



OUR PROGRESS

MAKING A DIFFERENCE IN
FIVE KEY CATCHMENTS

ANNUAL REPORT
— JULY 2015—JUNE 2016

**LIVING
WATER**






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An aerial photograph of a rural landscape. In the foreground, a river flows through a lush green area with dense vegetation. Beyond the river, the land is divided into large, rectangular fields by dark lines, likely fences or roads. Some fields are green, while others are brown, suggesting different stages of crop growth or land use. In the distance, there are several farm buildings, including a large white barn and smaller structures, surrounded by trees. The overall scene is a typical New Zealand rural setting.

LIVING WATER IS A LONG-TERM COMMITMENT BY FONTERRA AND THE DEPARTMENT OF CONSERVATION TO PROTECT THE HEALTH OF OUR WATERWAYS.

OUR NAME IS REPRESENTATIVE OF OUR PARTNERSHIP VISION – THAT A SUSTAINABLE DAIRY INDUSTRY IS PART OF HEALTHY, FUNCTIONING ECOSYSTEMS THAT TOGETHER ENRICH THE LIVES OF ALL NEW ZEALANDERS.

LIVING WATER HAS NATIONAL SCOPE BUT ACTS LOCALLY, TO ENSURE WE MAKE A DIFFERENCE WHERE IT COUNTS – IN FIVE OF NEW ZEALAND'S KEY CATCHMENTS.

FOREWORD

In the third year of our 10-year Living Water partnership with the Department of Conservation (DOC) it is great to see we achieved the milestone of having made environmental improvements in all of the five catchments.

Coming this far so quickly has been the direct result of the passion and support from a wide group of people including our farmers, community groups, iwi and local authorities.

I am also excited by the variety of projects we've launched this year. We're providing schools with outdoor classrooms, using Brazilian beetles to control the pest plant Wandering Willie, and 12 kiwis are now living safely in a predator-free area.

Two of our farmers, Graeme and Sharon Gillet, are a great example of what the Living Water partnership can achieve. They were the first to invite Living Water on to their farm to help plant up a riparian strip. Then they welcomed our ecologist onto their farm which led to the first QEII covenant under our new agreement that accelerates protection for natural areas on dairy farms.

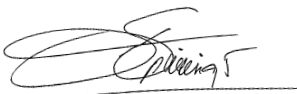
Looking forward, Living Water is making big strides and there is plenty planned for the next 12 months. We will be working with farmers to identify areas on their farms that are environmentally significant as well as supporting Canterbury farmers to implement cutting-edge riparian management on their farm waterways.

Fonterra is committed to improving water quality, ensuring we use water responsibly wherever we operate, and supporting the protection and restoration of natural habitats and our partnership with DOC is a vital part of this.

Let's continue to partner together to show farming and nature working in harmony.

Theo Spierings

Chief Executive Officer,
Fonterra Co-operative Group Limited



Results are really starting to be seen across the country due to the ecological enhancement activities being delivered by the Living Water partnership.

From fencing off a threatened plant species remnant (*Pittosporum obcordatum*) on a farm in Northland, to completing a demonstration biodiversity corridor and riparian management project on a Fonterra farm in Southland, our environment is receiving tangible benefits from the partnership.

Working in partnership with others is central to DOC's strategy for achieving our conservation goals in New Zealand, and Living Water is a great example of what such partnerships can achieve.

Together we are developing shared goals with iwi, community organisations, councils, schools and other agencies such as the focus on shorebird habitat protection and enhancement in our Pūkoro/Miranda catchment. Working together this year resulted in the signing of an intergovernment agreement between China and New Zealand to take steps to protect international migrant wading bird habitat in both countries.

Like Theo, I'm excited about the future of the partnership and the innovation we can achieve together. A great example is the Ecosystem Services Project in the Hikurangi catchment. We have engaged Landcare Research to use an ecosystem services approach to model a range of land use changes and environmental enhancement scenarios to assess their environmental and economic benefits and costs for the catchment. The project will demonstrate the value of natural ecosystems and how they underpin sustainable, resilient and profitable dairy farming.

This type of approach is truly a 'step change' for conservation and farming, and I am proud that DOC and Fonterra are leading the way.

Lou Sanson

Director-General,
Department of Conservation



ABOUT LIVING WATER

Fonterra and DOC have a common interest in protecting New Zealand's waterways. We recognise that quality water from healthy ecosystems underpins New Zealand's environmental health, community wellbeing and economic prosperity.

Signed in 2013, our 10-year, \$20 million partnership is focused on improving biodiversity and water quality at five significant catchments where intensive dairying exists. We work with farmers, iwi/hapū, community groups and key stakeholders on game changing and scalable solutions that focus on the interface between farming and freshwater. Our vision is that: "A sustainable dairy industry is part of healthy, functioning ecosystems that together enrich the lives of all New Zealanders."



TĪKAPA MOANA/FIRTH OF THAMES,
PŪKOROKORO/MIRANDA CATCHMENT



KAIPARA HARBOUR,
HIKURANGI CATCHMENT

WAIKATO PEAT LAKES, AREARE,
RUJATUNA & ROTOMĀNUKA



TE WAIHORA/LAKE ELLESMERE,
ARARIRA/LII CATCHMENT



AWARUA-WAITUNA, WAITUNA CATCHMENT

OUR PROGRESS

Key progress included:

- Implementation of Year 1 of the three-year site strategic plans that identify longer term objectives and projects.
- Development of close working relationships with key stakeholders and communities.
- Accelerated delivery of projects and initiatives based on strong baseline studies, stakeholder engagement and collaborative project planning.

Highlights

- **Partnership with Queen Elizabeth II National Trust:** The Living Water (LW) partners have signed an agreement with the Queen Elizabeth II (QEII) National Trust to collaborate in the promotion and protection of indigenous biodiversity and freshwater within the LW catchments. This includes facilitating the establishment of new covenants, including promotion, and by making a direct financial contribution to meeting a significant share of National Trust and/or farmers' costs of covenanting. The agreement was officially launched at World Water Day and this included the signing of the first covenant.
- **Biodiversity assessments on-farm:** Completed a total of 20 detailed biodiversity assessments on-farm. Follow-up meetings with farmers to discuss priority actions are underway (see case study).
- **Support for East Asian Australasian Flyway Initiatives:** Supporting work DOC and the Pūkorokoro Miranda Naturalists' Trust (PMNT) are doing to raise awareness of protecting the flyway for migratory birds. DOC and the Chinese State Forestry Commission signed an intergovernment Memorandum of Understanding (MOU) at the Shorebird Centre that recognises and encourages NZ and China to take steps to protect international migrant wading bird habitat along East Asian Australasian Flyway Network (EAAFN).
- **Work on public conservation land:** Each site implemented management activities on public conservation land (PCL), such as animal pest management, weed management and restoration plantings e.g. around the three Waikato peat lakes more than 40,000 plants went into the ground.
- **Working with communities:** Each catchment has a community initiatives fund to support biodiversity enhancement work already being carried out by groups or individuals. This has the effect of spreading the influence of LW and scaling up our work without the need to manage the project. For example, in Hikurangi we sponsored nine projects across the wider Kaipara from the Hoteo subcatchment in the south to Pouto in the west and Otamatea in the middle. These projects involved extending animal pest control along priority riparian areas, completing stock exclusion from a sensitive dune lake, and allowing a harbour care group to expand its nursery.
- **Ecosystem service approach:** The LW partnership has contracted Landcare Research to model a catchment-wide approach for the improved provision of ecosystem services in the Hikurangi catchment. Taking a multi-disciplinary approach they will develop and model a range of land use changes and environmental enhancement scenarios to assess their environmental and economic benefits and costs for the catchment. The outcomes of this project will demonstrate the value of ecosystem enhancements (particularly for wetlands) and guide future investments as well as telling the LW story of how healthy functioning ecosystems underpin sustainable, resilient and profitable dairy farming.

Our expenditure

Fonterra has committed to paying \$20 million to DOC over 10 years. This money is held in trust and only drawn down as activities are approved.

The final expenditure for the 2015/16 financial year was nearly \$2 million. This reflects that the programme has moved from the start-up and engagement phase into the delivery phase. In the three-year, site-strategic plans longer-term projects (in partnership with communities) have been identified and clear operational plans guide the delivery of work on the ground.

FINANCIAL EXPENDITURE BY ACTIVITY THEME (\$)	2013–15	2015–16	TOTAL
Wider ecosystem enhancement	505,683	791,059	1,296,742
Sustainable farm management	73,985	411,178	485,163
Support for community programmes	170,367	380,318	550,685
Research, measurement and monitoring	450,871	365,745	816,616
Telling the story	101,119	50,610	151,729
TOTAL	1,302,025	1,998,910	3,300,935

FINANCIAL EXPENDITURE BY SITE (\$)	2013–15	2015–16	TOTAL
National	140,106	155,762	295,868
Hikurangi	145,220	305,235	450,455
Waikato peat lakes	407,553	725,970	1,133,523
Pūkorokoro/Miranda	121,022	194,776	315,798
Ararira/LII	206,926	218,999	425,925
Waituna	281,198	398,168	679,366
TOTAL	1,302,025	1,998,910	3,300,935

CASE STUDY

Biodiversity assessment on-farm

After reviewing several commercially available farm management plans and piloting a modified sustainable milk plan on a Fonterra farm in Hikurangi, we identified the need for additional ecological improvement opportunities to be included in farm management planning in order to increase biodiversity values on-farm.

