

Report



February 2018

Kopeopeo Canal Fish Removals

**Submitted to:
Bay of Plenty Regional Council**

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2.0 Introduction

2.1 Background

As part of a remediation project the Bay of Plenty Regional Council (BoPRC) holds resource consents to disturb the bed of the Kopeopeo Canal. Condition 45 of pertains to aquatic species and states:

- 45.1 Prior to carrying out sediment extraction works within the Kopeopeo Canal, the Consent Holder shall undertake all reasonable steps, to the satisfaction of the Chief Executive of the BoPRC or delegate, to ensure that the remediation zone within the canal is substantially free from fish species (including eels).
- 45.2 The removal of fish species from the Kopeopeo Canal in accordance with condition 45.1 of this consent shall be achieved through use of fyke nets over a period of up to seven days or less if it is verified that the section of the canal is substantially free from fish. A suitable alternative method of removing fish from the canal may be employed subject to the prior written approval of the Chief Executive of the BoPRC or delegate.
- 45.3 All fish species shall be euthanized and disposed of at the nearest Containment Site. This condition does not preclude the potential for fish and eels to be sampled for dioxin (or other) contamination prior to being disposed of at the Containment Sites.

The BoPRC holds a Special Permit 534 issued by the Ministry for Primary Industries for the removal of fish. The Special Permit sets out 24 conditions including conditions covering the method of capture and reporting.

3.0 Methodology

The methodology was set out in a plan prepared by Freshwater Solutions in November 2017 following a trial by Golder Associates in 2017. The plan was prepared in accordance with the Special Permit 534 issued by the Ministry for Primary Industries and approved by the BoPRC. The relevant components of the plan are set out below.

Objective

The objective of the fish removal programme was to remove as many fish from the canal as possible, euthanise them humanely and handle and dispose of them in a manner that protects the environment.

Personnel and Roles

Freshwater Solutions Ltd was responsible for leading the task of removing and euthanizing the fish. Freshwater Solutions Ltd was assisted by Brendon Love and New Zealand Pump and Groundwater Systems (NZPGS) staff who operated the pontoon and Jim Summers of Hail Environmental Ltd. The Cultural Monitor, Eula Toko and Independent Monitor, Matt

James provided oversight for Ngāti Awa and the Whakatāne community respectively ensuring compliance with stakeholder needs during the fish removal programme.

The fish removal team euthanised eels and other fish using AQUI-S in two large plastic wheelie bins situated within the bunded area of the remediation site. Euthanised fish were placed in large plastic bags and then into plastic fish bins for freezing at the ESL remediation site.

Des McCleary will be responsible for managing the process of putting the frozen fish through the mincer on the ESL site.

Timing and Location

Two flood control structures have been installed at either end of the 5.1 Km remediation reach between SH 30 at Kopeopeo Drain Road and the confluence with the Kopeopeo Canal with the Orini Canal.

Fish removals were undertaken between 7 – 18 December 2017 and between 31 January 2018 and 2 February 2018. The fish removals were started at the western end of the remediation section and moving downstream (refer to Figure 1). The plan was to set nets on up to 8 nights over the 12 days available between 6 – 21 December. This was extended so that a total of 5 nights of netting was undertaken in the upper 1.9 Km reach between the SH 30 bridges and 4 nights of netting was undertaken in the middle 2.1 Km reach between the SH 30 bridge and Keepa Road between 7 – 18 December 2017. A further 4 nights of netting was undertaken in the lower 1 Km reach between the Keepa Road and the eastern control structure between 31 January – 2 February 2018.

Eel Capture

The work was undertaken in accordance with the BoPRC's Special Permit 534 issued by the Ministry for Primary Industries.

Fish were captured using 12 fine mesh and up to 28 commercial eel fyke nets that were set and retrieved using the BoPRC pontoon. Nets were set during the day with the end of the wing attached to the canal bank using an electric fence standard. The nets were set in pairs approximately 50 – 100 m apart. The nets were set so that the wing faced downstream and the end of the net was secured at an approximately 45° angle using a rock placed in the end of the net. All nets were baited with piece of frozen chicken. Partially eaten or uneaten chicken pieces were not reused when resetting the nets.

Eel Handling in the Field

Capturing Eels

Nets were cleared in the morning using the pontoon by emptying each fyke net into a catch bag that was weighed and placed in large fish bins with ice to keep eels in a relaxed state. Nets were cleared and the fish then transported to Containment Site 1 where they were euthanised (Figure 2).

Euthanising Eels

Eels were euthanised using AQUI-S (refer to Appendix 1 for the MSDS). A stock solution of 20 – 50 mL of AQUI-S/200 mL of water was made immediately prior to its use each day. The stock solution was added to approximately 100 L of water in a 200 L plastic wheelie bin

and stirred in accordance with the supplier's instructions. Depending on the size of the catch 5 -6 catch bags were placed in the wheelie bin and left until all fish have been euthanised (approximately 10 – 30 minutes). AQUI-S is an anaesthetic so fish were very quickly anaesthetised before dying.

The used water that included a small quantity of AQUI-S was collected in a ICB and stored before been discharged into the treatment plant. ***Packaging, Transporting and Storage of Euthanised Eels***

Fish within the catch bags were removed from the wheelie bins and the fish emptied into two large plastic bags, placed in fish bins and put in the onsite freezer.

Disposal of Euthanised Eels

The frozen eels will be put through the mincer at the ESL site and be added to the canal sediment undergoing treatment prior to being pumped into the geobags at the containment site for bioremediation.

4.0 Results

The fish removals went very well with no significant issues encountered. A total of 7 native species of fish were recorded during the removals including:

- Long fin eel.
- Shortfin eel.
- Giant bully.
- Inanga.
- Banded kokopu.
- Common smelt.
- Common bully.

KOPEOPEO CANAL FISH REMOVALS



Figure 1: Fish removal reaches.



Figure 2: Pontoon used to set and retrieve fyke nets.

Gold fish were common through the reaches although they tended to be more prolific in the middle and upper reaches.

Giant bully, common bully, inanga and banded kokopu were more common in the lower reach while short fin and longfin eel were the most common and abundant species encountered in all three reaches.

The total weight of each set (comprising a pair of fyke nets) and the total weight/set/night for the upper, middle and lower reaches is presented in Tables 1 -3.



Figure 3: View of typical catch with longfin eel, shortfin eel and inanga.

