NIWA
Taihoro Nukurangi

29 November 2021

Kate Attwood
Surface Waters Environmental Engineer
Selwyn District Council

Dear Kate,

As required as a condition of Resource Consent CRC172231 (discharge of Stormwater and Land Drainage Water from the Osbornes Drain Catchment into Te Waihora/Lake Ellesmere), NIWA has completed monitoring and fish relocation in Osbornes Drain, Pump Forebay and Branch Drain.

Sampling conditions during October–November 2021 were similar to the previous year where the Osbornes Drain system had water levels that were at least 600 mm higher compared with previous years. It appeared this was due to higher water levels in Lake Ellesmere, and/or less pumping activity during the sampling period. In the Branch Drain, water had backed up for more than 100 m from the confluence with the Sump Pond, and any flow was imperceptible under these conditions.

There were 12 nets set during each sampling trip. Except for the two nets set in Branch Drain, the remaining nets were all set in the area required by the consent. Nets were set from the bank because the water level this year was too deep in the main drain and sump pond to allow wading. As in previous years, Gee-minnow traps were not used as the fine-meshed fyke nets used capture both small and large fish have compartments to separate the smaller fishes from larger eels. Electric fishing was also attempted in Branch Drain but due to high water conductivity was abandoned, as the methodology/fish capture is significantly compromised under these conditions. It was also noted, by the piles of sediment on the banks, that the sump pond had been dredged at some stage during the last 12 months.

A total of 111 eels were captured during the 2021 monitoring, compared with 109 fish captured during the monitoring in 2020. This is the highest number caught to date with 43 fish caught in 2019, 83 fish caught in 2018, and 103 during 2017 (sampling was conducted at a similar time each year). This year 61 eels were captured during the first sampling event and 50 eels during the second. Previous surveys have recorded inanga (2019), common bully (2017) and also pest fish species (rudd and tench) in 2018 but only eels were captured during the 2021 survey. Three longfin eels were recorded during the 2021 survey (range: 365–515 mm), compared to only a single one longfin eel during 2018 and 2019 surveys. Shortfin eel were again the most abundant fish comprising 97.3% of the total catch (range: 253–811 mm).

Following the removal of all the nets from the waterway and subsequent catch being measured and recorded, all captured eels were released into the Halswell Canal (at the boat ramp).

A full breakdown of the fish species captured, fish length measurements, and catch per net, during this year's monitoring is provided in Appendix A. Location data are available upon request.

Kind regards,

Phillip Jellyman

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Appendix A. Catch data from Osbornes Drain sampling in October – November 2021.

Date	Drain	Net number	Fish species	Number caught	Min fish size (mm)	Max fish size (mm)
20/10/2021	Sump by pump	1	Longfin eel	1		515
20/10/2021	Sump by pump	2	Shortfin eel	2	420	422
20/10/2021	Sump by pump	3	Shortfin eel	1		420
20/10/2021	Sump by pump	4	Shortfin eel	8	470	811
20/10/2021	Sump by pump	5	Shortfin eel	10	393	795
20/10/2021	Main drain	6	Shortfin eel	2	420	600
20/10/2021	Main drain	7	Shortfin eel	2	328	460
20/10/2021	Main drain	8	Shortfin eel	8	420	665
20/10/2021	Main drain	9	Shortfin eel	4	380	540
20/10/2021	Main drain	10	Shortfin eel	10	332	711
20/10/2021	Branch drain downstream	11	Shortfin eel	10	480	753
20/10/2021	Branch drain upstream	12	Shortfin eel	3	510	648
3/11/2021	Sump by pump	1	Shortfin eel	0		
3/11/2021	Sump by pump	2	Shortfin eel	7	395	566
3/11/2021	Sump by pump	3	Shortfin eel	2	460	540
3/11/2021	Sump by pump	4	Shortfin eel	3	305	538
3/11/2021	Sump by pump	5	Shortfin eel	6	365	630
3/11/2021	Main drain	6	Shortfin eel	6	253	624
3/11/2021	Main drain	7	Shortfin eel	4	290	476
3/11/2021	Main drain	8	Shortfin eel	1		425
3/11/2021	Main drain	9	Shortfin eel	5	280	648
3/11/2021	Main drain	9	Longfin eel	1		400
3/11/2021	Main drain	10	Shortfin eel	1		544
3/11/2021	Branch drain downstream	11	Shortfin eel	8	340	705
3/11/2021	Branch drain upstream	12	Longfin eel	1		365
3/11/2021	Branch drain upstream	12	Shortfin eel	5	390	662