



## **Amendment to the 2009-2019 Long-term Council Community Plan in relation to the Waituna Catchment Response**

**Amendment to the Environment Southland Long-term Council Community Plan 2009-2019 to enable an urgent response to the rapidly deteriorating water quality in the Waituna Lagoon**

### **Introduction**

When the Long-term Council Community Plan was compiled in 2008/09, we did not anticipate the urgent response needed for the Waituna Lagoon. Monitoring shows that since 1995 the water quality in the Waituna Lagoon and its tributaries has increasingly deteriorated, to a point where the lagoon is at imminent risk of flipping. Doing nothing is not an option. The Waituna Lagoon is a unique ecosystem, highly valued in Southland, and recognised internationally. We need to respond dynamically, not knowing the full scientific picture, yet needing to make adaptive decisions along the way for the sake of restoring the lagoon.

Increasing contributions of nitrogen, phosphorus and sediment are the main causes of the lagoon's deteriorating state. The cumulative effects of land development and drainage over many years, and recent land use changes and intensification are known to be significant contributors to the increasing rate of eutrophication and sedimentation.

The Waituna Lagoon is unique, and is one of the few remaining examples of a natural coastal lagoon in New Zealand. The lagoon adjoins the Waituna and Awarua Wetlands and is one of only six Ramsar sites (internationally significant wetlands) in the country. The lagoon sits at the bottom of a small, intensively farmed catchment. It is a well known area for fishing and hunting and highly significant to Ngai Tahu and Southlanders alike.

The rate of deterioration has increased markedly since 2007 and the lagoon has now been assessed as eutrophic and at imminent risk of "flipping". "Flipping" would see the lagoon change from having clear water and an aquatic environment dominated by seagrass (*Ruppia*) to turbid water dominated by algal slime, a state which may not be able to be recovered from.

## Audit Report



**STATEMENT TO THE READERS OF  
SOUTHLAND REGIONAL COUNCIL'S  
ADOPTED AMENDMENT TO THE LONG-TERM COUNCIL COMMUNITY PLAN ON 09  
NOVEMBER 2011, FOR THE TEN YEARS COMMENCING 1 JULY 2009**

### **Purpose of Statement**

The primary purpose of this statement is to inform readers that we have no role to report, and do not give an opinion, on Southland Regional Council's (the Regional Council's) adopted amendment, as described on pages 1 to 9 of the *Amendment to the 2009 – 2019 Long Term Council Community Plan in relation to the Waituna Catchment Response* document.

This statement informs readers about the Regional Council's process of amending its LTCCP for the ten years commencing 1 July 2009 and the extent, and limit, of our involvement in that process.

### **The Regional Council's process of amending its LTCCP commencing 1 July 2009 and our involvement**

The Regional Council adopted its LTCCP for the ten years commencing 1 July 2009 on 8 July 2009. The Auditor-General appointed, Pat Heslin, using the staff and resources of Deloitte, to report on her behalf on the LTCCP adopted on that date.

We expressed an unqualified opinion on the Regional Council's LTCCP in our audit report dated 8 July 2009. We considered the LTCCP provided a reasonable basis for long term integrated decision-making by the Regional Council and for participation in decision-making by the public and subsequent accountability to the community about the activities of the Regional Council.

In forming our overall opinion, we reported on specific matters required by section 94(1) of the Local Government Act 2002 (the Act). The current reporting requirements differ from the reporting requirements we had for the LTCCP for the ten years commencing 1 July 2009, due to recent changes to the Act.

In a Statement of Proposal dated 7 September 2011 the Regional Council proposed an amendment to its LTCCP for the ten years commencing 1 July 2009 in respect of work required to address issues identified with the Waituna Lagoon.

We expressed an unqualified opinion on this Statement of Proposal in our audit report dated 7 September 2011.

## Deloitte.

We considered that the information within the Statement of Proposal, about the proposed amendment to the LTCCP and any consequential amendments to the LTCCP that would be required if it was amended in the manner proposed, was fairly presented, and that the Regional Council had complied with the applicable requirements of the Act in preparing the Statement of Proposal.

In forming our overall opinion, we reported on specific matters required by section 84(4) of the Act.

