

Strategy and Action Plan for Waituna



August 2015



Department of
Conservation
Te Papa Atawhai



Te Rūnanga o NGĀI TAHU



Southland District Council
Te Rohe Pōtae O Murihiku



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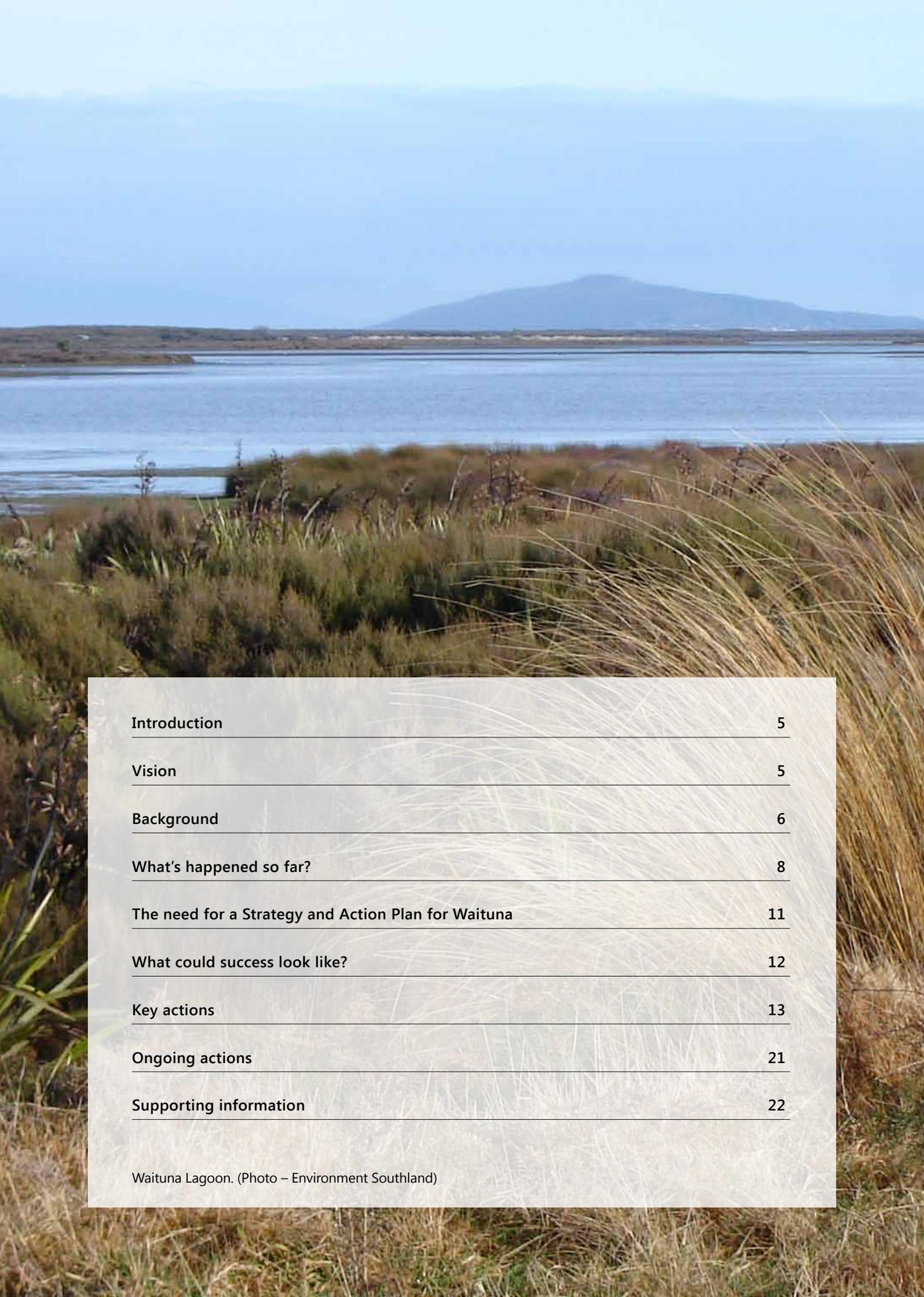
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Strategy and Action Plan for Waituna

Defining a pathway for ensuring the wellbeing of the people, the land, the waters, the ecosystems, and the life-force of the Waituna catchment and lagoon, now and for future generations through a partnership approach.

