

BEFORE THE HEARING PANEL – SOUTHLAND REGIONAL COUNCIL

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER Application APP-2016884 for resource consent to discharge water and contaminants from the Invercargill City reticulated stormwater network to various surface water bodies

BY Invercargill City Council (Applicant)

EVIDENCE OF JACOB JAMES SMYTH ON BEHALF OF FISH AND GAME NEW ZEALAND – SOUTHLAND REGION

Date: Tuesday, 1 August 2017

Fish and Game New Zealand – Southland Region

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Executive summary

1. This is an application by the Invercargill City Council ('the Applicant') for a discharge to water permit relating to the operation of its stormwater network. The receiving environments for the stormwater discharge to water are riverine with subsequent discharge into an estuarine environment. Both riverine and estuarine environments have degraded water quality. In this case, the Waikiwi Stream, Waihopai and lower Oreti riverine receiving environments and the Oreti estuarine receiving environment have recognised recreational values, including sports fish and game values.
2. Key issues are:
 - a. Sewage contamination of the stormwater network, including the stormwater network having engineered sewage overflow points. Discharges of untreated sewage to surface water are a prohibited activity which cannot be consented;
 - b. The long consent duration of 35 years, which is the maximum available under the Resource Management Act 1991 ('the RMA'), in circumstances where the river and estuarine receiving environments have degraded water quality; and
 - c. There are no proposed in-river limits for the discharge downstream of the zone of reasonable mixing, including meeting 'bottom lines'.

Interim limit setting for the Oreti, Waihopai and New River Estuary Freshwater Management Unit will occur from 2018 to July 2020. It is unclear how setting a 35 year consent duration that does not provide for compliance with 'bottom lines' to achieve national and regional water quality targets will assist in implementation of the framework.

3. I consider that it is appropriate to align the stormwater discharge consent sought by the Applicant with the expiry of its sewage discharge consents on 30 June 2029, i.e. 12 years duration, on the basis that:
 - a. Instream limits are applied to the discharges that are directly enforceable.
 - b. Monitoring conditions are imposed providing for:
 - i. Monitoring of sewage contamination of the stormwater network;
 - ii. Determination of mass loads of contaminants from the discharges; and
 - iii. Monitoring of effects in the riverine and estuarine receiving environments.
 - c. Review conditions are imposed providing for:
 - i. The consent to be review in light of evolving policies and objectives associated with new and relevant statutory instruments, including those relating to surface water quality; and
 - ii. Environment Southland at specified chronological intervals to either review the effectiveness of the conditions and to impose further or amended conditions if necessary, and / or to review the adequacy and necessity of monitoring.

Introduction

4. My name is Jacob James Smyth.
5. I am employed by Fish & Game New Zealand – Southland Region ('Fish & Game') as a Resource Management Officer based in Invercargill. I have held this position since September 2008.
6. I hold a Bachelor of Arts with a major in history and a Bachelor of Law from the University of Otago (2001). I have been admitted as a Barrister and Solicitor by the High Court of New Zealand (May 2001).
7. My job entails assessing non notified and notified resource consent applications, regional policy statements and regional and district plans, for their effect on the game bird, trout and salmon fishery, and recreational hunting and angling values within the Southland region. In addition, I carry out field work associated with assessing and monitoring sports fish and game populations and the condition and trend of ecosystems as habitats for sports fish.
8. I am an active recreational angler and hunter and have had a life-long interest in recreational hunting and fishing. Excluding an 18 month period when I travelled overseas, I have held annual adult whole season sport fish and game licences every year since the early 2000's.

Statutory functions of Fish and Game Councils

9. The Southland Fish and Game Council is the statutory manager of sports fish and game birds within Southland Fish and Game Region under the Conservation Act 1987 and the Wildlife Act 1953.
10. Fish and Game Councils are statutory body established under the Conservation Act 1987 to:
 - a. Manage, maintain and enhance the sports fish and game resource in the recreational interests of anglers and hunters (s 26Q(1));
 - b. Assess and monitor the condition and trend of ecosystems as habitats for sports fish and game (s 26Q(1)(a)(iii));
 - c. Represent the interests and aspirations of anglers and hunters in the statutory planning process (s 26Q(1)(e)(i)); and
 - d. Advocate the interests of the Council, including its interests in habitats (s 26Q(1)(e)(vii)).

The application

11. The Applicant has applied for a discharge permit of 35 years duration to discharge stormwater and contaminants from the Invercargill City reticulated network to the following surface water bodies:
 - a. Waikiwi Stream:

- i. At approximately 20m upstream of the West Plains Road bridge (1,241,383E 4,854,413N NZTM); and
- ii. West of Renfrew Street (1,240,508E 4,853,354N NZTM)

The discharges to the Waikiwi Stream occur via open drains west of Renfrew Street and along Gloucester Street and West Plains Road.

- b. Waihopai River;

Various outfalls between Racecourse Road and North Road (between 1,244,935E 4,852,915N and 1,242,280E 4,852,085N NZTM)

- c. Otepunu Stream;

Various outfalls between Rockdale Road and Bond Street (between 1,246,193E 4,849,937N and 1,241,885E 4,849,420N)

- d. Kingswell Creek; and

Various outfalls between Chesney Street and Bluff Railway (between 1,245,243E 4,846,749N and 1,243,133E 4,846,241N NZTM)

- e. Clifton Channel.

Various outfalls between Bain Street and Bluff Railway (between 1,244,809E 4,845,678N and 1,243,621E 4,845,502N NZTM)

12. The application was notified by Environment Southland on 3 October 2016 as follows:

- a. The discharges were classified as non-complying activities under Rule 2 of the operative Regional Water Plan for Southland (2010) ('the Regional Water Plan') in circumstances where they could not meet the conditions set out in Rule 1, i.e. the discharge reduces water quality below the standards set for the relevant water body in Appendix G "Water Quality Standards" after reasonable mixing; and
- b. The discharges were non-complying under Rule 6 of the Proposed Southland Water & Land Plan (2016) ('the Proposed Water and Land Plan').

