



FRESHWATER ACTIVITY

1 Waterway Enhancement & Protection

1.1 Activity Overview

Horizons' Freshwater Team is a small group that works closely with other Horizons teams and people external to the organisation, to implement water quality and aquatic habitat improvement works. The team draw on the scientific monitoring work carried out by Horizons and other agencies to prioritise and focus implementation efforts. The team also actively seeks funding from other sources, allowing the acceleration of works. The team's main activities include riparian fencing and planting for water quality improvement and fish habitat enhancement, including the identification and enhancement of whitebait spawning habitat and fish passage improvement (Table 1 and Figure 1). Other activities include a wide range of works on projects such as the Manawatū River Leaders' Accord, Lake Horowhenua Accord, and **Freshwater Improvement Fund** (FIF) projects; these works include sewage treatment plant upgrades and lake weed harvesting. In the 2018-19 financial year 13 out of 15 annual plan targets were met with targets for the Whangaehu Stream fencing (14.1 km completed for a target of 17) and the Regional programme fish pass work not being completed. At and overall level the stream fencing target of 69 km was well exceeded with over 114 km of fencing completed. Seven fish passes were completed for an overall target of 7 completed, with one not completed in the regional programme and one extra fish pass completed in the Manawatū catchment.

Table 1 Summary of riparian fencing and planting in 2018-19 financial year.

	Riparian Fencing			Riparian Planting			Fish Passes			Community Projects		
	Target	Completed (km's)	% complete to target (%)	Target	Completed (km's)	% complete to target (%)	Target	Completed	% complete to target (%)	Target	Completed	% complete to target (%)
Regional	12	26.623	222%	20,000	49,619[1]	248%	1	0	0%	1	2	200%
Manawatū	50	73.468[2]	147%	40,000	92,911[3]	232%	4	5	125%	9	9	100%
Whangaehu	17	14.11	83%	3,333	6,454	194%	2	2	100%	4	5	125%
Total	69	114.201	166%	63,333	148,984	235%	7	7	100%	14	16	114%

