http%3A%2F%2Fgis.ecan.govt.nz%2Farcgis%2Frest%2Fservices%2FPublic%2FpLWRP_Plan_Change_4%2FMapServer%2F3&panel=gallery&suggestField=true

8.3 ECan technical report '*Predicting inanga/whitebait spawning habitat in Canterbury*' (Report No. R15/100); and

8.4 A number of technical reports detailing surveys of inanga spawning within the Christchurch and Banks Peninsula regions⁴.

9. I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note (dated 1 December 2014) and I agree to comply with it. My qualifications as an expert are set out above. I confirm that the issues addressed in this statement of evidence are within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

SUMMARY

10. My evidence will describe some anomalies between CCC known inanga spawning sites and those proposed in the LWRP within Schedule 17 and the associated planning maps. The CCC submission requests that these LWRP sites are updated to be the same as the CCC sites. I support that approach. This approach is also supported in the ECan Section 42A report, by both the officers and the technical experts.

BACKGROUND

11. I am generally supportive of ECan's approach to protecting inanga, and note that this is in line with CCC policies, plans and strategies. In particular, inanga spawning sites are included as Sites of Ecological Significance in the District Plan, with associated planning restrictions in and adjacent to these areas.

⁴

- Taylor, M. J.; Blair, W. 2011. Effects of Seismic Activity on Inanga spawning grounds on City Rivers. Aquatic Ecology Limited, Christchurch. No. 91. 29 p.
- Taylor, M. J. 2005. Inanga spawning on the lower Styx River. Aquatic Ecology Limited, Christchurch. AEL Report No. 28. 14 p.
- Taylor, M. J.; Blair, W. 2011. Effects of Seismic Activity on Inanga spawning grounds on City Rivers. Aquatic Ecology Limited, Christchurch. No. 91. 29 p; Taylor, M. J. 2004. Inanga spawning grounds on the Avon and Heathcote Rivers. Aquatic Ecology Limited, Christchurch. AEL Report No. 22. 34 p.
- Taylor, M. J. 2004. Inanga spawning grounds on the Avon and Heathcote Rivers. Aquatic Ecology Limited, Christchurch. AEL Report No. 22. 34 p.
- Hickford, M. 2012. Potential Submission Regarding the Protection of Inanga Spawning Sites. Golder Associates Ltd, No. 9 p.
- Taylor, M. J.; Marshall, W. 2014. Inanga Spawning Survey of the Canterbury Region. Aquatic Ecology Ltd, Christchurch. No. 119. 61 p.

12. CCC have recently mapped inanga spawning sites within the CCC's area of jurisdiction of Christchurch and Banks Peninsula, as it is a requirement of a number of CCC's global consents (e.g. works in watercourse consent) to do this every five years. These maps are based on all known surveys of observed eggs (these maps are provided in Attachment B of this document⁵ and are listed in the footnote of paragraph 8). These sites also included areas upstream and downstream where habitat is suitable for spawning and therefore could feasibly occur.
13. I consider it is important that the CCC and LWRP spawning sites align. The councils need to use accurate scientific information to ensure protection of spawning habitat and to carry out restoration projects successfully. For the community, it is also less confusing and onerous from a planning perspective if both councils have the same locations, rather than conflicting sites.

ECAN SECTION 42A REPORT

14. The Section 42A report (Report Number R15/148) addresses the CCC submission at paragraph A.81 and Appendix B (Technical Memoranda from Dr Michael Greer and Jean-Marie Thompkins). The officers conclude in paragraph A.89 that *'changes to the schedule and mapping are recommended, in accordance with this technical advice.'*
15. The Technical Memoranda states:

'I (M Greer) have talked with Belinda Margetts at CCC we have concluded that these anomalies are the result of the different methods employed by Environment Canterbury and CCC when classifying spawning sites. The Schedule 17 sites are discrete points where eggs have been found. However, CCC's sites are reaches, determined from the location of eggs and the length of suitable spawning habitat upstream and downstream. This classification system has also been employed in previous versions of the LWRP. Since CCC are likely the only party impacted by the presence of Schedule 17 sites on the Avon and Heathcote Rivers I suggest we work with them to replace the Schedule 17 sites on these Rivers with reaches

⁵ Maps, site information and map shapefiles can also be downloaded from:
<https://www.dropbox.com/sh/s783d8nyurnh2f7/AADfKHhs3X8QoMMQti2ipVGKa?dl=0>

they have listed. These reaches will still encompass the discrete points currently in the plan and will actually offer a greater protection to spawning.'

16. I agree with the approach recommended by Dr Greer. This will address the concerns raised in the CCC submission. I would only add that there also appears to be discrepancies in the locations of known eggs, rather than the differences being solely due to our incorporation of suitable habitat upstream and downstream.
17. With respect to the CCC sites, I consider the incorporation of suitable habitat upstream and downstream of known eggs is an important inclusion. It is unlikely that spawning will be limited to the exact location of eggs identified in surveys⁶. Habitat immediately adjacent to observed eggs that also provides suitable habitat for spawning could feasibly have been used for spawning in the past, or could be used in the future. Therefore, I consider that these suitable habitat areas should form part of the site as a whole. These suitable habitat areas in the CCC maps have been assessed in-depth at each site on a case-specific basis.

RESPONSE TO SUBMISSIONS

18. Nine submissions were received from other parties with respect to the proposed amendments to Schedule 17. These are summarised on pages 50-53 of the ECan Section 42A report. None of these are directly related to the CCC submission regarding the accuracy of the sites within the CCC jurisdiction. I also note that there were no further submissions on the CCC submission.

RECOMMENDED CHANGES

19. There were a number of anomalies identified between CCC known inanga spawning sites and those proposed in the LWRP within Schedule 17 (and the associated planning maps). In my opinion, for the reasons described above, it is appropriate that these LWRP sites are updated to be the same as the CCC sites, as per Table 1. In particular, I note the following conflicts:

⁶ As also suggested in the ECan technical report '*Predicting inanga/whitebait spawning habitat in Canterbury*', and the Section 32 and Section 42a reports

- Avon River, Avondale Road: the CCC site extends approximately 400 m further upstream to Alloway Street;
- Heathcote River, 35 m downstream of Waltham Road bridge: this site is ~2.3 km upstream of the most upstream CCC site;
- Wharf Road Stream: the CCC site is located further upstream, with the ECan site ~65 m downstream of the CCC downstream buffer;
- Corsers Stream: this is a CCC site, but is not included in the LWRP schedule;
- Styx River tributary: the ECan and CCC sites are on different waterways;
- Avon River at Orrick Crescent: this is a CCC site, but does not appear to be in the LWRP schedule;
- Heathcote River at Aynsley Reserve/Hansen Park: this is a CCC site, but does not appear to be in the schedule; and
- The Allandale Stream site according to the CCC GIS database is actually located on Bamfords Road Drain. This waterway is immediately adjacent to Allandale Stream and was incorrectly referred to in the original Golders report and therefore in the CCC's inanga spawning maps also.

20. I consider that the following changes are also warranted:

- The site listings in Schedule 17 are difficult to follow. For example, there are five sites in the Schedule associated with Avondale Road. I consider it would be better if these sites were combined into one site, with upstream and downstream extents, so that it is easier to understand site locations. It is conceivable that spawning could occur anywhere within these upstream and downstream extents. This is consistent with the approach adopted for the CCC spawning maps. Therefore, adoption of CCC sites, as per Paragraph 19, will address this issue; and
- The LWRP online GIS maps of potential inanga spawning habitat are very useful to easily see where the site locations are. In my opinion,

these maps should also show the known sites in a separate layer, given there are different planning requirements for these sites.