As such, I agree with Mr West that the Applicant must demonstrate under s 104D of the RMA that the effects of the discharges are minor, or that they are not contrary to the objectives and rules of the relevant plan.

13. On 1 November 2016, Fish & Game filed a written submission opposing the discharge permit sought by the Applicant. Subsequent to filing of Fish & Game's written submission I have attended meetings convened by the Applicant to discuss the application and the pre-hearing meeting between the Applicant, Environment Southland and submitters.

Scope of evidence

14. I have prepared this evidence on behalf of Fish & Game in relation to the discharge permit sought by the Applicant.

15. My evidence includes references and comments in response to the s42A report drafted by Mr West of Environment Southland and witnesses on behalf of the Applicant.
16. In preparing my evidence I have read the following documents received subsequent to the original application and accompanying AEE:
 - a. Staff Report for Hearing drafted by Steven West, Consents Officer, on behalf of Environment Southland.
 - b. Evidence filed on behalf of the Applicant as follows:
 - i. Brief of evidence of Susan Bennett, Stantec New Zealand Ltd (dated 25 July 2017);
 - ii. Brief of evidence of Adrian Cocker, Invercargill City Council (dated 25 July 2017);
 - iii. Brief of evidence of Janan Dunning, Stantec New Zealand Ltd (dated 25 July 2017)
 - iv. Brief of evidence of Malcolm Loan, Invercargill City Council (dated 25 July 2017);
 - v. Brief of evidence of Allan Leahey, Stantec New Zealand Ltd (dated July 2017); and
 - vi. Brief of evidence of Dr Brian Stewart, Ryder Consulting Ltd (dated 24 July 2017).

Outline of evidence

17. The principal issue in this case from Fish & Game's point of view is the effects of the Applicant's discharges to surface water in circumstances where the riverine and estuarine receiving environments are degraded.
18. My evidence will address the following matters with respect to the application:
 - a. Location of the application sites and receiving environments;
 - b. Ecosystems approach to sports fishery management;
 - c. Waihopai River sports fish and game values;
 - d. Clifton Channel and Otepuni Stream values;
 - e. Waikiwi Stream sports fish and game values;
 - f. Kingswell Creek values
 - g. Lower Oreti River and New River Estuary sports fish and game values;
 - h. Angler usage of the Waikiwi Stream and Waihopai and Oreti Rivers;
 - i. Comment on the draft consent conditions proposed by the Applicant; and

- j. Comment on the 35 year consent duration proposed by the Applicant.

Location of the application site and receiving environments

19. The receiving environment for the Applicant's proposed discharges are riverine and estuarine environments in the lower Oreti catchment. Specifically:
 - a. Clifton Channel and Waihopai River flow directly into the New River Estuary, commonly known as the Invercargill Estuary or Oreti Estuary ('the Oreti Estuary');
 - b. Otepunu Stream and Kingswell Creek flow into the tidal waters of the Waihopai River upstream of its confluence with the Oreti Estuary; and
 - c. Waikiwi Stream flows into the tidal waters of the Oreti River approximately 8km upstream of its confluence with the Oreti Estuary.

Ecosystems approach to sports fishery management

20. The lower Oreti catchment, including the Waihopai, Waikiwi and Oreti Rivers and the Oreti Estuary have significant fish and game values.
21. All river and still water sports fisheries in Southland, including the Waihopai, Waikiwi and Oreti fisheries, are wild and self-sustaining through natural spawning, rearing and recruitment of juvenile trout into the adult population. It is the standing of adult trout that provide the recreational trout fishing amenity and fishery productivity is related to habitat quality and ecosystem health. Migratory galaxiids or whitebait and smelt are particularly important keystone species that support coastal ecosystems such as the lower Waihopai, Waikiwi and Oreti Rivers.
22. Fish & Games approach to sports fishery management is to seek to maintain and enhance freshwater habitats through RMA policy and processes, including consents. Key features to be protected are water quality, water quantity and the characteristics of waterways such as: pools, runs, riffles, undercut banks, riparian cover and shade.

Waihopai River sports fish and game values

23. The Waihopai River is a significantly modified river catchment in the east of the Southland Plains. The Waihopai River flows approximately 30km in a westerly direction from its headwaters on the Edendale terrace, adjacent to the lower Mataura Valley, through intensively farmed low lying pastoral land, before flowing through Invercargill and entering into the Waihopai Arm of the Invercargill Estuary. The Waihopai River is tidal from the mouth to slightly upstream of Queens Drive (peer observation Cohen Stewart, Fish & Game Field Officer - Invercargill).
24. The Waihopai River has been historically significantly modified to alleviate inundation problems and facilitate land drainage by tile and artificial drainage networks. The majority of the Waihopai River, including its major tributaries, Spurhead Creek and its un-named southern branch, has been straightened and deepened to improve drainage and agricultural productivity of adjacent land. This has created a relatively uniform, U-shaped channel profile, characterised by steep-sided banks. In addition, a large retention dam has been built on the outskirts of the Invercargill near Bainfield Road, to reduce flooding risks to low-lying suburbs and industrial areas of the city.

25. The construction of stop banks and the Waihopai flood detention dam, channel straightening / armouring, removal of shade vegetation, and moderate-poor water quality¹ has reduced the quality of the Waihopai River as habitat for sportsfish. In addition, drainage works have resulted in loss of extensive riparian wetlands. That said the Waihopai River retains a moderate population of brown trout up to approximately 4lb (peer observation Cohen Stewart), which provide brown trout angling opportunities close to Invercargill. In addition:
- a. The tidal reaches of the Waihopai River, particularly downstream of Queens Drive, is popular for recreational whitebait fishing using scoop and sock nets through the annual white bait season;
 - b. The Waihopai embankment walkway, which runs along the margins of the Waihopai River, is popular for recreational walking, running and cycling, running, including organized sporting events²; and
 - c. The lower Waihopai River is popular for public viewing of wildlife, such as juvenile fur seals that periodically turn up in the Waihopai River.³



Figure 1 – Juvenile fur seal playing in rapids created by the Waihopai flood detention dam (photo credit – The Southland Times (28 June 2016)).