August 2015



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INTRODUCTION

This Strategy and Action Plan for Waituna builds on the work that has been done to date and is designed to enable further progress to be made on defining, prioritising and reaching agreement on the next steps for improving the condition of the catchment and lagoon. This is a living document and will be reviewed and updated annually with a report on progress produced.

This plan is in two parts. The first part states the vision, sets the context, describes what has happened so far, outlines why there is a need for a Strategy and Action Plan and defines what success may look like.

The second part identifies goals and the key actions that are proposed to achieve each goal. For each of the actions, the lead and other party(ies) responsible for the action(s) and how progress might be measured are noted. These actions include those that are planned for the short-term and some potential actions that may be undertaken in the long-term (three to five years). A comprehensive Activity Plan in a separate document underpins and provides the detail about the actions. This is also updated regularly.

VISION

The vision¹ for the Waituna catchment and lagoon is:

Mana oranga; Mana tangata; Mana ki uta; Mana ki tai; Mana Waituna

Ensuring the wellbeing of the people, the land, the waters, the ecosystems, and the life-force² of the Waituna catchment and lagoon, now and for future generations through a partnership approach.



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- 1 It is important to recognise that the vision and objectives for the Waituna Lagoon are bound by the Ramsar Convention and the requirements of the Ngāi Tahu Settlement Act, Local Government Act, Resource Management Act and various Acts as administered by the Department of Conservation.
 - 2 Life-force is the closest English term that could be used in the translation of this vision. When an environment or living thing's health or wellbeing deteriorates, its ability to function is compromised, becoming sick or dying.
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BACKGROUND

Waituna Lagoon is part of the internationally recognised 20,000ha Awarua Wetland. The 1,350ha lagoon and immediately surrounding wetland known as the Waituna Wetland Scientific Reserve (an area of 3,500ha) was designated a Ramsar Wetland of International Importance³ in 1976, with the wider wetland complex being included in 2008. A key commitment under the Ramsar Convention is to maintain and enhance the ecological health of the wetland.

Waituna Lagoon is one of the largest remaining wetland systems in New Zealand and is made up of a number of nationally significant ecosystems. Its cultural significance to Ngāi Tahu was recognised by a Statutory Acknowledgement under the Ngāi Tahu Claims Settlement Act 1998. The lagoon and wetland have also been a source of food and recreation for the wider community over many generations e.g. fishermen, hunters and trappers.

Waituna Lagoon sits at the bottom of a small (approximately 20,000ha), intensively farmed catchment. Because of many years of land development in the catchment, and changes in lagoon water levels, its health and that of its tributaries is under stress. Land development has included: drainage of wetland areas; clearance of indigenous vegetation; and more recent land use intensification since the 1950s when the main tributaries to the Waituna Lagoon were straightened, and Government schemes cleared and developed land and encouraged other people to do so as well.

Waituna is just one example of a number of lagoons and estuarine systems located at the end of agricultural catchments which are under stress throughout New Zealand. As such, the primary concerns are the loss of nutrients and sediment from land use activities, thus increasing the risk of the lagoon becoming eutrophic, as well as the loss of wetlands through land development. The management of lagoon opening events is important as it influences ecosystem health and farm management practices.

Environmental monitoring shows that the water quality in the lagoon and the creeks that flow into it is under stress. As such, the catchment and lagoon require on-going active management to improve their ecological condition. This is to reduce the risk of the lagoon experiencing a 'regime shift', that is, a change from having clear water and an aquatic environment dominated by aquatic macrophyte plants such as *Ruppia*⁴, to one which has turbid and murky water dominated by algal slime and other suspended phytoplankton.

The Waituna Lagoon system is highly complex. Over the last few years there has been significant investment by various parties to develop a greater understanding of the catchment and lagoon. While the level of knowledge has improved dramatically, some of the causes of the water quality decline, and the relationships between land use activities, lagoon openings and lagoon ecosystem health are still not fully understood. Therefore, the agencies and community are taking an incremental approach to undertake actions with known benefits now, whilst continuing to investigate the feasibility of potential actions⁵.

3 The Convention on Wetlands of International Importance is known as the 'Ramsar' Convention. It is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. The Ramsar Convention is the only global environmental treaty that deals with a particular ecosystem. The Waituna Lagoon is particularly deserving of this status because of its extensive range of bird, wildlife, ecological and Ngāi Tahu values.