The LW partnership contracted several ecologists to go onto 17 farms in the North Island catchments and three in the South Island and carry out biodiversity assessments. The purpose of this project was to trial the process of providing personalised on-farm assessments and action plans as a way of engaging directly with farmers on biodiversity protection and enhancement.

The approach

A template was provided by DOC to guide the contractors and to ensure a consistent methodology and results format. The ecologist was escorted on-farm by the local Fonterra Sustainable Dairy Advisor (SDA) to ensure their safety and as a learning experience. A report was generated for each farm with a list of recommendations including the highest priority actions. The report was provided to each farmer and a follow-up meeting arranged by the SDA and attended by LW staff.



Results

Each farmer has been offered financial and/or technical support to complete one of the highest priority projects. Farm visits and projects are programmed around the farmers' work schedule so as not to clash with other on-farm priorities.

The SDAs are also using the opportunity created by the ecologist's report to complete a riparian management plan for each farm.

Where to from here

So far this project and engagement approach has received a very positive response from farmers. Once on-farm projects are completed, a formal review of the pilot will be undertaken in order to improve the approach for wider use.



Ford providing major farm access point but culverts perched above water level prevent native fish passage.

KAIPARA HARBOUR, NORTHLAND

Hikurangi catchment

Highlights

- Completed biodiversity assessments on nine farms and met with farmers to discuss priority biodiversity actions from reports and agree on implementation of actions. Work continues in 2016–17.
- Completed Mangawhero and Mangahuru best practice riparian planting.
- Funded the delivery of a freshwater ecology education programme in schools within the catchment by Whitebait Connection (Mountains to the Sea Conservation Trust).
- Supported a collaborative project with Whangārei District Council, Fish and Game Northland and Ngāti Hau for restoration of two Wairua Oxbows (adjoining Wairua River Government Purpose Wildlife Management Reserve (GPWMR)). Restoration plan developed and first activities underway. Work continues in coming years.
- Nine projects/initiatives supported via the LW Kaipara Harbour community fund.
- Fenced off a threatened plant species remnant (*Pittosporum obcordatum*) on Brown farm.
- QEII National Trust and LW partnership launch event and signing of first covenant at Gillet farm.

FOCUS AREA, TARGETS AND PROGRESS TO DATE

WIDER ECOSYSTEM ENHANCEMENT

RESTORATION OF WAIRUA RIVER GPWMR AND OXBOWS

Restored swamp/marsh/riparian ecosystem.

Output targets this FY

- Complete *Tradescantia* spraying and monitor trial.
- Integrated restoration plan addressing key threats completed.
- Agreement with Whangārei District Council and Fish and Game Northland to restore two south eastern oxbows.
- Raise public awareness about wetlands.

10-year outcomes

- Support thriving and diverse wetland ecosystems.

Progress to date

- Privet/*Tradescantia* removed from targeted area (2ha sprayed). Monitoring to determine outcome.
- Completed restoration plan for Wairua oxbows (7.4ha), and agreement with Whangārei District Council and Fish and Game on delivery schedule and contributions, progressing with ephemeral wetlands and planting in Oxbow 1.

RESTORATION OF OTAKAIRANGI GPWMR

Restored peat bog ecosystem.

Output targets this FY

- Scope and contract integrated restoration plan.
- Investigate opportunities to improve hydrology/water regime in collaboration with Whangārei District Council.
- Raise public awareness about wetlands.

10-year outcomes

- Support thriving and diverse wetland ecosystems.

Progress to date

- Baseline work to inform restoration plan underway: e.g. survey and control transformer weed royal fern along the drain that divides the wetland.
- Drone aerial survey and vegetation types completed. Baseline work continued next year with peat depths and topography survey.

SUSTAINABLE FARM MANAGEMENT

BIODIVERSITY ASSESSMENT ON-FARM

Support Fonterra farmers to identify biodiversity and water quality enhancement opportunities on-farm including opportunities to link isolated remnants and protect threatened and rare ecosystems and species.

Output targets this FY

- Identify willing farmers and complete 10 biodiversity assessments.
- Discuss recommended restoration priorities with farmer and negotiate delivery schedule.
- Promote land protection covenants.

10-year outcomes

- Thriving on-farm biodiversity is embedded in good management practices of sustainable dairy farming within the Kaipara Harbour.

Progress to date

- Nine biodiversity assessments completed. Discussions with four farmers on implementation schedule started and to be continued in FY2016–17. Three on-farm projects agreed and underway.
- One QEII covenant signed and supported. Fencing materials purchased and delivered.

GOOD PRACTICE RIPARIAN PLANTING TRIAL

Mangahuru and Mangawhero Stream riparian planting.

Output targets this FY

- Gain approval from all necessary parties.
- Complete stream bank planting at proposed sites.

10-year outcomes

- Improve water quality and protect biodiversity across the catchment by knowledge transfer and supporting others.

Progress to date

- Mangahuru revision – complexity and costs continued to rise for this project (two-stage ditch trial and rock baffles) and would no longer meet LW aims as a trial which farmers could replicate. Moved to more suitable alternative sites.
- Mangahuru and Mangawhero riparian planting completed.

FOCUS AREA, TARGETS AND PROGRESS TO DATE

SUSTAINABLE FARM MANAGEMENT

PROTECT AND ENHANCE REMNANTS, OXBOWS, BUFFERS AND LINKAGES ON-FARM

Output targets this FY

- Complete fencing at *Pittosporum obcordatum* remnant.

10-year outcomes

- Thriving on-farm biodiversity is embedded in good management practices of sustainable dairy farming within the Kaipara Harbour.

Progress to date

1,226 m fence completed and 5ha forest remnant (on-farm) with the as 'Nationally Vulnerable' classified species *Pittosporum obcordatum* protected from stock grazing.

SUPPORT FOR IWI AND COMMUNITY PROGRAMMES

WORK WITH IWI

Engage with Ngā Kaitiaki O Ngā Wai Māori (NKONWM) and involve them to incorporate traditional values and knowledge (Mātauranga Māori) and integrate with European Science.

Output targets this FY

- Identify and prioritise opportunities for restoration Mātauranga Māori pathway aligned with science pathway.

10-year outcomes

- Improve water quality and protect biodiversity across the catchment by knowledge transfer and supporting others.

Progress to date

- NKONWM to co-ordinate a project that will produce a report on the traditional Māori values in regards to natural and cultural resources and will assist in a better understanding of the opportunities for restoration from a Te Ao Māori perspective.
- Contract signed. Waiting for draft report. Clarified confidentiality issues.

WORK WITH IWI

Support initiatives that improve habitat for tuna; focus on collaboration with NKOWM and the National Institute of Water and Atmospheric Research (NIWA).

Output targets this FY

- Support collaborative tuna projects from NKOWM and NIWA.

10-year outcomes

- Improve water quality and protect biodiversity across the catchment by knowledge transfer and supporting others.

Progress to date

- Sponsorship contract with NKONWM signed for tuna research, supported by NIWA – elver transfer, tuna tagging, and education in schools.

WORK WITH COMMUNITY

Support initiatives that strongly align with LW across the Kaipara Harbour.

Output targets this FY

- Complete expression of interest process and identify initiatives that LW wants to support.

10-year outcomes

- Improve water quality and protect biodiversity across the catchment by knowledge transfer and supporting others.

Progress to date

- Sent expression of Interest to LW partners and key stakeholders seeking proposals from non-profit community groups and organisations for projects and initiatives across the Kaipara Harbour catchment. Funded nine projects across the wider Kaipara catchment.
 - Jordan Valley wetland reserve restoration – Whangārei District Council
 - Parry Road wetland restoration plan – Tinopai Community Group
 - Nursery – Kokopu School Hikurangi
 - Lake Humuhumu restoration project – Te Uri O Hau Environs Holdings Ltd
 - Lake Karaka alternate water supply project – Steve Nathan
 - Extend capacity of nursery – Otamatea Harbour Care Society
 - Bittern habitat improvement – Luptons Matuku Herepo project
 - Predator control plan Hoteo Catchment – Forest Bridge Trust
 - Kiwi transfer and release – Tanekaha Community Pest Control Group

RESEARCH, MEASUREMENT AND MONITORING

MONITORING

Implement monitoring to support LW programme.

Output targets this FY

- Have monitoring in place.

10-year outcomes

- Measure change created by LW programme.

Progress to date

- Completed monitoring plan. Engaged contractors to carry out monitoring. Begin contract in August.

TRADESCANTIA RESEARCH

Restoration of the floodplain forest remnants using *Tradescantia* control beetles (applied research project co-founded by the Biological Heritage Science Challenge).

Output targets this FY

- Decide on LW contribution for proposal for Landcare Research.
- Start research on identified plots.

10-year outcomes

- Improve water quality and protect biodiversity across the catchment by knowledge transfer and supporting others.

Progress to date

- Identified *Tradescantia* research plots and gathered baseline information.
- Released beetles in the first week of March which are being monitored. Received annual progress report.