Waterfowl research has identified the Waihopai River near Invercargill as providing refuge riverine habitat within an urban setting, particularly during the hunting season for six duck species, including mallard, New Zealand shoveler, grey duck, paradise shelduck, grey teal, and New Zealand scaup.⁴

¹ <https://www.lawa.org.nz/explore-data/southland-region/river-quality/waihopai-stream/waihopai-river-us-queens-drive/> (website accessed on 26 July 2017).

² <https://www.runningcalendar.co.nz/series/sport-southland-5k-series> (website accessed on 27 July 2017).

³ <http://www.stuff.co.nz/southland-times/news/81521291/fur-seals-appearing-on-waihopai-river> (website accessed on 26 July 2017)

⁴ Wood, J.R.; Garden, C.J. 2010. Seasonal variation in duck populations on the Waihopai River, Invercargill, New Zealand. *Notornis* 57(2): 57-62.

26. The Waihopai River upstream of Queens Drive Bridge is open for fishing from 1 October – 30 April inclusive annually with a daily bag limit of two brown trout. The Waihopai River downstream of Queens Drive Bridge is open for fishing all year round with a daily bag limit of two brown trout. Fishing with imitation whitebait lures, soft plastic baits or natural smelt are reliable fishing techniques in the lower reaches of the Waihopai River and site fly fishing is a reliable fishing technique upstream of the flood detention dam (peer observation Cohen Stewart).
27. The Waihopai River is valued by anglers, particularly junior anglers, because it is accessible, especially in its lower reaches below the Waihopai flood detention dam, and it is close to Invercargill.



Figure 2 – Nicholas Corbin aged 15 years caught this brown trout in the Waihopai River at North Road in early January 2014 (photo credit – The Southland Times (8 January 2014)).⁵

28. Observations of Fish & Game staff are that the Waihopai River upstream of the Waihopai flood detention dam provides suitable spawning habitat for brown trout. Specifically, brown trout spawning has been observed as occurring between the Waihopai flood detention dam and State Highway 1 Bridge at Kennington (peer observations Cohen Stewart). Due to the tidally influenced nature of the lower Waihopai River and nature of the substrate, i.e. predominantly soft bed, it is not recognised as being of particular value as trout spawning habitat, but does provide habitat for brown trout and passage for spawning brown trout moving between the lower and upper reaches.
29. In addition, the Waihopai River and its tributaries provide habitat for a range of indigenous freshwater fish species, including diadromous indigenous species that a marine phase in their lifecycle, such as eels, galaxiids and bullies.

⁵ <http://www.stuff.co.nz/national/9590381/Mutant-fish-extremely-rare>

Common name	Scientific name	Threat classification (2013) ⁶
Longfin eel	<i>Anguilla dieffenbachii</i>	At risk
Shortfin eel	<i>Anguilla australis</i>	Not threatened
Common bully	<i>Gobiomorphus cotidianus</i>	Not threatened
Redfin bully	<i>Gobiomorphus huttoni</i>	At risk
Upland bully	<i>Gobiomorphus breviceps</i>	Not threatened
Gollum galaxias	<i>Galaxias gollumoides</i>	Nationally vulnerable
Giant kokopu	<i>Galaxias argentus</i>	At risk
Banded kokopu	<i>Galaxias fasciatus</i>	Not threatened
Torrentfish	<i>Aldrichetta forsteri</i>	At risk
Koura	<i>Paranephrops</i> spp.	-
Koaro	<i>Galaxias brevipinnis</i>	At risk
Inanga	<i>Galaxias maculatus</i>	At risk
Lamprey	<i>Geotria australis</i>	Nationally vulnerable
Brown trout	<i>Salmo trutta</i>	Introduced and naturalised
Unidentified bully	<i>Gobiomorphus</i> spp.	-
Unidentified flounder	<i>Rhombosolea</i> spp.	-
Unidentified galaxiid	<i>Galaxias</i> spp.	-

Table 1: Fish species recorded from the Waihopai catchment in the New Zealand Freshwater Fish Database (Database accessed 27 July 2017)⁷ – Fish surveys undertaken in 1994, 2001, 2008, 2009, 2010, 2011, 2013 and 2014

30. The Waihopai River immediately upstream and downstream of the North Road bridge has been identified by Environment Southland as providing ‘excellent’ Inanga spawning habitat due to the wide riparian margins, shallow batter and densely grassed banks.⁸ Inanga eggs were found within this zone at two separate sites by Environment Southland staff immediately upstream of the North Road Bridge on the true right bank.

Otepun Stream and Kingswell Creek values

31. The Otepun Stream and Kingswell Creek are comprised of relatively small catchments that flow through Invercargill city and into the lower reaches of the Waihopai Arm. The construction of stop banks, channel straightening and armouring with concrete, removal of shade vegetation and poor water quality⁹ has reduced the quality of the Otepun Stream and Kingswell Creek as habitats. The Otepun Stream and Kingswell Creek are not recognized as sports fisheries. That said, the Otepun Stream does provide habitat for indigenous freshwater fish species. For example, I have observed eels swimming in the Otepun Creek at the State Highway 1 Bridge in

⁶ Allibone, R.M.; David, B.O.; Dunn, N.; Goodman, J.; Hitchmough, R.; Jacques, A.; Ling, N.; D.J.; Ravenscroft, P.; Rolfe, J: *New Zealand Threat Classification Series 7 - Conservation status of New Zealand freshwater fish, 2013* New Zealand Department of Conservation, 2013. Available at: <http://doc.org.nz/documents/science-and-technical/nztcs7entire.pdf>

⁷ NIWA (National Institute of Water and Atmospheric Research): New Zealand Freshwater Fish Database. Retrieved 27 July 2017, from <https://nzfdms.niwa.co.nz/>.

⁸ Hicks, A.; Leigh, B.; and Dare, J.: *Potential Inanga Spawning Areas in Southland Rivers*, Environment Southland Technical Report (Publication No 2014-06), December 2013, p. 15. Available at: http://www.es.govt.nz/Document%20Library/Research%20and%20reports/Surface%20water%20quality%20reports/potential_inanga_spawning_areas_in_southland_rivers.pdf

⁹ <https://www.lawa.org.nz/explore-data/southland-region/river-quality/waihopai-stream/otepuni-creek-at-nith-street/> (website accessed on 27 July 2017).

the vicinity of Wood Street, i.e. approximately 750m upstream of where Otepunui Creek enters the Waihopai Arm.