The largest total catch was recorded in the upper reach (348.9 Kg), followed by the lower reach (346.5 Kg) and the mid reach (291.0 Kg) (Tables 1 – 3).

Standardising the total catch weights into weight/net/night and recording the number of empty nets is the most accurate way to assess the effectiveness of the fish removals. The most effective fish removals were from the upper reach where the weight/net/night decreased by 70% over the 5 nights of fishing followed by the lower reach where the weight/net/night decreased by 60% over the 4 nights of fishing and the mid reach where the weight/net/night decreased by 48% over the 4 nights of fishing (Tables 1 – 3).

Table 1: Eel capture results for the upper reach.

	7-Dec-17	7-Dec-17	8-Dec-17	8-Dec-17	11-Dec-17	11-Dec-17
	Total (Kg)	Kg/set/night	Total (Kg)	Kg/set/night	Total (Kg)	Kg/set/night
Set 1	24.0	24.0	4.0	4.0	8.0	2.7
Set 2	14.0	14.0	4.0	4.0	7.3	2.4
Set 3	4.0	4.0	0.0	0.0	4.0	1.3
Set 4	16.0	16.0	1.0	1.0	1.3	0.4
Set 5	6.0	6.0	0.8	0.8	3.0	1.0
Set 6	10.0	10.0	3.8	3.8	3.0	1.0
Set 7	25.5	25.5	4.5	4.5	5.0	1.7
Set 8	6.0	6.0	4.0	4.0	9.0	3.0
Set 9	7.0	7.0	2.3	2.3	7.0	2.3
Set 10	16.0	16.0	5.0	5.0	7.0	2.3
Set 11	Not Cleared	Not Cleared	9.5	4.8	9.0	3.0
Set 12	Not Cleared	Not Cleared	10.0	5.0	5.0	1.7
Set 13	Not Cleared	Not Cleared	4.0	2.0	4.0	1.3
Set 14	Not Cleared	Not Cleared	14.0	7.0	8.0	2.7
Set 15	Not Cleared	Not Cleared	6.0	3.0	3.0	1.0
Set 16	Not Cleared	Not Cleared	6.0	3.0	8.0	2.7
Set 17	Not Cleared	Not Cleared	6.0	3.0	3.0	1.0
Set 18	Not Cleared	Not Cleared	2.0	1.0	3.0	1.0
Set 19	Not Cleared	Not Cleared	8.0	4.0	4.0	1.3
Set 20	Not Cleared	Not Cleared	11.0	5.5	13.0	4.3
Total	128.5	128.5	105.8	67.5	114.5	38.2
No. of empty nets	0		8		5	

A total of 13, 23 and 22 empty nets were recorded in the upper, mid and lower reaches respectively (Tables 1 – 3). The number of empty nets increased between clearing the nets on each day in the lower and mid reaches but not the upper reach where the number of empty nets on each day of clearance was 0, 8 and 5 respectively.

Table 2: Eel capture results for the middle reach.

	12-Dec-17	12-Dec-17	14-Dec-17	14-Dec-17	15-Dec-17	15-Dec-17
	Total (Kg)	Kg/set/night	Total (Kg)	Kg/set/night	Total (Kg)	Kg/set/night
Set 1	2.0	2.0	13.0	6.5	4.0	4.0
Set 2	6.0	6.0	6.0	3.0	10.2	10.2
Set 3	5.6	5.6	5.0	2.5	2.0	2.0
Set 4	8.0	8.0	3.0	1.5	5.0	5.0
Set 5	5.5	5.5	2.8	1.4	0.0	0.0
Set 6	2.5	2.5	7.2	3.6	4.0	4.0
Set 7	0.3	0.3	5.5	2.8	1.5	1.5
Set 8	2.0	2.0	6.0	3.0	4.6	4.6
Set 9	5.0	5.0	9.0	4.5	1.0	1.0
Set 10	7.0	7.0	3.0	1.5	0.5	0.5
Set 11	9.0	9.0	3.0	1.5	0.5	0.5
Set 12	17.0	17.0	3.2	1.6	3.0	3.0
Set 13	10.0	10.0	2.0	1.0	1.5	1.5
Set 14	0.5	0.5	1.0	0.5	3.0	3.0
Set 15	3.0	3.0	3.5	1.8	0.0	0.0
Set 16	10.5	10.5	6.5	3.3	3.5	3.5
Set 17	2.3	2.3	6.3	3.2	0.0	0.0
Set 18	5.0	5.0	4.5	2.3	1.0	1.0
Set 19	15.0	15.0	9.0	4.5	4.0	4.0
Set 20	3.0	3.0	10.0	5.0	13.0	13.0
Total	119.2	119.2	109.5	54.7	62.3	62.3
No. of empty nets	5		6		12	

Table 3: Eel capture results for the lower reach.

	18-Dec-17	18-Dec-17	31-Jan-18	31-Jan-18	2-Feb-18	2-Feb-18
	Total (Kg)	Kg/set/night	Total (Kg)	Kg/set/night	Total (Kg)	Kg/set/night
Set 1					4.5	2.3
Set 2	12.0	4.0	1.0	1.0	4.3	2.1
Set 3	11.0	3.7	3.0	3.0	7.0	3.5
Set 4	8.0	2.7	3.0	3.0	4.5	2.3
Set 5	4.0	1.3	2.3	2.3	1.0	0.5
Set 6	10.0	3.3	3.0	3.0	5.0	2.5
Set 7	5.0	1.7	3.5	3.5	1.3	0.6
Set 8	3.0	1.0	4.0	4.0	1.0	0.5
Set 9	5.0	1.7	3.0	3.0	0.0	0.0
Set 10	4.0	1.3	5.0	5.0	3.3	1.6
Set 11	2.0	0.7	0.5	0.5	0.3	0.1
Set 12	2.0	0.7	2.0	2.0	7.5	3.8
Set 13	13.0	4.3	5.0	5.0	2.0	1.0
Set 14	15.0	5.0	8.0	8.0	4.5	2.3
Set 15	12.0	4.0	6.0	6.0	3.2	1.6
Set 16	5.0	1.7	0.5	0.5	6.0	3.0
Set 17	7.0	2.3	0.5	0.5	4.0	2.0
Set 18	25.0	8.3	8.3	8.3	0.0	0.0
Set 19	4.0	1.3	0.3	0.3	9.5	4.8
Set 20	41.0	13.7	25.0	25.0	6.0	3.0
Total	188.0	62.7	83.8	83.8	74.7	37.4
No. of empty nets	6		7		9	

5.0 Conclusion

A total of 13 nights of netting was undertaken – 5 nights in the 2 Km long upper reach, 4 nights in the 2 Km long mid reach and 4 nights in the 1 Km long lower reach. An additional 5 nights of netting was undertaken compared to the 8 nights set out in the eel removal plan.