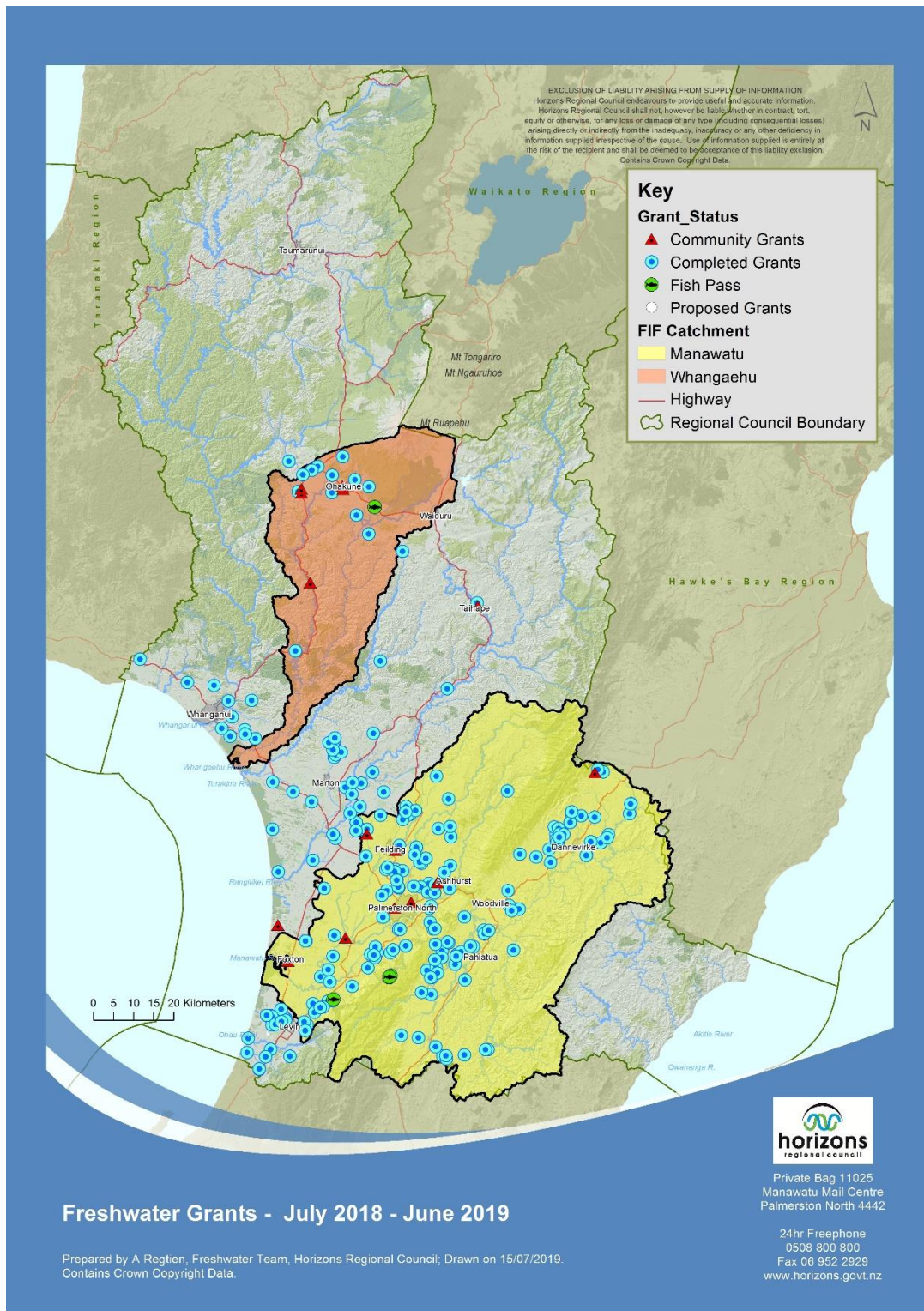


Figure 1 Location of the Freshwater Grants works completed in 2018-19, including the Regional, Manawātū and Whangaehu programmes. Each point on the map represents one fencing, planting, fish pass or community project.

2 Manawatū River Accord/Freshwater Improvement Fund

2.1 Activity Overview

2.1.1 The Manawatū River Leaders' Accord Action Plan includes an array of activities related to improving water quality, to achieve the goals of the Accord. This activity funds works to improve water quality in the Manawatū Catchment as part of the Accord, including excluding stock from streams, riparian planting, improving fish passages and supporting community projects. During this financial year and the following four years the targeted rate is to be used as Horizons' contribution to the Freshwater Improvement Fund project.

2.2 Targets

2.2.1 All Annual Plan targets were met in 2018-19 for the Manawatū Freshwater Improvement Fund project. A summary of progress against the Annual Plan targets is provided in Table 1.

Table 1 Annual Plan performance measures and assessment against the year-end for 2018-19 for the Manawatū FIF project.

Annual plan target	Year to date	Target	% Complete
Stream fencing (km)	73.468 ¹	50	147%
Riparian plants	92,911 ²	40,000	232%
Fish barrier remediation	5	4	125
Community project funded	9	9	100

2.3 Activity Highlights

Manawatū River Leaders' Accord and Action Plan

- 2.3.1 A Manawatū River Leaders' Accord Forum was held on the 7th May 2019, the next will be scheduled for November 2019.
- 2.3.2 The end of year report (2018-19) for the Manawatū River Freshwater Improvement Fund project is currently being prepared to go to the Governance Group and then to be lodged with the **Ministry for the Environment** (MfE). The end of year report is also to go through an independent audit (outside of the normal AuditNZ process).
- 2.3.3 The 2019-20 Manawatū Accord Community Fund applications were opened during June 2019, with applications closing on the 9th August 2019. Advertising is being undertaken via social media and through newspapers. Freshwater staff are available to discuss potential projects with members of the community.

¹ Includes 70,530 km's in the Freshwater Improvement Fund project and 2,938 km's in the Tu Te Manawa project.

