

**BEFORE THE COMMISSION  
APPOINTED BY THE OTAGO REGIONAL COUNCIL**

**UNDER** the Resource Management  
Act 1991 (RMA)

**IN THE MATTER** Of an application by Dunedin  
City Council for resource  
consent being processed with  
reference RM20.280

**BY** **ŌTOKIA CREEK AND  
MARSH HABITAT TRUST**

**Submitter**

---

**STATEMENT OF EVIDENCE OF MATTHEW YORK**

**DATED 6 MAY 2022**

---



**GALLAWAY COOK ALLAN LAWYERS**

B Irving / R A Crawford

bridget.irving@gallowaycookallan.co.nz

rebecca.crawford@gallowaycookallan.co.nz

P O Box 143

Dunedin 9054

Ph: (03) 477 7312

Fax: (03) 477 5564

## STATEMENT OF EVIDENCE OF ŌTOKIA CREEK AND MARSH HABITAT TRUST

### Introduction

1. My name is Matthew York. I am the Secretary and Trustee of the Ōtokia Creek and Marsh Habitat Trust (the Trust). I am authorised by the Trust to provide this evidence on its behalf. This evidence is also given jointly with other submitters Big Stone Forests Limited and South Coast Neighbourhood Society Inc.
2. The Trust was formed 22 September 2020 with the purpose to enhance and protect the waters in the Ōtokia catchment and surroundings for the use and wellbeing of the Brighton community. We seek to achieve this goal by means of promoting and organising campaigns to plant native species of trees; educating and involving the public; raising awareness; monitoring water quality and collaborating with local, regional and central government.
3. My skills are based on experience, research and reading, and attending workshops online, such as the nitrogen and phosphorus workshop by the Environmental Protection Agency in 2020. I hold a watershed management certificate from the US equivalent of the Environmental Protection Agency.
4. In April, I attended a workshop by the Environmental Protection Agency and administered the eDNA sample in the mid-section of the Ōtokia Creek. I work full time as a Water Main Technician at Downer, but I also provide water monitoring services on the Ōtokia Creek and Marsh on a voluntary basis under the name of Hydrology Services Otago.
5. I have been monitoring water quality in the Ōtokia Creek for over 20 years. Currently I have 3 monitoring stations along the Ōtokia Creek: at Bath Street, at McLaren Gully Road and at the HopeHill Forestry Block. I do regular (weekly/monthly) instream monitoring for a variety of parameters, such as flow, visual clarity, PH, nitrogen and phosphorus. Attached to my evidence are the following monitoring records:

- (a) Ōtokia Bath Street Monitoring Unit covering the period from October 2020 to present (Attachment 1)
- (b) Ōtokia McLaren Gully Road Monitoring Unit covering the period from October 2013 to present (Attachment 2)
- (c) Ōtokia Hopehill Block Monitoring Unit covering the period from May 2013 to present (Attachment 3)

Below are images of the monitoring stations that have been installed.



*Photo 1: Bath Street Water Monitoring Unit. Photo by Matthew York.*



*Photo 2: McLaren Gully Road Water Monitoring Unit. Photo by Matthew York.*



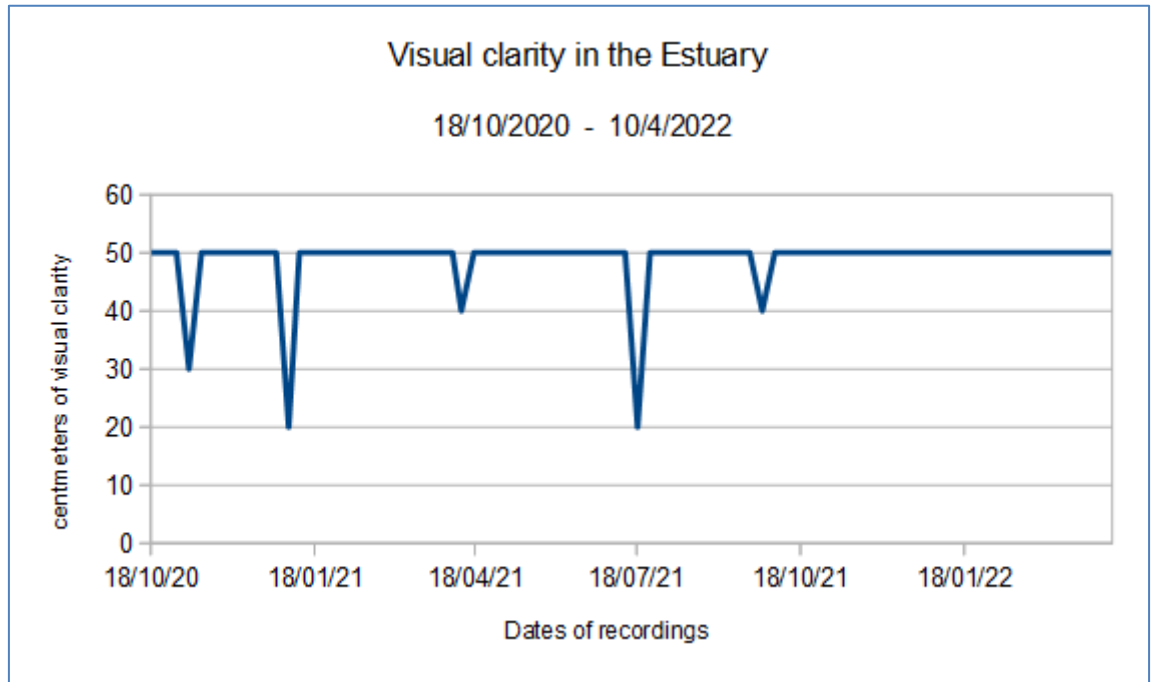
*Photo 3: HopeHill Block Water Monitoring Unit. Photo by Matthew York.*

**Scope and Structure of Evidence**

6. My evidence will address the following matters relating to hydrology and the monitoring of water and is intended to help the Commission understand the nature and quality of the Ōtokia Creek. In particular I note the following:
  - (a) Visual clarity is getting better over time.
  - (b) Forestry harvesting impact on water quality is negligible.
  - (c) Upper Catchment flow is low to intermittent over a year.
  - (d) Flooding events can be sudden and severe.
  - (e) eDNA results indicate a good diversity of freshwater species occupy the Creek and Marsh Habitat.

**(a) Visual clarity is getting better**

7. The lower estuary section of the Ōtokia Creek has had improving water quality since the Brighton sewerage scheme went in in the 1980s. In the last ten years especially the water quality has visually improved with less algal mats in summer and better water clarity at all times of the year.

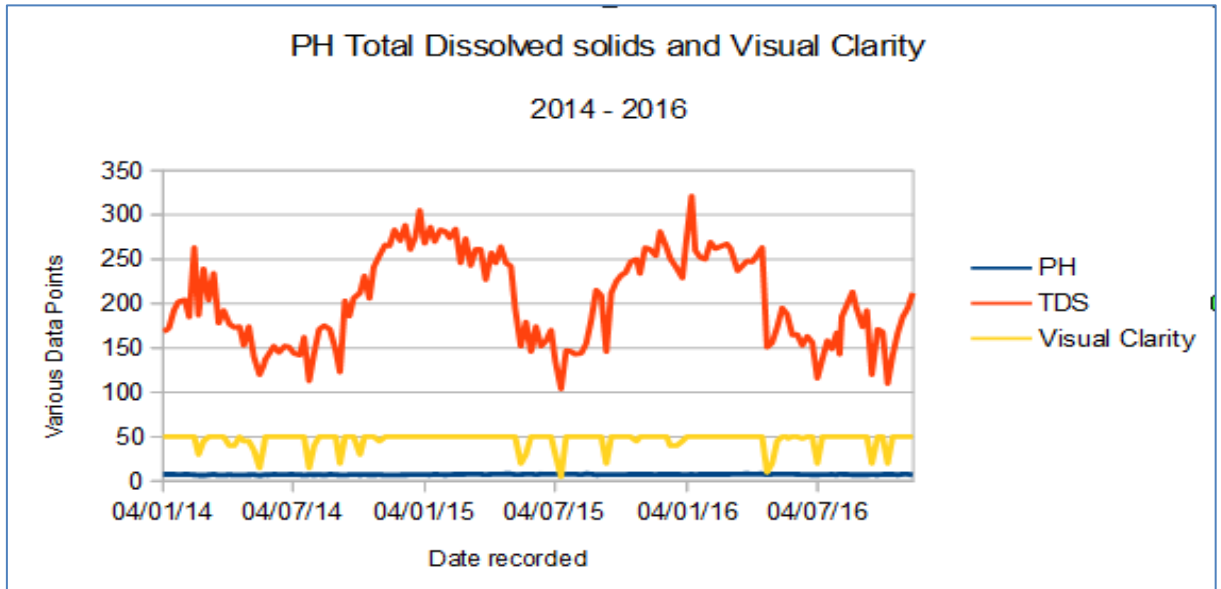


*Chart 1. Visual Clarity at the Bath Street Monitoring Unit.*

8. Chart 1 shows visual clarity for the last 2 years taken at the mid-point of the estuary at the end of Bath Street in Brighton. Readings of 50cm or more taken with a visual clarity tube means you see half a metre or more through the water.
9. Chart 1 also shows that for most of the readings, clarity was really good and maintained over the sample period (with the exception of a few dips caused by rain events or the like).

**(b) Forestry harvesting impact on water quality is negligible**

10. Data recorded in the years 2014 to 2016 during the main forestry harvest in the HopeHill block, managed by Wenita Forest Products, shows that there was little water quality impact caused by forest operations during that period.

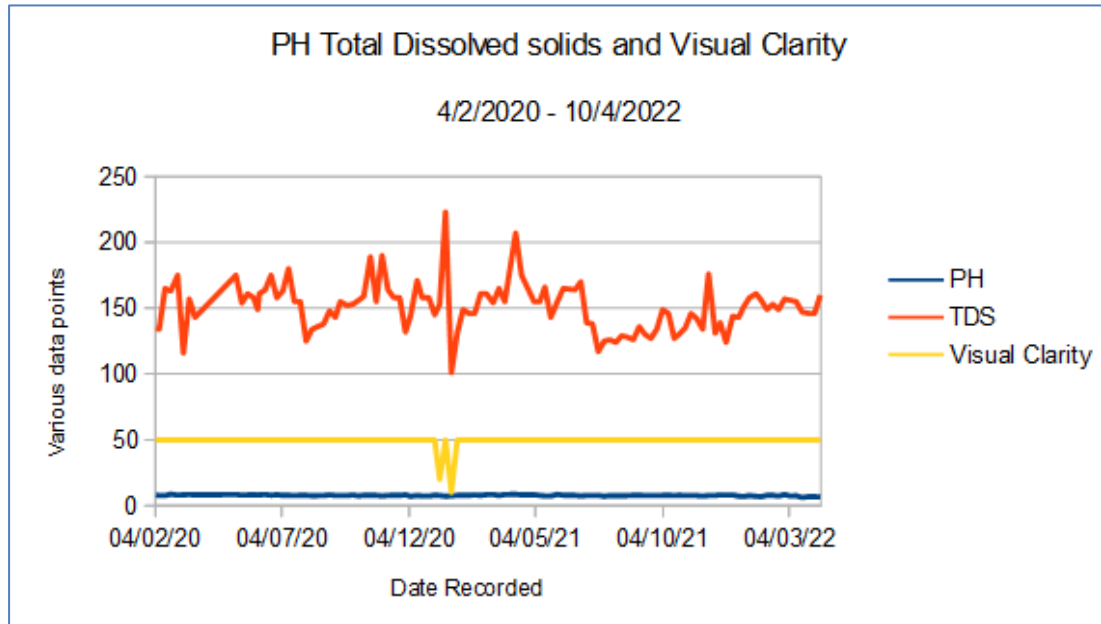


*Chart 2. PH Total dissolved solids and visual clarity at Hope Hill during Forestry Harvest.*

11. Chart 2 above shows the water quality data recorded at the downstream end of HopeHill Block **while** harvest operations were being carried out.
12. Chart 2 shows that visual clarity and PH was mostly maintained during harvest operations. Total Dissolved Solids (TDS) are quite variable, which depends on rainfall, water temperature and flow rate.
13. Chart 3 overleaf shows the same measurements for the two previous years between 2020 and 2022. There appears to be little difference on water quality impact from forestry harvesting operations and post-harvest regrowth period.

14. Based on my data, Allen Ingles desktop evaluation<sup>1</sup> appears to overestimate the effect of forestry operations on water quality and as a result underestimate the impact of landfilling activities by comparison.

*Chart 3. PH Total Dissolved solids and visual clarity at HopeHill post-forestry harvest.*



**(c) Upper Catchment flow is low to intermittent over a year**

15. The Upper Catchment above McLaren Gully road can be dry for up to 4 months of the year, usually from January to the end of April / mid-May.
16. Photo 4 below shows the weir at McLaren Gully Road at a no flow state in January 2019.

<sup>1</sup> Evidence of Allen Ingles dated 29 April 2022 at [59] conclusions about the impact of forestry on flows at [18], [34], [41]





*Photo 4. McLaren Gully Road. Photo taken by Matthew York.*

17. High flows of up to 1m have been recorded at times. However, in the upper catchment above McLaren Gully road the flow over most of the year is a bit above a trickle (50 – 100mm over a small V Notch weir). At a low flow state there is not enough water in the creek system to cope with even small amounts of leachate.
18. Chart 4 below shows the year of 2015 as an example, when water flows were non-existent until May, then peaked up sharply in a flood and then dropped back down to very low levels before drying out again in

November. This illustrates the typical flow pattern of the Creek in my experience<sup>2</sup>.

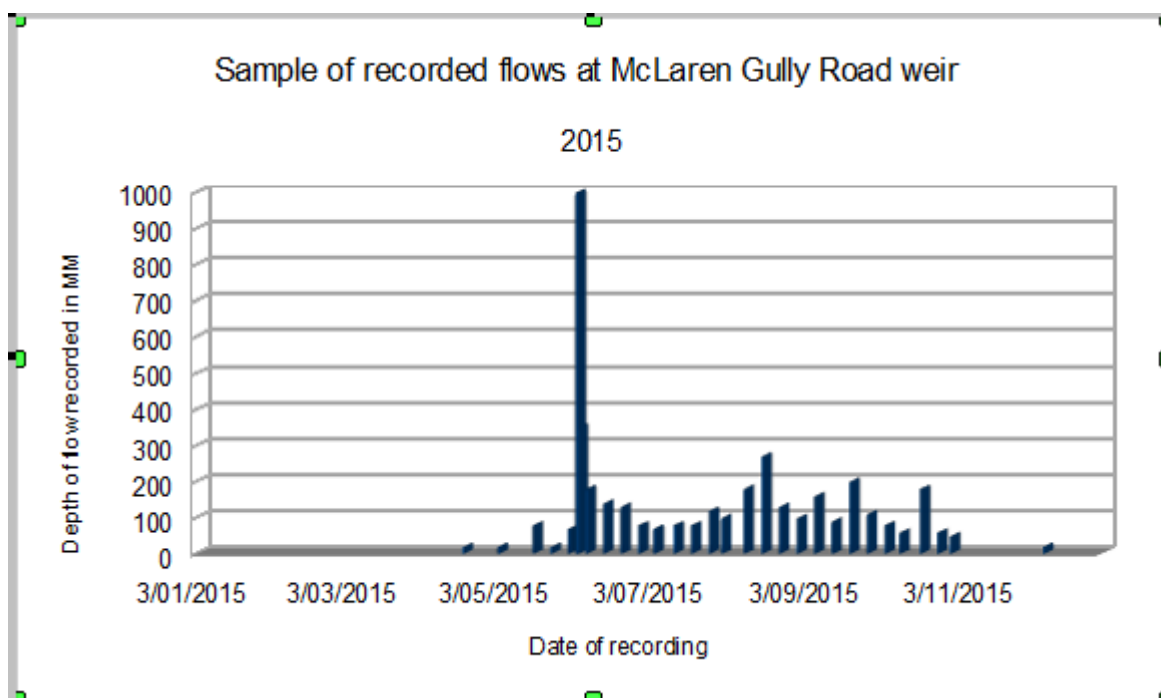


Chart 4. Sample of recorded flows at McLaren Gully road weir.

19. My concern is that this pattern suggests that any leaching events will lead to the concentrated storage of leachate during extended times of the year, . This is because the leachate pools in wet areas. Water will evaporate leaving the concentrated leachate behind to be re-diluted when a flood event carries it downstream.

**(d) Flooding events can be sudden and severe.**

20. The upper Ōtokia Creek is a rain driven catchment. Any rain that enters the catchment area runs down to the Creek immediately. The catchment has little storage, which means flooding events can happen suddenly and be severe.
21. Flow levels of the upper section can change day by day and vary greatly over a week. This creek can go from no recordable flow to a flood event

<sup>2</sup> I can provide further monitoring data if that would be of assistance.

in under 24 hours and can be back to a 50mm or less recorded flow in 1 or 2 weeks.

22. This means that unless very regular monitoring of water quality is carried out, signs of contamination may not be found at an early stage. Seventeen flood events have been recorded at McLaren Gully Road since I started monitoring in 2013. A high flood event is generally defined as any flow more than three times the average flow or when a Creek/stream breaks over its banks. Given my experience with monitoring the Ōtokia Creek, I consider it reasonable to define a flood event to be anytime there is more than 700mm depth over the flow monitoring weir.
23. Photo 5 below was taken during flooding across McLaren Gully Road in 2018. On the right hand side of the photo lies the lower outlet of the proposed Smooth Hill landfill site. The depth is around 550 mm in the middle of the lane at this point and is flowing right to left at 32kmph (app 8 m/s).



*Photo 5. Flooding at McLaren Gully Road.*

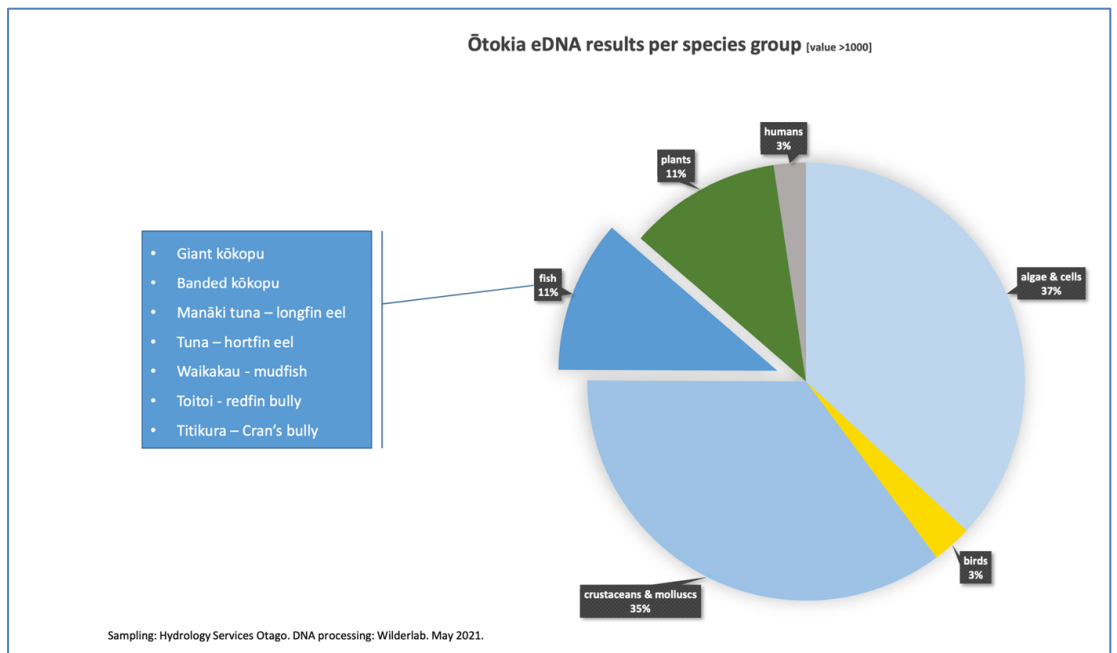
24. During various flood events, water flow speeds of up to 8 m/s (32kmph) have been recorded in water flowing across McLaren Gully road. This means that if there was leachate contamination in the creek, it would be at Brighton beach in approximately 40 minutes.
25. This last photo (Photo 6) shows a flood event in 2018 looking across to the weir location. The Weir is located between the 2 green pegs. Flow is at around 900mm deep at this point.
26. Note that this photo is of the same location as the Photo 4. This illustrates how variable the water level can be.