32. Despite the heavily modified nature of the lower Otepunui Creek it has been found by Environment Southland staff to be used for Inanga spawning in the vicinity of the rail bridge complex.¹⁰ Whilst Inanga spawning habitat in the Otepunui Creek is currently degraded due to heavy modification (most of the banks in the low-salinity tidal area were vertical and concreted), Environment Southland staff recommendations are that spawning potential could be improved by allowing rank grass to grow on the banks and retrofitting with more suitable spawning substrate to increase the spawning potential in this system.¹¹

Waikiwi Stream sports fish and game values

33. The Waikiwi Stream is a significantly modified river catchment in the east of the Southland Plains. The Waikiwi Stream flows approximately 25km in a westerly direction through intensively farmed low lying pastoral land from its headwaters (Waikiwi Stream and Myross and Weelwood Creeks) on the Edendale terrace to its confluence with the tidal reaches of the lower Oreti River near Fosbender Road.
34. The Waikiwi Stream has been historically significantly modified to alleviate inundation problems and facilitate land drainage by tiles and artificial drainage networks since being constituted for 'control' in 1903.¹² Channel straightening, removal of shade vegetation, and moderate – poor water quality¹³ has reduced the quality of the Waikiwi Stream and its tributaries as habitat for sportfish. In addition, drainage works have resulted in loss of extensive riparian wetlands. That said, the Waikiwi Stream has about 8km of fishable water in the tidal section from the mouth to West Plains Road. In this section, the stream is 6 – 15m wide and lightly stocked with brown trout up to 4lb. During October – November when the Waikiwi is usually flushed by spring rain it can also offer good day-time fishing between the mouth and the bridge on the main Invercargill – Winton Highway. From December on, the Waikiwi Stream generally becomes very weedy which can make fishing difficult except in the lower tidal section.¹⁴
35. The Waikiwi Stream upstream of the North Road Bridge is open for fishing from 1 October – 30 April inclusive with a daily bag limit of two fish. Anglers are permitted to use fly, spin and bait fishing techniques. The Waikiwi Stream downstream of the North Road Bridge is open for fishing all year round with a daily bag limit of two fish. Anglers are permitted to use fly, spin and bait fishing techniques.
36. The Waikiwi Stream is valued by anglers because it is accessible, especially in its lower reaches, and it is relatively close to Invercargill.
37. Historical spawning surveys undertaken by Fish & Game and its predecessor, the Southland Acclimatization Society, have identified brown trout spawning as occurring

¹⁰ Hicks, A.; Leigh, B.; and Dare, J.: *Potential Inanga Spawning Areas in Southland Rivers*, Environment Southland Technical Report (Publication No 2014-06), December 2013, p. 16.

¹¹ Ibid.

¹² The Cyclopedia of New Zealand [Otago & Southland Provincial Districts] at page 906 – available at <http://nzetc.victoria.ac.nz/tm/scholarly/tei-Cyc04Cycl-t1-body1-d7-d19.html> (website accessed on 26 July 2017).

¹³ <https://www.lawa.org.nz/explore-data/southland-region/river-quality/oreti-river/waikiwi-stream-at-north-road/> (website accessed on 26 July 2017).

¹⁴ New Zealand Fish & Game – Southland Region, *Trout Fishing in Southland, New Zealand*, Southland Fish & Game Council, Revised Edition, 2008, p. 72.

in the three main tributaries which make up the Waikiwi Stream, namely the Waikiwi Stream (north branch), Myross Creek (south branch) and Weelwood Creek. Specifically, 37km of the Waikiwi Stream tributaries upstream of the confluence of the north and south branch were surveyed on 13 and 15 June 1990, with the total redd count standing at 442 which provides an average density of just fewer than 12 redds per kilometre. Due to the tidally influenced nature of the lower Waikiwi Stream and nature of the substrate, i.e. predominantly soft bed, it is not recognised as being of particular value as trout spawning habitat, but does provide habitat for brown trout and passage for spawning brown trout moving between the lower and upper reaches.

38. The lower Waikiwi Stream and its margins is also used for recreational game bird hunting during the season from May to July inclusive each year.
39. The Waikiwi Stream and its tributaries provide habitat for a range of indigenous freshwater fish species, including diadromous species.

Common name	Scientific name	Threat classification (2013)
Longfin eel	<i>Anguilla dieffenbachii</i>	At risk
Shortfin eel	<i>Anguilla australis</i>	Not threatened
Common bully	<i>Gobiomorphus cotidianus</i>	Not threatened
Upland bully	<i>Gobiomorphus breviceps</i>	Not threatened
Torrentfish	<i>Aldrichetta forsteri</i>	At risk
Koura	<i>Paranephrops</i> spp.	-
Koaro	<i>Galaxias brevipinnis</i>	At risk
Inanga	<i>Galaxias maculatus</i>	At risk
Brown trout	<i>Salmo trutta</i>	Introduced and naturalised
Unidentified galaxiid	<i>Galaxias</i> spp.	-
Unidentified eel	<i>Anguilla</i> spp.	-

Table 2: Fish species recorded from the Waikiwi catchment in the New Zealand Freshwater Fish Database (Database accessed 27 July 2017)¹⁵ – Fish surveys undertaken in 1973, 1981, 1993, 1994, 1996 and 1999

Kingswell Creek values

40. Kingswell Creek is a relatively small catchment, which flows through Invercargill and directly into the Invercargill Estuary. The construction of stop banks, channel straightening, removal of shade vegetation and poor water quality has reduced the quality of Kingswell Creek as habitat.
41. Kingswell Creek is not recognized as a sports fishery, however it does provides habitat for a range of indigenous freshwater fish species, including indigenous diadromous species, and is utilized for whitebait fishing.

¹⁵ NIWA (National Institute of Water and Atmospheric Research): New Zealand Freshwater Fish Database. Retrieved 27 July 2017, from <https://nzffdms.niwa.co.nz/>.