FOCUS AREA, TARGETS AND PROGRESS TO DATE

TELLING THE STORY

EDUCATION

Work collaborative with Whitebait Connection to deliver education programme at schools in the area.

Output targets this FY

- Sign contract with Whitebait Connection and deliver programme at schools.

10-year outcomes

- Bring the cultural, historic and natural history of the Hikurangi catchment to life.
- Raise awareness about the role healthy functioning ecosystems play in community wellbeing.

Progress to date

- Contract signed and delivery of Whitebait Connection/NKONWM programme at local schools. School holiday programme held at Whakapara Marae.
- Received report on assessment of year's programme.

PROMOTE LOCAL LW INITIATIVES

Encourage farmers and wider community participation in projects.

Volunteer opportunities created for local community participation within the catchment.

Media releases.

Output targets this FY

- Develop interpretation at the wetland construction site.
- Communicate about LW initiatives as opportunities arise.

10-year outcomes

- Raise awareness about the role healthy functioning ecosystems play in community wellbeing.

Progress to date

- Media releases—Rural Delivery, WDC Oxbow restoration, World Wetland Day, *Northern Advocate*.
- Wetland construction video completed and on You Tube and LW site.
- Two volunteer weed control days at Wairua River GPWMR – with NorthTec pest management class and DOC Volunteer Wednesday.
- Two successful planting days held with Kamo High agriculture students at the constructed wetland site.
- LW presentation to Northland Conservation Board, Integrated Kaipara Harbour Management Group, Northern North Island DOC Area Managers, Northland Regional Council Environment Committees.



DOC Northern North Island Operations Director Sue Reed Thomas, QEII National Trust Chief Executive Mike Jebson and Fonterra Director Social Responsibility Carolyn Mortland with their signed partnership agreement.



Fonterra farmers Sharon and Graeme Gillet and native bush on their farm they are protecting with QEII covenant. LW facilitated the establishment of the covenant and contributed to the actual cost.

ENHANCING WETLANDS AND FLOODPLAIN MANAGEMENT

SPECIAL VALUE

The Hikurangi catchment of 32,000ha includes the Hikurangi floodplain (around 13,140ha), which has been developed for agriculture but features two ecologically significant natural areas: the Otakairangi Swamp and the Wairua River reserves.

These wetlands are nationally significant because of their rarity, size, unique habitats and rich biodiversity.

Our focus is on opportunities to protect remnant wetlands within the Hikurangi floodplain. We want to join together wetland remnants to enhance ecosystem health within and beyond the flood plain. We aim to develop new knowledge on flood, sediment and nutrient control to benefit farmers and other groups.



Rural Design implement 'Best Practice Riparian Planting' on the Mangawhero Stream.



Ranger Rolf with one of the released kiwis brought home by Tanekaha farmers to a pest controlled area. LW has also funded transmitters – fitted to each kiwi before their release – and equipment that picks up the signals from the transmitters.



Elevated view of the constructed ephemeral wetland in the Wairua Oxbow. The ephemeral wetlands are one of the actions of the Wairua Oxbow Restoration Project, a collaboration between LW and Whangarei District Council.

TĪKAPA MOANA/FIRTH OF THAMES

Pūkoro/ro/Miranda catchment

Highlights

- Completed four biodiversity assessments on-farm and met with farmers to discuss implementing priority biodiversity enhancements. Work continues in 2016–17.
- Supported activities to protect EAAFN sites:
 - The Minister of Conservation and the Chinese Ambassador visited Pūkoro/ro/Miranda to celebrate commitments the Chinese Government has made to protecting key migratory bird habitat in China.
 - Hosted a delegation from the Chinese State Forestry Commission at the Shorebird Centre to celebrate the signing of an intergovernment MOU with DOC that recognises and encourages NZ and China to take steps to protect international migrant wading bird habitat along EAAFN.
 - Supported the PMNT and Ngati Pāoa in their activities to protect EAAFN sites.
 - Developed a plan in collaboration with PMNT to progress the boardwalk construction and associated tidal improvement requirements within the Robert Findlay Wildlife Reserve. Part of the work completed: car park upgrade, fencing, access gate and short section of boardwalk.
 - Completed report on best practice for controlling fennel along the coastal margins. Vegetation management to be implemented next year.
 - Scoped animal pest management (especially goat control) in the upper Taramaire catchment to better understand landowners' willingness to support such initiatives, their level of involvement and whether a tangible outcome is achievable.
 - Completed perimeter fencing around Te Kama (Thompson) block forest remnant to protect it from stock incursion.
 - Agreed approach for the Miranda Stream mouth land acquisition and an application for funding was lodged.
 - Prepared mangrove management plan and lodged resource consent for mangrove removal in the coastal strip.

FOCUS AREA, TARGETS AND PROGRESS TO DATE

WIDER ECOSYSTEM ENHANCEMENT

COASTAL AREA ENHANCEMENT

Implement biodiversity restoration enhancement priorities along chenier plains.

Output targets this FY

- Fence reserve.
- Extend coastal strip predator trapping network.
- Manage vegetation – update grazing management agreements and spraying of weeds.
- Re-vegetate with indigenous plants.
- Identify sites for reshaping waterways.
- Control mangroves.

10-year outcomes

- Manage and enhance thriving and diverse shorebird habitats at the Coastal Areas.

Progress to date

- Lodged PMNT's mangrove seedling resource consent application with the Waikato Regional Council (WRC). Prepared mangrove management plan.
- Completed fencing alterations to enable safe car parking at the Rangipo Reserve (50m fence).
- Completed report advising on best practice for controlling fennel along the coastal margins. Implementation of control (grazing, spraying and manual methods). Fennel control will commence next financial year.
- Established pest animal trapping programme. Further extension will occur along the cycle trail once the K2K section has been developed.
- Some minor re-contouring to restore natural drainage patterns in the Taramaire Reserve.
- Developed coastal management action report (gap analysis of current science and technical advice).

FINDLAY RESERVE TRACK ALTERATIONS

Upgrade of Findlay Reserve Track to improve tidal flows.

Output targets this FY

- Complete track prescription and design.
- Complete construction of track.

10-year outcomes

- Manage and enhance thriving and diverse shorebird habitats at the Coastal Areas.
- Pūkoro/ro/Miranda is valued as a nature 'hot spot' in the hearts and minds of New Zealanders.

Progress to date

- Hydrological investigation is currently underway in the Robert Findlay Wildlife Reserve. This will be used to describe impacts on tidal flow and how mitigating actions may be incorporated into the boardwalk construction.
- Nearing completion on Robert Findlay Wildlife Reserve (bird hide) car park upgrade.
- Completed site assessment and track prescription developed, boardwalk construction deferred to next year.

FOCUS AREA, TARGETS AND PROGRESS TO DATE

WIDER ECOSYSTEM ENHANCEMENT

MIRANDA STREAM MOUTH HABITAT EXPANSION

Restore and recreate shorebird habitat.

Output targets this FY

- Submit funding application.
- Undertake consultation for property holding trust.

10-year outcomes

- Manage and enhance thriving and diverse shorebird habitats at the coastal areas. Increase the wetland habitat to build ecosystem resilience.

Progress to date

- Lodged funding application with the Turnbull Estate who have bequeathed funding for the purchase of coastal property. Successful negotiations have taken place with neighbouring landowners (Gary and Adrienne Dalton) to create a consortium for the land purchase.
- Conducted preliminary consultation with some key stakeholders likely to have interest in being party to a property holding trust. (i.e. Te Whangai Trust, the Dalton's Family Trust, PMNT, Ngāti Pāoa).

SUSTAINABLE FARM MANAGEMENT

BIODIVERSITY ASSESSMENT ON-FARM

Engage farmers in good practice management for biodiversity.

Output targets this FY

- Complete five biodiversity assessments on-farm with a number of initiatives implemented.

10-year outcomes

- Improve biodiversity integration in management practices on-farm.

Progress to date

- Four biodiversity assessments on-farm completed, two meetings held with farmers and scope of projects agreed. Implementation of these priority actions deferred until FY2016–17 (after calving, late August). Remaining two farms will be visited and projects developed late August.

UPPER CATCHMENT STREAM RESTORATION ACTIVITIES

Engage farmers in fencing and good riparian management at Taramaire Stream and Rangipo Stream.

Output targets this FY

- Fence Taramaire Stream and Rangipo Stream.
- Discuss pest mammal control in upper catchment with landowners.

10-year outcomes

- Implementation of good riparian management practices on-farm contributes to improved water quality.

Progress to date

- Held discussions with Rob McCartie, owner of land adjacent to the Rangipo Stream regarding riparian fencing and planting opportunities to protect and enhance this stream.
- Scoped pest control work with the WRC for collaborative possum and rat control in the upper catchment. Undertook a goat control feasibility study for the upper Taramaire and Rangipo catchments.

THOMPSON BLOCK

Exclude stock from bush block and protect the bush for the future.

Output targets this FY

- Fence of bush block and pest mammal control in place.
- Discuss covenanting possibility (Ngā Whenua Rāhui).

10-year outcomes

- Implementation of good management practices on-farm contributes to improved biodiversity quality.

Progress to date

- Fencing of Thompson block completed (2,100m fence).

SUPPORT FOR COMMUNITY PROGRAMMES

WORK WITH IWI

Support Ngāti Pāoa priority project.