*Photo 6. Flooding event at McLaren Gully Road weir.*

**(e) eDNA results.**


27. In April 2021, I participated in the free workshop and obtained a free sampling kit provided by the Environmental Protection Agency as part of their Wai Tūwhera o te Taiao – Open Water Aotearoa.
28. The eDNA results (Attachment 4) show that among the endangered and rare native species, the Ōtokia is the home of:
- Giant kōkopu
  - Banded kōkopu
  - Manāki tuna – longfin eel
  - Tuna – shortfin eel
  - Waikakau - mudfish
  - Toitoi - redfin bully
  - Titikura – Cran’s bully
29. Also bellbirds, native freshwater bivalves and snails, mud snails were confirmed by the sample analysis.



**eDNA Sample Report**

**Sample info**  
 Sample number: 506282  
 Collected by: Matthew York  
 Collected on: 2021-04-08  
 Reference: Ōtokia Creek  
 Co-ordinates: -45.946033, 170.314967  
 Volume (ml): 450ml  
 Filter: 1.2 um x 30 mm Cellulose Acetate  
 Target groups (see instructions tab for details): RV, BU, BE, CL, LV, TR, WV, ZV, MZ

**Species hits**



**Sequence info**

Scientific name	Common name	Sequence count	Assay code	Sequence
<i>Anguilla dieffenbachii</i>	Longfin eel	1991	RV	TCAACCTTAAACAACGGATGACAATATACAATATCATCCGCGAGGGACTACGAGCGTTAGCTTAAACCCAAAGGACTTGGCGTGCTCAAACCCAC
<i>Galaxias argenteus</i>	Giant kokopu	1423	RV	TTAGCCGTAAATTTGACAGTAAGATACAACACTACTGTCGCGCAGGGGACTACAAGCGCCAGCTTAAACCCAAAGGACTTGGCGTGCTCAAACCCAC
<i>Simocephalus vetulus</i>	Water flea	1214	BU	GTGCGTACTACCAGATTGAATGATTAGTGAGGGCTTCGGACGGGCTTTGTCGGGGCGCCGGTTTCGGGGGAGCAATCCCTGCGTGTCCGGTGCTACCAACGGCGAGACTG
<i>Anguilla australis</i>	Shortfin eel	1005	RV	TCAACCTTAAACAACGGATGACAATATACAATATCATCCGCGAGGGGACTACGAGCGTTAGCTTAAACCCAAAGGACTTGGCGTGCTCAAACCCAC
<i>Simocephalus vetulus</i>	Water flea	898	BE	CGCCGTCGCTACTACCGATTGAATGATTAGTGAGGGCTTCGGACGGGCTTTGTCGGGGCGCCGGTTTCGGGGGAGCAATCCCTGCGTGTCCGGTGCTACCAACGGCGCA
<i>Anas platyrhynchos</i>	Mallard duck	819	RV	CTGGCCCTAAATCTTGATACTTACCCTACCGAAGTATCCGCGAGAGACTACGAGCACAACGGCTTAAACCTCTAAGGACTTGGCGTGTCCCTAAACCCAC
<i>Halteria grandinella</i>		753	BU	GTGCGTCCCTACCAGTTTCGAGTGGTCCGCGTGAACCTTTTGGACTGCGTGGGGTCTCGTGCCTGTCGCGAAATCAAGTAAACCATATCACTTAGAGGAAGGAGAGTCCG
<i>Galaxias fasciatus</i>	Banded kokopu	535	RV	TTAGCCGTAAATTTGACAGTAAGATACAACACTGCTTCGCGCAGGGGACTACAAGCGCCAGCTTAAACCCAAAGGACTTGGCGTGCTCAAACCCAC

30. All of these species would be affected by contaminant escape from the landfill. The application does not include methods to manage these populations in the event of contaminant escape. Nor does it address the species which are collected for food from the Creek and what happens to the food chain if they become contaminated.

**Conclusion**

- 31. Based on my knowledge and experience of the Ōtokia Creek any leachate contamination in the delicate stream environment will cause irreversible damage that the Creek will not recover from.
- 32. The data I have collected shows that the Creek is a healthy environment that is recovering well from past contamination issues. The health of the catchment does not align with the applicant’s view of the Creek as a degraded environment.
- 33. I am concerned that all the surveys and monitoring work done appear to have stopped at McLaren Gully road and have little consideration for the rest of the Creek down to the sea at Brighton Beach.
- 34. Through much of the Trusts restoration work we understand first-hand how difficult it has to bring health back to the Creek and Marsh. Locating a landfill where it will interact with the Creek and Marsh risks

undoing that work, permanently destroying habitat, and poisoning endangered species.

35. For these reasons, the Trust seeks consent be declined.

*Matthew York*

Hydrology Services Otago, 6 May 2022

# Attachment 1 - Ōtokia Bath Street Monitoring Unit covering the period from October 2020 to present

Otokia Creek Estuary Monitoring Unit

Date	AT	WT	SOL	HUM	RG	WD	WS	MG	AS	LS	DL	PH	TDS	EC	DO	ORP	CLA	NTU	SAL	
18/10/20	12	10	4.58	75	13	2	1	79.9	3.6	250	3.09	8.84	1610	3240		25	50	0	1.018	
25/10/20	15	10	4.94	46	17	7	18	86.7	3.4	290	3.09	7.97	816	1682		62	50	0	1.017	
01/11/20	17	7	5.02	25	32	3	2	26.8	2.8	370	3.09	9.35	514	1009		43	50	0	1.016	
08/11/20	15	7	5.02	48	65	4	3	61.4	2.9	310	3.09	7.48	494	965	12.1	51	30	0	1.000	
15/11/20	17	17	4.98	48	1	3	0	22	3	250	2.14	8.78	330	665	8.2	26	50	0	1.000	
22/11/20	12	7	4.71	82	41	4	3	99.9	5.1	240	2.14	9.28	857	1182	12.7	46	50	0	1.000	
29/11/20	15	7	4.91	58	58	4	3	99.9	3.5	250	2.14	9.33	604	1197	12.9	-11	50	0	1.000	
05/12/20	5	7	4.79	51	29	4	0	97.2	4.6	280	2.17	9.36	539	1081	12.4	-12	50	0	1.000	
13/12/20	12	17	4.89	64	70	5	13	104	5.1	350	2.14	8.61	829	1651	10.6	29	50	0	1.000	
19/12/20	16	16	4.63	75	36	4	0	87.4	3.9	280	2.17	9.07	772	1551	8.1	-9	50	0	1.000	
27/12/20	12	12	4.76	51	8	3	0	71.2	2.7	310	2.14	9.13	553	1135	12.7	-4	50	0	1.000	
Data sent to this point																				
03/01/21	12	7	5.02	71	183	4	5	21.2	2.9	300	2.14	7.58	215	442	8.1	62	20	50	1.000	
09/01/21	14	7	3.15	84	29	4	2	39.4	3.5 LBS		2.17	7.06	821	1667	6.9	36	50	0	1.000	
16/01/21	10	10	4.86	48	0	4	6	19.6	2.7	20	2.17	9.02	1530	3030	9.5	-6	50	0	1.002	
23/01/21	5	7	2.51	76	83	4	0	61.4	2.1	25	2.83	8.7	2020	4040	10.3	-5	50	0	1.000	
30/01/21	10	7	2.51	84	2	4	1	43.3	4.4	250	2.14	7.97	9980	1910	8.5	-22	50	0	1.000	
06/02/21	17	17	4.92	76	0	3	0	20.7	2.9	250	2.14	8.34	9050	1874	10.5	-28	50	0	1.007	
13/02/21	17	10	1.97	82	14	3	0	61.2	3.5	150	2.14	8.53	12750	5870	7.1	-17	50	0	1.005	
20/02/21	12	18	4.19	81	0	3	0	41.2	1.7	100	2.17	8.65	11340	5710	9.7	-7	50	0	1.000	
27/02/21	18	18	5.16	35	0	4	6	21.6	2.5	100	2.14	9.49	15750	7710	8.7	-122	50	0	1.007	
06/03/21	17	18	5.16	76	0	4	3	41.3	1.2	200	2.17	8.26	14040	9970	10.9	-51	50	0	1.011	
14/03/21	15	18	5.15	67	32	3	2	40.9	4.3	250	2.14	8.15	43720	2814	5.2	-21	50	0	1.015	
17/03/21	15	15	5.15	42	7	3	2	54.1	4.1	250	2.14	7.93	58420	7119	3.8	-476	50	0	1.016	
28/03/21	15	15	5.15	72	10	4	0	14.5	2.4	250	2.19	7.94	38720	4490	7.5	-27	50	0	1.016	
Data sent to this point																				
05/04/21	16	17	5.17	57	22	8	7	99.9	5.1	380	2.17	7.07	81740	5268	2.9	-175	50	0	1.017	
10/04/21	12	15	4.24	76	0	4	0	72.1	3.5	200	2.14	7.51	23540	3160	6.6	5	40	0	1.018	
17/04/21	14	14	5.11	72	16	3	1	61.4	3.1	250	2.17	8.29	5510	3907	12.6	-4	50	0	1.018	
25/04/21	10	15	4.15	79	6	5	5	89.5	2.7	400	2.1	7.04	9680	1790	7	2	50	0	1.014	
02/05/21	16	13	5.15	47	1	6	4	51.4	3.8	510	2.19	7.23	7395	4340	9.1	11	50	0	1.020	
09/05/21	18	12	4.14	43	2	6	4	51.4	3.1	260	2.17	6.89	9465	5920	6.5	29	50	0	1.014	
15/05/21	11	10	5.16	74	48	5	11	72.9	4.2	190	2.17	7.46	9590	18760	10.2	18	50	0	1.011	
22/05/21	11	10	5.16	12	16	6	0	47.6	4.9	260	2.19	7.49	7630	1165	10.1	5	50	0	1.009	
30/05/21	9	9	4.13	86	30	3	0	41.3	1.6	350	2.14	6.95	1300	2700	7.5	19	50	0	1.000	
06/06/21	10	8	4.13	55	30	4	0	32.7	2.8 LBS		0	6.35	390	780	9.4	28	50	0	1.000	
13/06/21	9	6	4.38	86	1	5	0	41.3	2.8 LBS		2.19	6.95	467	994	8.4	22	50	0	1.000	
20/06/21	7	6	4.13	92	45	5	0	41.3	1.8 LBS		2.19	6.53	210	421	7.7	-25	50	0	1.000	
27/06/21	9	7	5.13	79	23	4	0	18.9	3	130	2.17	6.77	553	1080	9.1	-2	50	0	1.000	
Data sent to this point																				
04/07/21	12	9	5.14	67	29	6	0	41.8	5.6	360	2.17	6.52	364	737	9.5	21	50	0	1.000	
11/07/21	7	6	5.14	67	36	5	7	53.2	4.9	470	1.98	6.72	3170	6250	7.9	24	50	0	1.002	
18/07/21	8	7	4.13	87	33	5	0	53	1.3	460	2.14	6.71	552	1127	8.9	23	20	5	1.000	
25/07/21	5	4	4.17	76	5	3	0			360	2.14	6.58	280	552	9.5	10	50	0	1.000	
01/08/21		6	4.81	86	0	4	0	41.7	2.2	350	2.19	6.62	224	452	9.3	10	50	0	1.000	
08/08/21	7	6	5.13	83	12	4	0			350	2.17	6.73	884	1521	9.6	73	50	0	1.000	
15/08/21	12	7	5.14	73	38	5	7			350	2.17	6.74	838	1669	8	19	50	0	1.000	
22/08/21	13	8	4.43	22	11	7	2			410	2.04	7.88	228	438	8.8	-31	50	0	1.000	
29/08/21	7	9	4.13	91	17	5	2	11.5	2.6	350	2.07	7.85	258	513	3.5	-21	50	0	1.000	
05/09/21	8	10	4.12	76	9	3	0	56	3.1	350	2.02	7.08	844	1662	9.7	17	50	0	1.000	



12/09/21	15	10	5.13	73	29	6	14	104	3.6	440	2.04	7.12	2180	4280	8.3	10	50	0	1.000		
19/09/21	10	10	4.18	86	86	6	0	23.4	4.5	390	1.99	6.7	274	526	9.1	26	50	0	1.000		
26/09/21	7	12	5.15	1	9	5	6	23.4	3.9	380	2.04	6.93	3860	7680	9.9	18	40	5	1.003		
Data sent to this point																					
03/10/21	9	12	4.18	88	12	4	1	13.7	2.7	400	2.02	6.92	2750	5610	8.3	-2	50	0	1.001		
10/10/21	12	15	5.15	74	26	3	3	10.7	2.1	400	2.04	6.89	2280	4620	6.8	-49	50	0	1.001		
17/10/21	13	13	5.14	47	99	3	4	47.3	2.4	350	2.04	6.82	304	608	8.7	8	50	0	1.000	0.16	0
24/10/21	11	15	3.14	79	10	3	1	13.6	2.4	350	2.04	6.87	498	989	7.6	-2	50	0	1.000		
30/10/21	12	17	3.31	87	17	3	2	37.8	2.7	340	2.04	7.16	6.52	1313	5.2	13	50	0	1.000		
06/11/21	15	15	5.14	58	5	3	4	40.9	4	300	2.02	7.84	2010	4010	9.7	5	50	0	1.000		
13/11/21	9	18	3.28	96	54	2	2	21.3	2.8	410	2.04	7.13	2260	4540	5.6	10	50	0	1.000		
20/11/21	9	17	3.78	70	64	3	0	28.9	4.2	410	2.04	7.08	664	1332	7.3	-26	50	0	1.000	0	0
27/11/21	6	17	1.27	78	29	3	0	14.4	2.7	400	2.09	7.09	403	822	7.3	-21	50	0	1.000		
05/12/21	15	18	4.18	78	27	3	0	15	2.5	300	2.02	7.24	362	728	5.7	-19	50	0	1.000		
11/12/21	9	18	5.07	54	41	4	7	17.5	2.3	350	2.02	7.41	408	820	6.1	-22	50	0	1.000		
18/12/21	12	17	5.09	67	34	4	0	28.9	3.7	350	2.02	7.22	652	1315	6.5	-21	50	0	1.000		
26/12/21	15	19	5.15	44	19	3	0	33.5	4.9	330	2.02	7.52	1400	2800	5.8	-40	50	0	1.000	0	0
Data sent to this point																					
02/01/22	15	18	5.15	53	92	4	0	15.6	2.2	350	2.04	7.39	641	1275	5.5	-26	50	0	1.000		
08/01/22	16	19	5.09	58	6	4	0	19.6	2.7	350	2.02	8.02	1370	2360	7.3	-38	50	0	1.000		
15/01/22	15	20	5.12	67	13	3	0	27.3	3.1	350	2.02	8.14	1650	3380	9.1	-23	50	0	1.001		
23/01/22	13	19	4.12	86	57	4	13	28.8	3.5	340	2.02	7.58	1580	3160	7.8	-43	50	0	1.000		
29/01/22	12	19	4.18	87	4	2	0	19.6	2.8	350	2.02	8.33	2210	4450	10.5	-42	50	0	1.001	0.06	0
05/02/22	10	19	4.17	83	57	4	0	16.9	2.6	400	2.02	7.3	1310	2640	7.8	-20	50	0	1.000		
12/02/22	12	20	3.01	81	39	3	5	14	2	350	2.02	7.63	994	2039	8.1	-38	50	0	1.000		
19/02/22	10	20	3.17	76	29	4	0	21	2.5	350	2.04	7.52	1070	2140	8.2	-29	50	0	1.000		
26/02/22	9	19	2.94	87	48	3	2	19.6	2.5	340	2.04	8.15	1370	2790	9.6	-31	50	0	1.000		
05/03/22	15	19	4.35	79	0	3	0	14	2	340	2.04	8.01	1610	3540	11.6	-12	50	0	1.000	0.1	0
12/03/22	12	19	2.92	70	0	5	0	32.7	3.6	300	2.04	7.53	1920	3870	6.2	-42	50	0	1.000		
19/03/22	14	17	5.14	67	6	3	6	14.3	2.2	310	2.02	8.08	1970	3680	11.4	-43	50	0	1.001		
27/03/22	12	18	4.07	72	4	3	0	16.2	2.4	330	1.99	7.03	1560	3120	6.1	-42	50	0	1.000		
Data sent to this point																					
3/4/22	15	16	5.14	76	0	5	4	15.6	2.5	300	2.02	7.51	1860	3650	7.3	-47	50	0	1.000		
10/04/22	12	14	4.11	75	6	4	2	12.2	2.2	300	2.04	6.89	2680	5430	7.2	-31	50	0	1.000		
17/04/21	11	13	5.15	76	9	2	0	36.8	3.6	350	2.04	7.19	2920	5790	7.7	-36	50	0	1.000	0	0
24/04/22	11	13	5.13	79	31	4	4	23	3.1	410	2.02	7.08	2830	5640	8.3	-11	50	0	1.002		