The process of setting and retrieving nets and transporting and euthanising fish went very smoothly and according to the eel removal plan. A total of 7 native fish and one introduced species were captured and euthanised. The most widespread and abundant species recorded was shortfin eel.

A total of 986 Kg of fish were removed from the remediation reach. The weight of fish/net/night decreased between 48 – 70% among the three reaches and in two out of three reaches the number of empty nets increased during the removals.

The removal methodology and results clearly demonstrate a marked reduction in overall fish abundance and demonstrate full compliance with Conditions 45.1 – 45.3.

Signature Page

Freshwater Solutions Ltd



Richard Montgomerie

Director

APPENDIX 1

MPI Special Permit



SPECIAL PERMIT (532)

Pursuant to section 97(1)(a)(ii) of the *Fisheries Act 1996* (**the Act**),

Bay of Plenty Regional Council
PO Box 364
WHAKATANE 3158

Client Number 9790316

and employees and agents of Bay of Plenty Regional Council, engaged in investigative research as part of their employment or association with the Bay of Plenty Regional Council (in combination hereafter referred to as **the permit holder**), are hereby permitted to take fish, aquatic life, or seaweed, irrespective of size, state, site, method or time of fishing, for the purposes of investigative research, subject to the following conditions:

Period of issue

- 1 This special permit is valid from the date of signature to 31 October 2017, unless sooner varied or revoked by the Director-General, or his or her delegated officer, of the Ministry for Primary Industries (**MPI**).

Permitted activities

- 2 This special permit allows the taking (as defined in s 2 of the Act) of fish, aquatic life, or seaweed for the purpose of investigative research as carried out by the permit holder:
 - a) as specified in the Schedule in Appendix One, which may be amended during the term of this special permit, or
 - b) for any other project that does not involve the taking of more than 30 kilograms (**kg**) of fish, aquatic life, or seaweed, in total, per project.
- 3 New or amended projects that involve taking more than 30 kg of fish, aquatic life, or seaweed per project may only be undertaken pursuant to this special permit through an amendment to the Schedule in Appendix One. An application for inclusion of new or amended projects must be lodged with the Spatial Allocations Manager, MPI, Private Bag 14, Nelson 7042.
- 4 Projects which fall within condition 2b, need not be separately approved or added to the Schedule in Appendix One, unless there is a likelihood that protected or restricted species

may be taken (eg toheroa, black coral etc), or the areas proposed for collection are subject to specific fisheries restrictions (eg regulation or rāhui).

- 5 MPI recognises that some species are of special importance to tangata whenua. These species and areas of their importance are listed in Appendix Two. MPI may require additional consultation where any new or amended projects that relate to condition 3 above include any of the species listed in Appendix Two.

Definition of area

- 6 Fish, aquatic life, or seaweed may be taken under this permit only in the area of the Bay of Plenty Regional Council's territorial waters including any inland and intertidal water, as shown in Appendix Three.
- 7 The taking of fish, aquatic life, or seaweed from within marine reserves or a marine mammal sanctuary requires this special permit as well as the specific written permission of the Director-General of the Department of Conservation.
- 8 If fishing is proposed in any taiapure-local fisheries or mātaimai reserve area, the permit holder must obtain prior written permission of the taiapure management committee or Tangata Kaitiaki/Tiaki.

Conditions of collection

- 9 Fish, aquatic life, or seaweed taken pursuant to this special permit must not be used for personal use, collection, consumption, bait or for sale.
- 10 The permit holder shall employ the methods and means as specified in accordance with projects approved in the Schedule in Appendix One. For projects not specified in Schedule (ie that fall under condition 2b), the permit holder must employ methods and means that are appropriate to the research objective, provided they represent best practice in pursuing such goals, and are sensitive to the various components of the aquatic environment.
- 11 The use of electric fishing equipment is permitted provided the permit holder holds the written authorities required under regulation 51 of the *Freshwater Fisheries Regulations 1983*.
- 12 Any unattended equipment being used for the collection of fish, aquatic life, or seaweed should be labelled with the owner's name and "MPI Special Permit No. 532" at all times.
- 13 Explosive or toxic gas, or toxic, poisonous, or narcotic substances must not be used to collect fish, aquatic life, or seaweed under the authority of this special permit unless prior written approval is obtained from MPI. Requests for approval should be lodged with the Spatial Allocations Manager, MPI, Private Bag 14, Nelson 7042.

- 14 Prior to undertaking any fishing pursuant to this special permit, the permit holder must advise the Waikato/Bay of Plenty District Compliance Manager, MPI, (details attached as Appendix Four) of the intended collection activities. This notification should be faxed 24 hours prior to any proposed collection taking place and shall include the permit holder's details including the special permit number, the intended date(s), time(s) and location(s) of collection, the expected species to be collected, the vessel(s) and method(s) to be used and the name(s) of the person(s) responsible for the collection.
- 15 The permit holder may use any vessel to take fish, aquatic life, or seaweed under the authority of this special permit. However, if a fishing vessel registered under section 103(1)(a) of the Act is to be used, then prior to the commencement of fishing the permit holder shall advise the Waikato/Bay of Plenty District Compliance Manager, MPI, in writing or by facsimile, the following information:
- a) The permit holder's details, including special permit number
 - b) the name and registration number of the vessel being used
 - c) details of who will be holding the special permit (Master of vessel or the permit holder)
 - d) the area of collection
 - e) the collection method
 - f) the species being collected.
- 16 When a fishing vessel registered under section 103(1)(a) of the Act is to be used in association with this special permit, the use of underwater breathing apparatus to collect fish, aquatic life, or seaweed is strictly prohibited, unless prior written approval is obtained from the Waikato/Bay of Plenty District Compliance Manager, MPI.
- 17 No vessel(s) nominated to fish pursuant to this special permit may engage in commercial fishing for any species under the authority of a fishing permit issued under s 91 of the Act while fishing pursuant to this special permit, unless prior written approval is obtained from the Waikato/Bay of Plenty District Compliance Manager, MPI. For the purposes of interpretation, 'commercial fishing' is defined as the taking of fish, aquatic life, or seaweed within New Zealand fisheries waters for the purpose of sale.
- 18 Fish, aquatic life, or seaweed must not be taken in connection with investigative research involving the use of structures that require consent under the authority of the *Resource Management Act 1991* unless resource consent is obtained.