Output targets this FY

- Support Ngāti Pāoa with cultural interpretation at reserves.
- Support Ngāti Pāoa for international advocacy work for the protection of shorebirds habitats in China.

10-year outcomes

- Bring the cultural and natural history of the site to life.
- Enable and empower key stakeholders to meet their aspirations where they align with LW objectives.

Progress to date

- Two members of Ngāti Pāoa joined the Yellow Sea Flyway trip (with DOC Director-General) in November. International liaison trip finished and report delivered.
- Made a number of attempts to strengthen connections between LW and Ngāti Pāoa during the year. Two recent meetings have resulted in signs of promise and potential to build relationships with key personnel from both entities.

WORK WITH COMMUNITY

Output targets this FY

- Investigate potential contribution to cycleway – MOU with Hauraki District Council.
- Support local community initiatives – e.g. EcoQuest, schools.

10-year outcomes

- Enable and empower key stakeholders to meet their aspirations where they align with LW objectives.
- Pūkorokoro/Miranda is valued as a nature 'hot spot' in the hearts and minds of New Zealanders.

Progress to date

- Made financial contribution to Te Whangai Trust for the set up costs of the Seabird Coast Catchment Community Restoration Group – a community-driven catchment water quality standards setting project in response to New Zealand Policy Statement on Freshwater.
- Made contribution to the Hauraki District Council to explore and develop interpretation (telling the story) opportunities along the K2K cycle trail.

FOCUS AREA, TARGETS AND PROGRESS TO DATE

SUPPORT FOR COMMUNITY PROGRAMMES

SUPPORT PŪKOROKORO MIRANDA NATURALISTS' TRUST (PMNT)

Support Ngāti Pāoa priority project.

Output targets this FY

- Support PMNT for international advocacy work for the protection of shorebirds habitats in China on behalf of the EAAFN sites.
- Work with PMNT on other initiatives at the local site.

10-year outcomes

- LW contributes to the protection of other international flyway sites.
- Enable and empower key stakeholders to meet their aspirations where they align with LW objectives.

Progress to date

- The Minister of Conservation and Chinese Ambassador visited Pūkoro/Miranda on 28 October 2015 to celebrate commitments the Chinese Government has made to protecting key migratory bird habitat in the Bohai Bay and other stopover wetland roost sites in China.
- PMNT joined the Yellow Sea Flyway trip (with the DOC Director-General) in November 2015. International liaison trips completed and report delivered.
- Signing of Memorandum of Arrangement between DOC and China's State Forestry Administration on 18 March 2016 as a significant step in securing a safe flight path for the red knots, godwits and other migratory birds that fly between New Zealand and China.
- Support for PMNT to complete their annual trip to China and North Korea as part of their EAAFN advocacy programme.
- Provided financial support through the community initiatives fund to:
 - Upgrade telescopes
 - Upgrade website
 - Implement 'The Flock' advocacy/education campaign.

RESEARCH, MEASUREMENT AND MONITORING

MONITORING

Contribute to enhanced water quality monitoring based on baseline report.

Output targets this FY

- Complete monitoring plan and start data collection.

10-year outcomes

- Measure change created by LW programme.

Progress to date

- Monitoring plan completed.
- Progressed Implementation in FY2016–17.

RESEARCH FRESHWATER

Further investigate restoration opportunities in upper catchment.

Output targets this FY

- Identify fish spawning sites.
- Assess fresh water mussel site.
- Map current extend of riparian vegetation.

10-year outcomes

- Identify existing values and protect and enhance biodiversity throughout the catchment.

Progress to date

- Defined monitoring output targets through the development of the monitoring plan. Monitoring actions will proceed during FY2016–17.

RESEARCH COASTAL

Investigate the relationship between hydrology, drain management and Chenier Plain condition.

Output targets this FY

- Define scope of project and write research contract.

10-year outcomes

- Increase knowledge to inform future restoration activities.

Progress to date

- Developed technical specifications for climate change research contract.

TELLING THE STORY

PROMOTE LOCAL LW INITIATIVES

Output targets this FY

- Hold planting days at various sites.
- Engage community on fish spawning sites (whitebait day) and a shorebird habitat restoration day.
- Encourage field day attendance .

10-year outcomes

- Farmers and wider community participate and volunteer in projects.
- LW profile raised through various media.

Progress to date

- LW attendance at EcoQuest students' public presentation day at Wharekawa Marae.
- Organised and completed Dairy for Life video filming.
- Strong LW presence and participation at the Minister of Conservation and Chinese Ambassador visit to Pūkoro/Miranda on 28 October and at signing of Memorandum of Arrangement between DOC and China's State Forestry Administration on 18 March 2016.
- Rangipo Reserve planting day.

SHOREBIRD HABITAT, INTERNATIONAL FLYWAYS AND FARMING ON THE COAST



SPECIAL VALUE

This 8,500ha wetland on the Firth of Thames includes a floodplain, saline wetlands, intertidal zone and active chenier plain. As a Ramsar site, it is recognised as a wetland of international importance.

It provides a feeding and breeding ground for thousands of migratory birds including the bar-tailed godwits that migrate to Siberia and back every year.

Our focus is on protecting and expanding the shorebird habitat, supporting advocacy to protect international flyway sites and showcasing examples of sustainable dairy farming practices.



DOC Director-General Lou Sanson (right) and Vice-Minister Chen Fengxue, the Chinese Minister responsible for the State Forestry Agency, signed a Memorandum of Arrangement on protecting the migratory shorebirds and their habitat (March 2016).



Fencing materials funded by LW, packed and ready to be lifted into the Thompson bush block. This will exclude stock and along with feral goat control help the bush to recover and thrive.

WAIKATO PEAT LAKES, WAIKATO

Lakes Areare, Ruatuna and Rotomānuka

Highlights

- Participated in development of collaborative project by Waikato Regional Council (WRC), DairyNZ and the Waikato River Authority (WRA), for modelling of in-lake processes affecting water quality and biodiversity in shallow peat lakes. Waikato University is contracted by the WRA to do the modelling work. Project will continue in 2016/17.
- Spring and autumn plantings of in total 32,000 plants at the three lakes to restore 3.2ha of riparian lake margin, with an additional 5,000 planted at a public and Fonterra Hamilton office-based staff planting day at Lake Areare, and 6,000 planted around the new silt traps.
- Installed two large silt traps at inflows of Ruatuna and Rotomānuka lakes to improve water quality by capturing suspended sediments in surface water before it enters the lake.
- Installed a floating wetland at Lake Areare to improve water quality by reducing nutrients in surface water before it enters the lake (in collaboration with New Zealand Transport Authority (NZTA)).
- Retired and fenced off about 5ha of very wet marginal grazing leased by Waipa District Council at Lake Ruatuna. Fence pushed back on life style property boundary at Lake Rotomānuka.
- Completed four biodiversity assessments on-farm, meeting with farmers to discuss priority action from reports. Continued in 2016–17.
- Extended the WRC water quality monitoring of the lakes Areare and Rotomānuka, to Lake Ruatuna. Completed terrestrial invertebrate and bird surveys for all lakes to establish a base line and to measure success of management actions.
- Supported the National Wetland Trust (NWT) to develop a self-guided interactive discovery trail.
- Initiated a volunteer and iwi training project on weed removal and restoration around sensitive environmental areas to enable restoration and maintenance to be carried out by local groups instead of contractors.

FOCUS AREA, TARGETS AND PROGRESS TO DATE

WIDER ECOSYSTEM ENHANCEMENT

LAKE AREARE, RUATUNA AND ROTOMĀNUKA

Work in partnership with WRC, Waikato District Council and WRA on restoration activities for the lakes.

Output targets this FY

- Scope possibilities for realignment inflows, sediment traps and filtration/floating wetlands.
- Implement scoped possibilities.

10-year outcomes

- Improve water quality within the lakes and their inflows, facilitating a shift back to a low nutrient state.

Progress to date

- Retired and fenced off about 5ha of very wet marginal grazing leased by Waipa District Council at Lake Ruatuna.
- Fence pushed back to legal boundary on lifestyle property at Lake Rotomānuka.
- Installed floating wetland at Lake Areare inlet in collaboration with NZTA.
- Installed silt traps at Lake Ruatuna and Lake Rotomanuka on DOC and Waipa District Council land.
- Planted 6,000 plants at the new silt traps.
- Water sampling occurring aligned with WRC programme also going to be extended to inform Landcare Research hydrology study of silt traps.

LAKE AREARE, RUATUNA AND ROTOMĀNUKA

Restoration and habitat enhancement of the three lakes.

Output targets this FY

- Prepare work and plantings at the lake margin.
- Maintain planting sites (weed work and plant releasing).

10-year outcomes

- Restore indigenous vegetation around the margins of the peat lakes and associated waterways and drains.

Progress to date

- Restored 3.2ha of riparian lake margin. Planted 32,000 plants.
- Planted approximately 8,000 plants at Lake Areare and Lake Rotomānuka and 16,000 plants at Lake Ruatuna.
- Held public plantings days at Lake Areare, Rotomānuka and Ruatuna (September).
- Planted 5,000 plants at Fonterra Hamilton office staff team building planting day at Lake Areare.