# Attachment 2 - Ōtokia McLaren Gully Road Monitoring Unit covering the period from October 2013 to present

Sheet1

upper otokia stream sill board cuttance block branch	Vnotch 100mm rest is over sill board vnotch full is 0.005 sill board 1.8m long								
date	ph	tds	ec	ORP	clarity	NTU	DO	level staff	flow
19/10/13		7.4	68	12					
28/10/13		7.6	62	12				50	0.001
03/11/13		7.6	78	13				25	0.001
09/11/13									0 no flow creek dry
16/11/13									0 no flow creek dry
24/11/13									0 no flow creek dry
01/12/13									0 no flow creek dry
08/12/13									0 no flow creek dry
15/12/13									0 no flow creek dry
22/12/13	6.7		63	10				5	0 unable to record a creek flow as reading is below 25mm
26/12/13								300	0.295 flood flow at 1345
28/12/13	7.2		54	9		10		110	0.006
04/01/14	7.4		65	11		20		25	0.001
08/01/14								100	0.164
12/01/14	7.4		65	9		20			0
19/01/14	7.1		67	10		40		10	0 unable to record a creek flow as reading is below 25mm
25/01/14									0
03/02/14									0 no flow creek dry
09/02/14									0 no flow creek dry
16/02/14	6.3		62	11		20		10	0 unable to record a creek flow as reading is below 25mm
22/02/14									0 no flow creek dry
01/03/14	6.6		59	10		30		40	0.001
08/03/14	6.9		63	11		40		70	0.002
15/03/14	6.5		77	13		45		0	0
22/03/14									0 no flow creek dry
29/03/14									0 no flow but some puddles in creek bed
06/04/14									0 no flow but some puddles in creek bed
13/04/14	7.2		81	170		20		80	0.003
20/04/14	6.6		68	10		30		120	0.018
26/04/14	7		76	12		40		50	0.001
03/05/14	6.7		62	79		40		90	0.004
10/05/14	6.9		72	131		40		130	0.031
18/05/14	6.9		64	138		20		110	0.01
24/05/14	6.5		56	126		20		180	0.119
26/05/14								350	0.48 high flow caused by snow melt
31/05/14	7.1		56	114		40		130	0.031
07/06/14	6.6		62	10		45		110	0.01
14/06/14	7.2		65	10		40		80	0.003
22/06/14	7.3		71	10		40		60	0.001
28/06/14	7.1		68	137		40		80	0.003

05/07/14	7.4	75	13	10	100	0.005	
13/07/2014	7.3	71	12	45	80	0.003	
19/07/2014	7.4	68	11	45	80	0.003	
26/07/2014	7.2	67	11	40	110	0.01	
2/08/2014	6.8	73	12	40	80	0.003	
9/08/2014	7.3	56	10	20	130	0.031	snow melt day
16/08/2014	7.3	63	10	40	110	0.01	
24/08/2014	7.2	66	10	30	120	0.018	
1/09/2014	7.4	64	10	35	90	0.004	
7/09/2014	7.6	76	8	30	80	0.003	
14/09/2014	7.5	71	11	40	100	0.005	
20/09/2014	7.2	62	21	20	120	0.018	
26/09/2014	6.5	68	12	30	120	0.018	
5/10/2014	7.4	66	10	30	100	0.005	
11/10/2014	7.3	72	10	30	90	0.004	
18/10/2014	7.5	69	11	25	100	0.005	
24/10/2014	6.9	84	13	45	60	0.001	
1/11/2014	6.9	78	13	30	80	0.003	
9/11/2014	6.5	96	15	20	50	0.001	
15/11/2014	7.3	92	13	40	60	0.001	
22/11/2014				2	0	0	
30/11/2014				20	0	0	
7/12/2014					0	0	
14/12/2014					0	0	creek dry
21/12/2014					0	0	creek dry
27/12/2014					0	0	creek dry
1/01/2015					0	0	no creek flow after heavy rain
3/01/2015					0	0	creek dry
11/01/2015					0	0	creek dry
17/01/2015					0	0	creek dry sprayed weir
25/01/2015					0	0	creek dry
1/02/2015					0	0	creek dry
7/02/2015					0	0	creek dry
15/02/2015					0	0	creek dry
22/02/2015					0	0	creek dry
1/03/2015					0	0	creek dry
8/03/2015					0	0	creek dry
15/03/2015					0	0	creek dry
22/03/2015					0	0	creek dry
29/03/2015					0	0	creek bed damp after heavy rain
6/04/2015					0	0	creek dry
12/04/2015					0	0	creek dry
19/04/2015	6.8	120	18	40	20	0	

26/04/2015					0	0	
3/05/2015	7.4	123	18	50	20	0	
9/05/2015					0	0	
17/05/2015	7.5	122	16	50	80	0.03	
24/05/2015	7.9	99	14	50	20	0	
31/05/2015	8.5	96	14	50	70	0.002	
3/06/2015					1000	5.64	
4/06/2015					350	0.303	
7/06/2015	7.4	75	21	50	180	0.119	
14/06/2015	7.7	83	11	30	140	0.036	
21/06/2015	7.4	74	10	50	130	0.031	
28/06/2015	7.4	72	10	50	80	0.119	
4/07/2015	7.3	69	11	50	70	0.002	
12/07/2015	7.6	65	10	50	80	0.003	
19/07/2015	7.9	72	11	30	80	0.003	
26/07/2015	7.1	71	11	50	120	0.018	
31/07/2015	7.8	72	10	30	100	0.005	
9/08/2015	7.8	62	10	5	180	0.119	
16/08/2015	7.7	54	10	20	270	0.232	
23/08/2015	7.6	68	11	50	130	0.031	
30/08/2015	7.5	69	11	50	100	0.005	
6/09/2015	7.6	66	10	10	160	0.053	
13/09/2015	7.48	70	11	50	90	0.004	
20/09/2015	7.4	70	10	20	200	0.108	water temp
27/09/2015	7.2	69	14	40	110	0.01	12
4/10/2015	6.8	82	16	30	80	0.03	14
10/10/2015	7.6	93	19	30	60	0.001	15
18/10/2015	6.7	67	13	20	180	0.119	13
25/10/2015	7.1	79	16	20	60	0.001	15
30/10/2015	7.1	83	16	20	50	0.001	12
6/11/2015	7.5	93	18	20	0	0	15
13/11/2015					0	0	no flow
21/11/2015					0	0	no flow
27/11/2015					0	0	no flow
6/12/2015	7.4	86	17	5	20	0	18
11/12/2015							no flow
20/12/2015							no flow
28/12/2015							no flow
3/01/2016							no flow
10/01/2016							no flow
15/01/2016	7.06	143	28	5	20	0	14
22/01/2016							no flow
29/01/2016	6.7	87	17	20	110	0.01	16

5/02/2016										no flow
12/02/2016										no flow
28/02/2016	6.7	102	20		5			20	0	21.2
4/03/2016										no flow
14/03/2016										no flow
27/03/2016										no flow
3/04/2016										no flow
9/04/2016										no flow
17/04/2016										no flow
24/04/2016										no flow
1/05/2016										no flow
8/05/2016										no flow
15/05/2016										no flow
22/05/2016	7.6	109	21		20			50	0.001	10
23/05/2016	7.1	120	24		10			530	0.688	6 first flood of season
29/05/2016	8	58	12		20			530	0.688	10
5/06/2016	6.9	86	17		45			100	0.005	8
12/06/2016	7.9	82	16		50			50	0.001	11
19/06/2016	8.07	86	17		50			50	0.001	11
26/06/2016	8.23	113	24		40			75	0.002	7
3/07/2016	7.6	82	16		50			75	0.002	5
10/07/2016	7.65	77	15		50			75	0.002	4
17/07/2016	7.8	83	17		20			100	0.005	6
23/07/2016	7.8	73	12		40			75	0.002	7
30/07/2016	7.07	84	17		50			75	0.002	7
3/08/2016								260	0.118	small flood event
6/08/2016	7.4	86	17		30			160	0.053	6
13/08/2016	7.5	77	16		50			200	0.005	
21/08/2016	7.2	88	34		50			60	0.001	6
26/08/2016	7.2	71	13		45			70	0.002	7
4/09/2016	7.3	82	15		50			60	0.001	7
10/09/2016	7.6	85	17		50			60	0.001	8
17/09/2016	7.8	102	20	19	50			30	0	7
25/09/2016	7.7	101	20	5	50			20	0	8
2/10/2016	7.6	127	24	24	50		66.6	20	0	10
9/10/2016	7.2	104	21	12	40	5	76.3	50	0.001	8
16/10/2016	8.08	106	21	34	45	20	82.1	50	0.001	7
23/10/2016	8.12	111	22	63	40	8	72.7	40	0	11
30/10/2016	6.8	108	21	66	30	14	82	210	0.097	12
6/11/2016	7.12	126	25	56	50	5	86.4	50	0.001	14
13/11/2016	7.8	125	25	54	50	8	79.3	50	0.001	11
15/11/2016								300	0.295	
18/11/2016	7.2	112	22	72	40	26	71.8	150	0.041	11

25/11/2016	7.6	114	22	19	50	14	69.8	180	0.119	12
4/12/2016	7.3	135	27	17	50	0	78.9	100	0.005	11
12/12/2016	7.02	135	26	162	50	5	73.1	170	0.118	16
18/12/2016	7.5	150	30	21	30	17	21.1	40	0	15
26/12/2016								0		no flow
1/01/2017								0		no flow
8/01/2017								0		no flow
15/01/2017	0									
21/01/2017	7.2	143	28	15	50	8	86.9	50	0.001	14
22/01/2017								700		flood event heavy bypass
29/01/2017	7.05	118	24	27	50	17	80.1	150	0.041	15
5/02/2017	8.84	135	27	73	40	11	41.3	90	0.004	14
12/02/2017								0		
19/02/2017								0		
26/02/2017								0		
5/03/2017								0		
12/03/2017								0		
19/03/2017								0		
25/03/2017								0		
2/04/2017								0		
7/04/2017								0		
12/04/2017								450	0.546	
14/04/2017								510	0.713	
16/04/2017	8.87	110	21	73	40	14	58.1	320	0.24	
22/04/2017	7.11	141	28	114	50	0	68.7	200	0.005	
30/04/2017	7.4	77	14	134	15	64	77.6	220	0.006	
7/05/2017	7.4	141	28	113	50	0	82.3	200	0.005	
14/05/2017	8.01	144	29	13	50	0	69.1	180	0.053	
21/05/2017	7.62	111	22	147	20	5	65.7	350	0.303	
28/05/2016	7.68	125	24	115	50	0	74.8	200	0.005	
4/06/2017	7.27	120	20	113	15	44	73.7	400	0.316	
11/06/2017	7.8	125	25	142	50	0	100.5	270	0.086	
18/06/2017	7.81	127	26	116	50	0	101.6	280	0.088	
25/06/2017	8.05	131	26	106	50	0	67.1	280	0.088	
2/07/2017	8.09	96	19	142	15	38	78.4	420	0.532	
4/07/2017								540	0.687	
9/07/2017	7.78	128	25	202	50	0	97.6	290	0.089	
16/07/2017	8.01	119	23	116	20	38	52.7	310	0.174	
22/07/2017	6.36	97	19	326	5	76	84.6	700	1.335	flood conditions
30/07/2017	7.82	139	27	183	50	0	87.2	250	0.116	
6/08/2017	8.01	142	28	116	50	0	67.8	250	0.116	
13/08/2017	8.25	142	31	94	50	0	68.2	220	0.06	
20/08/2017	8.38	143	29	98	20	20	78.8	280	0.088	

27/08/2017	7.34	143	29	129	50	0	71.1	250	0.088
3/09/2017	7.55	144	29	14	50	0	71.8	250	0.088
10/09/2017	7.85	164	32	44	50	0	82.5	200	0.005
17/09/2017	6.67	149	30	186	50	0	77.1	250	0.005
18/09/2017								700	1.335 flood conditions
24/09/2017	7.95	153	30	85	50	0	88.5	210	0.097
1/10/2017	7.38	169	34	75	50	0	74.2	220	0.06
8/10/2017	8.11	191	37	51	50	0	59.5	190	0.005
15/10/2017	7.35	142	39	143	40	0	70.9	150	0.041
22/10/2017	7.3	208	42	1	40	0	59	150	0.041
29/10/2017	weir and level staff removed due to no flow standing water conditions and weed in channel								
12/11/2017	new 150deg weir installed 50m upstream from existing site								
data sent to this point									
19/11/17						0			no recordable flow
24/11/17						0			no recordable flow
02/12/17						0			no recordable flow
09/12/17						0			no recordable flow
16/12/17						0			no recordable flow
22/12/17						0			no recordable flow
30/12/17						0			no recordable flow
06/01/18						0			no recordable flow
13/01/18						0			no recordable flow
21/01/18						0			no recordable flow
27/01/18						0			no recordable flow
03/02/18	6.91	192	38	84	50	0	59.1	120	0.027
11/02/18	7.85	224	45	55	50	0	50.8	40	0.001
17/02/18	8.21	230	45	68	50	0	40.2	50	0.001
24/02/18	7.8	157	31	86	50	0	50.4	120	0.027
04/03/18	7.87	192	39	34	50	0	32.2	50	0.001
11/03/18	8.18	197	49	5	50	0	51.6	60	0.002
18/03/18	8.37	213	42	58	50	0	42	20	0
24/03/18	8.32	174	35	42	50	0	46.3	130	0.033
01/04/18	8.35	149	39	50	50	0	53.3	50	0.001
08/04/18	8.28	208	41	2	50	0	49.1	100	0.017
11/04/18	8.2	149	30	101	50	0	40.1	190	0.085
22/04/18	8.36	180	36	49	50	0	37.2	100	0.017
29/04/18	8.01	95	19	78	20	50	43	580	1.378 readings taken at 1000 hours
29/04/18								690	2.05 flood conditions readings taken at 1700 hours
06/05/18	8.31	194	29	198	50	0	40.1	200	0.005
13/05/18	7.16	164	32	100	50	0	47.2	150	0.041
20/05/18	8.85	117	35	24	50	0	82.5	100	0.017
27/05/18	8.65	160	32	49	50	0	79	160	0.055

data sent to this point

03/06/18	8.3	150	30	31	50	0	79.2	150	0.041	
10/06/18	8.44	147	28	15	50	0	74.5	200	0.005	
17/06/18	7.42	153	31	41	50	0	75.5	160	0.055	
24/06/18	8.92	153	30	44	50	0	70.5	160	0.055	
01/07/18	8.15	154	31	41	50	0	70.2	150	0.041	
08/07/18	8.3	120	31	-2	50	0	68.1	150	0.041	
15/07/18	8.74	152	30	12	50	0	72.9	150	0.041	
22/07/18	7.97	162	33	19	50	0	71.1	130	0.033	
29/07/18	8.21	145	28	48	50	0	72	230	0.136	
05/08/18	8.15	125	25	13	50	0	75.2	280	0.223	
12/08/15	9.04	146	29	58	50	0	78.7	200	0.005	
19/08/18	8.86	150	30	23	50	0	80.2	200	0.005	
26/08/18	7.95	153	30	38	50	0	80.5	200	0.005	
02/09/18	8.78	166	33	67	50	0	72.2	200	0.005	
09/09/18	7.66	167	34	85	50	0	81.9	200	0.005	
16/09/18	8.5	171	34	5	50	0	83.5	150	0.041	
23/09/18	7.6	155	31	21	50	0	74.2	200	0.005	
30/09/18	7.97	141	28	3	40	17	68.9	250	0.168	
07/10/18	7.97	153	31	-14	50	0	66.8	200	0.05	
14/10/18	7.98	164	33	5	50	0	64.4	250	0.168	
21/10/18	7.92	174	34	42	50	0	72.5	180	0.074	
28/10/18	7.41	164	32	-6	50	0	64.6	250	0.168	
04/11/18	7.8	162	31	-30	50	0	65.6	250	0.168	
08/11/18								600	1.499	
10/11/18	7.64	119	24	-20	50	0	56.9	380	0.479	
18/11/18	7.8	105	21	-22	40	20	58.3	510	0.999	
20/11/18								1000	5.377	+flow past outside weir parameters
24/11/18	7.31	131	21	16	50	0	40.9	510	0.999	
01/12/18	7.16	160	32	-14	50	0	31.6	300	0.265	
data sent to this point										
08/12/18	8.08	139	28	6	50	0	40.06	150	0.041	
15/12/18	7.3	291	59	-184	50	0	36.5	250	0.168	
22/12/18	6.59	252	51	-216	50	0	31.9	250	0.168	
29/12/18	6.32	276	56	-281	50	0	30.9	100	0.017	
05/01/19								50		no flow but some puddles in creek bed
06/01/19								260	0.185	heavy rain fall over the day
12/01/19	6.15	235	47	-222	50	0	44.1	100	0.017	
19/01/19	7.3	240	48	-193	50	0	28.3	150	0.041	
26/01/19	6.12	185	37	-128	50	0	48.9	150	0.041	
02/02/19								0		no flow but some puddles in creek bed
10/02/19								0		no flow but some puddles in creek bed
18/02/19								0		no flow but some puddles in creek bed
23/02/19								0		no flow but some puddles in creek bed



02/03/19								0		no flow creek dry
09/03/19								0		no flow creek dry
17/03/19								0		no flow creek dry
data sent to this point										
24/04/19								0		no flow creek dry
07/04/19								0		no flow creek dry
14/04/19	6.68	309	61	19	50	0	54.9	40	0.001	
21/04/19	7.15	295	59	-59	50	0	48.1	40	0.001	
28/04/19	7.86	270	54	2	50	0	61.8	30	0.001	
05/05/19	6.48	219	44	-67	50	0	60.9	50	0.001	
12/05/19	6.83	215	34	-78	50	0	51.8	20	0.001	
14/05/19								100	0.017	heavy rain fall over the day
19/05/19	6.57	176	31	-88	50	0	61.7	100	0.017	
25/05/19	6.48	190	38	-22	50	0	68.1	50	0.001	
02/06/19	6.57	218	43	-40	50	0	72.2	100	0.017	
09/06/19	6.57	193	38	21	50	0	81.5	60	0.002	
16/06/19	6.28	187	38	-25	50	0	78.6	50	0.001	
23/06/19	7.22	173	34	23	50	0	83.8	50	0.001	
30/06/19	7.98	176	35	18	50	0	95.4	40	0.001	
data sent to this point										
07/07/19	6.98	186	37	14	50	0	89.3	30	0.001	
14/07/19	7.3	195	39	65	50	0	97.3	40	0.001	
21/07/19	6.89	133	26	-79	20	29	94.2	300	0.265	
28/07/19	5.25	154	30	86	50	0	119.3	75	0.008	
03/08/19	6.48	125	28	24	40	20	121.7	240	0.152	
11/08/19	5.87	146	30	-58	50	0	82.8	140	0.039	
18/08/19	5.94	157	31	-55	50	0	92.3	130	0.033	
25/08/19	6.53	145	30	-56	50	0	90.5	110	0.022	
01/09/19	6.03	155	31	-66	50	0	91.9	150	0.041	
08/09/19	6.62	156	31	23	50	0	92.6	140	0.039	
15/09/19	6.69	160	32	-42	50	0	89.7	100	0.017	
22/09/19	6.32	172	35	-52	50	0	93.7	50	0.001	
29/09/19	6.48	177	35	-103	50	0	103.2	60	0.002	
data sent to this point										
06/10/19	6.56	170	33	-104	50	0	91.6	100	0.017	
13/10/19	6.52	99	20	-87	10	57	83.9	350	0.39	
20/10/19	6.67	144	29	-98	50	0	88.5	160	0.055	
27/10/19	6.83	151	31	-114	50	0	88.1	110	0.022	
03/11/19	5.9	126	26	-90	50	0	69.8	150	0.041	
10/11/19	6.53	131	20	11	50	0	98.9	150	0.041	
17/11/19	5.22	84	15	61	20	54	79.7	400	0.544	
23/11/19	6.36	116	23	16	50	0	76.5	200	0.096	
30/11/19	6.14	143	29	-10	50	0	81.6	160	0.055	