4 *Ruppia* is a native macrophyte/water plant. Its presence or absence is regarded as a key indicator for the ecosystem health of the Waituna Lagoon and is integral to supporting life in the lagoon.

5 The need for additional action is reinforced not only by the requirements of the recently amended National Policy Statement for Freshwater Management but also by the New Zealand Coastal Policy Statement, Environment Southland's Regional Water Plan and treaty obligations. The Waituna Working Group have also noted that the cost of intervention will be less now than that required if further degradation does occur.

While there is lots of discussion around the environmental concerns at Waituna, the investments families and businesses have made in their land in the Waituna catchment have contributed to the economic and social development of the area, some over a number of generations. Any actions will need to continue to give consideration to the wide ranging values that a wide range of people hold for the Waituna catchment and lagoon, and any legislative requirements.

WHAT'S HAPPENED SO FAR?

In 2001, members of the Waituna community became aware that changing and intensive land use was having effects on the catchment and lagoon and set up the Waituna Landcare Group. Since then the community have held a number of field days to raise awareness about good management practices and worked on projects to improve water quality.

In 2007 efforts were stepped up. With funding assistance from the Government, the Department of Conservation (DOC) Arawai Kākāriki Wetland Restoration Programme⁶ supported a number of actions on farms in the catchment. These actions included subsidising riparian fencing, culvert alignment and riparian planting. This was supported by Environment Southland's 'Living Streams' programme.

Another initiative was the joint funding by DOC and Environment Southland of a dedicated Land Sustainability Officer for the Awarua and Waituna catchments to provide targeted advice and assistance to farmers and the community on sustainable land management practices.

By 2011, Environment Southland's State of the Environment reporting (which combined water quality monitoring results with DOC's *Ruppia* monitoring) identified that the health of the lagoon was still under stress. Community and agency efforts took on an added intensity.

With one-on-one support, farmers willingly and quickly made changes to their management practices, often at considerable personal expense. There was an immediate focus on winter grazing management practices for properties with crops beside waterways. This was followed by detailed 'farm-walk' assessments of on-farm practices and the piloting of 'Sustainable Milk Production Plans' for dairy farmers and dairy graziers with support from DairyNZ, Environment Southland and Fonterra staff, and assistance from Federated Farmers. This led to the dairy farming community preparing a Waituna Catchment Action Plan 'Waituna Lagoon and Catchment: dairy farming for lagoon health 2011/2012'. The purpose of this plan was to document the work that the farmers are doing to help to ensure a sustainable future for the Waituna Lagoon and their community. This was updated in October 2012.

On top of this, Environment Southland, with the support of the community, successfully applied to the Ministry for the Environment's 'Fresh Start for Fresh Water Clean-up Fund' to reconstruct stream banks to minimise sediment loss, and to trial constructed wetlands and utilise lagoon opening events to assist with managing nutrient levels.

The 'Sustainable Dairying Water Accord' and its predecessor the 'Clean Streams Accord' have played their part by assisting to get the remaining waterways fenced off on dairy platforms. Fonterra farmers have committed to the environmental modules of the 'Supply Fonterra' programme. This includes fencing of waterways, effluent management, and reporting on nitrogen loss and nitrogen conversion efficiency.

Over time, numerous parties have contributed to the drive that has given this project its ever-evolving momentum, and have also undertaken a vast amount of work over the last decade to learn about the catchment and lagoon, the risks posed to its ecological health and ways to resolve the issues causing the stress.

6. The DOC Arawai Kākāriki Wetland Restoration Programme has been working to improve the health of the wetland across the Awarua Wetland since July 2007. The work has included key applied and research projects across the lagoon, wetlands and catchment working alongside the community, Ngāi Tahu, local government and non-government agencies.

A significant cause of the current unstable state of the lagoon is the quantity of incoming nutrients and sediment, through the development and intensification of productive agricultural systems in the catchment. More recent work has shown how the different soil types in the catchment impact upon the nutrient loads from these areas, and the sources of sediment to the lagoon e.g. bank erosion. This understanding will inform the development of actions to reduce nutrient and sediment loads which support sustainable farming and the farming community.

Guidelines and targets prepared by the Lagoon Technical Group identified *Ruppia* as a key indicator of ecosystem health. These guidelines recommended a reduction of nutrients entering the lagoon, with a focus on the protection of *Ruppia* species to maintain and enhance the health of the lagoon.