LAKE AREARE, RUATUNA AND ROTOMĀNUKA

Implement animal and plant pest work.

Output targets this FY

- Place trapping lines and start recording.
- Undertake weed work (willow) at the lake margin.
- Implement pest fish management work from recommendations previous year.

10-year outcomes

- Protect and enhance habitat and indigenous species populations for healthy ecosystems.

Progress to date

- 3ha willow tree removal at Lake Ruatuna.
- Completed recommended actions from pest fish management plan. Scoped pest fish barriers.
- Implemented animal pest trapping, undertaken by community volunteers, good numbers of pest animals being recorded.

FOCUS AREA, TARGETS AND PROGRESS TO DATE

SUSTAINABLE FARM MANAGEMENT

BIODIVERSITY ASSESSMENTS ON-FARM

Support Fonterra farmers to identify biodiversity and water quality enhancement opportunities on-farm.

Output targets this FY

- Complete total of five assessments at Lake Ruatuna and Areare.

10-year outcomes

- Implementation of on-farm good practice management contributes to improved biodiversity and water quality.

Progress to date

- Completed four biodiversity assessments on-farm.
- Visited farms to discuss and negotiate farm biodiversity enhancement priorities from ecologist reports to be continued in FY2016–17.

SUSTAINABLE RIPARIAN AND DRAIN MANAGEMENT

Support Fonterra farmers for good practice of drain management (e.g. sediment traps, realignment, riparian planting, constructed wetlands).

Output targets this FY

- Identify opportunities on private land.
- Implement agreed good drain management practice on-farm.
- Develop demonstration actions.

10-year outcomes

- Improve water quality within the lakes and their inflows, facilitating a shift back to a low nutrient state.

Progress to date

- Carried out silt traps and lake side riparian planting under ecosystem enhancement projects.
- Identified opportunities as part of the on-farm biodiversity assessments will be developed in FY2016–17.

SUPPORT FOR IWI AND COMMUNITY PROGRAMMES

WORK WITH IWI

Support regional iwi, hapū and whānau to participate fully and have their values and aspirations recognised.

Output targets this FY

- Complete initial engagement (started previous year) and agree aspirations.

10-year outcomes

- LW projects are recognised as contributing to iwi's long-term vision for the peat lake catchment.

Progress to date

- Held Stage 2 engagements with Ngāti Apakura. Held Wananga for Ngati Apakura.
- Completed Taupiri Marae consultation report and iwi project recommendations.
- Contracted three iwi trust groups to grow and plant large numbers of native plants.
- Delivered Health and Safety training.

WORK WITH COMMUNITY

Support and empower key stakeholders to meet aspirations.

Support others to improve access and facilities at the lakes.

Output targets this FY

- Implement upgrade work on driveways and service roads, infrastructure Lake Areare.
- Implement upgrade work on surroundings of amenity block at Ruatuna.

10-year outcomes

- Rural and urban communities value the special characteristics of the peat lakes and are actively involved in their protection and enhancement.

Progress to date

- Installed new pedestrian gate at Lake Ruatuna, plus new safer entrance gate off Ryburn Road for public access.
- Improved public access at Areare; access-way and car park.
- Completed entranceway and driveway improvements at Rotomānuka.
- Upgraded Ruatuna amenity blocks.
- Delivered Health and safety training.
- Undertook training and work for pest animal trapping.

WORK WITH COMMUNITY

Support and empower key stakeholders to meet aspirations.

Work with Enviroschools and others to use the site as an outdoor classroom.

Involve key stakeholders in LW projects.

Output targets this FY

- Carry out agreed priority work with the NWT.
- Support Tamahere Nursery to grow and produce eco sourced plants for LW and community groups.

10-year outcomes

- Rural and urban communities value the special characteristics of the peat lakes and are actively involved in their protection and enhancement.

Progress to date

- Gave substantial support to NWT, including activity trail funding, fence improvements, support for volunteers.
- Provided ongoing support for Tamahere Nursery project, including planting supplies. They are in a state of moving location which has delayed some priority work but will increase collaboration in FY2016–17.
- Initiated a volunteer and iwi-training project on weed removal and restoration around sensitive environmental areas to enable restoration and maintenance to be carried out by local groups instead of contractors

RESEARCH, MEASUREMENT AND MONITORING

CATCHMENT SCALE MODELLING

Explore partnership with WRC and other agencies to do the lake modelling.

Output targets this FY

- WRA to make decision on bid for modelling.
- Signed agreement with partners.
- Start implementation project, monitor and support.

10-year outcomes

- Guide future on the ground activities to improve the water quality and health of the shallow lakes.

Progress to date

- WRA approved the collaborative bid for modelling of in lake processes affecting water quality and biodiversity in peat lakes developed by WRC, DairyNZ and LW.
- Delivery by Waikato University has started in March, will continue into FY2016–17.

FOCUS AREA, TARGETS AND PROGRESS TO DATE

RESEARCH, MEASUREMENT AND MONITORING

MONITORING WATER QUALITY

Implement monitoring to support LW programme.

Explore extending WRC water quality monitoring to Lake Ruatuna and investigate deployment of a continuous recording buoy.

Output targets this FY

- Agree approach with WRC around water quality monitoring.
- Monitor improvements (identify gaps) in place.

10-year outcomes

- Measure change created by LW programme.

Progress to date

- Began water monitoring at Lake Ruatuna to compliment WRC's monitoring programme.

MONITORING BIODIVERSITY

Implement monitoring to support LW programme.

Biodiversity monitoring on PCL (baseline of invertebrates, birds, bats and fish) to establish presence or absence and to inform future aims.

Output targets this FY

- Contract and implement surveys.

10-year outcomes

- Measure change created by LW programme.

Progress to date

- Implemented surveys for invertebrates, birds and bats. Received final report.
- Completed year-long bird survey and received report.

DETAILED MAPPING SOIL TYPES

Detailed mapping of soil types to identify location and physical properties of peat soils and promote land use practices to avoid/minimise oxidation.

Output targets this FY

- Contract mapping of soils.

10-year outcomes

- Guide future management actions.

Progress to date

- Completed soil survey, final product delayed to allow new software to increase resolution.

TELLING THE STORY

PROMOTE LOCAL LW INITIATIVES

Encourage farmers and wider community participation in projects.

Volunteer opportunities created for local community participation within the catchment.

Media releases.

Output targets this FY

- Review and progress communication and engagement plan.
- Use a range of media, events, interpretation techniques and forums to tell the story.

10-year outcomes

- Rural and urban communities value the special characteristics of the peat lakes and are actively involved in their protection and enhancement.

Progress to date

- Completed communication and engagement plan.

Output targets this FY

- Articles in internal and external media on LW activities.

10-year outcomes

- Establish profile of programme.
- Raise awareness internally in both organisations.

Progress to date

- Media releases for community planting days.
- Facebook for community planting days.
- *Farm Source* articles.



Installed new silt trap at the inflow of Lake Rotomānuka to improve water quality by capturing suspended sediments in surface water before it enters the lake.

RESTORING UNIQUE PEAT ECOSYSTEMS



SPECIAL VALUE

Peat lakes are a rare phenomenon globally and the Waikato is home to 31 of them.

Peat lakes, formed over thousands of years, are home to endangered and at-risk native birds such as Australasian bittern, New Zealand dabchick, spotless crane and little black shags.

We are targeting three lakes: Areare, Ruatuna and Rotomānuka.

Our focus is on restoration and habitat enhancement along lake margins and drains, and working with farmers around the three lakes to support the adoption of best farm management practices.



Floating wetland at Lake Areare inlet to improve water quality by reducing nutrients in surface water before it enters the lake (in collaboration with NZTA).



Fonterra and DOC Waikato-based office and field staff planting day at Lake Areare.

TE WAIHORA/LAKE ELLESMERE, CANTERBURY

Ararira/LII catchment

Highlights

- Lincoln University School of Landscape Architecture provided master plan and concept design for community engagement, public access and restoration of Yarrs Flat Wildlife Reserve. Continued plantings, maintenance and grey willow control at this site.
- Ongoing engagement with Selwyn District Council (SDC) to receive its support for collaboration on waterway enhancement across the catchment and wetland (Yarrs Lagoon) restoration resulted in its support for the development of a reserve restoration plan for Yarrs Lagoon and willow control at that site.
- Carried out work to enhance a QEII covenanted wetland at Silverstream/Simpson dairy farm.
- Continued support for the University of Canterbury Freshwater Ecology Group research (CAREX) on rehabilitating waterways (trial solutions for sediment, macrophytes and nutrients) at its Silverstream site.
- Completed two biodiversity assessments on-farm. Follow up on identified priority actions with farmers next year.
- Established and maintained riparian planting along the Ararira/LII River at Brook dairy farm.
- Lincoln University scholarship student completed baseline report and baseline ecological monitoring at Yarrs Flat and Yarrs Lagoon.
- Engaged Waihora Ellesmere Trust (WET) to support LW community engagement work.

FOCUS AREA, TARGETS AND PROGRESS TO DATE

WIDER ECOSYSTEM ENHANCEMENT

HEALTHY WATERWAYS – IMPROVE WATERWAY MANAGEMENT

Develop a demonstration healthy waterway site within the Ararira catchment.

Protect and enhance key springs and associated waterways.