On 9 November 2011 the Regional Council adopted the proposed amendment to its LTCCP for the ten years commencing 1 July 2009 in respect of work required to address issues identified with the Waituna Lagoon. The Regional Council has prepared the adopted amendment to reflect the amendments to the LTCCP adopted by the Regional Council on 9 November 2011, and any consequential amendments. The Regional Council has not prepared an amended LTCCP that incorporates the amendment adopted on 9 November 2011. Consequently, to form a view of the LTCCP of the Regional Council for the ten years commencing 1 July 2009, the content of the adopted amendment should be considered in conjunction with the LTCCP of the Regional Council adopted on 8 July 2009.

**We do not give an opinion on the Regional Council's adopted amendment. There is no legislative requirement for us to report on the adopted amendment by the Regional Council and we have not performed an audit of the adopted amendment. Consequently there has been no update of the audit report that was attached to the LTCCP adopted on 8 July 2009.**



Peter Gulliver  
Deloitte  
On behalf of the Auditor-General  
Dunedin, New Zealand

## Additional Information

During the State of the Environment Reporting process, staff asked the question “How close is the Waituna Lagoon to flipping?” Water quality data and *Ruppia* data (from the Department of Conservation) were analysed, and the answer was – very, very close. This is why Environment Southland is leading a multi-agency response to prevent the lagoon from flipping and restore it to a healthy state. If we do not take action now, we risk losing this unique ecosystem, and its ability to support plants and animals that live within the lagoon. The estimated cost of the response is \$2,681,636, of which we had provided \$686,636, leaving another \$1,995,000 required.

We need robust science to inform the decisions we make, for both regulatory and non-regulatory approaches. Although it is hard to know what action is appropriate to take, because of Waituna Lagoon’s highly complex and unique ecosystem we have to gather as much information as quickly as possible to make the best decisions we can.

To enable this to happen, two technical groups have been formed – one focusing on science within the lagoon, the other on science in the catchment above the lagoon. The Lagoon Technical Group has produced “Interim recommendations to reduce the risk of Waituna Lagoon flipping to an algal-dominated state”. These recommendations suggest Nitrogen and Phosphorus load reductions of approximately 50% are required to return the lagoon to 1995 water quality levels. Further work is needed to set sediment loads, and to set catchment loads.

Since February 2011, Environment Southland staff have been more rigorously monitoring seagrass, slime algae and water quality within the lagoon, and sediments and nutrients from the three watercourses that feed into the lagoon. It is intended that this work will feed into catchment and lagoon models. Staff have worked with industry partners and visited farmers in the catchment to identify possible hot spots and to discuss good environmental practices with many farm activities, particularly winter cropping. Flights were undertaken to identify and help prioritise this work.

Environment Southland has been working many stakeholders on the issues in the Waituna catchment including landowners, consent holders and community members, DairyNZ, Fonterra, Federated Farmers, Ngai Tahu, Te Ao Marama Inc, Southland District Council, Waituna Landcare Group, Fish and Game Southland, the Department of Conservation, the Ministry and Minister for the Environment, Lake Waituna Control Association, and the Awarua Waituna Advisory Group. We intend to further strengthen these relationships in the future, particularly by co-ordinating the Waituna Catchment Group.

Together, we are trying to prevent the Waituna Lagoon from flipping by working together to restore it to a healthy state.

Over the next financial year we intend to:

- develop and implement a science plan to undertake investigations/research in the Waituna Lagoon and its catchment to enable better understanding of this complex ecosystem and to inform and report on the effectiveness of catchment and lagoon management options and interventions;
- investigate, and where possible and necessary, undertake physical works to reduce the risk of Waituna Lagoon “flipping” from its current state to an algal-dominated state;

- develop and implement a monitoring programme for the Waituna Lagoon and its catchment to report on the state and trend in the lagoon; and
- develop and implement a regulatory policy framework that addresses intensification of land use in the Waituna catchment to mitigate detrimental environmental effects on the catchment, in particular, nutrient and sediment loads to Waituna Lagoon.

The \$1,995,000 proposed additional spending will not be the full cost of the Waituna response. The work previously scheduled in the Waituna catchment is augmented by the provision of the funding for senior planner to address issues in sensitive catchments, especially Waituna in the 2011/12 Annual Plan. In addition, other planned work considering responses to land use intensification issues will be focused on the Waituna catchment. Beyond that, the time and costs incurred by management will also be incurred and that will be costed as Waituna. The estimated cost of this already budgeted effort, which will now be necessarily recorded as Waituna so we can accurately track the costs, is \$686,636.