In 2013, Fonterra and DOC committed to a 10-year Living Water partnership to improve water quality in five key catchments around New Zealand, and the Waituna catchment was one of those chosen.

The Department of Conservation, Environment Southland, Southland District Council, Te Runanga o Ngāi Tahu and Te Rūnanga o Awarua formed the Waituna Partners' Group in August 2013. These organisations have statutory roles in the care and management of the Waituna catchment and lagoon, and signing the Partners' agreement provides a strong commitment to work together for the ongoing improvement of its health and wellbeing. The Partners' Group is supported by a working group made of staff from these agencies, plus the DOC–Fonterra Living Water partnership and DairyNZ. Local landowners assisted the working group with the development of this plan. A formal structure to guide efforts allows for a more comprehensive and coordinated approach and will achieve greater improvements than could be achieved working separately.



Part of Waituna Creek after its banks have been successfully reconstructed to reduce erosion.
(Photo – Environment Southland)

THE NEED FOR A STRATEGY AND ACTION PLAN FOR WAITUNA

An important component in the development of the plan is to build on work that has already been done to generate confidence, ownership, commitment, understanding and trust between all parties, toward a preferred suite of future actions.

As outlined above, many actions have already been taken. However, if we are to avoid a regime shift within the lagoon a number of additional actions will be needed both immediately and in the future. While there are a number of actions which can be undertaken in the short-term which have reasonably well known and positive outcomes, potential future actions will continue to evolve as more information comes to light and with the development of new technologies and management practices.

One of the purposes of this plan is to provide a vision of the future state of the Waituna catchment and lagoon while also tracking the actions being undertaken by various party(ies) in order to achieve that vision. To do this there needs to be a process with clear deadlines and milestones. It should also be noted that funds, cost sharing and mandate to undertake various actions also need consideration.

The on-going support of the Waituna community is crucial to achieve an improvement in catchment and lagoon health, and to reverse the trend of wetland loss within the catchment. We all have a role to play in improving the health of the catchment and the lagoon.

The need for the plan is reinforced by the Government's adoption of the 2011 National Policy Statement for Freshwater Management. This requires Environment Southland to define 'limits' for achieving objectives in all of Southland's catchments, including Waituna. Environment Southland is responding to this through its Water and Land 2020 & Beyond project. While this plan will inform the limit setting exercise required by the National Policy Statement, it is not about developing Waituna specific rules.

The plan will provide a foundation to facilitate the work being undertaken under the umbrella of the Water and Land 2020 & Beyond project sometime over the next five to ten years. Therefore it needs to recognise the community values for the catchment, the lagoon, and farming in this area.

WHAT COULD SUCCESS LOOK LIKE?

To give life to the vision, these are the things we're aiming to achieve:

OUTCOMES SOUGHT	GOAL/PERFORMANCE MEASURE/S
1. Thriving communities & sustainable economies	Healthy people and a vibrant community. Sustainable farming community that ensures their long-term future.
2. Kaitiakitanga	Strong relationship between Ngāi Tahu (Awarua Rūnanga) and their culture and traditions with their ancestral lands, sites, waahi tapu and other taonga, and the exercise of kaitiakitanga.
3. Recreation and sense of place	Brown trout fishery values, aesthetic appreciation, hunting and other recreational opportunities.
4. Healthy catchment and lagoon	Healthy lagoon and wetland ecosystem in which the flora and fauna, for which the Awarua-Waituna is renowned for and recognised under Ramsar, flourish. Abundant and healthy rooted aquatic and wetland plant community in the lagoon, particularly species of <i>Ruppia</i> but also wiwi and harakeke (flaxes). Preventing a regime shift from an aquatic plant dominated system to an algal dominated eutrophic system in the lagoon. Catchment and lagoon in such a healthy state that they no longer require the focused intensive attention they currently receive; the focus shifts to sustaining their values and appreciating the positive relationship which exists between the community and the environment in which the community lives. The nutrient and sediment loads to the lagoon are reduced and an opening/closing regime managed so that the lagoon will display some eutrophic conditions rather than be a pristine environment, but will still support healthy macrophyte and fish communities.
5. Agreed lagoon levels	Agreed water level management regime for the lagoon which provides for all the values of the catchment.
6. Mahinga kai	Abundant and healthy mahinga kai* including: strong kokopu, patiki (flounder), tuna, kanakana (lamprey), waikoura (freshwater crayfish) and inaka (whitebait) populations; a diversity of life as part of a healthy ecosystem; and maintaining healthy recruitment/replenishment of these from the mountains to the sea (ki uta ki tai).
7. Healthy streams	Recreation, improved habitat and water quality.
8. Biodiversity	Protect, enhance and value biodiversity. Abundant and healthy native fish, plant, invertebrate, reptile and bird populations; protection of wetlands in the catchment as refuges of biodiversity and for the ecosystem services they provide; and lagoon, stream, and wetland ecosystems thrive and support indigenous biodiversity.