Biosecurity conditions – freshwater

- 19 During the taking of fish, aquatic life, or seaweed, the permit holder shall ensure that no aquatic plant, noxious fish, or unwanted organism, including eggs and larvae of noxious fish or unwanted organisms, is introduced into any other waterway, either from the water holding the taken fish, aquatic life, or seaweed, or enmeshed in fishing gear.

- 20 To prevent the spread of unwanted aquatic plants and animals, all equipment used in the taking of fish, aquatic life, or seaweed must be thoroughly checked, cleaned and dried before and after being used for fishing under this special permit.

Conditions of disposal

- 21 All excess live fish, aquatic life, or seaweed collected under the authority of this special permit must be returned alive to the environment from where it was taken. Any fish, aquatic life, or seaweed not required for investigative research purposes and that cannot be returned alive to the environment (including all dead, diseased or contaminated fish, aquatic life, or seaweed), must be disposed of in a landfill, by incineration, or any other method approved by the Spatial Allocations Manager, MPI.

Reporting requirements

- 22 The permit holder must maintain an up-to-date register of fish, aquatic life, or seaweed collected under this special permit. The register must include:
- a) the number (or weight if appropriate) of species collected
 - b) the location, date and method of collection
 - c) the name of vessel used (if appropriate)
 - d) the method of disposal (including whether a specific disposal authorisation was granted by MPI under condition 21; if so details must include species, quantities, and dates).
- 23 This register must be shown on request to a Fishery Officer or any other Ministry official.
- 24 A brief annual report shall be sent to the MPI, Private Bag 14, Nelson, outlining the details of the permit holder (including special permit number), the projects undertaken, and the number or type of each species or species groups collected, the general area where fishing occurred, and the fate of all organisms taken. The first report shall be tendered no later than 12 months from the date of signature of this special permit and subsequent reports every 12 months thereafter.
- 25 For the purposes of fishing under the authority of this special permit, the permit holder is exempt from the requirements of the *Fisheries (Reporting) Regulations 2001* and *Fisheries (Recordkeeping) Regulations 1990*.

General conditions

- 24 Except as otherwise provided to the contrary under this special permit, the provisions of the Act or any regulation, notice, direction, restriction, requirement, or condition under the Act shall apply to any fishing, or any person engaged in fishing, carried out under the authority of this special permit. Fishing shall have the same meaning as defined in section 2 of the Act.

- 25 This special permit must be held at the offices of the permit holder. Persons in charge of collecting fish, aquatic life, or seaweed must have a copy of this special permit in their possession while collecting fish, aquatic life, or seaweed under the authority of this special permit. In all cases, copies of this special permit must be produced for sighting on request by a Fishery Officer.
- 26 The permit holder must ensure that all personnel and the Master of any vessel used in conjunction with this special permit, read, understand and are fully conversant with the conditions of the special permit before the taking of fish, aquatic life, or seaweed commences under the authority of this special permit.
- 27 At any time during which this special permit is valid, the Director-General of MPI, or his or her delegate, may amend any of the conditions of this special permit, or revoke this special permit, by notice in writing to the permit holder.
- 28 No fishing undertaken, or catch taken or otherwise possessed under the authority of this special permit shall give rise to any right, privilege, or expectation or preference in regard to the granting of any future permit, licence, authorisation, quota, catch history, individual catch entitlement or other right whatsoever under the Act, or any statutory amendment or re-enactment of the Act.

DATED at Nelson on this 18 day of October 2012.

A handwritten signature in black ink, appearing to read 'D. Scranney', with a large, stylized loop at the end.

David Scranney

Spatial Allocations Manager

Acting pursuant to a delegation issued under Section 41 of the *State Sector Act 1988*.

APPENDIX ONE: SCHEDULE OF RESEARCH PROJECTS

For special permit 532, Bay of Plenty Regional Council

Species to be collected	Estimated quantity of each species	Location of collection	Method of collection	How species will be disposed	Sector Groups awareness/acceptance of activity, including iwi (if relevant)
Project description: Bay Of Plenty Regional Council baseline monitoring of the health of estuarine benthic soft-shore macrofauna communities. Project manager: Stephen Park					
All bivalves, crustacean, polychaetes, gastropods, echinoderms etc	<10 kg annually – project on-going	Within territorial waters of the Bay of Plenty Regional Council	Core samples – see methods in report provided with application	Animals at end of sample processing are unfit for consumption and disposed to waste.	All monitoring data is reported in publications and these are provided to central government, local government, general public, special interest groups, Iwi and individuals via reports on the web or hardcopies and direct database links.
Project description: Bay Of Plenty Regional Council baseline monitoring of shellfish quality. Project manager: Paul Scholes					
All edible bivalves, gastropods and crustacea – ie. cockle, pipi, mussel, scallop, wedge shell, crabs, mud snail, etc	<10 kg annually – project on-going	Within territorial waters of the Bay of Plenty Regional Council	Hand collection with use of scuba for subtidal species	Collected animals are processed (usually blended) into single samples for analysis and tested material disposed to waste.	All monitoring data is reported in publications and these are provided to central government, local government, general public, special interest groups, Iwi and individuals via reports on the web or hardcopies and direct database links.
Project description: Manaaki Taha Moana case study – Broad-scale ecological survey of Tauranga Harbour.					

Project manager: Stephen Park					
Cockles, pipi, wedge shell.	<20 kg between November 2012/Feb 2013	Within Tauranga Harbour	Hand collection from stratified survey plots. Density and shellfish size will be measured.	Where possible shellfish will be returned to the beds. Those that are not in suitable condition to return will be disposed of to waste.	All monitoring data is will be reported as required by the MSI contract. The project is being run collaboratively between Iwi, Universities, BOP Polytechnic, Cawthron and BOPRC which is only project manager for shellfish survey component which is part of the larger study.