07/12/19	6.98	152	30	-91	50	0	78.5	180	0.074
14/12/19	7.11	152	30	-63	50	0	82.8	200	0.096
21/12/19	7.61	93	18	-39	50	0	96.4	380	0.479
28/12/19	7.33	87	17	-27	50	0	97.1	400	0.544
data sent to this point									
04/01/20	7.27	148	29	-55	50	0	86.7	300	0.265
11/01/20	7.34	224	44	-98	50	0	79.2	300	0.265
18/01/20	7.21	315	63	-157	50	0	69.7	150	0.041
25/01/20								0	0 creek not running no flow
01/02/20								0	creek not running no flow
04/02/19								1000	5.377 flood after heavy rain
08/02/20	7.64	126	25	-41	50	0	92.3	200	0.096
15/02/20	7.12	203	43	-184	50	0	88.1	100	0.017
22/02/20	7.68	248	49	143	50	0	96.8	100	0.017
01/03/20								0	0 creek not running no flow
08/03/20								0	0 creek not running no flow
15/03/20								0	0 creek not running no flow
22/03/20								0	0 creek not running no flow
data sent to this point									
22/03/20 To 10/5/20 no data due to the covid 19 level 4 lockdown									
10/05/20								0	0 creek not running no flow
17/05/20								0	0 creek not running no flow
24/05/20								0	0 creek not running no flow
31/05/20								0	0 creek not running no flow
05/06/20								140	0.039 heavy rain fall over the day
07/06/20	7.57	216	43	-22	50	0	87.5	80	0.01
14/06/20	7.4	232	46	-37	50	0	91.5	50	0.001
21/06/20	7.3	213	42	-10	50	0		50	0.001
28/06/20	7.32	207	40	23	50	0		75	0.008
data sent to this point									
05/07/20	7.28	168	34	-1	50	0		110	0.022
12/07/20	6.96	124	25	4	50	0		190	0.085
19/07/20	7.24	148	29	78	50	0		100	0.017
26/07/20	7.2	150	29	16	50	0		100	0.017
02/08/20	7.27	161	32	-1	50	0		100	0.017
09/08/20	7.39	164	32	-20	50	0		75	0.008
16/08/20	7.44	162	32	-45	50	0		80	0.01
23/08/20	7.58	177	34	-32	50	0		75	0.008
30/08/20	7.45	175	34	4	50	0		75	0.008
06/09/20	7.62	171	33	13	50	0		75	0.008
12/09/20	7.29	170	32	-25	45	0		100	0.017
20/09/20	7.18	164	33	-25	50	0		100	0.017
27/09/20	7.2	173	33	19	50	0		80	0.01

data sent to this point

04/10/20	7.6	170	33	40	50	0		75	0.008
10/10/20	7.13	183	36	-20	50	0		50	0.001
18/10/20	6.97	169	32	-28	50	0		75	0.008
25/10/20								0	0 no visable flow
01/11/20	6.8	166	33	-11	50	0		140	0.039
08/11/20	6.82	138	27	49	50	0	5	175	0.069
15/11/20	7.1	137	28	-11	50	0	3.7	75	0.008
22/11/20	7.11	160	32	36	50	0	8.6	100	0.017
29/11/20								0	0
05/12/20								0	0 no visable flow
13/12/20								0	0 no visable flow
19/12/20								0	0 no visable flow
27/02/20								0	0 no visable flow

data sent to this point

03/01/21	5.72	90	18	67	20	44	0.8	600	1.499 heavy rain fall over the day
09/01/21	7.2	138	27	65	50	0	0.1	160	0.055
16/01/21								0	0 no visable flow
23/01/21	7.06	145	28	7	50	0	1.6	200	0.096
30/01/21								0	0 no visable flow
06/02/21								0	0 no visable flow
13/02/21								0	0 no visable flow
20/02/21								0	0 no visable flow
27/02/21								0	0 no visable flow
06/03/21								0	0 no visable flow
14/03/21								0	0 creek dry
21/03/21								0	0 creek dry
28/03/21								0	0 creek dry

data sent to this point

05/04/21								0	0 creek dry
10/04/21								0	0 creek dry
17/04/21								0	0 creek dry
25/04/21								0	0 creek dry
02/05/21								0	0 creek dry
09/05/21								0	0 creek dry
15/05/21								0	0 creek dry
22/05/21								0	0 creek dry
30/05/21	7.17	285	38	-20	30	38	7.06	60	0.002
06/06/21	6.55	283	57	-1	50	0	1.6	50	0.001
13/06/21	6.55	277	57	-7	50	0	3.2	40	0.001
20/06/21	7.21	153	30	24	50	0	4.8	160	0.055
27/06/21	6.27	140	28	-3	50	0	5.1	200	0.096

data sent to this point

04/07/21	6.48	131	27	-3	50	0	5.8	150	0.041
11/07/21	6.58	139	27	-4	50	0	8.3	150	0.041
18/07/21	6.57	125	25	9	50	0	5.9	250	0.168
25/07/21	6.85	129	26	-12	50	0	6.5	160	0.055
01/08/21	6.33	131	28	-10	50	0	5.4	150	0.041
08/08/21	6.46	142	28	-5	50	0	8.1	150	0.041
15/08/21	7.02	129	25	-14	50	0	6.9	200	0.096
22/08/21	no data due to covid 19 level 4 lockdown								
29/08/21	no data due to covid 19 level 4 lockdown								
05/09/21	6.59	147	29	-14	50	0	4.1	175	0.069
12/09/21	7.22	142	28	-12	50	0	8.1	150	0.041
19/09/21	6.88	126	26	-8	50	0	6.1	150	0.041
26/09/21	7.41	139	28	-2	50	0	4.6	50	0.001
data sent to this point									
03/10/21	6.46	140	28	2	50	0	5	40	0.001
10/10/21	6.9	157	30	-6	50	0	6.8	50	0.001
17/10/21	7.07	128	25	11	50	0	5	60	0.002
24/10/21	6.88	132	26	-13	50	0	4.9	50	0.001
30/10/21	7.09	140	28	4	50	0	3.6	30	0
06/11/21								0	0 no flow but some puddles in creek bed
13/11/21	6.9	86	17	-14	40	5	5.7	50	0.001
20/11/21								0	0 no flow but some puddles in creek bed
27/11/21	7.09	120	23	-23	50	0	4.7	200	0.096
05/12/21	7.43	136	27	-23	50	0	3.6	50	0.001
11/12/21								0	0
18/12/21	6.78	114	23	-22	50	0	3.1	150	0.041
26/12/21								0	0
data sent to this point									
02/01/22								0	0 no flow but some puddles in creek bed
08/01/22								0	0
15/01/22								0	0
23/01/22								0	0
29/01/22								0	0
05/02/22	6.84	180	36	-50	50	0	2.7	40	0.001
12/02/22								0	0
19/02/22								0	0
26/02/22								0	0
05/03/21								0	0
12/03/22								0	0
19/03/22								0	0
27/03/22								0	0
data sent to this point									
03/04/22								0	0

10/04/22  
17/04/22  
24/04/22

0      0  
0      0  
0      0

# Attachment 3 - Ōtokia Hope Hill Block Monitoring Unit covering the period from May 2013 to present

Sheet1

Date	Air temp	water temp	level staff	Vnotch	rectangler	2nd rect	total flow m3/ph	tds	clarity cm	rainfall mls	EC	ORP	NTU	DO
19/05/13		10		270	250	20	0.052							
23/05/13				600	250	350	0.567			10				
25/05/13				300	250	50	0.073			50	22			
02/06/13	9	4	4	240	240	0	0.014			50	4			
07/06/13	4	12		260	250	10	0.048		87	60	5			
15/06/13	5	4		200	200	0	0.026	6.6	97	100				
17/06/13				1300	250	1050	1.615							+ flow past due to flooding
23/06/13	13	6	6	700	250	450	0.22	7.03	92	20	72			
30/06/13	6	4	4	250	250	0	0.045	6.53	100	50	4			
06/07/13	11	6	6	230	230	0	0.037	6.7	96	50	7			
13/07/13	9	1.5		170	170	0	0.017	6.84	105	50	3			
21/07/13	8	7	7	200	200	0	0.026	7.05	102	50	15			
27/07/13	8	7	7	160	160	0	0.015	6.83	106	50	1			
04/08/13	10	9	9	160	160	0	0.015	6.84	110	50	2			
10/08/13	6	7	7	140	140	0	0.011	6.91	114	50	0			
17/08/13	9	9	9	170	170	0	0.017	6.83	109	40	6			
25/08/13	9	8	8	140	140	0	0.11	7.05	115	50	0			
01/09/13	4	6	6	110	110	0	0.006	7.03	117	50	2			
07/09/13	14	9	9	140	140	0	0.11	6.2	106	50	11			
15/09/13	6	7	7	140	140	0	0.11	6.6	121	50	16			
22/09/13	9	10	10	140	140	0	0.11	6.65	129	50	5			
29/09/13	8	10	10	250	250	0	0.045	6.53	126	20	13			
05/10/13	16	12	12	150	150	0	0.013	6.61	128	40 N/R		12		
12/10/13	9	10	10	300	150	150	0.159	6.1	95	20	12	17		Salinity 1000/0%
19/10/13	11	10	10	190	190	0	0.023	7	131	30	14	22		water was a blueish colour
28/10/13	9	10	10	150	150	0	0.013	7.6	161	50	19	28		Salinity 1000/0%
03/11/13	12	13	13	100	100	0	0.009	7.4	172	50	5	29		
09/11/13	9	10	10	100	100	0	0.009	7.6	199	48	1	34		
16/11/13	13	16	16	100	100	0	0.009	7.6	184	50	4	32		
24/11/13	16	15	15	100	100	0	0.009	7.3	181	50	6	32		
01/12/13	10	14	14	100	100	0	0.009	7.4	191	45	9	33		
08/12/13	12	17	17	80	80	0	0.003	7.2	187	50	19	30		
15/12/13	17	17	17	80	80	0	0.003	7.8	184	50	6	29		
22/12/13	11	13	13	200	200	0	0.026	7.6	206	20	41	35		
26/12/13				900	250	650	1.366							
28/12/13	16	10	10	300	250	50	0.073	7.2	163	20	52	28		highest reading 1250 with flow past on true right
04/01/14	14	14	14	220	220	0	0.033	7.6	169	50	5	29		
08/01/14				380	250	130	0.163							
12/01/14	14	14	14	200	200	0	0.026	7.6	170	50	20	31		
19/01/14	17	11	11	180	180	0	0.02	7.6	173	50	16	29		
25/01/14	20	12	12	150	150	0	0.013	7.6	193	50		30		
03/02/14	18	17	17	140	140	0	0.11	7.3	202	50	0	33		
09/02/14	13	17	17	130	130	0	0.009	7.6	204	50	0	35		
16/02/14	15	17	17	180	180	0	0.02	7.5	185	50	43	28		
22/02/14	15	15	15					7.2	263	50 N/R		44		
01/03/14	13	15	15	200	200	0	0.026	6.8	187	30	31	33		no flow reading due to road in being blocked
08/03/14	20	14	14					6.5	239	45		36		2 weeks reading on the rain gauge
15/03/14	20	16	16	160	160	0	0.017	7.1	204	50	36	35		no flow reading due to road in being blocked
22/03/14	15	17	17	190	190	0	0.023	7.6	234	50	21	25		2 weeks reading on the rain gauge
29/03/14	15	15	15	150	150	0	0.013	6.8	178	50	0	29		
06/04/14	13	16	16	180	180	0	0.02	6.8	192	50	0	29		rain gauge removed for repair
13/04/14	10	12	12					7.4	177	40		410		no flow reading due to road in being blocked
20/04/14	11	16	16					6.7	173	40		29		no flow reading due to road in being blocked
26/04/14	13	14	14	230	230	0	0.37	7	174	50		335		rain gauge reinstalled
03/05/14	21	7	7					6.7	153	45		350		no flow reading due to road in being blocked
10/05/14	9	12	12	530	250	280	0.329	7.2	174	45	45	275		2 weeks on the rain gauge

18/05/14	14	12	310	250	60	0.082	7.3	140	35	14	287	
24/05/14	7	6	700	250	450	0.806	6.4	120	15	21	266	
26/05/14			1000	250	750	1.876						flowpast of 0.193 cm/s
30/05/14	2	10	600	250	350	0.567	7	131	40	20	306	
07/06/14	12	10	400	250	150	0.191	7.3	137	50	4	20	
14/06/14	10	16	280	250	20	0.052	7.2	142	50	3	23	
22/06/14	10	12	210	210	0	0.029	7.6	152	50	4	24	
28/06/14	8	4	200	200	0	0.026	7.3	145	50	1	25	
05/07/14	8	4	200	200	0	0.026	7.3	152	50	5	26	
13/07/14	9	7	100	100	0	0.009	7.5	151	50	5	354	
19/07/2014	7	4	200	200	0	0.026	7.5	144	50	4	25	
26/07/2014	10	6	250	250	0	0.045	7.4	142	50	11	26	
2/08/2014	9	7	200	200	0	0.026	6.7	162	50	6	28	
9/08/2014	8	5	700	250	450	0.806	7.4	113	15	19	19	snow melt day
16/08/2014	11	6	500	250	250	0.36	7.2	144	40	15	23	
24/08/2014	9	7	250	250	0	0.045	7.3	171	50	4	28	
1/09/2014	8	7	200	200	0	0.026	6.9	175	50	1	26	
7/09/2014	13	7	180	180	0	0.02	7.6	171	50	0	25	
14/09/2014	10	7	200	200	0	0.026	7.3	148	50	5	32	
20/09/2014	12	8	700	250	450	0.806	6.9	123	20	14	36	
26/09/2014	11	10	300	250	50	0.073	6.7	203	50	12	29	
5/10/2014	14	8	200	200	0	0.026	7.3	186	50	7	32	
11/10/2014	15	10	200	200	0	0.026	7.5	206	50	6	34	
18/10/2014	10	11	200	200	0	0.026	7.2	212	30	8	36	
24/10/2014	10	11	200	200	0	0.026	7.4	231	50	5	34	
1/11/2014	15	11	200	200	0	0.026	7.1	206	50	13	33	
9/11/2014	21	13	150	150	0	0.013	7.2	241	50	11	25	
15/11/2014	18	12	180	180	0	0.02	7.3	254	45	9	41	
22/11/2014	10	12	150	150	0	0.013	6.8	266	50	10	44	
30/11/2014	9	11	140	140	0	0.11	7	265	50	21	45	
7/12/2014	11	14	160	160	0	0.015	6.9	283	50	12	43	
14/12/2014	15	12	80	80	0	0.003	7.06	271	50	6	22	
21/12/2014	15	14	150	150	0	0.013	7.1	288	50	2	40	
27/12/2014	24	17	100	100	0	0.009	7.4	261	50	0	42	
1/01/2015			210	210	0	0.029						reading after heavy rain
3/01/2015	18	16	110	110	0	0.006	7.4	275	50	16	42	
11/01/2015	18	17	100	100	0	0.009	7.3	305	50	0	45	
17/01/2015	17	17	100	100	0	0.009	7.3	275	50	3	45	sprayed area around box and weir
25/01/2015	20	27	110	110	0	0.006	7.3	268	50	16	42	
1/02/2015	24	17	150	150	0	0.013	7.2	286	50	3	41	
7/02/2015	16	16	150	150	0	0.013	7.8	270	50	14	39	
15/02/2015	14	16	150	150	0	0.013	7.4	283	50	8	41	
22/02/2015	16	14	180	180	0	0.02	7.2	281	50	8	42	
1/03/2015	18	13	150	150	0	0.013	7.4	274	50	3	40	
8/03/2015	12	13	200	200	0	0.026	7.6	284	50	15	45	
15/03/2015	17	12	150	150	0	0.013	7.6	246	50	9	38	
22/03/2015	12	11	150	150	0	0.013	7.7	273	50	10	37	
29/03/2015	16	13	180	180	0	0.02	7.7	243	50	2	38	
6/04/2015	14	11	150	150	0	0.013	7.8	261	50	0	37	
12/04/2015	11	9	150	150	0	0.013	7.8	261	50	0	34	
19/04/2015	17	8	250	250	0	0.045	7.3	227	50	27	34	
26/04/2015	14	11	200	200	0	0.026	7.8	257	50	0	41	
3/05/2015	11	7	180	180	0	0.02	7.9	246	50	9	27	
9/05/2015	12	7	150	150	0	0.013	7.8	264	50	1	36	
17/05/2015	9	8	200	200	0	0.026	8.1	246	50	24	35	
24/05/2015	7	6	180	180	0	0.02	8.1	242	50	2	35	
31/05/2015	13	5	200	200	0	0.026	7.4	195	50	1	29	
3/06/2015			3000	250	2750	24.68						