² Includes 82,664 riparian plants in the Freshwater Improvement Fund project and 10,247 in the Tu Te Manawa project.

- 2.3.4 The focus during the reporting period was on the completion of the stream fencing and riparian planting claims, and the completion of the community projects. A number of community planting days have been held throughout the Manawatū Catchment during the reporting period with further days to be held during July and August.
- 2.3.5 The team still continues to receive enquiries regarding riparian planting for this winter however, any planting enquiries are being pushed into next winter due to availability of suitable plants and staff capacity.

3 Regional Freshwater Programme

3.1 Activity Overview

- 3.1.1 This programme focuses on the protection and enhancement of waterways across the Region, excluding the Manawatū and Whangaehu FIF projects. The main component of the Regional Freshwater Programme is supporting stock exclusion from waterways via Freshwater Grants, advice and education, riparian enhancement and planting where desirable, aquatic habitat enhancement, and supporting industry and community-led initiatives.
- 3.1.2 Three of the four Annual Plan targets were met in 2018-19 for the Regional Freshwater programme with the fish pass target not being met (Table 2). For the fish passes two projects had been allocated for this target, one was commenced prior to the end of the financial year but was not completed and the other was not started. A summary of progress against the Annual Plan targets is provided in Table 2.

Table 2 Annual Plan performance measures and assessment against year-end 2018-19 for the Regional Freshwater Programme, excluding the Manawatū and Whangaehu FIF projects.

Annual plan target	Year to date	Target	% Complete
Stream fencing (km)	26.623	12	222%
Riparian plants	49,619 ³	20,000	248%
Fish barrier remediation	0	1	0%
Community project supported	2	1	200%

3.2 Activity Highlights

Work with individuals, community groups and iwi to improve waterways

- 3.2.1 The focus during the reporting period was on the completion of the stream fencing and riparian planting claims. The team still continues to receive enquiries regarding fencing and planting

³ Includes 32,919 in the regional programme and 16,700 through the Ngā Pau Rau o Rangitikei

however, any planting enquiries are being pushed into next winter due to availability of suitable plants and staff capacity.

Te Mana o te Wai, Nga Puna Rau o Rangitikei

3.2.2 The 30th June 2019 saw the completion of the Ngā Puna Rau o Rangitikei project with a large amount of work being completed in the last few months of the 2018-19 financial year to see the riparian fencing and planting projects completed. During the 2018-19 the following works led by Horizons were completed:

- 430 metres of stream fencing and planting 1,000 riparian plants along the Hautapu River;
- The poisoning of poplars and planting 13,000 native plants in the Lake Oporoa Catchment;
- 200 metres of stream fencing and planting of 1,700 riparian plants along the Pourewa Stream;
- Infill planting of 1,000 riparian planting along the Makowhai Stream; and
- Installation of five signs in project locations to show the areas of works.

3.2.3 In July 2019, the Governance Group presented the Ngā Puna Rau o Rangitikei catchment strategy produced as a part of the project to Central Government officials.

Lake Dudding

3.2.4 In November 2018 monitoring of Lake Dudding showed water quality results which resulted in staff seeking external advice as there is concern that the lake may be in the process of flipping. Those concerns were confirmed by Max Gibbs from NIWA that the lake was likely to be in the process of flipping. This increased risk of flipping was reported to Council via Environment Committee in December 2018 and as a part of a Strategy and Policy meeting in March 2019. The process of flipping is a lake going from a macrophyte dominated lake to an algal dominated lake.

3.2.5 This means that if the macrophytes collapsed within Dudding Lake they would unlikely be replaced and the lake system would become permanently algal dominated. Due to the increased risk of the lake flipping and needing to obtain more monitoring information Horizons began to monitor the lake on a monthly basis for water quality and the weekly contact recreation monitoring continued. Around the same time the lake experienced a toxic algal cyanobacteria bloom that resulted in Public Health closing the lake to contact recreation.