* Mahinga kai encompasses the resource harvested, the ability to access the resource, the site where gathering occurs, the act of gathering and using the resource, and the good health of the resource (Tipa 2011).

We are planning to measure, monitor, review and celebrate our successes as we go, and will review the progress annually.

KEY ACTIONS

ACTION 1	RELATED OUTCOME(S)	BY WHO? (lead party is shown in bold)	BY WHEN?	HOW MIGHT PROGRESS BE MEASURED?
<ul style="list-style-type: none"> Find out what makes the Waituna catchment and lagoon important to people at the individual, community, local and regional levels. 	1, 2, 3, 4, 5, 6, 7, 8	<ul style="list-style-type: none"> Environment Southland in conjunction with all stakeholders 	September 2015	<ul style="list-style-type: none"> Report completed. Number of reports this information has fed into. Community survey on specific values people living, working and undertaking recreational activities in the catchment have.

ACTION 2	RELATED OUTCOME(S)	BY WHO? (lead party is shown in bold)	BY WHEN?	HOW MIGHT PROGRESS BE MEASURED?
<ul style="list-style-type: none"> Cultural Opportunities Mapping Assessment and Response (COMAR) project. This work is to provide a Ngāi Tahu whanui assessment on Waituna catchment and lagoon. Mapping in GIS system of place names, mahinga kai and associated histories. 	2, 4, 6, 8	<ul style="list-style-type: none"> TAMI (Te Ao Marama Inc) & Te Rūnanga o Awarua Department of Conservation Living Water Partnership 	Stage One - 31 March 2015 Stage Two – 30 September 2015 Stage Three – April 2016	<ul style="list-style-type: none"> Stage One - Place names, mahinga kai and associated histories in GIS system. Stage Two – Monitoring and COMAR Plan completed. Ready to start COMAR site work in Spring. Stage Three – COMAR field work completed, data collected and analysed, report completed.

ACTION 3	RELATED OUTCOME(S)	BY WHO? (lead party is shown in bold)	BY WHEN?	HOW MIGHT PROGRESS BE MEASURED?
<p>Undertake research to increase knowledge about nutrient losses by investigating new technologies/ techniques for minimising nitrogen, phosphorus and sediment losses, and the cost/benefit relationships about these, including:</p> <ul style="list-style-type: none"> • pasture/fodder crop trials; • polishing of discharges from tile drains; • constructed wetlands, including investigation of the effectiveness and costs associated with the development of constructed wetlands and identification of appropriate locations for constructed wetlands within the catchment; • nitrification inhibitors. 	1, 4, 6, 7, 8	<ul style="list-style-type: none"> • Environment Southland • DairyNZ • Living Water Partnership 	Ongoing	<ul style="list-style-type: none"> • Annual reporting by individual parties on results/outcomes of activities undertaken. • Nutrient losses decrease. Water quality improves as a result of these activities.

ACTION 4	RELATED OUTCOME(S)	BY WHO? (lead party is shown in bold)	BY WHEN?	HOW MIGHT PROGRESS BE MEASURED?
<ul style="list-style-type: none"> • Work with landowners to scope and investigate the potential locations and benefits arising from retirement of land both within the catchment and/ or a buffer area around the lagoon. 	1, 2, 3, 4, 5, 6, 7, 8	<ul style="list-style-type: none"> • Landowners • Lake Waituna Control Association • Environment Southland • DairyNZ • Living Water Partnership • Department of Conservation 	30 September 2016	<ul style="list-style-type: none"> • Soil moisture mapping completed of land surrounding the lagoon at various lagoon levels. • Mapping completed of the sources of nutrients throughout the catchment and the relative contribution to loads to the lagoon. • Potential areas for retirement identified. • Cost/benefit analysis produced for potential areas. • If appropriate, application for government assistance completed.