4/06/2015			1500	250	1250	3.569						
7/06/2015	10	6	450	250	200	0.271	7.5	152	20	127	43	
14/06/2015	9	6	350	250	100	0.125	7.9	179	30	2	29	
21/06/2015	7	6	350	250	100	0.125	7.8	146	50	4	24	
28/06/2015	3	5	340	250	90	0.113	7.9	154	50	3	24	
4/07/2015	4	6	300	250	50	0.073	7.6	163	50	3	21	
12/07/2015	2	4	250	250	0	0.045	7.2	174	50	3	20	
19/07/2015	5	4	250	250	0	0.045	8	152	50	3	26	
26/07/2015	10	4	200	200	0	0.026	7.9	158	50	2	26	
31/07/2015	7	4	190	190	0	0.02	7.7	170	50	2	25	
9/08/2015	3	4	350	250	100	0.125	7.7	135	30	1	23	
16/08/2015	6	6	750	250	500	0.936	8.3	104	5	12	19	
23/08/2015	12	5	280	250	30	0.052	7.7	147	50	0	22	
30/08/2015	8	6	320	250	70	0.092	7.8	146	50	18	21	
6/09/2015	2	5	350	250	100	0.125	7.9	143	50	17	20	
13/09/2015	12	6	300	250	50	0.073	7.2	144	50	1	25	
20/09/2015	6	7	300	250	50	0.073	8.2	155	50	4	24	
27/09/2015	9	6	200	200	0	0.026	7.9	181	50	1	37	
4/10/2015	12	9	150	150	0	0.013	7.2	215	50	1	42	
10/10/2015	11	10	150	150	0	0.013	7.3	209	50	50	43	
17/10/2015	11	9	400	250	150	0.191	7.4	146	20	27	31	
25/10/2015	10	10	200	200	0	0.026	7.3	212	50	1	44	
30/10/2015	9	11	150	150	0	0.013	7.5	225	50	1	45	
6/11/2015	10	13	100	100	0	0.009	7.3	232	50	1	47	
13/11/2015	15	12	100	100	0	0.009	7.4	235	50	1	48	
21/11/2015	11	12	120	120	0	0.01	7.8	247	50	1	50	
27/11/2015	11	14	200	200	0	0.026	7.6	250	45	4	49	
6/12/2015	10	12	150	150	0	0.013	7.6	234	50	1	47	
11/12/2015	16	17	100	100	0	0.009	7.5	263	50	1	52	
20/12/2015	13	14	100	100	0	0.009	7.6	261	50	1	51	
28/12/2015	18	17	75	75	0	0.002	7.4	254	50	1	54	
3/01/2016	12	16	100	100	0	0.009	7.7	281	50	1	55	
10/01/2016	11	14	100	100	0	0.009	7.6	263	50	7	52	
15/01/2016	11	15	150	150	0	0.013	7.5	251	40	14	49	
22/01/2016	23	16	150	150	0	0.013	7.8	240	40	7	48	
29/01/2016	11	14	320	250	70	0.092	7.4	229	45	18	45	
5/02/2016	16	18	200	200	0	0.026	7.3	275	50	0	54	
12/02/2016	14	16	100	100	0	0.009	7.6	321	50	0	64	
28/02/2016	17	16	150	150	0	0.013	7.4	260	50	27	53	
4/03/2016	19	15	100	100	0	0.009	7.6	252	50	0	50	
14/03/2016	18	14	100	100	0	0.009	7.6	250	50	0	51	
27/03/2016	17	14	100	100	0	0.009	7.6	269	50	4	54	
3/04/2016	19	13	150	150	0	0.013	7.7	262	50	2	53	
9/04/2016	9	11	100	100	0	0.009	7.6	267	50	0	54	
17/04/2016	13	12	100	100	0	0.009	7.8	262	50	2	53	
24/04/2016	11	10	150	150	0	0.013	7.8	237	50	6	48	
1/05/2016	14	10	100	100	0	0.009	8.1	248	50	2	50	
8/05/2016	14	10	100	100	0	0.009	7.9	247	50	2	50	
15/05/2016	5	9	200	200	0	0.026	7.9	253	50	10	52	
22/05/2016	6	9	230	230	0	0.037	8.06	263	50	11	52	
23/05/2016			1180	250	930	2.306	7.2	151	10	58	30	
29/05/2016	7	7	750	250	500	0.936	7.76	156	20	63	30	
5/06/2016	8	5	270	270	20	0.045	7.9	173	45	14	36	
12/06/2016	6	5	200	200	0	0.026	7.7	195	50	1	39	
19/06/2016	6	6	200	200	0	0.026	7.8	188	50	2	37	
26/06/2016	9	7	200	200	0	0.026	7.7	184	48	16	38	
3/07/2016	11	6	250	250	0	0.045	7.9	165	50	4	34	
10/07/2016	4	5	200	200	0	0.026	7.6	165	50	0	35	

first flood for season 24 hour rain fall



17/07/2016	8	6	250	250	0		0.045	7.4	153	48	6	34					
23/07/2016	13	6	250	250	0		0.045	7.4	163	50	2	34					
30/07/2016	7	6	300	250	50		0.073	7.2	156	50	1	31					
3/08/2016			800	250	550		1.073										small flood event
6/08/2016	3	5	600	250	350		0.567	7.2	116	20	31	39					
13/08/2016	6	5	300	250	50		0.073	7.4	137	50	1	29					
21/08/2016	10	6	250	250	0		0.045	7.3	158	50	0	32					
26/08/2016	16	6	250	250	0		0.045	7.6	149	50	1	30					
4/09/2016	11	9	200	200	0		0.026	7.14	167	50	7	32					
10/09/2016	14	7	250	250	0		0.045	7.9	143	50	2	31					
17/09/2016	12	10	200	200	0		0.026	7.8	185	50	0	37	69				
25/09/2016	9	10	200	200	0		0.026	7.6	198	50	0	39	48				
2/10/2016	12	11	180	180	0		0.02	7.1	213	50	0	42	40			68.4	
9/10/2016	10	11	200	200	0		0.026	7.16	196	50	0	39	13	5		70.9	
16/10/2016	16	12	200	200	0		0.026	7.03	174	50	2	39	41	5		75.2	
23/10/2016	14	12	200	200	0		0.026	7.2	192	50	0	38	37	5		69.1	
30/10/2016	10	10	550	250	300		0.459	7.34	120	20	0	24	26	29		86.5	
6/11/2016	15	13	250	250	0		0.045	7.2	171	50	0	35	8	8		73.8	
13/11/2016	11	12	230	230	0		0.037	7.5	168	50	2	34	51	11		74.5	
15/11/2016			300	250	50		0.073										small flood event
16/11/2016			1400	250	1150		3.154										flood event
18/11/2016	18	12	400	250	150		0.191	7.5	110	20	54	23	78	14		82.1	
25/11/2016	14	13	350	250	100		0.125	7.62	142	50	24	28	86	8		74.3	
4/12/2016	14	14	200	200	0		0.026	7.1	167	50	17	33	92	0		81.6	
12/12/2016	12	14	200	200	0		0.026	7.78	185	50	1	37	87	0		83.8	
18/12/2016	18	16	150	150	0		0.013	7.8	195	50	0	41	15	0		58.7	
26/12/2016	17	16	100	100	0		0.009	6.8	212	50	2	42	87	5		60.7	
1/01/2017	15	16	200	200	0		0.026	7.6	226	50	4	44	64	0		55.8	
8/01/2017	15	14	150	150	0		0.013	6.6	215	50	2	43	67	0		65.4	
15/01/2017	20	15	150	150	0		0.013	8.2	212	50	5	43	14	0		57.1	
21/01/2017	15	14	200	200	0		0.026	6.91	215	50	35	44	10	0		81.8	
22/01/2017			1500	250	1250		3.569										flood event with some overtop and by pass
29/01/2016	21	16	300	250	50		0.073	7.5	155	50	40	32	8	5		75.9	
5/02/2017	17	12	250	250	0		0.045	7.21	178	50	21	35	92	0		63.2	
12/02/2017	23	22	200	200	0		0.026	7.52	191	50	2	39	52	0		58.1	
19/02/2017	19	21	200	200	0		0.026	7.3	181	50	31	37	15	0		54.7	
26/02/2017	12	19	150	150	0		0.013	7.8	209	50	2	40	63	0		57.7	
5/03/2017	14	19	100	100	0		0.009	7.79	214	50	0	42	54	0		56.7	
12/03/2017	10	18	150	150	0		0.013	8.1	224	50	12	44	38	0		57.2	
19/03/2017	10	19	200	200	0	0	0.026	8.11	196	50	28	39	40	0		63.5	
25/03/2017	11	19	150	150	0	0	0.013	7.8	218	50	0	44	16	0		57.8	
2/04/2017	14	15	180	180	0	0	0.2	8.1	206	50	20	42	56	0		57.2	
7/04/2017	7	16	180	180	0	0	0.2	8.62	197	50	11	42	103	0		66.4	
12/04/2017			600	250	350	0	0.576										
14/04/2017			1350	250	1100	650	4.807										
16/04/2017	10	16	600	250	350	0	0.576	7.61	126	30	121	25	94	11		78.1	
22/04/2017	15	15	300	250	50	0	0.073	7.2	146	50	2	30	113	0		76.4	
30/04/2017	8	14	350	250	100	0	0.125	7.9	161	30	20	33	113	0		73.5	
7/05/2017	12	14	300	250	50	0	0.073	7.8	156	50	12	32	122	0		79.5	
14/05/2017	9	9.4	300	250	50	0	0.073	7.8	164	50	4	33	114	0		77.5	
21/05/2017	6	10	575	250	325	0	0.512	7.5	122	30	8	25	148	20		81.4	
28/05/2017	1	9	350	250	100	0	0.125	7.6	144	50	7	29	108	0		79.5	
4/06/2017	6	9	550	250	300	0	0.459	7.7	139	50	21	27	92	0		80.1	
11/06/2017	4	9	400	250	150	0	0.191	7.2	135	50	6	25	214	0		78.7	
18/06/2017	4	7	400	250	150	0	0.191	7.8	139	50	13	28	123	0		82.5	
25/06/2017	6	6	375	250	125	0	0.156	7.52	147	50	7	29	129	0		78.2	
2/07/2017	8	9	720	250	470	20	0.863	7.9	123	15	9	25	114	64		83.4	

4/07/2017			1250	250	1000	300	2.921										
9/07/2017	1	4	300	250	50	0	0.073	7.5	123	50	23	26	318	0	82.3		
16/07/2017	3	4	500	250	250	0	0.36	7.5	112	40	34	25	250	8	83.1		
22/07/2017	no readings due to access cut off by slip																
30/07/2017	no readings due to access cut off by slip																
6/08/2017	no readings due to access cut off by slip																
13/08/2017	no readings due to access cut off by slip																
20/08/2017	no readings due to access cut off by slip																
27/08/2017	no readings due to access cut off by slip																
3/09/2017	no readings due to access cut off by slip																
10/09/2017			300	250	50	0	0.073	7.83	164	50		33	120	0	82.1		
17/09/2017	10	8	350	250	100	0	0.125	8.33	148	50		30	193	0	81.3		
18/09/2017			1500	250	1250	800	5.115										
24/09/2017	14	9	400	250	150	0	0.191	7.95	145	50	37	29	152	0	83.1		
1/10/2017	12	10	350	250	100	0	0.125	8.01	164	50	9	32	149	0	85.1		
8/10/2017	11	10	300	250	50	0	0.125	8.09	177	50	4	35	143	0	73.3		
15/10/2017	10	11	270	250	20	0	0.045	8.11	188	50	6	37	253	0	79.4		
22/10/2017	11	12	150	150	0	0	0.013	8.14	267	50	6	39	101	0	72.1		
29/10/2017	12	12	150	150	0	0	0.013	8.05	206	50	6	39	118	0	71.6		
5/11/2017	17	13	100	100	0	0	0.009	8.07	216	50	4	43	184	0	67.2		
12/11/2017	11	12	100	100	0	0	0.009	7.64	209	50	104	38	14	0	68.5		
data sent to this point																	
19/11/17	11	14	100	100	0	0	0.009	8.1	220	50	1	43	61	0	59.3		
24/11/17	17	14	100	100	0	0	0.009	8.09	217	50	0	43	76	0	65.6		
02/12/17	20	18	100	100	0	0	0.009	7.83	219	50	0	44	106	0	46.3		
09/12/17			100	100	0	0	0.009	7.6	229	50		45	124	0	43.5	major damage to fixed equipment in this block	
16/12/17		21.2	100	100	0	0	0.009	6.82	222	50		44	109	0	45.7		
22/12/17	18	16	150	150	0	0	0.013	8.07	222	50	13	44	114	0	61.2		
30/12/17	15	14	100	100	0	0	0.009	6.98	243	50	7	46	103	0	60		
06/01/18	11	15	150	150	0	0	0.013	7.71	250	50	1	48	171	0	59		
13/01/18	19	18	150	150	0	0	0.013	6.86	214	50	0	43	86	0	68.6		
21/01/18	15	16	100	100	0	0	0.009	6.86	245	50	0	47	130	0	52.7		
27/01/18	19	19	100	100	0	0	0.009	6.86	232	50	0	45	131	0	46.3		
01/02/18			1600	250	1350	650	5.133									Digital level	
03/02/18	12	14	290	250	40	0	0.143	6.23	175	40	79	34	134	0	69.9		
11/02/18	16	16	150	150	150	0	0.013	7.5	195	50	0	39	123	0	43.2	58	
17/02/18	17	16	100	100	0	0	0.009	7.35	194	50	12	33	109	0	31.5	43	
24/02/18	22	13	280	250	30	0	0.058	7.42	146	50	22	29	46	0	58.2	43	
#N/A	18	17	190	190	0	0	0.023	7.82	183	50	0	36	15	0	50.2	64	
11/03/18	18	12	150	150	0	0	0.013	7.8	181	50	13	36	5	0	56.5	58	
18/03/18	14	11	110	110	0	0	0.006	8.53	195	50	2	39	63	0	49.6	97	
24/03/18	12	12	240	240	0	0	0.041	7.65	163	50	2	39	96	0	58.1	74	
01/04/18	13	12	150	150	0	0	0.013	7.86	186	50	3	37	34	0	53.7	84	
08/04/18	11	11	200	200	0	0	0.026	7.76	191	50	10	38	66	0	54.1	79	
11/04/18	12	6	280	250	30	0	0.058	8.2	153	50	86	31	103	0	47.5	66	
22/04/18	9	4	200	200	0	0	0.026	8.36	172	50	9	34	72	0	43.9	92	
29/04/18	9	9	1000	250	750	240	1.937	7.76	109	10	37	22	87	41	56.7	189 readings taken at 1000 hours	
29/04/18			1400	250	1150	640	4.26									readings taken at 1700 hours	
06/05/18	9	9	350	250	100	0	0.125	7.91	123	50	11	26	275	0	48.7	79	
13/05/18	4	7	250	250	0	0	0.045	8.23	146	50	10	29	93	0	44.4	84	
20/05/18	12	6	200	200	0	0	0.026	8.32	151	50	0	30	22	0	86.9	58	
27/05/18	6	6	250	250	0	0	0.045	8.1	158	50	12	30	89	0	85.1	94	
data sent to this point																	
03/06/18	4	3	240	240	0	0	0.041	7.91	151	50	8	30	47	0	82.2	98	
10/06/18	6	5	280	250	30	0	0.058	8.55	136	50	0	28	7	0	87.3	107	
17/06/18	4	5	250	250	0	0	0.045	7.3	141	50	0	30	37	0	51.5	110	
24/06/18	5	5	250	250	0	0	0.045	8.9	146	50	13	29	67	0	82.4	97	
01/07/18	7	5	240	240	0	0	0.041	8.42	145	45	9	30	100	0	82.1	105	

08/07/18	0	6	250	250	0	0	0.045	7.93	153	50	4	31	27	0	83.9	102
15/07/18	7	6	250	250	0	0	0.045	8.4	148	50	2	30	16	0	84.9	98
22/07/18	7	5	200	200	0	0	0.026	8.15	151	50	0	31	36	0	82.8	84
29/07/18	7	5	300	250	50	0	0.073	8.89	133	50	27	27	51	0	82.9	97
05/08/18	1	6	300	250	50	0	0.073	8.38	120	50	18	23	37	0	86.9	130
12/08/18	11	5	250	250	0	0	0.045	8.56	133	50	0	27	63	0	87.2	89
19/08/18	0	4	250	250	0	0	0.045	8.18	141	50	6	28	62	0	80.6	102
26/08/18	8	7	200	200	0	0	0.026	8.56	153	50	0	30	44	0	85.3	97
#N/A	11	7	200	200	0	0	0.026	8.55	158	50	0	32	44	0	83.4	64
09/09/18	13	7	200	200	0	0	0.026	7.14	164	50	0	23	123	0	92.1	69
16/09/18	16	8	200	200	0	0	0.026	8.55	165	50	0	33	14	0	83.8	69
23/09/18	12	7	200	200	0	0	0.026	8.55	153	50	21	31	115	0	87.9	79
30/09/18	12	9	280	250	30	0	0.058	8.27	153	50	21	30	15	0	82.5	97
07/10/18	13	11	200	200	0	0	0.026	8.55	160	50	0	32	24	0	82.2	
14/10/18	7	9	200	200	0	0	0.026	8.37	151	50	20	32	31	0	78.8	
21/10/18	16	13	180	180	0	0	0.02	8.12	175	50	1	34	12	0	76.2	
28/10/18	12	12	250	250	0	0	0.045	8.2	167	50	27	33	-3	0	98.1	3.22 new digital level measurement uni
04/11/18	12	13	250	250	0	0	0.045	8.16	168	50	31	33	-12	0	86.1	2.97
08/11/18			850	250	600	90	1.275									1.99
10/11/18	12	12	370	250	120	0	0.15	8.5	120	50	49	23	-16	0	91.8	2.76
18/11/18	12	12	650	250	400	0	0.683	8.08	96	20	44	19	23	29	91.8	2.33
20/11/18			1600	250	1350	650	5.133									0.97
24/11/18	12	13	350	250	100	0	0.125	7.78	119	50	55	23	29	0	78.2	2.87
01/12/18	18	15	250	250	0	0	0.045	7.66	145	50	0	28	22	0	76.8	2.87
data sent to this point																
08/12/18	15	17	250	250	0	0	0.045	8.38	139	50	14	27	9	0	79.8	2.87
15/12/18	14	16	240	240	0	0	0.041	7.96	161	50	1	31	10	0	72.1	2.97
22/12/18	11	14	240	240	0	0	0.041	7.1	157	50	23	31	-127	0	92.8	2.94
29/12/18	25	21	150	150	0	0	0.013	6.69	166	50	1	33	-68	0	65.8	2.94
05/01/19	23	19	150	150	0	0	0.013	5.76	166	50	1	34	-52	0	65.7	3.05
06/01/19			400	250	150	0	0.191				41					2.79
12/01/19	18	19	150	150	0	0	0.013	6.36	180	50	44	35	-41	0	73.5	3.02
19/01/19	21	17	200	200	0	0	0.026	7.17	165	50	28	33	-52	0	78.5	2.92
26/01/19	25	15	200	200	0	0	0.026	6.54	176	50	15	34	6	0	73.1	2.92
02/02/19	15	19	120	120	0	0	0.006	7.2	191	50	17	37	-19	0	80.3	3.05
10/02/19	25	18	50	50	0	0	0.001	6.7	175	50	3	35	36	0	61.6	3.02
18/02/19	19	18	100	100	0	0	0.009	5.85	122	50	14	35	58	0	58.4	3.07
23/02/19	12	18	50	50	0	0	0.001	6.58	194	50	4	41	53	0	80.6	3.17
02/03/19	14	17	50	50	0	0	0.001	6.28	192	50	19	37	62	0	100.2	3.17
09/03/19	16	17	50	50	0	0	0.001	6.13	197	50	12	38	75	0	89.5	3.1
17/03/19	12	15	50	50	0	0	0.001	6.25	190	50	20	37	87	0	80.7	3.12
data sent to this point																
24/03/19	12	15	50	50	0	0	0.001	6.43	194	50	0	38	37	0	99.6	3.15
07/04/19	7	11	50	50	0	0	0.001	6.53	174	50	29	34	44	0	80.4	3.2
14/04/19	9	12	100	100	0	0	0.009	6.71	184	50	13	37	106	0	75.2	3.12
21/04/19	12	12	100	100	0	0	0.009	6.69	189	50	5	31	49	0	70.3	3.12
28/04/19	7	11	100	100	0	0	0.009	7.26	180	50	6	35	20	0	70.2	3.15
05/05/19	14	11	150	150	0	0	0.013	6.8	196	50	14	39	-62	0	72.3	3.05
12/05/19	10	11	100	100	0	0	0.009	7.37	191	50	0	38	-103	0	73.3	3.1
14/05/19			250	250	0	0	0.045									
19/05/19	9	10	250	250	0	0	0.045	6.68	159	50	47	31	-33	0	79.9	4.84
25/05/19	9	10	200	200	0	0	0.026	6.69	162	50	0	33	-34	0	84.6	3.05
02/06/19	7	9	200	200	0	0	0.026	6.92	179	50	25	35	12	0	82.2	3.1
09/06/19	4	9	200	200	0	0	0.026	6.82	179	50	17	34	-50	0	86.9	3.35
16/06/19	9	9	150	150	0	0	0.013	6.67	164	50	1	33	-38	0	90.1	3.07
23/06/19	3	8	180	180	0	0	0.02	6.69	151	50	17	31	43	0	86.2	4.84
30/06/19	4	8	150	150	0	0	0.013	7.93	154	50	0	31	6	0	89.7	4.84
data sent to this point																