APPENDIX TWO

Species of special importance to tangata whenua

Name in English	Scientific Name	Name in Māori	General Area
-	<i>Longimactra elongata</i>	Poua	Te Roroa (south of Hokianga Harbour)
Agar	Class <i>rhodophaycea</i>		Te Roroa (south of Hokianga Harbour)
Black flounder	<i>Rhombosolea retiara</i>	Patiki mohoao	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
Black mussel	<i>Xenostrobus pulex</i>	Kutae	Te Uri O Hau (north Kaipara)
Blue moki	<i>Latridopus ciliaris</i>	Moki	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
Blue mussel	<i>Mytilus galloprovincialis/Mytilus edulis</i>	Kuku/Kutae	Ngāti Ruanui (south Taranaki) Ngāti Ruanui (south Taranaki)
Bull kelp	<i>Durvillea</i> spp.	Rimurapa	Ngāi Tahu claim area Te Roroa (south of Hokianga Harbour)
Butterfish	<i>Odax pullus</i>	Marari	Te Roroa (south of Hokianga Harbour) Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
Canterbury mudfish	<i>Neochanna burrowsius</i>	Kawaro	Ngāi Tahu claim area
Cats eye	<i>Turbo smaragdus</i>	Korama, Pupu	Ngāti Ruanui (south Taranaki) Ngāti Tama (north Taranaki) Ngāti Rauru (south Taranaki) Ngāti Mutunga (Taranaki, north of New Plymouth) Te Roroa (south of Hokianga Harbour)
Cockle	<i>Austrovenus stutchburyi</i>	Tuangi	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki) Te Roroa (south of Hokianga Harbour)
Common shrimp	<i>Palaemon affinis</i>	Koeke	Ngāi Tahu claim area Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
Common smelt	<i>Retropinna retropinna</i>	Paraki, Ngaiore	Ngāi Tahu claim area Ngāti Ruanui (south Taranaki)
Conger eel	<i>Conger verreauxi</i>	Koiro, ngoiro, totoke, hao, ngoio, ngoingoi, putu	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
Cooks turban	<i>Cookia sulcata</i>	Karekawa	Te Roroa (south of Hokianga Harbour)
Crayfish	<i>Jasus edwardsii</i>	Koura	Te Uri O Hau (north Kaipara)
Eel – longfin and shortfin	<i>Anguilla australis</i> <i>Anguilla dieffenbachii</i>	Tuna heke	Te Uri O Hau (north Kaipara) Ngāti Awa (Bay of Plenty, Whakatane area) Ngāti Tuwharetoa (Bay of Plenty, Matata area) Ngāti Mutunga (Taranaki, north of New Plymouth) Ngāti Rauru (south Taranaki) Ngāti Ruanui (south Taranaki) Te Roroa (south of Hokianga Harbour) Waikato-Tainui
Elephant fish	<i>Callorhynchus millii</i>	Reperepe	Ngāti Ruanui (south Taranaki)

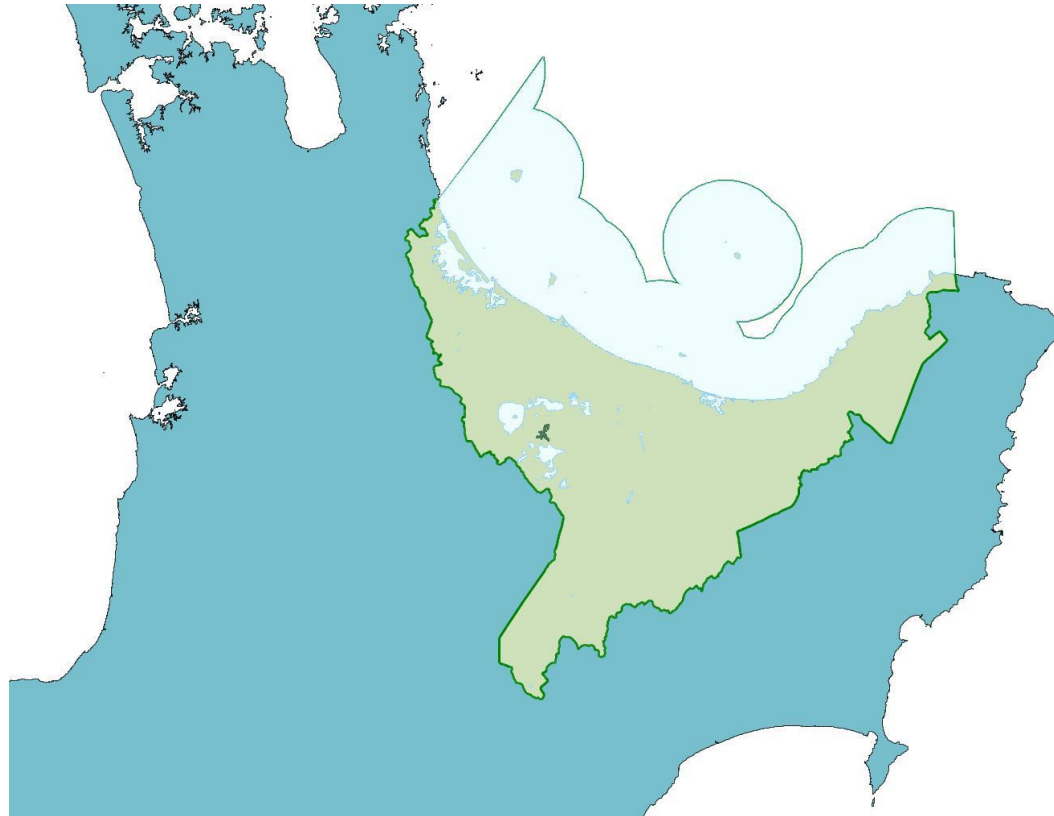
Flounder	<i>Rhombosolea</i> spp	Patiki	Te Roroa (south of Hokianga Harbour)
Freshwater crayfish	<i>Paranephrops</i> spp.	Waikoura, Kewai	Ngāi Tahu claim area Ngāti Ruanui (south Taranaki) Ngāti Tama (north Taranaki) Ngāti Rauru (south Taranaki) Ngāti Mutunga (Taranaki, north of New Plymouth) Te Roroa (south of Hokianga Harbour)
Freshwater mussel	<i>Unio menziesi</i>	Kakahi, Koaru	Ngāi Tahu claim area Ngāti Tama (north Taranaki) Ngāti Rauru (south Taranaki) Ngāti Mutunga (Taranaki, north of New Plymouth)
Frostfish	<i>Lepidopus caudatus</i>	Para	Ngāti Ruanui (south Taranaki)
Giant bully	<i>Gobiomorphus gobioides</i>	Kokopu, Hawai	Ngāi Tahu claim area
Giant kokopu	<i>Galaxias argenteus</i>	Taiwharu	Ngāi Tahu claim area
Green lipped mussel	<i>Perna canaliculus/Mytilus edulis</i>	Kutae, Kuku, Kutai	Ngāti Ruanui (south Taranaki) Te Roroa (south of Hokianga Harbour) Te Uri O Hau (north Kaipara)
Grey mullet	<i>Mugil cephalus</i>	Kanae	Te Roroa (south of Hokianga Harbour)
Groper	<i>Polypion oxygenios</i>	Hapuka	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki) Te Roroa (south of Hokianga Harbour)
Gurnard	<i>Chelidonichthys kumu</i>	Kumukumu	Te Uri O Hau (north Kaipara)
Hermit crab	<i>Pagurus novaezeelandiae</i>	Kaunga	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
Horse mussel	<i>Atrina zelandica</i>	Waharaoa	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
Kahawai	<i>Arripis trutta</i>	Kahawai	Te Roroa (south of Hokianga Harbour)
Karengo / Nori	<i>Porphyra columbina</i>	Karengo	Ngāi Tahu claim area Te Roroa (south of Hokianga Harbour)
Kelp fish	<i>Chironemus marmoratus</i>	Ngakoikoi	Te Roroa (south of Hokianga Harbour)
Kina	<i>Evechinus chloroticus</i>	Kina	Ngāti Ruanui (south Taranaki) Ngāti Tama (north Taranaki) Te Uri O Hau (north Kaipara)
King fish	<i>Seriola grandis</i>	Haku	Te Roroa (south of Hokianga Harbour) Te Uri O Hau (north Kaipara)
Lamprey	<i>Geotria australis</i>	Pihirau	
Lamprey / Southern lamprey	<i>Geotria australis</i>	Kanakana, Ute Piharau	Ngāi Tahu claim area Ngāti Ruanui (south Taranaki) Ngāti Mutunga (Taranaki, north of New Plymouth) Te Roroa (south of Hokianga Harbour)
Lemon sole	<i>Pelotretus flavilatus</i>	Patiki tore	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
Limpet	Families <i>Patellidae</i> , <i>Acmaeidae</i> and <i>Lepetidae</i>	Ngakahi	Te Roroa (south of Hokianga Harbour)
Ling	<i>Genypterus blacodes</i>	Hokorari	Te Roroa (south of Hokianga Harbour)
Moki	<i>Latridopsis ciliaris</i>	Moki	Te Roroa (south of Hokianga Harbour)
Mud crab	<i>Helice</i> sp.	Papaka parupatu	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
Mud snail	<i>Amphibola crenata</i> / <i>Turbo smaragdus</i> /	Waikaka	Ngāti Ruanui (south Taranaki) Te Uri O Hau (north Kaipara)