Identify and rehabilitate high priority sites that contribute most to waterway degradation.

Control priority weeds species.

Output targets this FY

- Chose site for demonstration waterway in collaboration with Selwyn District Council and LII drainage committee.
- Commence waterway enhancement actions.
- Control weed in waterways at identified locations.

10-year outcomes

- Protect and enhance aquatic biodiversity in the catchment.
- Reduce excessive macrophyte growth in waterways and improve riparian/in-stream habitat diversity.

Progress to date

- Engagement with the LII Drainage Committee and SDC to manage drains for both environmental and drainage goals. Positive discussions about a potential site for a demonstration waterway. Support for Canterbury University at Silverstream continued through the period.
- Removal of priority weeds in the catchment waterways.

YARRS FLAT WILDLIFE RESERVE

Enhance ecosystem condition and function.

Output targets this FY

- Commence willow control.
- Plantings as part of Canterbury Plant Out and Lincoln Primary School Plant Out.
- Develop a plan for improved public access for part of the reserve.

10-year outcomes

- Manage and enhance existing biodiversity and taonga values at Yarrs Flat.
- More people are connected to the lake and catchment and value them as critical to their health and wellbeing.

Progress to date

- Control of grey willow at Yarrs Flat and maintenance of plantings.
- Lincoln University School of Landscape Architecture provided master plan and concept design for community engagement, public access and restoration.
- Planting design used for TAK's Kids Discovery and Canterbury Plant Out.
- Received technical advice (feasibility and cost estimate) to inform the improvements to public access.

YARRS LAGOON WILDLIFE RESERVE

Enhance ecosystem condition and function.

Output targets this FY

- Draft MOU with SDC.
- Control grey willow.
- Commission a management plan.

10-year outcomes

- Manage and enhance existing biodiversity and taonga values at Yarrs Lagoon.

Progress to date

- Agreement with SDC to develop a restoration plan for Yarrs Lagoon.
- Scope for management plan.
- Control of grey willow at Yarrs Lagoon.

FOCUS AREA, TARGETS AND PROGRESS TO DATE

SUSTAINABLE FARM MANAGEMENT

BIODIVERSITY ASSESSMENTS

ON-FARM

Support Fonterra farmers to identify biodiversity and water quality enhancement opportunities on-farm.

Output targets this FY

- Identify willing farmers for assessment and complete assessments.
- Discuss recommended restoration priorities with farmer and negotiate delivery schedule.

10-year outcomes

- Implementation of on-farm good practice management contributes to improved biodiversity and water quality.

Progress to date

- Completed two biodiversity assessments.
- Agreement with SDC and landowner on fencing and riparian planting along the LII River. Erected fencing and established and maintained plantings.
- Enhancement of QEII covenant on Simpson dairy farm (weed control, fencing, planting).

SUPPORT WETLAND CREATION

ON-FARM

Collaborate with Lincoln University Dairy Farm (LUDF) to investigate ways to enhance the aims of the LW programme on-farm.

Output targets this FY

- Develop business case for constructed wetland and agree on level of support.

10-year outcomes

- Implementation of on-farm good practice management contributes to improved biodiversity and water quality.

Progress to date

- LUDF has recontoured the wet areas and is monitoring performance before committing to constructed wetland. LW continued to discuss future opportunities on LUDF.

SUPPORT FOR IWI AND COMMUNITY PROGRAMMES

WORK WITH IWI

Collaborate and engage with Ngāi Tahu to support them to realise their aspirations within the Ararira/LII catchment.

Output targets this FY

- Meet with Te Waihora Board and conduct conversations with staff to discuss opportunities
- Put contract in place for those opportunities (e.g. Cultural Opportunity Mapping, Assessment and Response (COMAR)).

10-year outcomes

- The values of Mātauranga Māori are recognised and provided for.

Progress to date

- Several meetings with Ngāi Tahu to inform them about LW. Te Waihora Board disestablished during the year.
- Support from Craig Pauling at Boffa Miskell to engage with Te Taumutu Rūnanga. No joint initiatives developed at this stage.

WORK WITH COMMUNITY

Fund one off support for community initiatives that align with LW objectives.

Output targets this FY

- Investigate the recreational opportunities in the catchment.
- Sponsor LET's Kids-Fest.
- Support Te Ara Kākāriki's (TAK) Canterbury Plant Out and TAK's Lincoln Primary School Plant Out at Yarrs Flat.
- Staff support for Lincoln High School Eco-blitz.

10-year outcomes

- More people are connected to the lake and catchment and value them as critical to their health and wellbeing.

Progress to date

- TAK Canterbury Plant Out – 12 September – two community plantings run by TAK and sponsored by LW. Approximately 200 people and 2,600 plants at two sites.
- TAK Kids Discovery Plant Out – 20 October – LW sponsorship of TAK event at Yarrs Flat Wildlife Reserve with Lincoln Primary School. Approximately 150 children. Four activities: planting, aquatic world, weaving and predators.
- Contracted recreation demand analysis to identify the sites with the greatest potential to increase participation in recreation.
- An MOU and contract with Waihora Ellesmere Trust to engage WET staff time to support LW community engagement work.
- MOU with Lincoln EnviroTown for collaboration and delivery of LW objectives.

RESEARCH, MEASUREMENT AND MONITORING

SILVERSTREAM

Support Canterbury University drain rehabilitation trial at Silverstream.

Output targets this FY

- Maintain plantings from previous years.

10-year outcomes

- Implementation of good management practices that contributes to improved water quality and aquatic biodiversity.

Progress to date

- Maintenance of plantings at Silverstream and ongoing collaboration with CAREX. Creation of sediment traps, rebattering of waterway and development of area for public visitation.

FOCUS AREA, TARGETS AND PROGRESS TO DATE

RESEARCH, MEASUREMENT AND MONITORING

MONITORING

Identify changes in water quality and aquatic habitat.

Output targets this FY

- Finalise baseline assessment of current hydrology, water quality and ecology.
- Follow up on recommendations to fill gaps in baseline.

10-year outcomes

- Measure change created by LW programme.

Progress to date

- Finalised baseline report on ecology, hydrology and water quality and followed by a stakeholder engagement workshop.
- Monitoring by Lincoln University scholarship student – completed baseline ecological assessment (invertebrates, birds and pests) at Yarrs Flat and Yarrs Lagoon.
- Fish survey by DOC Freshwater Advisors and LW staff.

TELLING THE STORY

PROMOTE LOCAL LW INITIATIVES

Output targets this FY

- Communicate LW initiatives as opportunities arise.

10-year outcomes

- Community engagement and involvement in catchment care.
- More people are connected to the lake and catchment and value them as critical to their health and wellbeing.

Progress to date

- Updated farmers and other stakeholders on baseline report on hydrology, water quality and ecology.
- Presentation about LW at DOC's lunchtime science seminar and at DOC's Visitor Centre Hui.
- Article in *NZ Farmer* about LW working with farmers.
- Country Life on Radio New Zealand; presentation of the work with Canterbury University at Silverstream.
- LW Presence at Lincoln University Dairy Farm open day and stall at Ellesmere A&P show.
- LW presentation and fieldtrip to Canterbury Aoraki Conservation Board.
- Living Lake Symposium – fieldtrip support and financial contribution and LW presence and presentation at symposium.
- NZ Ecological Society Conference – gave presentation and provided sponsorship.



Wet area with five springs on the Simpson dairy farm. In the early 2000s it was fenced off, planted and brought under QEII covenant. An aerial shot before the waterway rehabilitation work downstream from the covenant began. LW supported initiatives to further enhance the covenanted area.

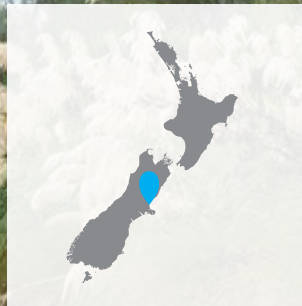
TRANSFORMING DRAINS INTO LIVING WATERWAYS

SPECIAL VALUE

Te Waihora/Lake Ellesmere is an internationally recognised wetland, New Zealand's fifth largest lake and largest coastal lagoon.

More than 166 species of birds have been recorded there.

We are focusing on opportunities to demonstrate healthy waterway management and to engage the local rural and urban community with their natural environment, including the restoration efforts of key wetland areas at Yarrs Flat Wildlife Reserve and Yarrs Lagoon.



Te Waihora/Lake Ellesmere Site Lead Ranger Robin Smith and DOC Freshwater Technical Advisor Sjaan Bowie giving a demonstration of electric fishing for the Steering Committee in the Ararira River catchment drain network.



Community Plant Out at Yarrs Flat Wildlife Reserve. Planting pattern designed as a meandering river or tuna/eel, by Lincoln University School of Landscape Architecture.



Fonterra farmers Richard and Jill Simpson at the Silverstream waterway rehabilitation site on their dairy farm – LW is working with University of Canterbury in research around water management: shading with 'Carex secta' plantings to reduce the macrophyte cover in the stream.



Riparian planting along the Ararira/LII River at Brook dairy farm.