3.2.6 During September 2018 two Envirolink funded reports were completed by David Kelly from Cawthron Institute to identify information gaps in information that is available to inform the development of restoration plans for the regions shallow and deep coastal lakes. Given the results of the water quality monitoring collecting some of this additional information from Lake Dudding was given a priority. This included monthly water quality monitoring of the lake, the commissioning and completion of a pest fish survey; and the collection of sediment cores from three locations in the lake.

- 3.2.7 During early April pest fish monitoring was undertaken in Lake William and Dudding. Lake William having no pest fish species encountered at all and Dudding Lake having both perch and goldfish. In addition, to having these two fish species large holes were encountered in the nets which could not be explained by the species found in the lake. NIWA were commissioned to undertake further work with stronger coarser nets which was booked for late May 2019.
- 3.2.8 On the 22nd and 23rd May a two day expert's workshop was held for Lake Dudding. The workshop was chaired by Dr Clive Howard-Williams from NIWA and involved staff from Horizons, Rangitikei District Council, Department of Conservation, Public Health, NIWA, Cawthorn, and Otago University. The purpose of the workshop was to develop a joint expert statement on the current condition of the lake and to identify options for its restoration. An expert conferencing statement was drafted and was in the early stages of being finalised.
- 3.2.9 During the second round of pest survey work, shortly after the workshop, a grass carp was found to be present in the lake.
- 3.2.10 The discovery of grass carp being present in the lake a week after the workshop has meant that this statement has been put on hold as some of the underlying assumptions in its development may be incorrect. At a high level the expert group had identified three scenarios for in-lake interventions (that needed to be packaged with a number of catchment level interventions). Depending on the density of grass carp that are found in the lake this is potentially reduced to two options.
- 3.2.11 A teleconference of available experts has agreed that the next stage in the process is to identify the number/density of grass carp that are currently in the lake. Once this information gathered the next steps will be decided on. This work is to be undertaken in conjunction with RDC. In addition, for this coming summer there is a high risk that the lake will experience another toxic algal bloom that may require closure to the public for contact recreation. There are flocculent options that will prevent/significantly reduce the risk of this occurring. However, no budget exists for such an operation and the addition of such an element to the lake is likely to require a resource consent from Horizons. Whether these costs should sit with Horizons or RDC as the lake owner is a decision for this Council to consider.
- 3.2.12 The discovery of grass carp within Dudding Lake has been passed onto the Department of Conservation and Ministry of Primary Industries as the regulators for any initial and continuing releases of grass carp into waterways.
- 3.2.13 During this second pest fish survey, questions were raised around Horizons permissions to sample the lake. Permissions were subsequently granted on behalf of Rangitikei District Council to continue with the second pest fish survey. After this survey, Horizons were requested to cease monitoring of the lake. Horizons sought permissions to continue sampling and Rangitikei District Council provided permissions to allow monitoring that did not capture biota, this caveat meant that no water samples could be collected due to biota being present in the water. Horizons continued to seek permissions to undertake sampling at the lake and subsequently in July, permissions have been

granted for sampling to resume. There is a two month gap in the data as sampling was not able to be completed during June and July 2019. Sampling will resume in August.

Ototoka Stream Community Planting

- 3.2.14 Te Kaahui o Rauru has purchased and supplied 4,800 riparian plants for the enhancement of water quality at two sites in the Ototoka Catchment, Horizons staff are contributing with technical advice and logistics. One site is situated on private and Whanganui District Council (WDC) land upstream from SH1 and William Birch Pool, and the other on Crown land administered by WDC at the waterfall above the steam mouth at Ototoka Beach. The majority of the planting is being undertaken by staff from Kii Tahī Nursery.
- 3.2.15 An iwi and community planting day has been tentatively planned for Saturday 10 August at the Waterfall site.
- 3.2.16 Information flyers have been sent to all landowners within the Ototoka Catchment, the flyer provides information on the water quality issues that the catchment is experiencing, the causes of this, and the grants that Horizons has available to incentivize stock exclusion and riparian planting in the catchment. Flyers will continue to be sent to these landowners as a focus catchment for the Regional programme in the new financial year (2019-20).