21. I am available to work directly with ECan staff to assess these anomalies and reach an agreed schedule of known inanga sites within CCC's area of jurisdiction of Christchurch and Banks Peninsula.



Dr Belinda Isobel Margetts
Waterways Ecologist
Christchurch City Council

29 January 2016

Table 1 CCC known inanga spawning sites

Reach ID	Catchment	Waterway Name	Spawning Site Location	Upstream Easting	Upstream Northing	Downstream Easting	Downstream Northing
1	Styx River	Styx River Tributary	The upstream limit is 2.45 km downstream of where the un-named vehicle track intersects with Seddon Street	2484304	5757152	2484420	5757157
2	Styx River	Styx River	Immediately upstream of the tide gates	2485015	5756430	2485006	5756644
3	Avon	Avon River	Avondale	2484351	5744647	2485041	5745015
4	Avon	Corsers Stream	Immediately downstream of New Brighton Road	2485465	5745128	2485462	5745072
5	Avon	Avon River	Orrick Crescent	2485657	5745101	2485699	5745106
6	Avon	Lake Kate Sheppard	Immediately upstream of New Brighton Road	2485868	5745327	2485953	5745157
7	Heathcote	Heathcote River	Aynsley Reserve	2482776	5738333	2482816	5738348
8	Heathcote	Heathcote River	Aynsley Reserve	2482877	5738374	2482900	5738384
9	Heathcote	Heathcote River	Opawa	2483104	5739162	2483249	5739346
10	Heathcote	Heathcote River	Woolston Park	2483862	5739917	2483871	5739928
11	Heathcote	Steamwharf Stream	Immediately upstream of Dyers Pass Road	2485052	5739405	2485128	5739394
12	Allandale	Bamford Road Stream	10 m upstream of Governors Bay Teddington Road Bridge	2481716	5729544	2481718	5729552

Reach ID	Catchment	Waterway Name	Spawning Site Location	Upstream Easting	Upstream Northing	Downstream Easting	Downstream Northing
13	Charteris Bay	Te Wharau Stream	110 m downstream of Marine Drive Bridge	2485941	5728191	2485910	5728214
14	Port Levy	Wharf Road Stream	145 m upstream of Wharf Road	2494741	5727252	2494750	5727246
15	Port Levy	Te Kawa Stream	At and upstream of, Fernlea Point Road	2495084	5727090	2495141	5727196
16	Pigeon Bay	Pigeon Bay Stream	170 m upstream of Wharf Road Bridge	2501581	5724145	2501552	5724200
17	Okains Bay	Opara Stream	At and upstream of the intersection of Schoolhouse Road Bridge	2512884	5721608	2512945	5721681
18	Le Bons Bay	Le Bons Stream	Downstream end adjacent to Le Bons Bay and Dalglis Road Intersection (spawning reach includes a side stream)	2516382	5716778	2516538	5716811
19	Goughs Bay	Goughs Bay Stream	650 m upstream of the beach	2517255	5711151	2517382	5711132
20	Flea Bay	Flea Bay Stream	(Western Stream) 40 m downstream of Flea Bay Road Bridge	2510400	5704397	2510411	5704384
21	Takamatua	Takamatua Stream	90 m upstream of the termination of Takamatua Beach Road	2507506	5713993	2507480	5713990
22	Robinsons Bay	Robinsons Bay Stream	10 m upstream of Christchurch Akaroa Road	2507030	5715934	2507013	5715924
23	Duvauchelle Bay	Pipers Stream	Downstream of Christchurch Akaroa Road	2505373	5717108	2505355	5717098
24	Duvauchelle Bay	Pawsons Stream	2 m upstream of Christchurch Akaroa Road	2504473	5717406	2504477	5717402
25	Barrys Bay	Barrys Bay Stream	20 m upstream of Christchurch Akaroa Road	2502800	5716231	2502792	5716185