AWARUA-WAITUNA, SOUTHLAND

Waituna catchment

Highlights

- Lower Waituna Creek restoration activities prioritised and project linked with MBIE funding proposal. Supported Environment Southland to implement riparian planting on private land as part of lower Waituna Creek restoration.
- Developed operational plan for animal predator control in the catchment and implemented the first stage at Tiwai Peninsula. Next stages in coming years include engagement with landowners for collaboration in pest management.
- Completed one biodiversity assessment on-farm. Follow up on priority actions with farmer will commence in next financial year. Focus on protecting wetland fragments on private land and developing corridors.
- Completed demonstration biodiversity corridors and riparian management project at Inverlac farm. In total 0.96 ha planted, part of this during a well attended community planting day.
- Agreed planting plan for Milkpower biodiversity corridor by landowner. Planting scheduled for July/August 2016.
- Received report on optimal fence set-back study (Cawthron). Follow up on recommendations next financial year.
- Installation of phosphorus passive filter on-farm (bottom of the catchment) in collaboration with NIWA and DairyNZ and monitoring performance of both filters (nitrate filter installed previous year). Continued in FY2016–17.
- Grant provided for Awarua Runaka to support whānui to identify economic and cultural opportunities in Awarua-Waituna wetlands (iwi hikoi initiative).
- Received the results of a study on the Waituna Lagoon level impacts on land drainage and inundation in the catchment (NIWA). Study continued for Moffat Creek in coming year. Study to inform decision making in regard to lagoon openings.

FOCUS AREA, TARGETS AND PROGRESS TO DATE

WIDER ECOSYSTEM ENHANCEMENT

STREAM RESTORATION LOWER WAITUNA CREEK

Contribute to work of Arawai Kākāriki to restore up to 16km of the lower Waituna Creek.

Output targets this FY

- Complete plan for Lower Waituna Creek restoration (recommendations, activities and timeframes).
- Start first stage of implementation.

10-year outcomes

- Innovative restoration of tuna/eel habitat in the catchment.
- Restore in-stream habitat of Waituna drains and tributaries to benefit freshwater life and improve ecosystem health.

Progress to date

- Identified draft activities (work on the ground) for Waituna Creek restoration in draft engagement strategy.
- MBIE funding request supported by LW. This funding bid was declined, however LW is working with Arawai Kākāriki and Cawthron Institute to explore other funding opportunities.
- Plantings at Waituna Creek supported by Southland Regional Council.

PEST MANAGEMENT

Work alongside Arawai Kākāriki to prioritise and plan implementation of an integrated pest management strategy across public and private land.

Output targets this FY

- Finalise strategy for pest management in the catchment and identify priority areas for work.
- Start initial stages of pest management work.
- Start planning toward pest control on private land – through biodiversity assessments.

10-year outcomes

- Contribute to large-scale biodiversity restoration under the DOC-led Arawai Kākāriki programme to restore the freshwater ecosystems in the catchment.
- The Awarua-Waituna wetland species and habitat are benefiting from pest control.
- Local community, farmers and iwi are engaged and collaborate in the approach (especially on private land in the buffer zones).

Progress to date

- Completed report on options for target species and prioritisation of work.
- Completed prioritisation of work between Arawai Kākāriki and LW.
- Received draft operational plan.
- 2,400ha under intensified pest management (Tiwai).

SUSTAINABLE FARM MANAGEMENT

RESTORATION AND RECONNECTION OF WETLAND FRAGMENTS, BUFFERS AND LINKAGES ACROSS THE CATCHMENT

Prioritise current extent of wetland fragments in the catchment in private ownership and identify appropriate protection and actions.

Output targets this FY

- Identify and prioritise 10 Fonterra farms.
- Recommendations on restoration and protection for those sites.
- Engage landowner to explore options to work on private wetland fragments.

10-year outcomes

- Protect, enhance and restore existing wetland fragments on-farm are
- Enhance connections between biodiversity fragments across the catchment.

Progress to date

- Identified and prioritised wetland fragments on private land (MWH report).
- Started landowner engagement.
- Completed biodiversity work on Inverlac Farm.
- Land owner agreement signed and planning started for riparian planting on Milkpower farm.

FOCUS AREA, TARGETS AND PROGRESS TO DATE

SUSTAINABLE FARM MANAGEMENT

BIODIVERSITY ASSESSMENTS ON-FARM

Engage farmers in good practice management for biodiversity.

Collaborate with Waituna Liaison Group to provide community support.

Output targets this FY

- Identify one to five farmers for biodiversity assessments.
- Complete one to five assessments.
- Start implementation of identified actions.

10-year outcomes

- Improve biodiversity integration in management practices on-farm.

Progress to date

- Completed one biodiversity assessment.
- Identified activities for action following biodiversity assessment – purchased plants for work to start in August.
- Identified four landowners for further biodiversity assessments. Started initial engagement.

DEMONSTRATION RIPARIAN PLANTING PROJECT

Implement a demonstration site on-farm that connects to a significant part of the Awarua-Waituna wetland complex via a QEII covenant.

Output targets this FY

- Plant and maintain Inverlac farm.
- Involve community in a planting event.

10-year outcomes

- Enhanced connections between biodiversity fragments across the catchment.
- Increase stakeholder engagement.

Progress to date

- Planted 0.96ha (ca. 4,220 plants) at Inverlac farm.
- Community planting day at Inverlac Farm on 20 October 2015, combined effort of 60 people from Gorge Road School, Environment Southland, community, Fonterra and DOC.
- Site under maintenance contract.

IMPROVE DRAIN MANAGEMENT PRACTICES IN THE CATCHMENT

Identify sites for trial to implement best practice of drain management.

Output targets this FY

- Sites identified for trials.

10-year outcomes

- Improve water quality (reduced sediments and nutrient loads).

Progress to date

- No progress this year.

TRIAL MANAGEMENT PRACTICES TO REDUCE EFFECTS OF TILE DRAINS

Install phosphorus passive filter (bottom of catchment) and report on findings for two passive filters (nitrogen installed previous year at top of catchment).

Output targets this FY

- Install phosphorus filter on agreed site.
- Monitor effectiveness of the two passive filter trial sites. Recommendations planned for next year.
- Work with NIWA and DairyNZ for project passive filter and communicate about recommendations.

10-year outcomes

- Improve water quality (reduced nutrient loads).
- Effectiveness of passive filters studied for NZ conditions and implemented at several sites if successful.

Progress to date

- Installed phosphorus filter at trial site.
- Experienced some technical issues during April/May that have impacted on monitoring report. Resolved issues and monitoring report due July. Initial samples indicate reduction in nitrates.
- Deferred follow up to next year; waiting on results and recommendations from trials at two initial sites (nitrate filter from last year and phosphorus filter from this year).

SUPPORT FOR IWI AND COMMUNITY PROGRAMMES

WORK WITH IWI

Identify opportunities to work with Awarua Runanga on projects in Waituna that have relevant links, such as species of significance.

Support the development of a cultural values monitoring plan with representatives from Awarua Runanga.

Output targets this FY

- LW support of COMAR
- LW support of resourcing to iwi to ensure their values are incorporated into LW projects.

10-year outcomes

- Iwi reconnect with site.
- Improve access for mahinga kai and traditional cultural practice (waka ama, etc).
- Enhance iwi capability.

Progress to date

- Te Ao Mārama funding of stage 3 and 4 of COMAR completed (alongside Arawai Kākāriki).
- Draft MOU with iwi underway and deed of grant for iwi resource signed.

WORK WITH WAITUNA PARTNERS GROUP

Continue to work together on relevant issues through the Working Group for Waituna Partners Group.

Output targets this FY

- Participate in the Waituna Working Group.

10-year outcomes

- Collaboration with statutory agencies.

Progress to date

- LW input into Waituna Strategy and action plan.
- Completed Waituna Science advisory group terms of reference, appointed chairman and scheduling for the first meeting underway.
- Grant to Environment Southland for Bank restoration and riparian planting of rebattered banks of Waituna Creek.

FOCUS AREA, TARGETS AND PROGRESS TO DATE

SUPPORT FOR IWI AND COMMUNITY PROGRAMMES

WORK WITH COMMUNITY

Support the Waituna Landcare Group.

Output targets this FY

- Support Kapuka South Road planting.

10-year outcomes

- Aspirations of key stakeholders that are aligned with LW goals are supported and more people are engaged.

Progress to date

- Kapuka South Road plantings completed by Waituna Landcare Group.
- Funding provided to support maintenance of existing riparian planting projects.

RESEARCH, MEASUREMENT AND MONITORING

RESEARCH LAGOON OPENING

Support Arawai Kākāriki to undertake a study and collect data to understand the impact of lagoon opening and closing.

Output targets this FY

- Map the spatial extent of inundated land for a range of lagoon levels.
- Utilise scientific basis to assist in understanding of impacts of lagoon opening and closure on farms.

10-year outcomes

- Informed decision making in regard to lagoon openings.
- Opportunity to work with landowners who are heavily affected by water levels.

Progress to date

- Completed Waituna Lagoon level impacts on land drainage and inundation (NIWA).
- Presented the Waituna Lagoon Drainage and Inundation Report to the Waituna Partners Group.
- Moffats Creek to be surveyed to include in modelling. Completed planning, waiting for lagoon to close to continue.

DEVELOPING TOOLS

Commission a study to determine optimum fence set-back at waterways.