This work is budgeted to cost \$2,681,636. This work was unforeseen when the Long-term Plan was originally set, but \$686,636 is to come from existing programmes through redirection. The remaining \$1,995,000 is additional. Environment Southland intends to apply to the Government's Fresh Start for Fresh Water Clean-up Fund for one-third (\$665,000) of the additional costs, and will seek assistance from industry partners for one-third (\$665,000) of the additional costs.

We intend to fund the remaining one-third from our own funds sourced from a past special dividend from our shareholding in South Port New Zealand Limited, which is held in our reserves. That will mean there is no direct effect on rating levels for our ratepayers in the 2011/12 financial year.

There is a greater degree of uncertainty than is usual in preparing this proposal because of the rapid deterioration of the lagoon and the consequent urgency to understand the complex issue and respond. All of the costs are estimates which have been prepared with the best understanding at the time. It is possible or even likely that the costs and revenues will change before the special consultation process is complete or before the end of the financial year.

The proposed spending is allocated to the following areas:

Areas	Total Anticipated Expenditure	Already Budgeted	Additional Spending Proposed
Lagoon Science/Management	798,162	114,010	684,152
Catchment Science/Management	1,189,358	297,408	891,950
Works	362,398	-	362,398
Policy Framework	154,183	154,183	-
Community Relations and Project Management	177,535	121,035	56,500
<b>Total</b>	<b>\$2,681,636</b>	<b>\$686,636</b>	<b>\$1,995,000</b>

When allocated to our usual disclosing expenditure in the LTCCP, the \$1,995,000 additional spending proposed is as follows:

**Water**

**Works and Services**

- ▲ An additional \$360,000 is required to enable any physical works, which are possible and necessary to reduce the risk of the Waituna Lagoon flipping.

**Extension and Education**

- ▲ An additional \$35,000 is required to enable community involvement in the Waituna Lagoon catchment

**Monitoring**

- ▲ An additional \$280,000 is required to monitor catchment inputs of nutrients and sediments to the Waituna Lagoon.

**Investigations/Research**

- ▲ An additional \$1,320,000 is required to develop and implement investigations in the Waituna Lagoon and catchment.

It is proposed that the following information be added to the LTCCP at the page number noted.

**(Insert on page 20 of existing LTCCP)**

It is proposed that the following additional activity be undertaken and that provision for \$360,000 expenditure additional to that proposed in the Annual Plan 2011/12 be made.

**Works and Services – Service Delivery**

**We will:**

- investigate, and where possible and necessary, undertake physical works to reduce the risk of Waituna Lagoon “flipping” from its current state to an algal-dominated state, provided this does not exacerbate threats to the Ruppia beds or to populations of native fish. That may involve opening the lagoon to the sea to avoid prolonged phytoplankton blooms by diluting nutrients and sediment, and increasing flushing to the sea when critical trigger levels are exceeded and when hydrological conditions allow.

**Measure:**

**Primary Indicators**

Chlorophyll *a*

**Secondary Indicators**

Total Phosphorus

Total Nitrogen

**Target:**

**Primary Indicators**

Chlorophyll *a*

**Critical Trigger**

0.012 mg/L

**Secondary Indicators**

Total Phosphorus

0.045 mg/L

Total Nitrogen

0.700 mg/L

**Baseline measure:**

- No existing baseline measure. Previous lagoon openings have been for provision of local drainage outfall and not necessarily related to lagoon health. Critical trigger levels are interim only

and are to be reviewed by 30 November 2011.

<b>Works and Services activities to be undertaken</b>	<b>2011/12</b>
<b>Waituna Lagoon</b>	
<ul style="list-style-type: none"> <li>• Complete report on review of costs and risks of various options for lagoon physical management, including openings at different sites, chemical treatment, diversion, siphoning and dredging.</li> </ul>	√
<ul style="list-style-type: none"> <li>• Obtain necessary resource consents to permit any practicable physical management works.</li> </ul>	√

<b>Year ended Water - Works &amp; Services 30 June 2011 \$000</b>	<b>Year ended 30 June 2012 \$000</b>	<b>LTCCP 30 June 2012 \$000</b>
<b>Projects Resourced by</b>		
5 Council Policy & Planning	0	0
127 Regional Planning	448	11
49 Catchment Planning	275	38
2 Pest Plants	3	2
1,035 Land Drainage	1,070	1,004
2,791 River Works	3,071	3,114
<b>4,009</b>	<b>4,867</b>	<b>4,169</b>
<b>Funded by</b>		
354 Investment Income	405	322
35 Prior Years Surplus	11	43
626 General Rates	619	591
2,556 Separate Rates	2,682	2,799
0 External Recoveries	280	0
165 Investment Income Allocated	165	168
421 Local Contribution	458	464
-148 Reserves / Capital / Surpluses	247	-218
<b>4,009</b>	<b>4,867</b>	<b>4,169</b>

**(Insert on page 29 of existing LTCCP)**

It is proposed that the following additional activity be undertaken and that provision for \$35,000 expenditure additional to that proposed in the Annual Plan 2011/12 be made.