4 Whangaehu Freshwater Improvement Fund

4.1 Activity Overview

This programme focuses on the delivery of the Ngā Wai Ora o Te Whangaehu Freshwater Improvement Fund project, which focuses on the protection and enhancement of waterways within the Whangaehu Catchment. The main components of the programme are supporting stock exclusion from waterways, riparian enhancement and planting where desirable, aquatic habitat enhancement and supporting industry and community-led initiatives. The following report provides the annual summary to Council on the Ngā Wai Ora o te Whangaehu Awa Freshwater Improvement Fund project as required by a Long Term Plan target.

4.2 Targets

- 4.2.1 Three of the four Annual Plan targets were met in 2018-19 for the Whangaehu Freshwater Improvement Fund project with the stream fencing target not being met (Table 3). Over 22 kilometres of stream fencing was allocated of the 2018-19 financial year however only 14.1 km was completed. The allocated yet uncompleted work will transfer to the new financial year and staff are now working to ensure that over the three years of the Freshwater Improvement Project the overall targets for the project are met.

Table 3. Annual Plan performance measures and assessment against year-end 2018-19 for the Whangaehu FIF project.

Annual plan target	Year to date	Target	% Complete
Stream fencing (km)	14.11 kms	17	83%
Riparian plants	6,454	3,333	194%
Fish barrier remediation	2	2	100%
Community project funded	5	4	125%

4.2.2 A Governance Group meeting was held on 17 April 2019 which approved the quarter three report and the work programme for 2019-20. The next Governance Group meeting is programmed for the 25th July 2019 to receive the annual work report.

4.2.3 The 2019-20 Whangaehu Community Fund applications were opened during June 2019, with applications closing on the 9th August 2019. Advertising is being undertaken via social media and through newspapers. Freshwater staff are available to discuss potential projects with members of the community.

4.2.4 The focus during the reporting period was on the completion of the stream fencing and riparian planting claims, and the completion of the community projects. Two community planting days were held as part of the funded community projects. One planting day as part of the Makotuku Walkway project and another along the Makotuku Stream at Mote Katoa.

5 Lake Waipu Freshwater Improvement Fund

5.1 Activity Overview

The Lake Waipu Freshwater Improvement Fund project specifically seeks to remove the discharge into the lake from the Rātana Wastewater Treatment Plant. This is to be led by Rangitikei District Council (RDC) as the consent holder and Horizons' project relates to monitoring the effect of the removal of discharge from the lake and to understand the lake's internal processes. The aim is to develop a restoration plan that deals with the legacy issue resulting from the current discharge. The following report provides the annual summary to Council on the Lake Waipu Freshwater Improvement Fund project as required by a Long Term Plan target.

Table 4. Annual Plan performance measures and assessment against year-end 2018-19 for the Lake Horowhenua Accord, including the Freshwater Improvement Fund project.

Annual plan target	Year to date	Target	% Complete
Annual report to Council on the Waipu Catchment Freshwater Improvement Fund project.	1	1	100%

- 5.1.1 The Deed of Funding has been finalised with the Ministry for the Environment with the project officially commencing on the 1st July 2019. A sub-contract between Rangitīkei District Council (RDC) and Horizons is currently being drafted for the delivery of the RDC part of the project.
- 5.1.2 Horizons Catchment Data team has installed a continuous monitoring buoy on the lake and is collecting data on temperature, dissolved oxygen, pH, conductivity, and turbidity at 15 minute intervals and is being telemetered back to the Horizons office.
- 5.1.3 RDC are currently looking at potential discharge locations to land in close proximity to the Waste Water Treatment Plant. This may involve the purchase of land, or a long term lease of land. A working party meeting was held on the 17th May 2019 at Rātana.

6 Lake Horowhenua Accord and Lake Horowhenua Freshwater Clean-Up Fund

6.1 Activity Overview

The Accord is a partnership between the Lake Horowhenua Trust, Horowhenua Lake Domain Board, Horowhenua District Council, Horizons Regional Council and the Department of Conservation to address water quality issues in Lake Horowhenua. Several Clean-Up Fund projects have an ongoing work component. Horizons also had a role in delivering some of the Te Mana o Te Wai projects which were to be completed by October 2018, and a component of the Freshwater Improvement Fund project which started on 1 July 2018.