Output targets this FY

- Complete report with recommendations.

10-year outcomes

- Improve water quality (reduced nutrient and sediment loads).

Progress to date

- Received final report and recommendation being integrated into work plans.

TELLING THE STORY

PROMOTE LOCAL LW INITIATIVES

Output targets this FY

- LW presence at field days.
- Learnz virtual tour.
- Produce Wetlands Education Resource kit.
- Communication and engagement plan developed.

10-year outcomes

- LW story shared and improved understanding of the LW goals.
- The values of wetlands are understood.
- More people engage with the area.

Progress to date

- Fonterra filming for website completed.
- Display at Waimumu Agricultural Field days.
- Communications plan completed.
- Draft Wetlands Education Resource kit produced.
- Media coverage in relation to passive filters and Inverlac biodiversity corridors.



Phosphorous passive filter installed on private land. Aluminised zeolite will help remove phosphates from tile drains prior to entering into waterways.

PROTECTING AND RECONNECTING WETLAND FRAGMENTS



SPECIAL VALUE

The Awarua-Waituna wetlands are made up of more than 20,000ha of wetlands that include a coastal lagoon, extensive peatlands, swamps, freshwater streams, the Awarua Bay and New River Estuary.

The focus area includes the Waituna Lagoon – a 3,500ha wetland that was the first site in New Zealand to be named a Ramsar site, recognising it as a wetland of international importance.

We are focusing on working with farmers to protect, restore and reconnect fragmented wetlands, improve in-stream habitat and water quality, and support the adoption of best farm management practices.



Chief Operating Officer Farm Source Miles Hurrell, and Director, Operations, Southern South Island Allan Munn, working together at biodiversity corridor planting day.



Pupils from Gorge Road School eagerly awaiting the chance to see some freshwater species up close and personal at World Wetlands Day event.

REPORT ON KEY PERFORMANCE INDICATORS

INDICATORS	HIKURANGI Achieved	PŪKOROKORO/ MIRANDA Achieved	WAIKATO LAKES Achieved	ARARIRA/LII Achieved	WAITUNA Achieved
WIDER ECOSYSTEM ENHANCEMENT					
PCL under active conservation management			30ha	25ha	Arawai Kākāriki leading
• Area of restoration planting – habitat	0	0	3.5ha	1ha	0
• Area under weed control	2ha	0	5ha	21ha	0
• Area under active animal pest control	0	40 ha	5km trapping and pest fish in 3 lakes	0	2,400ha
Management/Restorations plans prepared	1 site/3 progressing	1 site	3 sites	0	0
Number of species under active management	3	0	Bird species	0	0
Number/area of constructed wetlands off-farm	2 (1ha)	0	3 (3ha)	0	0
Number/area of sediment traps off-farm	0	0	3	0	0
Hydrology (e.g. water levels and flows)	0	1 site	3 sites	0	0
Waterways under management					Arawai Kākāriki leading
• Riparian planting off-farm	0	1ha	3ha	0	0
• Weed or macrophyte management	Royal fern	0	0	Grey willow/other priority weeds in Ararira drains	0
In-stream habitat under management	0	0	0		Waituna lower (P)
SUSTAINABLE FARM MANAGEMENT					
Number of biodiversity assessments on-farm	9	4	4	2	1
Number of agreed actions from assessments	3	0	0	0	1 (4,000 plants)
Area of retired land (e.g. grazing concessions, critical source area)	5ha	0	5ha	0	0
Increased area of protected land via covenant (QEII or Ngā Whenua Rāhui)	12ha	0	0	0	0
Area/no of habitat (e.g. wetland, forest remnants) fenced/maintained	1 forest remnant (5ha)	72ha (Te Kama block)	0	1 ha (Silverstream)	0
Area/metres of riparian planting	300m ²	0	0	0.3ha	0.96ha
Stock exclusion – metres of drain fenced	0	0	0	50m	n/a
Number/area of constructed wetland on-farm	0	0	0	0	0
Number of installed sediment traps on-farm	0	0	0	2 (Silverstream)	0
Number of Fonterra farmers involved in (restoration) initiatives on their property	4	2	3	3	6
SUPPORT FOR IWI AND COMMUNITY PROGRAMMES					
Iwi-endorsed LW strategies and work	1	1	yes	yes	4
Joint projects with iwi	1	0	3	0	5
Fund one-off community initiatives	8	7	3	2	1
Regional communications and engagement plan	1	1	1	1 (draft)	
Number of stakeholders involved in activities	Not recorded	6	200+	15	8
Community open day/public events	1 (QEII launch)	0	Educational day	0	1
Planting day/number of volunteers days	2	0	800hrs (plantings), 240hrs (trapping)	2 days/800hrs (planting)	2
Media releases	5	2	4	4	4
LW signage installed at activity site	0	0	0	0	0

INDICATORS	HIKURANGI Achieved	PŪKOROKORO/ MIRANDA Achieved	WAIKATO LAKES Achieved	ARARIRA/LII Achieved	WAITUNA Achieved
RESEARCH, MEASUREMENT AND MONITORING					
Monitoring programme initiated	1	Baseline species	0	0	Restoration sites
Farm management and/or restoration tools developed	Riparian demonstration	Monitoring study for silt traps and floating wetland	1	1 – sustainable drain management, Silverstream	P-filter
Research for improvement management initiated		1 collaborative	1	1 – Silverstream	2

Key: S = scoped, but not underway
P = in progress
C = complete
ha = hectare



OUR FOCUS

July 2016–June 2017

Building on the strong foundations established to date through stakeholder engagement, baseline studies and project planning, our focus for 2016–2017 is to accelerate programme delivery across the five sites, including:

- **Hikurangi** – Protecting and connecting remnant wetlands and riparian forest and completing on-farm biodiversity assessments.
- **Pūkoro/Miranda** – Protecting, enhancing and expanding shorebird habitat, supporting advocacy to protect international flyway sites and showcasing examples of best practice sustainable dairy farming.
- **Waikato peat lakes** – Restoration of Lakes Areare, Ruatuna and Rotomānuka, and supporting adoption of best management practices on surrounding farms.
- **Ararira/LII** – Management of springs and drains to enhance biodiversity and water quality and restoring key wetland areas at Yarrs Flat Wildlife Reserve and Yarrs Lagoon.
- **Waituna** – Protecting and connecting wetland fragments, improving in-stream habitat and water quality, undertaking pest control and supporting the uptake of best farm management practices.

OUR PEOPLE

We had several staff changes during the year.

The people from Fonterra and DOC driving the delivery of our partnership in 2015–16 were:

NORTH ISLAND



Tim Brandenburg
Fonterra North Island Project Manager



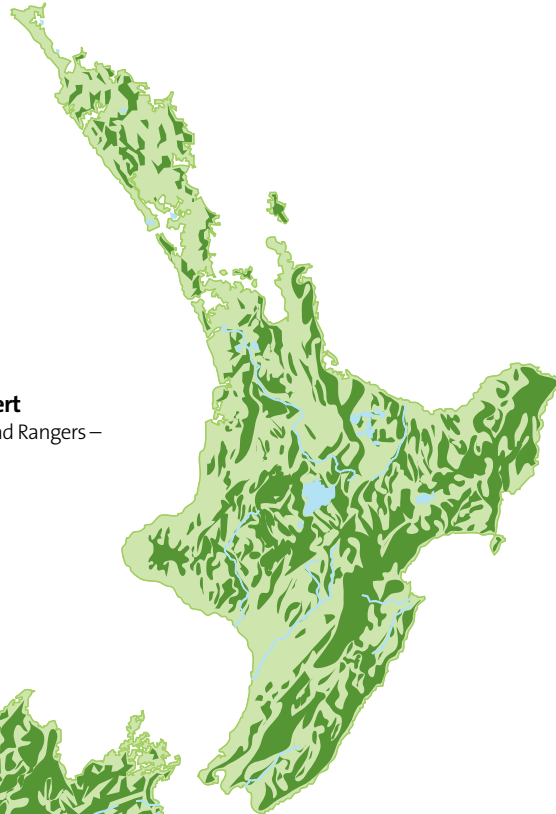
Wendy Holland & Ben Herbert
Department of Conservation Lead Rangers –
Hikurangi catchment



Dion Patterson
Department of Conservation Lead Ranger –
Pūkoro/Miranda catchment



Michael Paviour
Department of Conservation Lead Ranger –
Waikato peat lakes



SOUTH ISLAND



Robin Smith
Department of Conservation Lead Ranger –
Ararira/LII catchment



Nicki Atkinson & John McCarroll
Department of Conservation Lead Rangers –
Waituna catchment



Marga Martens
Department of Conservation
National Project Manager



For more information on our partnership, visit www.livingwater.net.nz.

ACKNOWLEDGMENTS

We would like to give our thanks to all the people who have contributed to our journey so far, in particular our farmers, iwi/hapū, councils, environmental care groups and other passionate individuals.

We would also like to thank all our Living Water Steering Committee members for their guidance and direction, including:

Department of Conservation

Mike Slater, Andy Roberts, Geoff Ensor

Fonterra Co-operative

Carolyn Mortland, Emma Parsons, Stuart Gray

LIVING WATER



WORKING TOGETHER TO CARE
FOR FIVE KEY CATCHMENTS

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