Common name	Scientific name	Threat classification (2013)
Longfin eel	<i>Anguilla dieffenbachii</i>	At risk
Shortfin eel	<i>Anguilla australis</i>	Not threatened
Redfin bully	<i>Gobiomorphus huttoni</i>	At risk
Koaro	<i>Galaxias brevipinnis</i>	At risk
Lamprey	<i>Geotria australis</i>	Nationally endangered
Koura	<i>Paranephrops spp.</i>	-
Banded kokopu	<i>Galaxias fasciatus</i>	Not threatened
Brown trout	<i>Salmo trutta</i>	Introduced and naturalised
Unidentified galaxiid	<i>Galaxias spp.</i>	-

Table 3: Fish species recorded from the Kingswell Creek catchment in the New Zealand Freshwater Fish Database (Database accessed 27 July 2017)¹⁶ – Fish survey undertaken in 2013

42. The large riparian margins and dense grass covering alongside Kingswell Creek have been identified by Environment Southland as providing ideal Inanga spawning habitat.¹⁷ Inanga eggs were found by environment Southland staff at four separate sites on the true left and right banks immediately upstream of the Bluff Highway, which coincided with the upstream penetration of saltwater.¹⁸

Oreti River and New River Estuary sports fish and game values

43. The tidal reaches of the lower Oreti River extend approximately 13km upstream of the confluence with the New River Estuary (commonly known as the Invercargill Estuary or Oreti Estuary). Modification has been made to the tidal reaches of the Oreti River by river works, construction of stop banks, gravel extraction and vegetation removal and to Oreti Estuary by major reclamation of the Waihopai Arm of the estuary and development of adjoining low lying land.
44. The tidal reaches of the lower Oreti River and its estuarine waters have significant fish and game values for the following reasons:
- a. They are a significant habitat of indigenous and introduced water fowl, including game species that are recreationally during the game season. Specifically, the following waterfowl species are found in the lower Oreti catchment and can be hunted during the annual game season under the Wildlife Act as 'game': Grey / Mallard duck and hybrids of those species, Shoveler duck, Paradise shelduck, Pukeko, and Black swan.

There is a long history of game bird hunting associated with the lower Oreti catchment, particularly with the New River Estuary.¹⁹ Hunting of the above game species is carried out on the main stem of the Oreti River, including the tidal waters of the lower Oreti River, and on the Oreti estuary. Permanent and temporary mai mai's are found along the margins of the Oreti River, its tributaries and estuarine waters.

¹⁶ NIWA (National Institute of Water and Atmospheric Research): New Zealand Freshwater Fish Database. Retrieved 27 July 2017, from <https://nzfdfs.niwa.co.nz/>.

¹⁷ Hicks, A.; Leigh, B.; and Dare, J.: *Potential Inanga Spawning Areas in Southland Rivers*, Environment Southland Technical Report (Publication No 2014-06), December 2013, p. 18.

¹⁸ Ibid.

¹⁹ <http://www.stuff.co.nz/southland-times/68232243/duck-shooting-for-generations>

- b. The lower Oreti River and its estuarine waters have significant sports fish values, which I describe in more detail in the following paragraphs.
45. The Oreti River and its tributaries support a nationally significant brown trout fishery and angling amenity features which are recognized pursuant to the Water Conservation (Oreti River) Order 2008 ('the Oreti WCO) as including:
- a. The following protected waters with outstanding characteristics or features:
- i. Oreti main stem at Rocky Point at NZMS 260 E44 373 946 upstream to the forks at E42 345 450 – habitat for brown trout, angling amenity and value in accordance with tikanga Maori; and
 - ii. Weydon Burn, Windley River and all other tributaries upstream of the Oreti River at E43 305 210 near Lincoln Hill – habitat for brown trout.
- b. The following waters to be protected for their contribution to outstanding features:
- i. Oreti River downstream of Rocky Point at E44 373 946 to the Wallacetown Bridge at E46 455 208 – habitat for brown trout and habitat for black-billed gulls; and
 - ii. Groundwater hydraulically connected to the surface water of the Oreti River from Rocky Point at E44 373 946 upstream to the forks at E42 345 450 – habitat for brown trout, angling amenity and value in accordance with tikanga Maori.
46. Whilst the lower Oreti River and its tributaries in the vicinity of the Applicant's discharge are not protected by the Oreti WCO, the river and its tributaries, including the Waihopai River and Waikiwi Stream, provide important passage for brown trout and periodically Chinook salmon moving between the freshwater, estuarine and sea environment. Some form of seaward migration at some stage of the life cycle is a common feature of salmonid populations, including brown trout.²⁰
47. Whilst at sea or in estuarine waters brown trout can grow extremely fast due to the abundance of large food items, such as smelt. Accordingly, some seagoing or estuarine brown trout reach impressive sizes: fish over eleven kilograms have been taken from the Oreti River.²¹ Research shows that large brown trout found in headwaters of river systems, such as the Upper Oreti, attain their size from lower down in the system, particularly in habitat such as that provided by the Oreti Estuary.²²
48. Much of the best sea-run brown trout fishing is to be had in New Zealand's most southern rivers such as the Oreti. Hence, the lower reaches of the Oreti River, its tidal tributaries and the New River Estuary are popular with anglers targeting estuarine and sea run brown trout, particularly during spring as whitebait and smelt return from the sea.

²⁰ Hayes J. and Hill L., *'The Artful Science of Trout Fishing'*, Canterbury University Press, 2005, p. 50.

²¹ *Ibid.*

²² Hayes J. and Hill L., pp. 49 – 51.

49. In 2013 NIWA conducted an angler survey of river fisheries managed by Fish & Game.²³ Randomly sampled respondents were asked to identify rivers that they had fished over the last 3 – 5 years, to rate their enjoyment of the fishery on a scale from 1 (least enjoyable) to 5 (most enjoyable) and to identify up to three reasons, from a list of 10, why they fished each river. These 10 reasons were: close to home, close to holiday home, ease of access to river, area of fishable water, scenic beauty, wilderness feeling, angling challenge, anticipated good catch rate; anticipate large fish and other (including a brief description). 431 rivers with at least 10 responses were analysed.