07/07/19	2	8	150	150	0	0	0.013	7.26	164	50	1	33	23	0	91.6	3.17
14/07/19	12	8	150	150	0	0	0.013	7.48	156	50	1	32	84	0	87.6	3.07
21/07/19	14	10	500	250	250	0	0.36	7.02	145	20	45	28	-92	26	92.7	2.84
28/07/19	11	9	200	200	0	0	0.026	5.47	137	50	9	29	57	0	125.4	4.84
03/08/19	12	8	400	250	150	0	0.191	6.28	132	40	7	21	12	5	125.5	2.99
11/08/19	11	9	250	250	0	0	0.045	6.1	146	50	6	29	69	5	90.8	3.22
18/08/19	6	8	200	200	0	0	0.026	6.22	164	50	2	30	-16	0	98.2	3.22
25/08/19	8	8	200	200	0	0	0.026	6.28	145	50	0	29	-71	0	94.3	3.38
01/09/19	8	9	170	170	0	0	0.017	6.66	149	50	4	30	-87	0	94.7	3.05
08/09/19	8	9	240	240	0	0	0.041	6.55	147	50	8	30	46	0	90.3	3.56
15/09/19	10	9	180	180	0	0	0.02	6.19	155	50	8	31	-33	0	111.7	3.28
22/09/19	14	9	150	150	0	0	0.013	6.21	166	50	3	33	-55	0	93.6	3.07
29/09/19	9	11	180	180	0	0	0.02	6.4	153	50	1	32	-95	0	97.6	3.05
data sent to this point																
06/10/19	10	11	180	180	0	0	0.02	6.41	161	50	12	32	-106	0	109.1	3.05
13/10/19	10	11	790	250	540	30	1.057	6.06	94	20	48	19	102	20	91.5	2.3
20/10/19	21	11	270	250	20	0	0.052	6.51	128	50	6	26	-82	0	82.4	2.76
27/10/19	22	12	200	200	0	0	0.026	6.88	138	50	21	27	-132	0	84.1	2.75
03/11/19	22	14	250	250	0	0	0.045	6.27	119	50	38	23	-87	0	84.9	2.81
10/11/19	11	15	200	200	0	0	0.026	6.42	136	30	27	26	3	0	103.5	2.94
17/11/19	16	11	750	250	500	0	0.936	5.25	89	20	60	17	122	20	94.5	2.2
23/11/19	15	13	300	250	50	0	0.073	6.35	112	50	27	21	75	0	117.2	2.71
30/11/19	23	14	200	200	0	0	0.026	5.91	124	50	1	26	50	0	112.4	2.89
07/12/19	14	15	190	190	0	0	0.023	7.67	138	50	9	28	-68	0	114.9	2.97
14/12/19	16	16	180	180	0	0	0.02	7.61	182	50	24	29	4	0	103.4	2.97
21/12/19	14	13	350	250	100	0	0.125	7.71	106	50	82	26	-7	0	96.2	2.71
28/12/19	12	12	500	250	250	0	0.36	7.71	95	20	30	18	7	38	103.9	2.53
data sent to this point																
04/01/20	12	14	250	250	0	0	0.045	8.09	134	50	11	27	-16	0	117.4	2.89
11/01/20	21	14	200	200	0	0	0.026	7.76	134	50	13	26	4	0	102.5	2.89
18/01/20	18	18	150	150	0	0	0.013	7.68	165	50	1	30	5	0	98.9	2.97
25/01/20	15	20	150	150	0	0	0.013	8.83	163	50	1	33	-67	0	107.7	3.02
01/02/20	21	18	125	125	0	0	0.008	8.05	175	50	10	34	-31	0	115.1	3.02
04/02/20			1600	250	1350	650	5.133									0.97
08/02/20	11	16	300	250	50	0	0.73	8.33	116	50	72	25	-36	0	123.8	2.81
15/02/20	21	18	200	200	0	0	0.026	8.52	157	50	2	26	16	0	118.2	2.71
22/02/20	13	17	250	250	0	0	0.045	8.28	143	50	8	28	34	0	116.3	2.89
01/03/20	7	16	150	150	0	0	0.013	8.54	175	50	1	30	-10	0	108.2	3.07
08/03/20	15	16	100	100	0	0	0.009	8.09	154	50	0	32	24	0	112.3	3.05
15/03/20	12	17	100	100	0	0	0.009	8.21	161	50	0	33	35	0	113.1	3.07
22/03/20	15	15	100	100	0	0	0.009	8.39	158	50	4	31	45	0	111.9	3.05
data sent to this point																
22/3/20 to 15/5/20 no data due to covid 19 level 4 lockdown																
10/05/20	8	6	100	100	0	0	0.009	8.15	149	50	2	32	72	0	132.4	3.15
17/05/20	0	7	100	100	0	0	0.009	8.35	161	50	0	31	44	0	128.4	3.2
24/05/20	9	11	100	100	0	0	0.009	8.48	164	50	0	33	12	0	119.7	3.1
31/05/20	3	7	100	100	0	0	0.009	7.98	175	50	0	43	33	0	155.8	3.2
05/06/20			250	250	0	0	0.045									
07/06/20	3	7	200	200	0	0	0.026	8.43	158	50	23	32	-15	0	123.5	2.93
14/06/20	0	7	125	125	0	0	0.008	7.9	163	50	3	32	-4	0	112.4	3.28
21/06/20	7	7	175	175	0	0	0.018	7.92	180	50	12	32	28	0		3.02
28/06/20	9	7	140	140	0	0	0.011	7.72	155	50	1	30	22	0		3.05
data sent to this point																
05/07/20	7	6	200	200	0	0	0.026	7.98	155	50	5	30	17	0		2.94
12/07/20	6	4	275	250	25	0	0.055	7.98	125	50	87	25	-36	0		2.84
19/07/20	2	4	210	210	0	0	0.029	7.56	134	50	8	26	64	0		2.81
26/07/20	5	4	180	180	0	0	0.02	7.71	136	50	1	26	-22	0		2.97
02/08/20			190	190	0	0	0.023	7.8	138	50		27	7	0		

heavy rain in last 24 hours

09/08/20	10	7	150	150	0	0	0.013	8.22	148	50	2	30	-10	0	2.96			
16/08/20	0	7	150	150	0	0	0.013	7.84	143	50	10	38	-15	0	3.04			
23/08/20	8	8	150	150	0	0	0.013	7.73	155	50	1	30	-53	0	2.99			
30/08/20	8	8	160	160	0	0	0.015	7.71	152	50	15	29	-9	0	2.99			
06/09/20	9	8	150	150	0	0	0.013	8.21	153	50	9	30	102	0	2.99			
12/09/20	10	8	160	160	0	0	0.015	7.48	156	50	13	31	1	0	2.91			
20/09/20	9	9	175	175	0	0	0.018	7.93	159	50	19	31	55	0	2.96			
27/09/20	7	10	140	140	0	0	0.011	7.9	189	50	4	32	2	0	3.01			
data sent to this point																		
04/10/20	10	10	150	150	0	0	0.013	7.83	155	50	9	31	32	0	3.1			
10/10/20	0	10	140	140	0	0	0.011	7.4	190	50	12	33	-20	0	3.02			
18/10/20	10	10	125	125	0	0	0.008	7.83	164	50	6	32	61	0				
25/10/20	20	13	100	100	0	0	0.009	8.03	158	50	11	31	96	0				
01/11/20	12	12	140	140	0	0	0.011	7.86	158	50	9	31	111	0				
08/11/20	8	12	250	250	0	0	0.045	8.32	132	50	16	26	11	0	6.4			
15/11/20	12	14	140	140	0	0	0.011	7.12	144	50	20	28	12	0	5.5			
22/11/20	9	13	125	125	0	0	0.008	7.78	171	50	25	31	101	0	5.1			
29/11/20	13	13	100	100	0	0	0.009	7.44	158	50	20	31	3	0	4.5			
05/12/20	14	13	50	50	0	0	0.001	7.28	158	50	18	31	4	0	4.2	2.99		
13/12/20	10	14	150	150	0	0	0.013	8.03	145	50	22	28	68	0	6.3	2.96		
19/12/20	16	16	75	75	0	0	0.002	7.81	153	20	2	30	6	0	5.5	2.94		
27/12/20	12	14	125	125	0	0	0.008	7.21	223	50	10	33	18	0	4.7	2.96		
data sent to this point																		
03/01/21	13	13	1100	250	850	340	2.521	7.53	101	10	104	31	20	47	6.9	1.54		
09/01/21	14	16	200	200	0	0	0.026	7.86	131	50	19	26	40	0	5.9	2.79		
16/01/21	22	21	140	140	0	0	0.011	7.99	149	50	0	28	21	0	1.9	2.86		
23/01/21	14	16	180	180	0	0	0.02	7.86	146	50	51	27	-39	0	5.2	2.84		
30/01/21	13	16	125	125	0	0	0.008	8.23	146	50	2	29	-17	0	5.1	2.96		
06/02/21	20	17	50	50	0	0	0.001	7.91	161	50	0	36	-143	0	3.4	2.91		
13/02/21	18	16	50	50	0	0	0.001	8.43	161	50	16	39	-84	0	5.8	2.89		
20/02/21	16	15	40	40	0	0	0	8.57	154	50	1	30	-57	0	3.5	2.99		
27/02/21	21	17	30	30	0	0	0 Flow to low to get reliable readings											
06/03/21	21	16	40	40	0	0	0	7.81	165	50	1	33	-92	0	5.1	2.96		
14/03/21	5	13	50	50	0	0	0.001	8.51	155	50	22	34	111	0	3.5	3.14		
21/03/21	9	13	30	30	0	0	0 Flow to low to get reliable readings				3							
28/03/21	11	14	50	50	0	0	0.001	8.64	207	50	6	32	-151	0	4.2	2.99		
data sent to this point																		
05/04/21	5	13	20	20	0	0	0 Flow to low to get reliable readings				3							
10/04/21	13	12	50	50	0	0	0.001	8.27	175	50	1	31	-231	0	4.5	2.85		
17/04/21	15	11	50	50	0	0	0.001	8.38	155	50	4	31	-244	0	5.2	2.99		
25/04/21	5	10	50	50	0	0	0.001	7.85	155	50	0	30	-159	0	6.2	3.09		
02/05/21	9	9	50	50	0	0	0.001	7.47	166	50	0	32	-153	0	6.1	3.04		
09/05/21	14	9	40	40	0	0	0 Flow to low to get reliable readings											
11/05/21			100	100	0	0	0.009											
15/05/21	10	8	100	100	0	0	0.009	7.39	143	50	14	28	-83	0	6.2	3.01 nitrate	phosphate	
22/05/21	0	7	100	100	0	0	0.009	8.65	155	50	2	32	-108	0	9.1	3.11	0	0.02
30/05/21	9	7	200	200	0	0	0.026	8.02	165	50	18	32	-53	0	5.9	2.89		
06/06/21	6	7	150	150	0	0	0.013	7.91	164	50	42	33	32	0	5.2	2.94		
13/06/21	7	6	100	100	0	0	0.009	7.4	170	50	0	33	44	0	2.1	3.01		
20/06/21	2	7	300	250	50	0	0.73	7.79	139	50	46	27	-30	0	6.4	2.84	0	0
27/06/21	5	7	350	250	100	0	0.125	7.67	138	50	17	27	-40	0	6.6	2.67		
data sent to this point																		
04/07/21	0	6	250	250	0	0	0.045	7.91	117	50	107	23	-32	0	7.7	2.89		
11/07/21	4	6	250	250	0	0	0.045	7.11	125	50	36	24	29	0	5.4	2.84		
18/07/21	8	7	380	250	130	0	0.163	7.71	126	50	41	24	-16	0	6.8	2.59		
25/07/21	4	6	250	250	0	0	0.045	7.56	124	50	5	24	-45	0	8.5	2.91		
01/08/21	7	7	200	200	0	0	0.026	7.62	129	50	1	25	-46	0	5.4	2.89	0.17	0
08/08/21	0	6	200	200	0	0	0.026	7.66	128	50	27	26	-13	0	8.1	2.91		

15/08/21	4	7	250	250	0	0	0.045	7.92	126	50	37	25	-40	0	8	2.84		
22/08/21	no data due to covid 19 level 4 lock down																	
29/08/21	no data due to covid 19 level 4 lock down																	
05/09/21	10	8	150	150	0	0	0.013	7.92	136	50	8	26	101	0	4.1	2.89	0	0
12/09/21	11	8	200	200	0	0	0.026	7.78	130	50	12	26	-40	0	7.9	2.86		
19/09/21	6	8	200	200	0	0	0.026	7.74	127	50	7	25	26	0	9.6	2.89		
26/09/21	5	9	175	175	0	0	0.018	7.69	134	50	1	26	-16	0	5.7	2.91		
data sent to this point																		
03/10/21	9	10	150	150	0	0	0.013	7.89	149	50	3	27	-22	0	5.9	2.94		
10/10/21	9	11	175	175	0	0	0.018	8.02	146	50	6	29	-32	0	5.2	2.89		
17/10/21	11	11	250	250	0	0	0.045	7.76	127	50	67	25	-22	0	6.7	2.79	0	0
24/10/21	13	12	150	150	0	0	0.013	8.02	131	50	0	26	-44	0	4.8	2.86		
30/10/21	15	15	150	150	0	0	0.013	7.65	135	50	6	27	-6	0	5.2	2.84		
06/11/21	20	14	100	100	0	0	0.009	7.85	146	50	0	29	3	0	5.7	2.86		
13/11/21	10	14	125	125	0	0	0.008	7.72	142	50	27	28	-27	0	5.5	2.96		
20/11/21	10	14	140	140	0	0	0.011	7.32	134	50	87	27	-39	0	7.1	2.91	0.02	0
27/11/21	10	13	300	250	50	0	0.73	7.78	176	50	55	26	-24	0	6.5	2.67		
05/12/21	16	15	200	200	0	0	0.026	7.76	131	50	2	26	-26	0	4.4	2.79		
11/12/21	10	14	150	150	0	0	0.013	8.28	139	50	47	28	-23	0	5.4	2.89		
18/12/21	16	14	250	250	0	0	0.045	8.09	124	50	10	24	-26	0	5.6	2.67		
26/12/21	7	15	100	100	0	0	0.009	8.14	144	50	6	29	-44	0	2.7	3.01	0	0
data sent to this point																		
02/01/22	13	14	125	125	0	0	0.008	7.32	143	50	52	27	-36	0	3.3	2.94		
08/01/21	19	17	80	80	0	0	0.003	7.04	151	50	0	29	-63	0	3.5	2.91		
15/01/22	21	17	80	80	0	0	0.003	7.68	158	50	5	31	-33	0	3.4	2.94		
23/01/22	14	16	80	80	0	0	0.003	7.12	161	50	2	32	-32	0	3.6	2.99		
29/01/22	16	17	50	50	0	0	0.001	6.91	156	50	3	31	-56	0	3.2	2.96	0	0
05/02/22	12	16	250	250	0	0	0.045	7.83	149	50	37	30	-33	0	4.8	2.72		
12/02/22	12	16	150	150	0	0	0.013	7.96	153	50	5	30	-42	0	4.8	2.86		
19/02/22	13	16	100	100	0	0	0.009	7.3	149	50	18	29	-40	0	3.6	2.91		
26/02/22	11	16	100	100	0	0	0.009	8.56	157	50	10	30	-43	0	4.5	2.94		
05/03/22	19	16	80	80	0	0	0.003	7.37	156	50	0	31	-11	0	2.4	2.91	0	0
12/03/22	15	16	50	50	0	0	0.001	7.55	155	50	0	32	-43	0	2.6	2.96		
19/03/22	19	14	50	50	0	0	0.001	6.2	147	50	0	30	-40	0	4.1	2.91		
27/03/22	11	14	30	30	0	0	0	6.91	146	50	0	28	-42	0	3.6	3.01		
data sent to this point																		
03/04/22	13	13	30	30	0	0	0	6.89	146	50	0	28	-23	0	3.6	3.01		
10/04/22	13	13	20	20	0	0	0	6.58	160	50	1	31	-23	0	3.9	3.01		
17/04/22	0	11	50	50	0	0	0.001	6.9	143	50	4	21	-11	0	4.2	4.81	0	0
24/04/22	10	11	100	100	0	0	0.009	7.73	150	50	3	30	6	0	5.3	2.99		

## Attachment 4 - eDNA results

ScientificName	Rank	TaxID	CommonName	Group	506282
Anguilla dieffenbachii	species	61127	Longfin eel	Fish	2125
Simocephalus vetulus	species	77651	Water flea	Crustaceans	2112
Homo sapiens	species	9606	Human	Mammals	1679
Galaxias argenteus	species	89553	Giant kokopu	Fish	1476
Halteria grandinella	species	5974		Ciliates	1183
Anguilla australis	species	7940	Shortfin eel	Fish	1034
Anas platyrhynchos	species	8839	Mallard duck	Birds	819
Gobiomorphus huttoni	species	587584	Redfin bully	Fish	615
Galaxias fasciatus	species	89555	Banded kokopu	Fish	551
Chydorus sphaericus	species	77745		Crustaceans	288
Carduelis carduelis	species	37600	Goldfinch	Birds	136
Anthornis melanura	species	698975	Bellbird	Birds	119
Rattus norvegicus	species	10116	Norway Rat	Mammals	92
Chaetogaster diastrophus	species	74727	Oligochaete worm	Worms	82
Protocyclidium citrullus	species	1348389		Ciliates	73
Scorzoneroides autumnalis	species	212686	Autumn hawkbit/Fall dandelion	Plants	61
Carchesium polypinum	species	168244	Ciliate	Ciliates	52
Mallomonas akrokomos	species	52547	Chrysoomonad	Heterokont a	51
Hydra vulgaris	species	6087	Hydra	Cnidarians	32
Gobiomorphus cotidianus/basalis	species	10000038	Common or Crans bully	Fish	32
Cyclidium marinum	species	1272149		Ciliates	24
Lumbriculus variegatus	species	61662	Blackworm/California blackworm	Worms	23
Phytophthora bilorbang	species	1197710		Heterokont a	23
Cryptomonas paramecium	species	2898	Cryptomonad	Cryptomonac	22
Chromulinospumella sphaerica	species	1841616	Golden alga	Heterokont a	18
Stentor roeselii	species	1703786	Ciliate	Ciliates	16
Tuberolachnus salignus	species	96551	Giant willow aphid	Insects	14
Nasturtium officinale	species	65948	Watercress	Plants	11
Stylodrilus heringianus	species	77571		Worms	9
Cryptomonas pyrenoidifera	species	233184	Cryptomonad	Cryptomonac	9
Nais communis	species	188228	Sludgeworm	Worms	8
Tubifex tubifex	species	6386	Sludge worm	Worms	7
Schmidtea mediterranea	species	79327	Flatworm	Flatworms	6
Acrispumella msimbaziensis	species	1545455	Alga	Heterokont a	6
Paranais litoralis	species	74742	Oligochaete worm	Worms	5
Cavariella aegopodii	species	330421		Insects	5
Paraphysomonas sp.	species	1955561	Golden-brown alga	Heterokont a	5
Pisidium hodgkini	species	10000043	Freshwater bivalve	Molluscs	4
Polyplectropus puerilis	species	1223712		Insects	3
Simocephalus	genus	77650		Crustaceans	5326
Gobiomorphus	genus	86236	Bullies	Fish	1225
Turdus	genus	9186	Thrush	Birds	1014
Crataegus	genus	23159	Hawthorn	Plants	554
Cryptomonas	genus	3030		Cryptomonac	399
Melicytus	genus	212267	Mahoe	Plants	246
Chaetonotus	genus	68038	Gastrotrich	Other	138
Rubus	genus	23216	Bramble	Plants	100
Eucyclops	genus	84316		Crustaceans	98
Stentor	genus	5962		Ciliates	82
Placus	genus	693142		Ciliates	44
Erythranthe	genus	1502711	Monkey-flowers/musk-flowers	Plants	44
Synchaeta	genus	204744		Other	37
Phytophthora	genus	4783	Water mold	Heterokont a	35
Bodo	genus	5712	Excavate	Other	31
Fallopia	genus	76024		Plants	24
Pelobacter	genus	18		Other	19
Phytocercomonas	genus	2161651		Other	19
Tolomonas	genus	43947		Other	16
Ranunculus	genus	3445	Buttercups/spearworts/water crowfoots	Plants	13
Cytisus	genus	3833	Brooms	Plants	11