**Extension and Education – *Provide advice and knowledge***

<b>Waituna Lagoon</b>	
<ul style="list-style-type: none"> <li>• Co-ordinate Waituna Catchment Group</li> </ul>	As and when required, at least quarterly
<ul style="list-style-type: none"> <li>• Provide update report to stakeholders.</li> </ul>	Monthly
<ul style="list-style-type: none"> <li>• Convene or participate in Waituna community meetings and workshops (either Environment Southland or other stakeholder led).</li> </ul>	As and when required
<ul style="list-style-type: none"> <li>• Produce “Anecdotes of Waituna” record of catchment personalities/history.</li> </ul>	December 2011
<ul style="list-style-type: none"> <li>• Update Southland region on Waituna progress through press</li> </ul>	As and when required, at

releases or advertisements/supplements.	least quarterly
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Year ended Water - Extension & Education 30 June 2011 \$000	Year ended 30 June 2012 \$000	LTCCP 30 June 2012 \$000
<b>Projects Resourced by</b>		
169 Environmental Education	210	159
14 Environmental Monitoring	10	12
37 Harbour Management	41	35
4 Hazard Management	0	4
38 Regional Planning	187	36
44 Land Sustainability	45	44
6 Pest Plants	6	6
100 Consents Admin	101	105
<b>412</b>	<b>600</b>	<b>401</b>
<b>Funded by</b>		
93 Investment Income	153	76
9 Prior Years Surplus	4	10
164 General Rates	234	140
50 Separate Rates	51	6
157 External Recoveries	247	221
-61 Reserves / Capital / Surpluses	-89	-52
<b>412</b>	<b>600</b>	<b>401</b>

**(Insert on page 36 of existing LTCCP)**

It is proposed that the following additional activity be undertaken and that provision for \$280,000 expenditure additional to that proposed in the Annual Plan 2011/12 be made.

**Monitoring – Obtain information and report it**

**We will:**

- develop and implement a monitoring programme for Waituna Lagoon and its catchment to report on the state and trend of the lagoon.

**Measures:**

**Primary Indicators**

Chlorophyll *a*

**Secondary Indicators**

Total Phosphorus

Total Nitrogen

**Targets: Primary Indicators**

Chlorophyll *a*

**Secondary Indicators**

Total Phosphorus

Total Nitrogen

**Critical Trigger**

0.012 mg/L

0.045 mg/L

0.700 mg/L

**Baseline measures:**

- Catchment load reductions have not yet been finally determined, but interim results suggested N and P load reductions of approximately 50% are required to return to 1995 levels (N from 31 to



15 tN/km<sup>2</sup> of lagoon/yr and P from 1.5 to 0.7 tP/km<sup>2</sup> of lagoon/yr). These guidelines are currently being reviewed and are likely to change.

Monitoring activities to be undertaken	2011/12
<b>Catchment</b> <ul style="list-style-type: none"> <li>• Monitor catchment inputs of nutrients and sediment to Waituna Lagoon under a range of conditions from Waituna, Moffat and Carrans Creeks. Number of sites to be determined by catchment modelling requirements. Commencing with 7 sites.</li> <li>• Catchment hydrology</li> </ul>	Twice monthly for base flows. 2-8 hourly for representative floods. Continuously monitor flows at Waituna Creek.
<b>Waituna Lagoon</b> <ul style="list-style-type: none"> <li>• Monitor bottom water quality at 4 sites.</li> <li>• Monitor sediment at 4 sites.</li> <li>• Monitor phytoplankton abundance.</li> <li>• Monitor epiphytes and macroalgae.</li> <li>• Monitor ruppia.</li> </ul>	Monthly if triggers not exceeded (up to weekly if exceeded) 3 monthly Annually