Reach ID	Catchment	Waterway Name	Spawning Site Location	Upstream Easting	Upstream Northing	Downstream Easting	Downstream Northing
26	French Farm Bay	French Farm Bay Stream #2	25 m upstream of Wainui Main Road Bridge (70 m north of French Farm Bay #1)	2502560	5714260	2502605	5714221
27	French Farm Bay	French Farm Bay Stream #1	Upstream of Wainui Main Road Bridge (adjacent to Bantry Lodge Road)	2502560	5714166	2502560	5714156
28	Long Bay	Long Bay Stream	20 m upstream of the beach	2498573	5703400	2498558	5703396
29	Peraki Bay	Peraki Creek	100 m upstream of the beach	2495711	5705329	2495713	5705303
30	Tumbledown Bay	Tumbledown Bay Stream	Downstream of Te Oka Bay Road, 45 m upstream of the beach	2491493	5706058	2491494	5706045
31	Magnet Bay	Magnet Bay Stream	Just below footbridge and 200 m upstream of the beach	2489306	5707116	2489311	5707101
32	Hikuraki Bay	Hikuraki Bay Stream	45 m upstream of the beach	2489371	5707850	2489372	5707835
33	Head of the Bay	Waiake Stream	120 m upstream of Charteris Bay Road	2483590	5726601	2483565	5726617
34	Lake Ellesmere	Kaituna River	1.2 km upstream of Christchurch Akaroa Road	2482625	5715757	2482575	5715770

ATTACHMENT A: LWRP SCHEDULE 17

Inanga Spawning Sites:

Reaches^W

Okains Bay: The reach from School House Road Bridge upstream to the CRC water level recorder on Opara Stream.

Le Bons Bay: The reach 350 m to 500 m upstream of the bridge that is closest to the sea over the Le Bons Stream.

Gough's Bay: The reach on the stream in Gough's Bay between map co-ordinates upstream (longitude 173.08992, latitude -43.806926) to downstream (longitude 173.091505, latitude -43.80724).

Rakaia Mouth, Boat Creek: The reach between map co-ordinates upstream (longitude 172.237675, latitude -43.888139) to downstream (longitude 172.23794, latitude -43.889671).

Note: When inanga spawn they do so in mass over a very small area. The largest known physical area of inanga spawning in Canterbury is less than 60 m² (National Inanga Spawning Database: trends and implications for spawning sites and management; Taylor; M.J. 2002). Most sites are less than 10 m².

Known Spawning Sites^A

*The Inanga Spawning Site includes a protection zone, 20 metres in diameter, around the specified co-ordinates listed in the table below. Note the protection zone does not extend to any land that is outside the bed or banks of a lake, river or wetland. *^A*

Waterbody	Description of Site	Site location	
		NZTM X Co-ordinate	NZTM Y Co-ordinate
Allandale Stream	85m upstream of Governors Bay Teddington Rd	1571685	5167886
Avon River	20m downstream of Avondale Rd bridge	1574788	5183550
Avon River	60m upstream of Avondale Road bridge	1574700	5183550
Avon River	45m upstream of Avondale Road bridge	1574714	5183547
Avon River	325m downstream of Avondale Road bridge	1574998	5183387
Avon River 280m	Downstream of Avondale Rd bridge	1575049	5183387
Avon River tributary	At New Brighton Road	1575461	5183517
Barrys Bay Stream	90m upstream of Christchurch Akaroa Road	1592788	5154645
Benzie's Creek	At Amesbury Road bridge	1576113	5209595
Benzie's Creek	30m upstream of Amesbury Road bridge	1576098	5209577
Boat Creek	50m upstream of Rakaia Lagoon	1538802	5140147
Boat Creek	85m upstream of Rakaia Lagoon	1538791	5140164
Boat Creek	75m upstream of Rakaia Lagoon	1538785	5140158
Courtenay Stream	180m upstream of confluence with Kaiapoi River	1572963	5195952
Flea Bay Stream	120m upstream of coast	1600387	5142802