Potamopyrgus	genus	145636	Mud snails	Molluscs	11
Pinus	genus	3337	Pines	Plants	10
Polystichum	genus	3278		Plants	7
Hydra	genus	6083	Hydra	Cnidarians	6
Raphidiophrys	genus	212534		Other	5
Physella	genus	175859	Freshwater Snail	Molluscs	4
Vishniacozyma	genus	1891946		Fungi	4
Solanaceae	family	4070	Nightshade family	Plants	231
Elaeocarpaceae	family	26000		Plants	131
Cyclopidae	family	84315		Crustaceans	101
Atalophlebiinae	subfamily	552437		Insects	52
Litonotidae	family	197908	Ciliates	Ciliates	39
Peronosporaceae	family	4777		Heterokont a	36
Solanoideae	subfamily	424551		Plants	34
Betulaceae	family	3514	Birch family	Plants	32
Strobilidiidae	family	181619		Ciliates	22
Onagroideae	subfamily	1585427		Plants	21
Polygonoideae	subfamily	1110380		Plants	19
Chaetonotidae	family	41372		Other	17
Vorticellidae	family	85904		Ciliates	16
Daphniidae	family	77658		Crustaceans	14
Rosoideae	subfamily	171638		Plants	12
Aroideae	subfamily	284555		Plants	11
Cupressaceae	family	3367	Cypress family	Plants	6
Silvaniidae	family	78391		Heterokont a	6
Oedogoniaceae	family	2682485		Green algae	5
Hexamitinae	subfamily	68460		Other	4
Cecidomyiidae	family	33406	Gall midges	Insects	3
Branchiopoda	class	6658		Crustaceans	16729
Spirotrichea	class	33829		Ciliates	11000
cellular organisms	no rank	131567		Other	5422
Arthropoda	phylum	6656	Arthropods	Other	4261
Malpighiales	order	3646		Plants	2641
Saliceae	tribe	238069		Plants	1527
Streptophyta	phylum	35493		Other	1148
Polygoneae	tribe	1110385		Plants	944
Ciliophora	phylum	5878	Ciliates	Other	877
Viridiplantae	kingdom	33090	Green plants	Other	580
fabids	no rank	91835		Plants	489
Haptorida	order	5989		Ciliates	415
Sessilida	order	1974272		Ciliates	324
Mammalia	class	40674	Mammals	Other	294
Hexanauplia	class	72037		Crustaceans	244
Chrysophyceae	class	2825	Chrysomonads	Heterokont a	193
Chromulinales	order	96792		Heterokont a	174
Galaxiiformes	order	51241	Galaxias and mudfish	Fish	136
Rosales	order	3744		Plants	115
genistoids sensu lato	no rank	2231384		Plants	51
Sporadotrichida	order	693921		Ciliates	45
Choreotrichida	order	200605		Ciliates	43
Proteobacteria	phylum	1224	Purple bacteria and relatives	Other	42
Kinetoplastea	class	5653	Kinetoplastids	Other	36
Pelobacter propionicus DSM 2379	strain	338966		Other	32
Pentapetalae	no rank	1437201		Plants	31
Magnoliopsida	class	3398	Angiosperms	Plants	29
Betaproteobacteria	class	28216		Other	29
Cryptophyceae	class	3027	Cryptomonads	Other	24
Gastropoda	class	6448	Gastropods	Molluscs	21
Litostomatea	class	5988		Ciliates	19
Cryptomonadales	order	589350		Cryptomonac	18
Lorantheae	tribe	1003268		Plants	18



Neogastropoda	order	6479	Molluscs	15
Alphaproteobacteria	class	28211	Other	15
Tetrahymenina	suborder	37093	Ciliates	15
Bivalvia	class	6544	Molluscs	13
Ichthyophonida	order	198625	Other	12
Eusea	phylum	2605435	Amoebae	12
Spongillida	order	1779161	Other	11
Fungi	kingdom	4751	Other	10
Sphingomonadales	order	204457	Other	9
Planctomycetales	order	112	Other	7
Annelida	phylum	6340	Other	5
Sulfuricurvum kujiense DSM 16994	strain	709032	Other	5
Chordata	phylum	7711	Other	4

Sequence	Target	ScientificName	Rank	TaxID	CommonName	Group	506282
TCAACCTTAA	RV	Anguilla dieffenbachii	species	61127	Longfin eel	Fish	1991
TTAGCCCTAA	RV	Homo sapiens	species	9606	Human	Mammals	1530
TTAGCCGTA	RV	Galaxias argenteus	species	89553	Giant kokopu	Fish	1423
GTCGCTACTA	BU	Simocephalus vetulus	species	77651	Water flea	Crustaceans	1214
TCAACCTTAA	RV	Anguilla australis	species	7940	Shortfin eel	Fish	1005
CGCCCGTCG	BE	Simocephalus vetulus	species	77651	Water flea	Crustaceans	898
CTGGCCCTA	RV	Anas platyrhynchos	species	8839	Mallard duck	Birds	819
GTCGCTCCTA	BU	Halteria grandinella	species	5974		Ciliates	753
TTAGCCGTA	RV	Galaxias fasciatus	species	89555	Banded kokopu	Fish	535
CTAGCCCTA	RV	Gobiomorphus huttoni	species	587584	Redfin bully	Fish	533
CGCCCGTCG	BE	Halteria grandinella	species	5974		Ciliates	430
TCTATCGGCT	CI	Chydorus sphaericus	species	77745		Crustaceans	205
CTGGCCCTA	RV	Carduelis carduelis	species	37600	Goldfinch	Birds	136
TCAGCCCTA	RV	Homo sapiens	species	9606	Human	Mammals	135
GGTTATACG	LV	Anguilla dieffenbachii	species	61127	Longfin eel	Fish	126
CTGGCCCTA	RV	Anthornis melanura	species	698975	Bellbird	Birds	119
TTAGCCCTA	RV	Rattus norvegicus	species	10116	Norway Rat	Mammals	92
TCTATCTAGA	CI	Chaetogaster diastrophus	species	74727	Oligochaete worm	Worms	82
GGTTATACG	LV	Gobiomorphus huttoni	species	587584	Redfin bully	Fish	82
ATCACGTTTT	TP	Scorzoneroides autumnalis	species	212686	Autumn hawkbit/Fall dandelion	Plants	61
GGTTATACG	LV	Galaxias argenteus	species	89553	Giant kokopu	Fish	53
GTCGCTTTA	BU	Carchesium polypinum	species	168244	Ciliate	Ciliates	52
GTCGCTCCTA	BU	Protocyclidium citrullus	species	1348389		Ciliates	43
GTCGCTACTA	BU	Chydorus sphaericus	species	77745		Crustaceans	43
CGCCCGTCG	BE	Chydorus sphaericus	species	77745		Crustaceans	40
GGTTATACG	LV	Gobiomorphus cotidianus/basalis	species	10000038	Common or Crans bully	Fish	32
CGCCCGTCG	BE	Protocyclidium citrullus	species	1348389		Ciliates	30
GGTTATACG	LV	Anguilla australis	species	7940	Shortfin eel	Fish	29
GTCGCACCTA	BU	Mallomonas akrokomos	species	52547	Chrysomonad	Heterokont a	27
CGCCCGTCG	BE	Mallomonas akrokomos	species	52547	Chrysomonad	Heterokont a	24
GTCGCTCCTA	BU	Cyclidium marinum	species	1272149		Ciliates	24
ATTATCTAGT	CI	Phytophthora bilorbang	species	1197710		Heterokont a	23
TTTACTATAA	WV	Hydra vulgaris	species	6087	Hydra	Cnidarians	21
TTTAAGTAGT	CI	Chromulinospumella sphaerica	species	1841616	Golden alga	Heterokont a	18
CGCCCGTCG	BE	Stentor roeselii	species	1703786	Ciliate	Ciliates	16
GGTTATACG	LV	Galaxias fasciatus	species	89555	Banded kokopu	Fish	16
CGCCCGTCG	BE	Cryptomonas paramecium	species	2898	Cryptomonad	Cryptomonad	15
TTTATCTAAT	CI	Tuberolachnus salignus	species	96551	Giant willow aphid	Insects	14
GGTCACACG	LV	Homo sapiens	species	9606	Human	Mammals	14
TCTAGCAAGT	CI	Lumbriculus variegatus	species	61662	Blackworm/California blackworm	Worms	13
TTTATCTGGG	CI	Hydra vulgaris	species	6087	Hydra	Cnidarians	11
ATCCTTGTTT	TP	Nasturtium officinale	species	65948	Watercress	Plants	11
TTTACTCTAA	WV	Lumbriculus variegatus	species	61662	Blackworm/California blackworm	Worms	10
GTCGCTCCTA	BU	Cryptomonas pyrenoidifera	species	233184	Cryptomonad	Cryptomonad	9
TCTATCAAGA	CI	Stylodrilus heringianus	species	77571		Worms	9
TCTAGCTGG	CI	Anguilla dieffenbachii	species	61127	Longfin eel	Fish	8
ATTATCAAGA	CI	Nais communis	species	188228	Sludgeworm	Worms	8
GTCGCTCCTA	BU	Cryptomonas paramecium	species	2898	Cryptomonad	Cryptomonad	7
TTTACCTATA	WV	Tubifex tubifex	species	6386	Sludge worm	Worms	7
CGCCCGTCG	BE	Acrispermella msimbaziensis	species	1545455	Alga	Heterokont a	6
GTCGCTACTA	BU	Schmidtea mediterranea	species	79327	Flatworm	Flatworms	6
GTCGCTACTA	BU	Paranis litoralis	species	74742	Oligochaete worm	Worms	5
ACTATCTAAT	CI	Cavariella aegopodii	species	330421		Insects	5
TTTAAGTAGC	CI	Paraphysomonas sp.	species	1955561	Golden-brown alga	Heterokont a	5
TTGAATTGTC	ZV	Pisidium hodgkini	species	10000043	Freshwater bivalve	Molluscs	4
TCTTTCAAAT	CI	Polyplectropus puerilis	species	1223712		Insects	3
TTTATAATTTI	ZV	Simocephalus	genus	77650		Crustaceans	4653
CTGGCCCTA	RV	Turdus	genus	9186	Thrush	Birds	1014
CTAGCCCTA	RV	Gobiomorphus	genus	86236	Bullies	Fish	972
TTTATAATTTI	ZV	Simocephalus	genus	77650		Crustaceans	649
GTTGAGGAG	MZ	Crataegus	genus	23159	Hawthorn	Plants	554
CTAGCCCTA	RV	Gobiomorphus	genus	86236	Bullies	Fish	253
GTTGAGGAG	MZ	Melicytus	genus	212267	Mahoe	Plants	209
GTCGCTCCTA	BU	Cryptomonas	genus	3030		Cryptomonad	169
CGCCCGTCG	BE	Cryptomonas	genus	3030		Cryptomonad	112
GTTGAGGAG	MZ	Rubus	genus	23216	Bramble	Plants	100
CGCCCGTCG	BE	Eucyclops	genus	84316		Crustaceans	51
CGCCCGTCG	BE	Chaetonotus	genus	68038	Gastrotrich	Other	49
GTCGCTACTA	BU	Eucyclops	genus	84316		Crustaceans	47
GTCGCTACTA	BU	Chaetonotus	genus	68038	Gastrotrich	Other	44
ATCCTTTTTT	TP	Erythranthe	genus	1502711	Monkey-flowers/musk-flowers	Plants	44
GTCGCTCCTA	BU	Cryptomonas	genus	3030		Cryptomonad	39

ATCCGGTTTT TP	Melicytus	genus	212267	Mahoe	Plants	37
CGCCCGTCG( BE	Cryptomonas	genus	3030		Cryptomonac	35
ATTATCAAGT CI	Phytophthora	genus	4783	Water mold	Heterokont a	35
GTCGTTGTTT BU	Bodo	genus	5712	Excavate	Other	31
GTCGCTCCTA BU	Stentor	genus	5962		Ciliates	29
CGCCCGTCG( BE	Stentor	genus	5962		Ciliates	27
CGCCCGTCG( BE	Placus	genus	693142		Ciliates	26
GTCGCTACTA BU	Chaetonotus	genus	68038	Gastrotrich	Other	26
GTCGCTCCTA BU	Stentor	genus	5962		Ciliates	26
GTCGCTCCTA BU	Cryptomonas	genus	3030		Cryptomonac	26
TCTTTCTGCA CI	Simocephalus	genus	77650		Crustaceans	24
GTTGAGGAG MZ	Fallopia	genus	76024		Plants	24
GTCGCTACTA BU	Synchaeta	genus	204744		Other	20
CGCCCGTCG( BE	Chaetonotus	genus	68038	Gastrotrich	Other	19
GTCACACCAC BU	Pelobacter	genus	18		Other	19
CGCCCGTCG( BE	Cryptomonas	genus	3030		Cryptomonac	18
GTCGCTCCTA BU	Placus	genus	693142		Ciliates	18
CGCCCGTCG( BE	Synchaeta	genus	204744		Other	17
GTCACACCAT BU	Tolomonas	genus	43947		Other	16
ATCCTGTTTT TP	Ranunculus	genus	3445	Buttercups/spearworts/water crowfoots	Plants	13
ATCCCATTTT TP	Cytisus	genus	3833	Brooms	Plants	11
TTAAAAAAAT WV	Potamopyrgus	genus	145636	Mud snails	Molluscs	11
GTCGCTGCTA BU	Phytocercomonas	genus	2161651		Other	10
ATCCGGTTCA TP	Pinus	genus	3337	Pines	Plants	10
CGCCCGTCG( BE	Phytocercomonas	genus	2161651		Other	9
ATCTTTGATT TP	Polystichum	genus	3278		Plants	7
GTCGCTACTA BU	Hydra	genus	6083	Hydra	Cnidarians	6
CGCCCGTCG( BE	Raphidiophrys	genus	212534		Other	5
CACCTGTCG( BE	Vishniacozyma	genus	1891946		Fungi	4
ACTATCAGGA CI	Physella	genus	175859	Freshwater Snail	Molluscs	4
GTTGAGGAG MZ	Solanaceae	family	4070	Nightshade family	Plants	231
ATCCTGTTTT TP	Elaeocarpaceae	family	26000		Plants	131
TTGAGAAGA CI	Cyclopidae	family	84315		Crustaceans	101
TCTATCCGCA CI	Atalophlebiinae	subfamily	552437		Insects	52
ATCCTGTTTT TP	Solanoideae	subfamily	424551		Plants	34
ATCCTGTTTT TP	Betulaceae	family	3514	Birch family	Plants	32
CGCCCGTCG( BE	Strobilidiidae	family	181619		Ciliates	22
GTCGCACCTA BU	Peronosporaceae	family	4777		Heterokont a	22
CGCCCGTCG( BE	Litonotidae	family	197908	Ciliates	Ciliates	21
ATCCTATTTT TP	Onagroideae	subfamily	1585427		Plants	21
GTTGAGGAG MZ	Polygonoideae	subfamily	1110380		Plants	19
GTCGCTCCTA BU	Litonotidae	family	197908	Ciliates	Ciliates	18
GTCGCTACTA BU	Chaetonotidae	family	41372		Other	17
GTCGCTTTTA BU	Vorticellidae	family	85904		Ciliates	16
CGCCCGTCG( BE	Peronosporaceae	family	4777		Heterokont a	14
GTCGCTACCA BU	Daphniidae	family	77658		Crustaceans	14
ATCCCGTTTT TP	Rosoideae	subfamily	171638		Plants	12
ATCCTTGTTT TP	Aroideae	subfamily	284555		Plants	11
CGCCCGTCG( BE	Silvanidae	family	78391		Heterokont a	6
GTTGAGGAG MZ	Cupressaceae	family	3367	Cypress family	Plants	6
GTTGTGGAG MZ	Oedogoniaceae	family	2682485		Green algae	5
CGCCCGTCG( BE	Hexamitinae	subfamily	68460		Other	4
TCTTTCTTCA CI	Cecidomyiidae	family	33406	Gall midges	Insects	3
TTTATAATTT WV	Branchiopoda	class	6658		Crustaceans	16729
GTCGCTCCTA BU	Spirotrichea	class	33829		Ciliates	5104
TTTGTCTGCA CI	Arthropoda	phylum	6656	Arthropods	Other	4064
CGCCCGTCG( BE	Spirotrichea	class	33829		Ciliates	2886
GTTGAGGAG MZ	Malpighiales	order	3646		Plants	2641
ATCCTATTTT TP	Saliceae	tribe	238069		Plants	1527
GTCGCTCCTA BU	Spirotrichea	class	33829		Ciliates	1400
GTTGTGGAG MZ	Streptophyta	phylum	35493		Other	1124
CGCCCGTCG( BE	Spirotrichea	class	33829		Ciliates	783
CTAAGAAG CI	cellular organisms	no rank	131567		Other	675
GTTGAGGAG MZ	Polygoneae	tribe	1110385		Plants	662
CAATCCAAA RV	cellular organisms	no rank	131567		Other	626
GTTGAGGAG MZ	fabids	no rank	91835		Plants	489
GTCGCTCCTA BU	Spirotrichea	class	33829		Ciliates	439
CTTGTGCCAT MZ	Viridiplantae	kingdom	33090	Green plants	Other	400
TTTAAGTTCT CI	cellular organisms	no rank	131567		Other	303
TTAGCCCTAA RV	Mammalia	class	40674	Mammals	Other	294
CTCCTTCTTT TP	Polygoneae	tribe	1110385		Plants	282
TCAACGAAG RV	cellular organisms	no rank	131567		Other	261
CGCCCGTCG( BE	Spirotrichea	class	33829		Ciliates	255