6.2 Targets

Table 5 Annual Plan performance measures and assessment against year-end 2018-19 for the Lake Horowhenua Accord, including the Freshwater Improvement Fund project.

Annual plan target	Year to date	Target	% Complete
Annual report to Council on lake restoration activity including the Freshwater Improvement Fund project for Lake Horowhenua.	1	1	100%

6.3 Activity Highlights

The Lake Horowhenua Accord, Te Mana o Te Wai and FIF project

- 6.3.1 A comprehensive update on lake restoration activity was provided to Council in September 2018 (Regional Council meeting). This provided the annual report identified in the LTP target.
- 6.3.2 Staff attended Governance Group meetings for the Te Mana o Te Wai project and the Freshwater Improvement Fund projects in May. The Te Mana o Te Wai meeting focussed on the final tasks for the project. The Freshwater Improvement Project was due to start in the 2018-19 year, however

was delayed due to the court processes around the Lake Trust election. The Lake Trust are now working with the Ministry for the Environment around establishing the Deed for the project and a revised work programme for delivery. Horizons are in discussions with the Lake Trust around the revised timeframes and approach to the groundwater monitoring component of this project.

6.3.3 On the 24th June 2019 the Māori Appellate Court heard the appeal on the decision from the Maori Land Court in which Ms Taueki sought an injunction against the construction of the boat ramp on Lake Trust land. The panel made a verbal decision on the day and dismissed the appeal in its entirety with the Court finding:

- Ms Taueki did not have the necessary standing to bring the application for injunction in the first instance; and
- The position of Horizons and the Lake Trust as to the rights afforded under ROLD and the question of alienation was correct.

6.3.4 Following the Māori Appellate Court decision, there has been a decision on costs where the court awarded that Ms Taueki pay \$15,000 to Horizons for costs. This is subsequently going through a further legal process as outlined in the Table below.

6.3.5 The table below provides a timeline of the legal processes since the resource consents were granted for the fish pass, sediment trap and weed harvesting activity at the local hearing in 2015, including the recent Maori Appellate court process. The court and HeritageNZ processes were delayed during 2018-19 due to the court processes around the election of the Lake Trust that is still ongoing. Horizons are currently working towards undertaking the weed harvesting activity in Spring of 2020.

Table 6: Timeline of legal challenges since the local hearing resource consents were granted in 2015

Date	Description
9 December 2015	Independent Commissioners grant consents for restoration activities.
19 January 2016	Hōkio Trust file Notice of Appeal against grant of all consents.
18 October 2016	Hōkio Trust files Notice of Appeal against Environment Court decision.
22 September 2016	Decision of Environment Court - [2016] NZEnvC 185. Appeal of Hōkio Trusts denied and consents confirmed (subject to conditions).
21 April 2017	Environment Court confirms amended conditions lodged by MWRC.
21 June 2017	Decision of the High Court – [2017] NZHC 1355, dismissing Hōkio Trust appeal of the Environment Court decision.
27 September 2017	Award of costs against Hōkio Trust, Hōkio A Trust, Hōkio Part A Trust and Hōkio Maori Township Trust: MWRC (as applicant) the sum of \$75,500; and MWRC (as respondent) the sum of \$36,500.
May 2017 - April 2018	Fish pass and sediment trap restoration activities undertaken.
24 April 2018	Application for Interlocutory Injunction filed by Vivienne Taueki - to prohibit the construction of the boat ramp and access way forming part of the weed harvesting consent.
April 2018	Discovery of Midden. Heritage New Zealand Accidental Discovery procedure initiated – need for Heritage New Zealand approval.
17 May 2018	Maori Land Court dismissed injunction application due to the statutory rights of access afforded to MWRC under the Reserves and Other Lands Disposal Act 1956 (ROLD).
16 July 2018	Notice of Appeal against the decision of the Maori Land Court filed by Vivienne Taueki.
12 September 2018	Maori Appellate Court issue a judgment quashing the order to appoint trustees on 19 May 2016. Mr Hemana appointed as Responsible Trustee in absence of any trustees officially in office, with former trustees acting as advisory trustees. The lack of trustees resulted in several adjournments of the appeal and created delays with HNZ process.
24 June 2019	Maori Appellate Court dismisses appeal on the basis that the Appellant does not have standing to seek an injunction under s 19(1)(a); and upholds the Maori Land Court decision as to among other things the statutory rights of access provided under ROLD.
8 June 2019	MWRC application for costs filed.
24 June 2019	Maori Appellate Court award \$15,000.00 in costs against Vivienne Taueki.
23 July 2019	Application for recall of Maori Appellate Court costs decision filed by Vivienne Taueki.
26 July 2019	Memorandum of MWRC filed in response to recall of judgment.
31 July 2019	Direction of the Maori Appellate Court allowing rehearing of costs decisions. Rehearing to be on the papers: Submissions for Appellant due 14 August 2018; and Submissions for MWRC due 21 August 2018.