	<i>Zedilom</i> spp.		
Mullet	<i>Mugil cephalus</i>	Kanae	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
Nerita	<i>Nerita atramentosa melanotragus</i>	Makerekere	Te Roroa (south of Hokianga Harbour)
New Zealand sole	<i>Peltorhampus novaezeelandiae</i>	Patiki rore	Ngāti Ruanui (south Taranaki) Te Uri O Hau (north Kaipara)
Octopus	<i>Octopus maorum</i>	Wheke	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki) Te Roroa (south of Hokianga Harbour)
Paddle crab	<i>Ovalipes catharus</i>	Papaka	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
Parore	<i>Girella tricuspidata</i>	Parore	Te Roroa (south of Hokianga Harbour)
Paua	<i>Haliotis iris, Haliotis australis</i>		Ngāti Ruanui (south Taranaki) Te Roroa (south of Hokianga Harbour)
Pilchard	<i>Sardinops neopilchardus</i>	Mohimohi	Te Roroa (south of Hokianga Harbour)
Pipi	<i>Paphies australis</i>	Pipi	Ngāti Ruanui (south Taranaki)
Pipi	<i>Paphies australis</i>	Pipi	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki) Te Roroa (south of Hokianga Harbour)
Pupu	<i>Turbo smaragdus</i>	Pupu	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
Red shore crab	<i>Plagusia chabrus</i>	Papaka	Te Roroa (south of Hokianga Harbour)
Rock cod	<i>Lotella rhacinus Parapercis colias</i>	Patukituki	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
Rock lobster	<i>Jasus edwardsii, Jasus verreauxi</i>	Koura	Te Uri O Hau (north Kaipara) Te Roroa (south of Hokianga Harbour) Ngāti Ruanui (south Taranaki)
Rock oyster	<i>Crassostrea glomerata</i>	Karauria	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
Sand flounder	<i>Rhombosolea plebeia</i>	Patiki	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
Scallop	<i>Pecten novaezeelandiae</i>	Kuakua, pure, tipa, tipai, kopa	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
School shark	<i>Galeorhinus galeus</i>	Pioke	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
Sea anemone	<i>Actinia</i> spp. Cnidaria group <i>Actinia tenebrosa</i>	Kotoretore, Kotore moana, Kotore, humenga	Ngāti Tama (north Taranaki) Ngāti Rauru (south Taranaki) Ngāti Mutunga (Taranaki, north of New Plymouth) Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki) Te Roroa (south of Hokianga Harbour)
Sea cucumber	<i>Stichopus mollis</i> <i>Class holothuroidea</i>	Rori, Rore	Ngāti Rauru (south Taranaki) Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki) Te Roroa (south of Hokianga Harbour)
Sea lettuce	<i>Ulva</i> spp.	Karengo	Ngāi Tahu claim area Ngāti Tama (north Taranaki) Ngāti Mutunga (Taranaki, north of New Plymouth)
Sea trout	<i>Arripus trutta</i>	Kahawai	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
Sea tulip	<i>Pyura pachydermatum</i>	Kaero	Ngāi Tahu claim area