The three most highly ranked reasons by 138 respondents for fishing the Oreti River downstream of Lumsden, including its estuarine waters, (in order of importance) were area of fishable water (49%), ease of access (47%) and close to home (30%).²⁴

The ‘mean enjoyment score’ ranking on a scale of 1 – 5 for the Oreti River downstream of Lumsden was 2.33, which falls between:

- a. Scale point 2 – “Often enjoyable but not exceptional“; and
- b. Scale point 3 – “Consistently enjoyable“.

These results suggest that the lower Oreti River fishery is valued by anglers because it offers a large area of fishable water, it is accessible (especially in its lower reaches) and it is close to populated areas, such as Lumsden, Winton, Wallacetown and Invercargill.

50. In addition, the lower Oreti catchment is a significant resource for other recreational pursuits such as bathing, boating, rowing, white bait fishing, shell fish gathering, netting salt water fish and municipal water supplies.
51. The lower Oreti River and its lowland tributaries and estuarine waters are the receiving environment for a number of industrial and municipal discharges, such as from the Alliance meat processing plant at Lornville and treated sewage from the Applicant’s wastewater treatment plant at Clifton.
52. The Oreti Estuary is in poor condition²⁵ with increasing eutrophication.²⁶ Stevenson and Robertson conclude in their 2013 report (prepared for Environment Southland) that:

“The 2013 macroalgal cover in New River Estuary had an overall condition rating of

²³ Unwin M. (November 2013) ‘Values of New Zealand angling rivers – Results of the 2013 National Angling Survey prepared for Fish & Game New Zealand’, NIWA.

²⁴ Ibid, Appendix C, p. 84.

²⁵ Environment Southland & Te Ao Marama Inc (2011), ‘Our Ecosystems: How healthy is the life in our water and our freshwater ecosystems? Part 2 of the Southland Water 2010: Report on the State of Southland’s Freshwater Environment’. Environment Southland. Invercargill. Publication number 2011/ 7 ISBN 0-909043-45-0.

Report available at:

<http://www.es.govt.nz/Document%20Library/Research%20and%20reports/SOE%20reports/our-ecosystems.pdf>

²⁶ Robertson, B. M., and Stevens, L. M. (July 2013). ‘New River Estuary Macroalgal Monitoring 2012/13’ Report prepared by Wriggle Coastal Management for Environment Southland, 11p. Report available at:

http://www.es.govt.nz/Document%20Library/Research%20and%20reports/Estuarine%20reports/new_river_estuary_-_macroalgal_monitoring_-_2012_2013.pdf

“POOR”. Gross nuisance conditions of rotting macroalgae and poorly oxygenated and sulphide rich sediments are causing significant problems in the northwestern Waihopai Arm, and in sheltered areas in the western flats near Daffodil Bay and at Bushy Point. These areas require targeted management action. Macroalgae in the well flushed central basin and lower estuary is not currently causing significant problems, although a large increase in growths near the Oreti River mouth serves as a clear warning that problems may develop in the lower estuary if management action is not taken.”²⁷

53. The significance of the lower Oreti River, including the New River Estuary, is recognised insofar as:
- a. In 2008 the Ramsar site associated with the Waituna wetlands was extended by approximately 15,000 ha with the addition of the Toes, Awarua Bay and New River Estuaries.

Great diversity of wildlife, including waterfowl, Northern Hemisphere migrant species and other bird species such as heron, gulls, spoonbill, kotuku, oyster-catcher and dotterels is associated with the Oreti Estuary complex.
 - b. The Oreti River has a statutory acknowledgement under the Ngāi Tahu Claims Settlement Act 1998 which recognises Ngāi Tahu’s cultural, spiritual, historic and traditional association with the catchment.²⁸
 - c. The Awarua Plain – Southland Estuaries, including New River Estuary and its adjoining wetlands, are recognised as regionally significant wetlands in Southland in Appendix B of the Regional Water Plan for Southland 2010 (‘the RWP’).

Angler usage of the Waikiwi Stream and Waihopai and Oreti Rivers

54. National angler use surveys are undertaken by the National Institute of Water and Atmosphere (‘NIWA’) once every seven years to assess angler use in terms of angler visits per person. Four surveys have been undertaken since the mid 1990’s (1994/1995, 2001/2002, 2007/2008 and 2014/2015).

NIWA estimates that that 16,900 ± 2,060 angler days were spent in the Oreti catchment during the 2014/2015 angling season, of which

- a. 40 ± 40 angler days were spent on the Waikiwi Stream;
- b. 910 ± 370 angler days were spent on the Waihopai River; and
- c. 12,940 ± 1,870 angler days were spent on the main stem of the Oreti River below Lumsden.

NIWA analysis of fishing effort provides that the highest angler use of the Waihopai River and Waikiwi Stream occurs over the period from October – February, i.e. the early season and summer period.

²⁷ Ibid, p. 9.

²⁸ Refer to sections 205 206 and Schedule 50 - Statutory acknowledgement for Ōreti River of the Ngāi Tahu Claims Settlement Act 1998.

Comment on the consent conditions filed by the Applicant

55. I have reviewed the Applicant's set of draft consent conditions attached to the evidence of Janan Dunning and make comments in relation to the proposed water permit and discharge permits.

Surface water quality

56. In short, the Applicant does not propose any compliance standards which require either:
- a. Its stormwater discharge to meet any standards prior to discharge to the riverine and estuarine receiving environments; and / or
 - b. It to meet any instream surface water quality standard downstream of the zone of reasonable mixing, including 'bottom lines' to achieve regional and national water quality objectives.

For the avoidance of doubt, the wet weather water quality guidelines in Appendix 3 of the draft consent conditions attached to Mr Dunning's evidence for the Applicant are reporting guidelines only and not compliance standards. This approach does not appear to take account of:

- a. The National Policy Statement for Freshwater Management 2014 (NPS-FM 2014) sets minimum thresholds for a number of freshwater attributes that are to be met by waterways across New Zealand ('national bottom lines').