ACTION 5	RELATED OUTCOME(S)	BY WHO? (lead party is shown in bold)	BY WHEN?	HOW MIGHT PROGRESS BE MEASURED?
<p>Minimise environmental risk of effluent storage/ disposal at a farm and catchment level through:</p> <ul style="list-style-type: none"> • compliance with farm dairy effluent discharge consents; • compliance with industry-led farm dairy and environmental assessments; • implementation of good management practices. 	1, 4, 6, 7	<ul style="list-style-type: none"> • Dairy farmers • Environment Southland • Fonterra 	At all times	<ul style="list-style-type: none"> • Number of abatement notices, infringement notices, prosecutions.



Waituna Lagoon (Photo – DOC)

ACTION 6	RELATED OUTCOME(S)	BY WHO? (lead party is shown in bold)	BY WHEN?	HOW MIGHT PROGRESS BE MEASURED?
<ul style="list-style-type: none"> • Take practical steps to reduce nutrient loads coming into the lagoon from the Waituna catchment. • Managing riparian, winter grazing, and drain maintenance activities according to good practice guidelines. • Preparation of annual nutrient budgets for each farm and, undertake mitigation measures to reduce nutrient loss. 	1, 4, 6, 7, 8	<ul style="list-style-type: none"> • Environment Southland • Southland District Council • Department of Conservation • Landowners/ individual farmers • Industry groups e.g. fertiliser representatives, Beef • Living Water Partnership • Waituna Landcare Group 	Ongoing	<ul style="list-style-type: none"> • Ongoing specific water quality monitoring and reporting against baseline to show water quality trends over time within the catchment. • Number of farms with mitigation measures due to dairy conversion rule. • Number of indigenous and vegetation removal consents processed/ managed. • Annual assessment of total catchment nutrient load. • Annual reporting on the length of waterways fenced and length planted. • Length of waterways that have stable banks. • Percentage of farms with nutrient budgets. • Percentage of farms with nutrient management plans. • Percentage of farms with environmental farm plans (or equivalent).

ACTION 7	RELATED OUTCOME(S)	BY WHO? (lead party is shown in bold)	BY WHEN?	HOW MIGHT PROGRESS BE MEASURED?
<ul style="list-style-type: none"> Review effectiveness of the current bank reconstruction work and investigate other areas for further works. Undertake bank stabilisation works to reduce the sediment load to the lagoon. Implement a wider stream habitat management project to restore in-stream and riparian habitat at priority sites. 	1, 3, 4, 6, 7, 8	<ul style="list-style-type: none"> Environment Southland, with support from Ministry for the Environment’s Fresh Start for Freshwater Clean-up Fund and landowners. Living Water Partnership Department of Conservation 	<ul style="list-style-type: none"> Complete current Fresh Start for Fresh Water funded bank reconstruction programme – 30 June 2015. Undertake further bank reconstruction works as funds become available and individual landowners agree. 	<ul style="list-style-type: none"> Length of stream bank stabilised. Photographic record of stabilised banks at long-term photo points. Length of riparian habitat restored. Reduction in sediment load in Waituna Creek at State of the Environment monitoring sites. Monitoring of habitat and native species within both the catchment and lagoon.

ACTION 8	RELATED OUTCOME(S)	BY WHO? (lead party is shown in bold)	BY WHEN?	HOW MIGHT PROGRESS BE MEASURED?
<ul style="list-style-type: none"> Investigate options for short and long-term management of lagoon levels with an opening/closing regime. New consent for management of lagoon opening is in place. (Note: the approval process requires consents and also Department of Conservation approvals given Scientific Reserve Status) 	1, 4, 5, 6	<ul style="list-style-type: none"> Lake Waituna Control Association Landowners Environment Southland DairyNZ Department of Conservation Iwi Fish & Game 	31 December 2015	<ul style="list-style-type: none"> Peer-review report completed – 31 October 2015. Report prepared which sets out all the values to be considered in the development of the lagoon management regime – 31 December 2015. A workshop convened with affected and interested parties. Areas affected by different lagoon levels mapped both in terms of land inundation, elevation of groundwater levels and reduction of drainage efficiency. The maximum depth of water in the lagoon that can be tolerated by farmers is clarified, and the period for which those higher water levels can be tolerated by the farming community and identify how these impacts affect environmental values Option confirmed for long-term management of lagoon levels. Relevant resource consent applications lodged.