<u>Goughs Bay Stream</u>	<u>770m upstream of coast</u>	<u>1607231</u>	<u>5149600</u>
<u>Heathcote River</u>	<u>35m downstream of Waltham Rd bridge</u>	<u>1571799</u>	<u>5177689</u>
<u>Heathcote River</u>	<u>At Opawa Road bridge</u>	<u>1573099</u>	<u>5177589</u>
<u>Heathcote River</u>	<u>325m upstream of Opawa Road bridge</u>	<u>1573046</u>	<u>5177298</u>
<u>Heathcote River</u>	<u>1050m downstream of Beckford Road bridge</u>	<u>1572894</u>	<u>5176769</u>
<u>Heathcote River</u>	<u>935m downstream of Beckford Road bridge</u>	<u>1572789</u>	<u>5176720</u>
<u>Hikuraki Bay Stream</u>	<u>235m upstream of coast</u>	<u>1579378</u>	<u>5146256</u>
<u>Kaiapoi River</u>	<u>725m upstream of confluence with Waimakariri River</u>	<u>1573429</u>	<u>5196090</u>
<u>Kaiapoi River</u>	<u>750m upstream of the confluence with the Waimakariri River</u>	<u>1573427</u>	<u>5196093</u>
<u>Kaiapoi River</u>	<u>715m upstream of confluence with the Waimakariri River</u>	<u>1573445</u>	<u>5196067</u>
<u>Kaituna River</u>	<u>2150m upstream of Te Waihora</u>	<u>1572583</u>	<u>5154165</u>
<u>Lake Kate Sheppard</u>	<u>—</u>	<u>1575900</u>	<u>5183697</u>
<u>Le Bons Stream</u>	<u>2500m upstream of coast</u>	<u>1606551</u>	<u>5155259</u>
<u>Long Bay Stream</u>	<u>100m upstream of coast</u>	<u>1588567</u>	<u>5141812</u>
<u>Magnet Bay Stream</u>	<u>250m upstream of coast</u>	<u>1579301</u>	<u>5145525</u>
<u>Mathias Creek</u>	<u>340m upstream of Rakaia Lagoon</u>	<u>1537015</u>	<u>5139467</u>
<u>Mathias Creek</u>	<u>370m upstream of Rakaia Lagoon</u>	<u>1537005</u>	<u>5139497</u>
<u>Middle Creek</u>	<u>40m upstream of beach</u>	<u>1656555</u>	<u>5309208</u>
<u>North French Farm Bay Stream</u>	<u>35m upstream of coast</u>	<u>1592587</u>	<u>5152657</u>
<u>Ohapi River confluence</u>	<u>—</u>	<u>1472349</u>	<u>5100108</u>
<u>Opapa Stream</u>	<u>2975m upstream of coast</u>	<u>1602893</u>	<u>5160032</u>
<u>Orakipoa Creek</u>	<u>1285m upstream of coast</u>	<u>1468547</u>	<u>5097277</u>
<u>Orari River</u>	<u>510m upstream of coast</u>	<u>1472400</u>	<u>5100166</u>
<u>Pareora River</u>	<u>120m upstream of coast</u>	<u>1457857</u>	<u>5070991</u>
<u>Pawsons Stream</u>	<u>30m upstream of coast</u>	<u>1594429</u>	<u>5155797</u>
<u>Peraki Creek</u>	<u>250m upstream of coast</u>	<u>1585715</u>	<u>5143754</u>
<u>Pigeon Bay Stream</u>	<u>175m upstream of coast</u>	<u>1591549</u>	<u>5162617</u>
<u>Pipers Stream</u>	<u>65m upstream of coast</u>	<u>1595366</u>	<u>5155512</u>
<u>Rangitata River Lagoon</u>	<u>—</u>	<u>1481539</u>	<u>5106795</u>
<u>Rangitata Lagoon tributary</u>	<u>10m upstream of lagoon</u>	<u>1481537</u>	<u>5106827</u>
<u>Robinsons Bay Stream</u>	<u>30m upstream of Christchurch Akaroa Road bridge</u>	<u>1597022</u>	<u>5154334</u>
<u>Saltwater Creek</u>	<u>1050m upstream of Main North Road bridge</u>	<u>1576190</u>	<u>5210535</u>
<u>Saltwater Creek</u>	<u>1280m upstream of Main North Road bridge</u>	<u>1576200</u>	<u>5210747</u>