In this case, Environment Southland monitoring and investigations shows that:

- i. Surface water quality in the lower Waikiwi Stream and Waihopai and Oreti Rivers is poor – moderate. Specifically, surface water quality in the Otepunu Creek at Nith Street, Waikiwi Stream at North Road and Waihopai River upstream of Queens Drive are currently failing to meet a number of parameters of the National Objectives Framework (NoF) in the NPS-FM 2014.²⁹ Parameters of concern include: macroinvertebrates, nitrate, E.coli (secondary contact) and slime / algae (periphyton); and
 - ii. The Oreti Estuary is in poor condition with increasing eutrophication.
- b. It is unclear how the above approach is inconsistent with Objective 4 of the Regional Water, which establishes a 10% improvement objective for visual clarity, microbial contaminants, nitrogen and phosphorus in lowland water bodies within 10 years of the Plan becoming operative, i.e. by January 2020.

In summary, I consider that there is uncertainty about the effectiveness of the Applicant's proposed consent conditions to protect the receiving environment.

²⁹ See results for Otepunu Creek at Nith Street, Waikiwi Stream at North Road and Waihopai River upstream of Queens Drive at: [http://gis.es.govt.nz/index.aspx?app=water-quality-\(nof\)](http://gis.es.govt.nz/index.aspx?app=water-quality-(nof))

Comment on the 35 year consent durations proposed by the Applicant

57. The Applicant proposes that consents of 35 years duration are granted by Environment Southland, i.e. the maximum duration available under s 123 of the RMA. In response, I acknowledge that the Applicant's discharge is an existing and long term activity and that stormwater drainage is essential to Invercargill. That said, consent duration is one matter among a suite of conditions that may be applied to an activity to avoid, remedy or mitigate adverse effects and ensure that an activity is undertaken in a manner that meets the purpose of the RMA, i.e.:

"Purpose

- (1) *The purpose of this Act is to promote the sustainable management of natural and physical resources.*
- (2) *In this Act, **sustainable management** means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety while—*
 - (a) *sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and*
 - (b) *safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and*
 - (c) *avoiding, remedying, or mitigating any adverse effects of activities on the environment."*

58. There is considerable case-law in New Zealand regarding how the duration of a resource consent should be decided.³⁰ In *Huntly Quarries Limited v Waikato Regional Council* A010/2008 [2008] NZEnvC (30 January 2008) the Environment Court considered that the following factors should be taken into account in setting the term of consent:
- a. The effectiveness of consent conditions to manage environmental effects;
 - b. The recent history of the Applicant's operations at and the applicant's record;
 - c. Sensitivity of the receiving environment;
 - d. Fluctuating and variable effects and reliance on human intervention;
 - e. Inconsistency with future standards; and
 - f. Reasonable certainty and security for the Applicant.

59. I consider each of the above factors in turn in relation to the discharge permit sought by the Applicant.

Effectiveness of consent conditions to manage environmental effects

60. I consider that the Applicant's AEE provides adequate information on the potential adverse effects associated with its discharge to surface water. However, I am

³⁰ For example: *PVL Proteins Ltd v Auckland Regional Council* A061/2001, *Brooke-Taylor v Marlborough District Council* W67/2004, *Genesis Power Ltd v Manawatu-Wanganui Regional* (decision of the High Court, Wild J 2004 485 1139), *Royal Forest & Bird Protection Society v Waikato Regional Council* A157/2006 and *Huntly Quarries Limited v Waikato Regional Council* A010/2008.

concerned that there is a lack of detail on how management of the activity will ensure that effects on an already degraded environment will be addressed over the full 35 year terms of the discharge to water permit. Specifically:

- i. Beyond addressing prohibited discharges of untreated human sewage associated with the stormwater network no improvements in the quality of the discharge is proposed. As discussed in the evidence of Mr Dunning at paragraphs 18 – 21, the Application does not, and legally cannot, seek consent to discharge untreated human sewage to water. Accordingly, authorisation to discharge sewage in any form is explicitly excluded from the application.
 - ii. No compliance with surface water quality standards are proposed by the Applicant.
61. The application does not consider implementation of alternatives to reduce the rate of stormwater flow and / or improve the quality of the discharge and / or the quantity of the discharge to surface water. For example, a range of alternatives is set out in detail in Auckland Regional Council technical publication TP10 (Design Guideline Manual for Stormwater Treatment Devices)³¹, which includes:
- a. The adoption of on-site / source control mitigations, such as the use of pervious surfaces / reduction in impervious surfaces / rain gardens;
 - b. The use of vegetated water retention areas in relation to areas of new development, such as residential and industrial development, and existing infrastructure. Whilst this may not be possible in all cases, there are areas of land between the channels of the Waihopai River and Otepunui Creek and the stop banks that could be utilised for stormwater treatment via detention ponds / wetlands / vegetative swales; and
 - c. The use of interceptors or filtration systems.

From my reading of the evidence of Mr Leahy for the Applicant the above options are discounted due to cost.

Recent history of operations and Applicant's record

62. Mr West's report provides that the Applicant has complied with the terms of its five existing consents to discharge stormwater.

Sensitivity of the receiving environment

63. For the reasons set out in my evidence I consider that the receiving riverine and estuarine environments for the Applicant's stormwater discharge have important ecological and recreational value, including sports fish and game value. Given this context, combined with the nature of potential adverse effects associated with the discharge to surface water, I consider that the receiving riverine and estuarine environments are sensitive.

³¹Auckland Regional Council technical publication TP10 (Design Guideline Manual for Stormwater Treatment Devices) 2003. TP10 available at: <http://www.aucklandcouncil.govt.nz/EN/planspoliciesprojects/plansstrategies/unitaryplan/Documents/Material%20incorporated%20by%20reference/upmirbcounciltp10stormwater.pdf>

64. In addition, the lower Waikiwi Stream, Waihopai and Oreti Rivers have degraded instream water quality and the Oreti Estuary is considered to be in poor condition with increasing eutrophication. I accept that the lower Waikiwi Stream, Waihopai and Oreti Rivers have degraded instream water quality and the Oreti Estuary is in poor condition even in the absence of the Applicant's discharge, however evidence indicates that the Applicant's discharge exacerbates the situation in a minor – moderate way. For example, the application provides at section 7.6.1³² that:

“The assessment of effects on the receiving environment in Section 4 indicates that the stormwater discharges, excluding sewage are having a minor to moderate effect on water quality, a minor effect on aquatic ecosystems, a minor effect on groundwater quality and a moderate effect on visual and amenity values. Sewage contamination in the stormwater network is however having more than a minor effect on water quality in the receiving environments, but sewage is excluded from the scope of this consent.