GTCGCTTTTA BU	Sessilida	order	1974272	Ciliates	245
GTCGCTCCTA BU	Ciliophora	phylum	5878 Ciliates	Other	239
GTCGCTCCTA BU	Haptorida	order	5989	Ciliates	225
TTTAAGTAGT CI	cellular organisms	no rank	131567	Other	223
CGCCCGTCG( BE	Haptorida	order	5989	Ciliates	190
TTTATCAAGA ZV	Arthropoda	phylum	6656 Arthropods	Other	190
CGCCCGTCG( BE	Ciliophora	phylum	5878 Ciliates	Other	161
GTCGCTCCTA BU	cellular organisms	no rank	131567	Other	155
ACTGTCTTCA CI	cellular organisms	no rank	131567	Other	133
TTAGCCGTA( RV	Galaxiiformes	order	51241 Galaxias and mudfish	Fish	131
ACTTGCTAGC CI	cellular organisms	no rank	131567	Other	124
ATCCTGTTTT. TP	Rosales	order	3744	Plants	115
CGCCCGTCG( BE	Ciliophora	phylum	5878 Ciliates	Other	105
ATCACGCTCC BU	cellular organisms	no rank	131567	Other	102
GTCGCTCCTA BU	Ciliophora	phylum	5878 Ciliates	Other	100
ACTGTCTTCA CI	cellular organisms	no rank	131567	Other	100
TTTATCATCC CI	cellular organisms	no rank	131567	Other	94
ATTAAGTTCA CI	cellular organisms	no rank	131567	Other	90
TCAACGAAG( RV	cellular organisms	no rank	131567	Other	90
GTCGCTACTA BU	Hexanauplia	class	72037	Crustaceans	85
ACTTGCTAGC CI	cellular organisms	no rank	131567	Other	85
TTTATCAGAA WV	cellular organisms	no rank	131567	Other	75
GTCGCTATTA BU	Sessilida	order	1974272	Ciliates	74
CGCCCGTCG( BE	Ciliophora	phylum	5878 Ciliates	Other	71
GTCGCACCTA BU	Chrysophyceae	class	2825 Chryomonads	Heterokont a	71
GTCGCTACTA BU	Hexanauplia	class	72037	Crustaceans	70
CGCCCGTCG( BE	Chromulinales	order	96792	Heterokont a	65
GTCGCACCTA BU	Chrysophyceae	class	2825 Chryomonads	Heterokont a	65
CTTAAGTAGT CI	cellular organisms	no rank	131567	Other	64
AATTGAAAA( RV	cellular organisms	no rank	131567	Other	64
TCTTTCTAGT. CI	cellular organisms	no rank	131567	Other	61
ACTAGCAAG( CI	cellular organisms	no rank	131567	Other	59
ATTATCAAGT CI	cellular organisms	no rank	131567	Other	58
CGGCGAGAG MZ	cellular organisms	no rank	131567	Other	58
GTCGCACCTA BU	Chrysophyceae	class	2825 Chryomonads	Heterokont a	57
TTTAAGTAGT CI	cellular organisms	no rank	131567	Other	57
CGCCCGTCG( BE	Chromulinales	order	96792	Heterokont a	55
ATTATCAAGT CI	cellular organisms	no rank	131567	Other	53
ATTATCAAGC CI	cellular organisms	no rank	131567	Other	53
GTTGAGGAG MZ	genistoids sensu lato	no rank	2231384	Plants	51
GCTGAGGAG MZ	Viridiplantae	kingdom	33090 Green plants	Other	50
CGCCCGTCG( BE	Chromulinales	order	96792	Heterokont a	48
GTTGAGGAG MZ	Viridiplantae	kingdom	33090 Green plants	Other	47
CGCCCGTCG( BE	Hexanauplia	class	72037	Crustaceans	46
GTCGCTCCTA BU	Sporadotrichida	order	693921	Ciliates	45
GTCGCTACTA BU	cellular organisms	no rank	131567	Other	44
GTCGCTCCTA BU	cellular organisms	no rank	131567	Other	44
ATTATCAAGT CI	cellular organisms	no rank	131567	Other	44
CGCCCGTCG( BE	Hexanauplia	class	72037	Crustaceans	43
GTCGCTCCTA BU	Choreotrichida	order	200605	Ciliates	43
GTCGCTCCTA BU	Ciliophora	phylum	5878 Ciliates	Other	42
TTTAAGTAGT CI	cellular organisms	no rank	131567	Other	42
CGCCCGTCG( BE	Ciliophora	phylum	5878 Ciliates	Other	37
CGCCCGTCG( BE	cellular organisms	no rank	131567	Other	37
CGCCCGTCG( BE	cellular organisms	no rank	131567	Other	36
GTCACACCAT BU	Proteobacteria	phylum	1224 Purple bacteria and relatives	Other	36
GTCGCACCTA BU	cellular organisms	no rank	131567	Other	36
CCACCAGGC( LV	cellular organisms	no rank	131567	Other	36
CGCCCGTCG( BE	Spirotrichea	class	33829	Ciliates	35
GTCGCTCCTA BU	Ciliophora	phylum	5878 Ciliates	Other	33
CGCCCGTCG( BE	cellular organisms	no rank	131567	Other	32
GTCGCTCCTA BU	Spirotrichea	class	33829	Ciliates	32
GTCACACCAC BU	Pelobacter propionicus DSM 2379	strain	338966	Other	32
ATTAAGTAGT CI	cellular organisms	no rank	131567	Other	32
GTTGAGGAG MZ	Pentapetalae	no rank	1437201	Plants	31
TCAACGAAG( RV	cellular organisms	no rank	131567	Other	31
CGCCCGTCG( BE	cellular organisms	no rank	131567	Other	29
CGCCCGTCG( BE	Kinetoplastea	class	5653 Kinetoplastids	Other	29
GTCACACCAT BU	Betaproteobacteria	class	28216	Other	29
GTTGAGGAG MZ	Magnoliopsida	class	3398 Angiosperms	Plants	29
GTCGCACCTA BU	cellular organisms	no rank	131567	Other	27
GTCGCACCTA BU	cellular organisms	no rank	131567	Other	27
ATTATCTTCA CI	cellular organisms	no rank	131567	Other	27

GTTAAGTAG1 CI	cellular organisms	no rank	131567	Other	27
GTCACGTCA1 BU	cellular organisms	no rank	131567	Other	26
GTCGCTACTA BU	cellular organisms	no rank	131567	Other	26
CCACCTTCAC RV	cellular organisms	no rank	131567	Other	26
ATAGTGCA1 TP	Viridiplantae	kingdom	33090 Green plants	Other	26
GGTCCTAACC TP	cellular organisms	no rank	131567	Other	26
TTTATTATA1 WV	cellular organisms	no rank	131567	Other	26
GTAGTCAAG1 TP	Streptophyta	phylum	35493	Other	24
ATTAAGTGG1 CI	cellular organisms	no rank	131567	Other	23
GCTCCTAACC TP	cellular organisms	no rank	131567	Other	23
CGCCCGTCG1 BE	Ciliophora	phylum	5878 Ciliates	Other	22
GTCGCTCCTA BU	Ciliophora	phylum	5878 Ciliates	Other	22
GTCGCTCCTA BU	Ciliophora	phylum	5878 Ciliates	Other	22
CGCCCGTCG1 BE	Gastropoda	class	6448 Gastropods	Molluscs	21
ATTAGCTAG1 CI	cellular organisms	no rank	131567	Other	21
TTTAAGCAG1 CI	cellular organisms	no rank	131567	Other	21
GTCGCTCCTA BU	cellular organisms	no rank	131567	Other	20
TTTATCTAG1 CI	cellular organisms	no rank	131567	Other	20
TTTATCAGAA ZV	cellular organisms	no rank	131567	Other	20
CGCCCGTCG1 BE	Spirotrichea	class	33829	Ciliates	19
CGCCCGTCG1 BE	cellular organisms	no rank	131567	Other	19
CGCCCGTCG1 BE	Cryptophyceae	class	3027 Cryptomonads	Other	19
GTCGCTCCTA BU	Litostomatea	class	5988	Ciliates	19
GTCGCTCCTA BU	Spirotrichea	class	33829	Ciliates	19
GTCGCTCCTA BU	Spirotrichea	class	33829	Ciliates	19
ACTAAGTAG1 CI	cellular organisms	no rank	131567	Other	19
ATTAAGTTCC1 CI	cellular organisms	no rank	131567	Other	19
ACTGTCTTCA CI	cellular organisms	no rank	131567	Other	19
GTCTGATGT1 TP	Viridiplantae	kingdom	33090 Green plants	Other	19
CGCCCGTCG1 BE	cellular organisms	no rank	131567	Other	18
CGCCCGTCG1 BE	cellular organisms	no rank	131567	Other	18
GTCGCTCCTA BU	Cryptomonadales	order	589350	Cryptomonac	18
TCTAAGCGG1 CI	cellular organisms	no rank	131567	Other	18
ATTAAGTAG1 CI	cellular organisms	no rank	131567	Other	18
TGTACCGCCC LV	cellular organisms	no rank	131567	Other	18
GTTGAGGAG MZ	Loranthaeae	tribe	1003268	Plants	18
TTTAAGTGG1 CI	cellular organisms	no rank	131567	Other	17
ATTAGCTAG1 CI	cellular organisms	no rank	131567	Other	17
GTCGCTCCTA BU	cellular organisms	no rank	131567	Other	16
TTTAAGTAG1 CI	cellular organisms	no rank	131567	Other	16
ATTAAGTAG1 CI	cellular organisms	no rank	131567	Other	16
CAGCCTTCA1 LV	cellular organisms	no rank	131567	Other	16
ATCTTTATTT TP	cellular organisms	no rank	131567	Other	16
GTCGCTACTA BU	Neogastropoda	order	6479	Molluscs	15
GTCGCACCTA BU	cellular organisms	no rank	131567	Other	15
GTCGCTACTA BU	cellular organisms	no rank	131567	Other	15
GAATCAAAA1 TP	cellular organisms	no rank	131567	Other	15
GTCGCACCTA BU	cellular organisms	no rank	131567	Other	14
TTTAAGCGG1 CI	cellular organisms	no rank	131567	Other	14
CGCCCGTCG1 BE	Ciliophora	phylum	5878 Ciliates	Other	13
GTCGCACCTA BU	cellular organisms	no rank	131567	Other	13
TTTATCATCA CI	cellular organisms	no rank	131567	Other	13
ATTAAGTAG1 CI	cellular organisms	no rank	131567	Other	13
CATGAGGCT1 LV	cellular organisms	no rank	131567	Other	13
CGCCCGTCG1 BE	Evosea	phylum	2605435	Amoebae	12
CGCCCGTCG1 BE	Ichthyophonida	order	198625	Other	12
TTTAAGTAG1 CI	cellular organisms	no rank	131567	Other	12
GCTTGCTTCT CI	cellular organisms	no rank	131567	Other	12
GGAAGAAAA LV	cellular organisms	no rank	131567	Other	12
TTATCTGGCA LV	cellular organisms	no rank	131567	Other	12
AATATGTTTC TP	Viridiplantae	kingdom	33090 Green plants	Other	12
GCTCACTGA1 TP	cellular organisms	no rank	131567	Other	12
GTCACATCAT BU	cellular organisms	no rank	131567	Other	11
GTTATCTTCA CI	cellular organisms	no rank	131567	Other	11
TTTAAGTAG1 CI	cellular organisms	no rank	131567	Other	11
TTTAAGTAG1 CI	cellular organisms	no rank	131567	Other	11
CGCCCGTCG1 BE	Fungi	kingdom	4751	Other	10
CGCCCGTCG1 BE	cellular organisms	no rank	131567	Other	10
CGCCCGTCG1 BE	cellular organisms	no rank	131567	Other	10
CGCCCGTCG1 BE	Ciliophora	phylum	5878 Ciliates	Other	10
GTCGCACCTA BU	cellular organisms	no rank	131567	Other	10
GTCGCTACTA BU	cellular organisms	no rank	131567	Other	10
ACTTTCATCT. CI	cellular organisms	no rank	131567	Other	10

ATCTGGTTTC TP	cellular organisms	no rank	131567	Other	10
CGCCCGTCG( BE	cellular organisms	no rank	131567	Other	9
CGCCCGTCG( BE	Spirotrichea	class	33829	Ciliates	9
GTCGCTTGT# BU	Tetrahymenina	suborder	37093 Ciliates	Ciliates	9
GTCACACCAT BU	Alphaproteobacteria	class	28211	Other	9
GTCACACCAT BU	Sphingomonadales	order	204457	Other	9
GTCGCTCCT# BU	cellular organisms	no rank	131567	Other	9
ATCACGCTCC BU	cellular organisms	no rank	131567	Other	9
TCTCAGTAGC CI	cellular organisms	no rank	131567	Other	9
ATTAAGTGG/ CI	cellular organisms	no rank	131567	Other	9
TTTAGCAGAT CI	cellular organisms	no rank	131567	Other	9
GTTAAGTGG/ CI	cellular organisms	no rank	131567	Other	9
TCTATCTACA CI	cellular organisms	no rank	131567	Other	9
GTAGTCAAG/ TP	Viridiplantae	kingdom	33090 Green plants	Other	9
GTCGCTACT# BU	Bivalvia	class	6544 Bivalves	Molluscs	8
ATTAGCTGG1 CI	cellular organisms	no rank	131567	Other	8
TTTAAGTAGT CI	cellular organisms	no rank	131567	Other	8
TTTAAGTACT CI	cellular organisms	no rank	131567	Other	8
CGCCCGTCG( BE	cellular organisms	no rank	131567	Other	7
CGCCCGTCG1 BE	Kinetoplastea	class	5653 Kinetoplastids	Other	7
GTCGCTCCT# BU	cellular organisms	no rank	131567	Other	7
GTC AAGCCA( BU	Planctomycetales	order	112	Other	7
TTTAAGTTCT CI	cellular organisms	no rank	131567	Other	7
TTTAAGTAGT CI	cellular organisms	no rank	131567	Other	7
ACTAAGTAG1 CI	cellular organisms	no rank	131567	Other	7
ATTAAGTAAT CI	cellular organisms	no rank	131567	Other	7
ATTAAGTGG( CI	cellular organisms	no rank	131567	Other	7
CTGAATAACC LV	cellular organisms	no rank	131567	Other	7
AAGTCTCT TP	Viridiplantae	kingdom	33090 Green plants	Other	7
TTTATCAAGA ZV	Arthropoda	phylum	6656 Arthropods	Other	7
CGCCCGTCG( BE	Tetrahymenina	suborder	37093 Ciliates	Ciliates	6
CGCCCGTCG( BE	cellular organisms	no rank	131567	Other	6
CGCCCGTCG( BE	Spongillida	order	1779161	Other	6
CGCCCGTCG( BE	cellular organisms	no rank	131567	Other	6
CGCCCGTCG( BE	Chromulinales	order	96792	Heterokont a	6
GTCACACCAT BU	cellular organisms	no rank	131567	Other	6
GTCACATCAC BU	cellular organisms	no rank	131567	Other	6
GTCGCTCCT# BU	cellular organisms	no rank	131567	Other	6
GTCACACCA( BU	Proteobacteria	phylum	1224 Purple bacteria and relatives	Other	6
GTCACACCAT BU	Alphaproteobacteria	class	28211	Other	6
ATTAAGTTCT CI	cellular organisms	no rank	131567	Other	6
ATTATCATCA CI	cellular organisms	no rank	131567	Other	6
TTTAAGTGG( CI	cellular organisms	no rank	131567	Other	6
CTTCGAGGT# LV	cellular organisms	no rank	131567	Other	6
GTTGAGGTG# MZ	Viridiplantae	kingdom	33090 Green plants	Other	6
ATTTTATTTI TP	cellular organisms	no rank	131567	Other	6
CGCCCGTCG( BE	Bivalvia	class	6544 Bivalves	Molluscs	5
CGCCCGTCG( BE	Sessilida	order	1974272	Ciliates	5
CGCCCGTCG( BE	Annelida	phylum	6340 Annelid worms	Other	5
GTCACACCAT BU	Sulfuricurvum kujiense DSM 16994	strain	709032	Other	5
GTCACACCAT BU	cellular organisms	no rank	131567	Other	5
GTCACACCA( BU	cellular organisms	no rank	131567	Other	5
GTCGCTCCT# BU	Cryptophyceae	class	3027 Cryptomonads	Other	5
TTTAAGTAGT CI	cellular organisms	no rank	131567	Other	5
TTTAGCAGG( CI	Spongillida	order	1779161	Other	5
TTTATCCAGA CI	cellular organisms	no rank	131567	Other	5
ATTAGCTAGT CI	cellular organisms	no rank	131567	Other	5
GGTTATTCA# LV	Galaxiiformes	order	51241 Galaxias and mudfish	Fish	5
CCCCCTCCAG LV	cellular organisms	no rank	131567	Other	5
CGCCCGTCG( BE	Chordata	phylum	7711 Chordates	Other	4
CGCCCGTCG1 BE	cellular organisms	no rank	131567	Other	4
CGCCCGTCG( BE	cellular organisms	no rank	131567	Other	4
CGCCCGTCG1 BE	cellular organisms	no rank	131567	Other	4
CGCCCGTCG( BE	cellular organisms	no rank	131567	Other	4
CGCCCGTCG( BE	cellular organisms	no rank	131567	Other	4
GTCGCTCCT# BU	cellular organisms	no rank	131567	Other	4
ATCACGCTCC BU	cellular organisms	no rank	131567	Other	4
GTCGCTCCT# BU	cellular organisms	no rank	131567	Other	4
GTCGCTCCT# BU	cellular organisms	no rank	131567	Other	4
GTCGCTTGA# BU	cellular organisms	no rank	131567	Other	4
GTCGCTCCT# BU	cellular organisms	no rank	131567	Other	4
ATCACGCTCC BU	cellular organisms	no rank	131567	Other	4
TTTGTC AAG# CI	cellular organisms	no rank	131567	Other	4

TTAAGTGG# CI	cellular organisms	no rank	131567	Other	4
TTAAGTAGT CI	cellular organisms	no rank	131567	Other	4
ATTAAGTTCT CI	cellular organisms	no rank	131567	Other	4
TTTATCAAGT CI	cellular organisms	no rank	131567	Other	4
ATTAAGTGGI CI	cellular organisms	no rank	131567	Other	4
ATTAAGTAGT CI	cellular organisms	no rank	131567	Other	4
ATTATCTGCT CI	cellular organisms	no rank	131567	Other	4
CTTGATGTAC LV	cellular organisms	no rank	131567	Other	4
TCTTCCAGAA LV	cellular organisms	no rank	131567	Other	4
AAGCCCGCC LV	cellular organisms	no rank	131567	Other	4
GTAAGAACG MZ	Viridiplantae	kingdom	33090 Green plants	Other	4
TTTATCGGGT CI	cellular organisms	no rank	131567	Other	3
ACTAAGTGG CI	cellular organisms	no rank	131567	Other	3
GTTAAGTGG CI	cellular organisms	no rank	131567	Other	3
GCTAAGTACT CI	cellular organisms	no rank	131567	Other	3
TTAAGTAGT CI	cellular organisms	no rank	131567	Other	3
ATTAGCGAG CI	cellular organisms	no rank	131567	Other	3
GTTATCAAGT CI	cellular organisms	no rank	131567	Other	3
TTTAGCTTCT CI	cellular organisms	no rank	131567	Other	3
ATTAAGTGGI CI	cellular organisms	no rank	131567	Other	3