Year ended Water - Monitoring 30 June 2011 \$000	Year ended 30 June 2012 \$000	LTCCP 30 June 2012 \$000
<b>Projects Resourced by</b>		
2,332 Environmental Monitoring	2,035	1,966
36 Harbour Management	40	34
4 Hazard Management	0	6
60 Regional Planning	285	54
4 Pest Plants	5	4
<b>2,436</b>	<b>2,365</b>	<b>2,064</b>
<b>Funded by</b>		
424 Investment Income	704	670
42 Prior Years Surplus	19	90
750 General Rates	1,075	1,230
4 Separate Rates	6	4
772 External Recoveries	537	94
444 Reserves / Capital / Surpluses	24	-24
<b>2,436</b>	<b>2,365</b>	<b>2,064</b>

**(Insert at page 39 of existing LTCCP)**

It is proposed that the following additional activity be undertaken and that provision for \$1,320,000 expenditure additional to that proposed in the Annual Plan 2011/12 be made.

**Investigations/Research – Apply science to increase understanding**

<b>We will:</b>	
<ul style="list-style-type: none"> <li>develop and implement a science plan to undertake investigations/research in the Waituna Lagoon and its catchment to enable better understanding of this complex ecosystem and to inform, and report, on effectiveness of catchment and lagoon management options and interventions.</li> </ul>	
<b>Measure:</b>	
<b>Primary Indicators</b>	
Chlorophyll <i>a</i>	
<b>Secondary Indicators</b>	
Total Phosphorus	
Total Nitrogen	
<b>Target:</b>	
<b>Primary Indicators</b>	<b>Critical Trigger</b>
Chlorophyll <i>a</i>	0.012 mg/L
<b>Secondary Indicators</b>	
Total Phosphorus	0.045 mg/L
Total Nitrogen	0.700 mg/L
<b>Baseline measures:</b>	
<ul style="list-style-type: none"> <li>No existing baseline measures.</li> <li>Interim catchment load reductions have not yet been finally determined, but guidelines suggest N and P load reductions of approximately 50% and significant sediment load reductions are required. These figures are subject to further work and will be revised in the 30 November 2011 review.</li> </ul>	

Investigations/Research activities to be undertaken	2011/12
<b>Catchment</b>	
<ul style="list-style-type: none"> <li>Identify catchment research and modelling requirements.</li> <li>Initiate a lagoon and catchment study to identify and evaluate contaminant (N, P and sediment) for different land uses in catchment.</li> <li>Develop a catchment model of nutrient and sediment transport pathways under various management/mitigation options.</li> <li>Undertake detailed investigations to better understand sources of, and transport paths from, various land use activities. <i>Note: To be undertaken as identified by outputs of other activities.</i></li> <li>Undertake a review of drainage practices in the catchment.</li> </ul>	<p>30 July 2011</p> <p>√</p> <p>√</p> <p>√</p> <p>√</p>
<b>Waituna Lagoon</b>	
<ul style="list-style-type: none"> <li>Investigate lagoon response to contaminants under different management regimes.</li> <li>Investigate methods of measuring and monitoring epiphyte (slime algae) production and biomass.</li> </ul>	<p>√</p> <p>30 November 2011</p>

Investigations/Research activities to be undertaken	2011/12
• Investigate salinity effects on ruppia for different lifecycle stages.	√
• Investigate relationship to Australian coastal lakes/lagoons where ruppia is present.	√
• Investigate nutrient and sediment spatial variability and movement within the lagoon.	√
• Undertake a comprehensive assessment of contaminant load guidelines.	30 November 2011
• Review “interim” recommendations to reduce the risk of the lagoon flipping to an algal-dominated state.	30 November 2011
• Investigate, and if practicable, undertake ecological modelling of the future environmental condition of the lagoon.	√
<i>Note: Both the above Catchment and Waituna Lagoon programmes are subject to continual review and are likely to change as further knowledge of the catchment and lagoon is obtained.</i>	

Year ended Water - Investigation & Research 30 June 2011 \$000	Year ended 30 June 2012 \$000	LTCCP 30 June 2012 \$000
<b>Projects Resourced by</b>		
459 Environmental Monitoring	475	446
0 Regional Planning	1,317	0
0 Civil Defence	0	3
4 Emergency Management Sthd	0	0
0 Hazard Management	0	2
8 Pest Plants	6	8
<b>471</b>	<b>1,798</b>	<b>459</b>
<b>Funded by</b>		
85 Investment Income	156	151
8 Prior Years Surplus	4	20
219 External Recoveries	953	3
150 General Rates	240	277
1 Reserves / Capital / Surpluses	439	0
8 Separate Rates	6	8
<b>471</b>	<b>1,798</b>	<b>459</b>