On the basis of the Section 4 assessment, the first gateway test is not met.”

In short, the Applicant's discharge represents another stress on an already degraded environment associated with the lower Oreti and Waihopai – Oreti Estuary catchment.

Fluctuating and variable effects and reliance on human intervention

65. The evidence of Malcolm Loan for the Applicant details its management of the stormwater network, including ongoing upgrading / development of the network to improve the quality of discharges to surface water. It is unclear to what extent, if any, there will be fluctuating and variable effects and reliance on human intervention. However, it appears active management, including ongoing financial investment in upgrading / developing the stormwater network, will be required on an ongoing basis.

Inconsistency with future standards

66. I note the differing opinions between Mr West for Environment Southland and Mr Dunning for the Applicant as to whether the Applicant's discharge to surface water is generally consistent with the relevant statutory instruments, including applicable objectives and policies, under s 104D of the RMA.
67. In this case, the location of the proposed discharges falls within the Oreti and Waihopai – New River Estuary Freshwater Management Unit (FMU) area, in terms of Environment Southland's catchment limit setting process under the Proposed Water and Land Plan. I consider that the Hearing Committee should be aware that Environment Southland is yet to give effect to the National Policy Statement for Freshwater Management 2014 (NPS-FM 2014). The recently notified Proposed Water and Land Plan creates a regional policy framework for the NPS-FM 2014 to be given effect. I understand that:
- a. Environment Southland will, over the next 2 – 3 years, undertake substantial community consultation to formulate specific freshwater objectives and limits to re-confirm the rivers values and management methods (in accordance with the criteria set out in the NPS-FM). Specifically, interim limit setting in

³² See page 67 of the Stormwater consents application document.

the Oreti and Waihopai – New River Estuary FMU is to commence in late 2018 with catchment limits to be developed by July 2020.³³

- b. While the Regional Water Plan does seek to maintain and improve water quality throughout the region it is not achieving these outcomes. Environment Southland is in the process of notifying a revised regional water plan to, among other things, give effect to the requirements of the NPS-FM 2014.³⁴
68. I have read the review conditions (condition 22) in the Applicant's proposed Discharge Permit – Treated Wastewater to Water, which are attached to Mr Dunning's evidence on behalf of the Applicant. In response, I do not consider that the review condition is sufficient for a consent duration of 35 years. Specifically:
- a. There is no clause relating to evolving policies and objectives associated with new and relevant statutory instruments; and
 - b. There is no clause providing for Environment Southland at specified chronological intervals to either review the effectiveness of the conditions and to impose further or amended conditions if necessary, and / or to review the adequacy and necessity of monitoring.

As identified at page 70 of Mr West's staff report, reviews are limited in nature. Specifically, review cannot be triggered by affected parties and typically the consent authority has to have sufficient information to support the review and understand the specific change to be sought before commencing the review.

69. In addition, I consider that the public perception of the Applicant's discharge to surface water may change over time and what is acceptable today may not be acceptable in the future. I think that this is particularly likely in circumstances where there are recognised environmental and recreational values associated with the lower Waikiwi Stream and Waihopai and Oreti Rivers and the Oreti Estuary, which are in a degraded state.

Reasonable certainty and security for the Applicant

70. I accept that the Applicant is entitled to reasonable certainty and security, however there appears to be no ecological justification for the proposed consent duration of 35 years in relation to the proposed discharge permit.
71. Mr West's suggestion at page 69 of his Staff Report to align the Applicant's stormwater and sewage discharge consents to both expire on 30 June 2029, i.e. 12 years duration, appears pragmatic in the circumstances. I consider that a 12 year consent period for the Applicant's proposed discharge to surface water permit is appropriate on the basis that:

³³ Environment Southland's Progressive Implementation Programme for Implementing the Policies of the National Policy Statement for Freshwater Management 2014 - Available at: https://contentapi.datacomsphere.com.au/v1/h%3Aes/repository/libraries/id:1tkqd22dp17q9stkk8gh/hierarchy/Water%20and%20Land%20factsheets/progressive_implementation_plan.pdf?version=latestPublished&activeOnly=true&download=false

³⁴ I note the Environment Southland website currently states that the Council has: ". . . responded to the National Policy Statement through our Water and Land 2020 & Beyond project... The Water and Land 2020 & Beyond project has three main components . . . The second involves the forming of the new Water and Land Plan, which will replace the existing Regional Water Plan for Southland...". (source: <http://www.es.govt.nz>)

- a. Instream limits are applied to the discharges that are directly enforceable.
- b. Monitoring conditions are imposed providing for:
 - iv. Monitoring of sewage contamination of the stormwater network during low flow and wet weather conditions;
 - v. Determination of mass loads of contaminants from the discharges to assist with management of catchment loads; and
 - vi. Monitoring of effects in the riverine and estuarine receiving environments, including water quality and bed sediments.
- c. Review conditions are imposed providing for:
 - iii. The consent to be review in light of evolving policies and objectives associated with new and relevant statutory instruments, including those relating to surface water quality; and
 - iv. Environment Southland at specified chronological intervals to either review the effectiveness of the conditions and to impose further or amended conditions if necessary, and / or to review the adequacy and necessity of monitoring.

72. I do not consider that the Applicant's investment in upgrades associated with the stormwater network would be prejudiced by a shorter term consent in circumstances where s 104(2A) of the RMA specifically provides that the consent authority must have regard to the value of the investment of the existing consent holder when applying for new consent.

Signed: 

Date: Tuesday, 1 August 2017

Jacob Smyth
Resource Management Officer
Fish and Game New Zealand – Southland Region