			Ngāti Ruanui (south Taranaki)
Sea urchin	<i>Evechinus</i> spp.	Kina	Te Roroa (south of Hokianga Harbour) Ngāti Ruanui (south Taranaki)
Sea snail	<i>Scutus breviculus</i>	Rori	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
Shark	<i>Order ellasmobranchus</i>	Mango	Te Roroa (south of Hokianga Harbour)
Shark (all species) includes, Great white, bronze whaler, Hammerhead etc	<i>Elasmobranchii</i> spp.	Pioke	Te Uri O Hau (north Kaipara)
Smelt	<i>Retropina retropina</i>	Ngaiore, Karawaka	Te Roroa (south of Hokianga Harbour)
Snapper	<i>Pagrus auratus</i>	Tamure	Te Uri O Hau (north Kaipara) Te Roroa (south of Hokianga Harbour)
Sole	<i>Peltorhampus novaezeelandiae</i>	Patiki rori	Te Roroa (south of Hokianga Harbour)
Sprat	<i>Sprattus antipodum</i>	Kupae	Te Roroa (south of Hokianga Harbour)
Starfish	<i>Echinoderms</i>	Patangatanga, patangaroa, pekapeka	Ngāti Ruanui (south Taranaki) Te Uri O Hau (north Kaipara)
Stingray	<i>Dasyatis rhinobatis</i> spp <i>Dasyatis brevicaudatus</i>	Whai	Te Uri O Hau (north Kaipara) Te Roroa (south of Hokianga Harbour)
Surf clam	<i>Dosinia anus</i> , <i>Paphies donacina</i> , <i>Mactra discor</i> , <i>Mactra murchsoni</i> , <i>Spisula aequilateralis</i> , <i>Basina yatei</i> , or <i>Dosinia subrosa</i> , <i>maetra species</i>	Purimu	Ngāti Ruanui (south Taranaki) Te Uri O Hau (north Kaipara)
Toheroa	<i>Paphies ventricosa</i>	Toheroa, Tupehokura	Ngāi Tahu claim area Te Uri O Hau (north Kaipara) Te Roroa (south of Hokianga Harbour)
Torrent fish	<i>Cheimarrichthys fosteri</i>	Piripiripohatu	Ngāi Tahu claim area
Trevally	<i>Caranx geogianus</i>	Araara	Te Roroa (south of Hokianga Harbour) Te Uri O Hau (north Kaipara)
Tuatua	<i>Paphies subtriangulata</i> <i>Paphies donacina</i>	Tuatua	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki) Te Roroa (south of Hokianga Harbour)
Yellowbelly flounder	<i>Rhombosolea leporina</i>	Patiki totara	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)

APPENDIX THREE

Authorised collection area – Bay of Plenty Regional Council Territorial Boundaries including inland and intertidal waters



APPENDIX FOUR

Schedule of contact details

Christchurch District Compliance Manager, MPI, can be contacted on the following phone and fax numbers:

Waikato/Bay of Plenty

Tel: (07) 571 2820

Fax: (07) 571 2821

Spatial Allocations Manager, MPI, can be contacted on the following phone and fax numbers:

Nelson

Tel: (03) 548 1069

Fax (03) 545 7799



SPECIAL PERMIT AMENDMENT (532/2)

Pursuant to section 97(5) of the *Fisheries Act 1996*:

**Bay of Plenty Regional Council
PO Box 364
WHAKATANE 3158**

Client Number 9790316

is hereby notified that in respect of a special permit (532) issued to the above on 18 October 2012, the following amendments to the special permit are made:

- 1) The following special permit purpose is hereby added to special permit 532:

To allow persons or agencies to take aquatic life and relocate it to a suitable habitat where this is necessary or required to mitigate adverse effects of habitat modification on the aquatic life.

- 2) The attached project entitled Kopeopeo Canal Remediation project is hereby added to Appendix One: Schedule of Research Projects authorised under special permit 532.
- 3) When undertaking the Kopeopeo Canal Remediation project the permit holder shall have regard to animal welfare and requirements of the *Animal Welfare Act 1999* during the collection, holding, transport and euthanasia of contaminated eels and bycatch of other aquatic life.

All other conditions of the special permit remain unchanged.

A handwritten signature in black ink, appearing to read 'D. Scranney'.

David Scranney

Spatial Allocations Manager

DATED at Nelson this 14 day of July 2014.

Acting pursuant to a delegation issued under s 41 of the *State Sector Act 1988*

Addendum to Appendix One: Schedule of Research Projects

Project description: Kopeopeo Canal Remediation project					
Species to be collected	Estimated quantity of each species	Location of collection	Method of collection	How species will be disposed	Sector Groups awareness/acceptance of activity, including iwi (if relevant)
Shortfin and longfin eels (<i>Anguilla</i> spp), giant bully (<i>Gobiomorphus gobioides</i>) and any other bycatch species	unknown	Kopeopeo Canal	Fyke nets placed at 500 m intervals	Euthanized and disposed to three designated Containment Sites located at Kope Drain Road and Keepa Road.	Ongoing liaison with the community and key stakeholders, including DOC, iwi, Toi te Ora Public Health, MfE, Fish and Game, Te Kura o Te Paroa School and opposing submitters.



SPECIAL PERMIT AMENDMENT (532/3)

Pursuant to section 97(5) of the *Fisheries Act 1996*:

Bay of Plenty Regional Council
PO Box 364
Whakatane 3158

Client number 9790316

is hereby notified that in respect of special permit 532 issued to the above on 18 October 2012, later amended with special permit amendment 532/2 on 14 July 2014; the following amendment to the special permit is made:

Condition 1 is hereby revoked and replaced with the following

1. This special permit is valid from the date of signature to 30 April 2018, unless sooner varied or revoked by the Director-General, or his or her delegated officer, of the Ministry for Primary Industries (**MPI**).

All other conditions of the special permit remain unchanged.

A handwritten signature in black ink, appearing to read 'D. Scranney'.

David Scranney

Manager Customary Fisheries and Spatial Allocations

DATED at Nelson this 30th day of October 2017.

Acting pursuant to a delegation issued under s 41 of the *State Sector Act 1988*

APPENDIX 2

MSDS for AQUI-S

Safety Data Sheet (SDS)

1: IDENTIFICATION OF THE SUBSTANCE & SUPPLIER

Product Name:

AQUI-S®

Recommended use:

Aquatic Anaesthetic

Company details:

AQUI-S New Zealand Ltd
Unit 5, 6 Aglionby Street
P O Box 44-269
Lower Hutt, New Zealand

Phone: (64) (4) 587 0389
Fax: (64) (4) 587 0388
Website: www.aqui-s.com
Hours 8am – 5pm, Mon – Fri

Emergency Number:

0800 764 766 (New Zealand National Poisons Centre)

Date of Preparation:

Jun 2017

2: HAZARD(S) IDENTIFICATION

Pictogram



Signal word:

Warning

Hazard statements

6.1E	Harmful if swallowed
6.3A	May cause skin irritation
6.4A	Causes serious eye irritation
6.5B	May cause allergic skin reaction
6.9B	May cause organ damage from repeated oral exposure at high doses

3: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS Number	Concentration
Isoeugenol	97-54-1	~ 50%
Excipient	-	~ 50%

4: FIRST AID MEASURES

Necessary First Aid Measures:

SKIN CONTACT: If skin contact occurs, remove contaminated clothing and wash the affected area with soap and water. If irritation occurs or persists, seek medical attention.