<u>Saltwater Creek</u>	<u>1280m upstream of Main North Road bridge</u>	<u>1576213</u>	<u>5210750</u>
<u>Saltwater Creek</u>	<u>1310m upstream of Main North Road bridge</u>	<u>1576198</u>	<u>5210777</u>
<u>South French Farm Bay Stream</u>	<u>35m upstream of coast</u>	<u>1592551</u>	<u>5152572</u>
<u>Steam Wharf Stream</u>	<u>40m upstream of Dyers Road</u>	<u>1575100</u>	<u>5177789</u>
<u>Styx River 265m</u>	<u>Downstream of Harbour Road bridge</u>	<u>1575019</u>	<u>5195006</u>
<u>Styx River tributary</u>	<u>850m upstream of confluence with Styx River</u>	<u>1574400</u>	<u>5195578</u>
<u>Takamatua Stream</u>	<u>90m upstream of coast</u>	<u>1597440</u>	<u>5152400</u>
<u>Taranaki Stream</u>	<u>110m upstream of confluence with tidal tributary</u>	<u>1576597</u>	<u>5207978</u>
<u>Taranaki Stream Tidal tributary</u>	<u>125m upstream of confluence</u>	<u>1576590</u>	<u>5207990</u>
<u>Te Kawa Stream</u>	<u>200m upstream of coast</u>	<u>1585069</u>	<u>5165446</u>
<u>Te Wharau Stream</u>	<u>120m upstream of coast</u>	<u>1575956</u>	<u>5166559</u>
<u>Tumbledown Bay Stream</u>	<u>185m upstream of coast</u>	<u>1581490</u>	<u>5144470</u>
<u>Waiake Stream</u>	<u>140m upstream of Charteris Bay Road bridge</u>	<u>1573560</u>	<u>5165020</u>
<u>Waihao River</u>	<u>475m north of the box</u>	<u>1455249</u>	<u>5041150</u>
<u>Waihao River</u>	<u>100m south of the box</u>	<u>1455275</u>	<u>5040593</u>
<u>Waihao River</u>	<u>110m south of the box</u>	<u>1455274</u>	<u>5040593</u>
<u>Waikekewai Stream</u>	<u>20m upstream of Te Waihora</u>	<u>1548720</u>	<u>5143833</u>
<u>Waikekewai Stream</u>	<u>200m downstream of ford</u>	<u>1548626</u>	<u>5143789</u>
<u>Waitaki River</u>	<u>140m north of the box</u>	<u>1453515</u>	<u>5021878</u>
<u>Washdyke Creek</u>	<u>110m upstream of Washdyke Lagoon</u>	<u>1460507</u>	<u>5086179</u>
<u>Washdyke Creek</u>	<u>120m upstream of Washdyke Lagoon</u>	<u>1460502</u>	<u>5086182</u>
<u>Washdyke Lagoon tributary</u>	<u>185m upstream of lagoon</u>	<u>1461032</u>	<u>5086949</u>
<u>Wharf Road Stream</u>	<u>120m upstream of coast</u>	<u>1584796</u>	<u>5165651[*]</u>

** Note refer to the Planning Maps for 'Inanga spawning habitat' areas^{*}*

APPENDIX B: CCC INANGA SPAWNING MAPS