ACTION 9	RELATED OUTCOME(S)	BY WHO? (lead party is shown in bold)	BY WHEN?	HOW MIGHT PROGRESS BE MEASURED?
<ul style="list-style-type: none"> Identify location and extent of existing wetlands on farms and provide guidelines and assistance with protection. Protection of existing wetlands and indigenous vegetation. 	1, 2, 3, 4, 6, 7, 8	<ul style="list-style-type: none"> Environment Southland Living Water Partnership Department of Conservation Landowners Southland District Council 	Ongoing	<ul style="list-style-type: none"> Location and extent of existing wetlands within the catchment mapped. Options investigated to provide assistance to landowners who wish to protect/enhance/ enlarge their wetlands. Bed disturbance provisions of the Regional Water Plan in effect. Biodiversity provisions of the District Plan in effect.

ACTION 10	RELATED OUTCOME(S)	BY WHO? (lead party is shown in bold)	BY WHEN?	HOW MIGHT PROGRESS BE MEASURED?
<ul style="list-style-type: none"> Raise awareness of the importance of mahinga kai in the catchment, how it can be accessed and understand the implications for the Scientific Reserve status of the lagoon. 	2, 6, 8	<ul style="list-style-type: none"> Te Ao Marama Inc Ngāi Tahu Department of Conservation Living Water Partnership Landowners 	30 June 2016	<ul style="list-style-type: none"> Mahinga kai communications strategy completed and publically available.

ACTION 11	RELATED OUTCOME(S)	BY WHO? (lead party is shown in bold)	BY WHEN?	HOW MIGHT PROGRESS BE MEASURED?
<ul style="list-style-type: none"> Monitor the extent of <i>Ruppia</i> coverage and investigate the risks for <i>Ruppia</i> re-establishment, including viability of existing seed bank, effect of lack of water clarity, and the optimal depth of water. 	1, 2, 3, 4, 6, 7, 8	<ul style="list-style-type: none"> Department of Conservation 	30 March 2017	<ul style="list-style-type: none"> Peer-review report completed.

ONGOING ACTIONS

In addition to the actions above, the following actions will be continued by the parties responsible:

ACTION	PARTY(IES) RESPONSIBLE
Communicate first and foremost with the Waituna community, but also the wider general public: <ul style="list-style-type: none"> • progress for the catchment and lagoon; • people’s sense of place and attachment to the catchment and/or lagoon; • issues for the catchment and lagoon. 	<ul style="list-style-type: none"> • Environment Southland • Department of Conservation • Industry bodies e.g. Fonterra • Living Water Partnership • DairyNZ • Ngāi Tahu
Improve opportunities for recreational facilities on public conservation land.	<ul style="list-style-type: none"> • Department of Conservation
Provide advice and assistance on good practice for: <ul style="list-style-type: none"> • riparian management; • nutrient management; • winter grazing; • drain maintenance; • stock exclusion from waterways and wetlands. 	<ul style="list-style-type: none"> • Environment Southland • DairyNZ • Living Water Partnership • Industry bodies, e.g. Beef & Lamb, Fonterra
Monitor the streams and lagoon to determine the nutrient concentrations and loads entering the lagoon.	<ul style="list-style-type: none"> • Environment Southland
Increase public awareness of the importance of wetlands.	<ul style="list-style-type: none"> • Department of Conservation • Southland District Council • Environment Southland • Living Water Partnership

SUPPORTING INFORMATION

- DairyNZ Southern Wintering Systems Project
- DairyNZ Waituna Work Programme
- Department of Conservation Arawai Kākāriki Wetland Restoration Programme
- Department of Conservation-Fonterra Living Water Annual Operational Plan Summary (2014/15).
- Environment Southland Waituna Work Programme
- Ngāi Tahu Waituna Work Programme
- Supply Fonterra Environmental Modules
- Sustainable Dairying Water Accord – July 2013
- Ecological Guidelines for Waituna Lagoon. Prepared by the Lagoon Technical Group for Environment Southland – December 2013



The mouth of Waituna Creek (Photo – Environment Southland)