EYE CONTACT: In case of eye contact, immediately rinse eyes thoroughly with plenty of water. If wearing contact lenses, remove only after initial rinse, and continue rinsing eyes for at least 15 minutes. If irritation occurs or persists, consult a doctor.

INGESTION: Give up to two glasses of water or milk. Seek medical advice immediately.

INHALATION: If inhaled, move the victim to fresh air immediately. If irritation occurs or persists, seek medical attention.

Required instructions:

For advice contact the National Poisons Centre 0800 POISON (0800 764 766) or a doctor.

Workplace facilities:

Emergency showers and eyewashes may be warranted depending on quantity and type of use.

Hygiene instructions:

Avoid ingestion, inhalation and contact with skin and eyes. Do not eat, drink or smoke while using this product. Wash hands and exposed skin before eating, drinking or smoking and after work. Wash any protective clothing after use.

Notes for Medical Personnel:

Treat symptomatically.

5: FIRE FIGHTING MEASURES

Flammability:

This product is not flammable

Extinguishing media & Methods:

Use water spray, foam, carbon dioxide or dry chemical extinguishers

Recommended protective clothing:

This product is not flammable but toxic vapours may be released during fire. Wear full protective clothing and self-contained breathing apparatus (SCBA).

Hazchem code:

None allocated

6: SPILLAGE, ACCIDENTAL RELEASE MEASURES

Emergency procedures:

Personnel involved in clean-up should wear appropriate personal protective equipment to minimise exposure. This may include the use of eye protection, chemically resistant gloves, boot and/or overalls.

Evacuate the spill area and deny entry to unnecessary and unprotected personnel.

Prevent further spillage & prevent material from entering surface water drains or waterways. If a significant quantity of material enters drains, advise emergency services.

Spill Procedure:

Small spills can be wiped up with cloth or paper. Standard absorbants (sand, sawdust, vermiculite, etc) can be used to contain large spills. Wash area with water after mop up.

7: HANDLING & STORAGE

Precautions for Safe Handling:	Avoid contact with skin, & eyes. Keep containers adequately sealed during material transfer, transport, or when not in use.
Regulatory Requirements:	Not applicable.
Handling Practices:	Change work clothes regularly. Avoid ingestion, inhalation and contact with skin and eyes. Do not eat, drink or smoke while using this product. Wash hands and exposed skin before eating, drinking or smoking and after handling.
Approved Handlers:	Not required.
Conditions for Safe Storage:	Keep out of reach of children. Store in original container & keep tightly sealed when not in use.
Storage Site Requirements:	Store below 30°C (Room Temperature) in a cool dry area, away from direct heat or direct sunlight.
Packaging:	HDPE containers.

8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Workplace Exposure Standards:	No WES have been set for this substance.
Application in the Workplace:	Ensure adequate ventilation. Keep container sealed when not in use.
Exposure Standards Outside the Workplace:	No TEL is set for this substance at this time. EEL – Not applicable.
Engineering Controls:	Engineering controls should be used as the primary means to control exposures. Use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits.
Personal Protection:	Wear chemical resistant gloves, overalls, & a face-shield or safety glasses. A respirator may be required if using in confined or poorly ventilated conditions.

9: PHYSICAL & CHEMICAL PROPERTIES

Appearance:	Clear viscous yellow liquid
Odour:	Floral carnation, clove
Boiling Point:	266°C (1 atm)
Vapour Pressure:	<0.02 mm/Hg @ 25°C
Specific Gravity:	1.090
Flash Point:	Data not available
Flammability Limits:	Not available, combustible
Solubility:	Dispersible and slightly soluble in water. Soluble in ethanol

10: STABILITY & REACTIVITY

Stability of the Substance:	Stable under normal temperatures and pressures
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Conditions to Avoid:	Avoid high temperatures
Material to Avoid:	Strong oxidisers
Hazardous Decomposition Products:	Carbon monoxide, carbon dioxide

11: TOXICOLOGICAL INFORMATION

Oral:	Isoeugenol - LD ₅₀ (rats) = 1,560 mg/kg;
Dermal:	Isoeugenol - Draize test, rabbit, skin: 100 mg/24H Severe;
Other Toxicity Info:	Not Available

12: ECOLOGICAL INFORMATION

Ecotoxicity:		
<i>Daphnia magna</i>	Water flea (48h)	LC ₅₀ (mg/L) 10.3
<i>Pimephales promelas</i>	Fathead minnow (96h)	LC ₅₀ (mg/L) 18.6
<i>Oncorhynchus mykiss</i>	Rainbow trout (96h)	LC ₅₀ (mg/L) 7.7
<i>Coturnix sp.</i>	Quail	LD ₅₀ (mg/kg) 316

13: DISPOSAL CONSIDERATIONS

Disposal:	Incineration or landfill in accordance with local authority & Government regulations.
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14: TRANSPORT INFORMATION

Relevant Information:	No special transport requirements necessary.
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15: REGULATORY INFORMATION

HSNO Approval No.:	HSR001977
HSNO Controls:	See http://www.epa.govt.nz/search-databases/Pages/controls-search.aspx for controls.
ACVM Registration No.:	A007227
ACVM Controls:	See https://eatsafe.nzfsa.govt.nz/web/public/acvm-register for registration conditions.

16: OTHER INFORMATION

Additional Information:	AQUI-S® is a registered trademark of AQUI-S New Zealand Ltd.
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AQUI-S NZ Ltd urges each user or recipient of this SDS to read the entire data sheet to become aware of the potential hazards associated with this material. This SDS summarizes, at the date of issue, our best knowledge of the health and safety hazard information. Although reasonable care has been taken in the preparation of this document, AQUI-S NZ Ltd extend no warranties and make no representations as to the accuracy or completeness of the information contained therein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequence of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).