7 Freshwater Improvement Work with the Horticultural Sector

7.1 Activity Overview

Building on previous work with the Tararua Growers Association as a part of the Freshwater Clean-Up Fund project, Horizons established new funding of \$70,000 per year for work with the horticulture sector to reduce nutrient and sediment loss from horticulture farms. This funding will be used in part to contribute to a **Sustainable Farming Fund** (SFF) project future-proofing vegetable production.

The balance of the funding will be prioritised to implementation of work to reduce nutrient and sediment losses from horticultural farms, including establishment of sediment traps etc, similar to the way freshwater grants are paid for fencing and planting of waterways. This funding may be utilised to design the proposed interventions. The following report provides the annual summary to Council on the work with the horticulture sector through the Freshwater programme as required by a Long Term Plan target.

7.2 Targets

Table 7 Annual Plan performance measures and assessment against year-end 2018-19 for Freshwater Improvement Work with the horticultural sector.

Annual plan target	Year to date	Target	% Complete
Annual report on work with the horticulture sector through the freshwater and partnerships programme to improve water quality.	1	1	100%

7.3 Activity Highlights

Future-proofing vegetable production

7.3.1 This project is mainly funded through the Sustainable Farming Fund with a number of other co-funders. The project is not specific to the Lake Horowhenua Catchment, although a lot of the ground work and trials are to occur within the catchment where the relationships have already been established through other work programmes such as the Clean-Up Fund. The intent is that once these projects have been trialled in the Lake Horowhenua Catchment they can be moved out into other parts of the Region. This project has three main deliverables:

- Guidelines for Novel Nitrogen Recapture Techniques;
- Updated Good Nutrient Management Practices;
- Common Pool Resource Management which is about getting actual change for the better happening on farms.

7.3.2 The Sustainable Farming Fund project is also being supported by Gisborne District Council, Landwise and Potatoes NZ. Horizons has asked that the work be presented to growers outside of the

Horowhenua as a part of the project. A Massey PhD study with support from Horizons Science and Innovation programme is aligned with this work.

7.3.3 During the reporting period the quarter four report was received from LandWise on work that had been completed during quarter four. This can be made available on request.

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Figure 2: Stream fencing and riparian planting in the Rangitīkei catchment.



Figure 3: Stoney Creek Community planting day - project co-funded through the Manawatū Accord Community Grants.



Figure 4: Stream fencing in the Turakina catchment.



Figure 5: Kopoturoa School planting day.



Figure 6: Makotuku walkway community planting day. Funding received through the Whangaehu Freshwater Improvement Fund community project.



Figure 7: Community planting day on the Kawau Stream. Funding received through the Freshwater Improvement Fund Manawātū Accord Community Grants.



Figure 8: Community planting with Kai Iwi Stream on the Mowhanau Stream.



Figure 9: Community planting day with Feilding Ag in the Tokomaru Catchment.