Understanding the social impacts of nutrient limits on Waituna farms and catchment

Introduction

To assess the impact of nutrient allocation limits being set in the Waituna Catchment in Southland, a baseline social assessment was undertaken. The findings of this study allow the social-economic values of the catchment to be considered alongside other technical information as part of the decision making process.

Social assessment is a process for predicting and analysing social impacts in advance of a decision being made. It also applies to the monitoring and management of change once it starts. Social assessment is typically applied in an integrated approach along with ecological, economic or other forms of technical assessment and usually has input from affected people as a core part of the process.

This work aims to contribute towards finding a long-term solution for the Waituna Lagoon in which sustainable farming and a thriving community can be ensured alongside a healthy catchment and lagoon ecosystem.

Approach

This analysis comprised a social profiling exercise (baseline study) that drew on existing research and data sources as well as stakeholder interviews. The assessment used comparative cases of the social impacts of dairy farming from other regions of New Zealand to understand social change scenarios in the catchment. The comparative cases drew on New Zealand research and case studies of rural social change, especially that driven by changes in land uses and farm systems, including farm ownership, workforces and community demographics. An important aspect of this analysis is understanding rural social changes associated with different water management regimes. Other changes found in rural areas were also considered, for example, changes experienced by rural schools.

An initial analysis of the social impacts of changes in farm profitability and employment as a result of several possible nitrogen (N) reduction scenarios was undertaken based on the results of the DairyNZ economic modelling study. The impacts of four N reduction scenarios were considered; a 10%, 25%, 35% and 50% reduction in N losses applied to all Waituna catchment farms.

Key findings

Current social profile of the Waituna Catchment:

1. The conversion of dry stock farms to dairy and dairy support over the last 25 years has brought significant population growth for the catchment compared to the rest of Southland.
2. The current population of the catchment (708 in 2013) is 11% higher than in 2001 (Table 1).
3. The principle source of employment in the catchment is agriculture, forestry and fishing (66% in 2013).
4. Strong population growth has supported rural services such as schools. Of the three primary schools located within or adjacent to the catchment, only one has experienced a significant decline in school rolls, compared to a significant decline (-9%) in rolls across Southland as a whole.
5. The Lagoon is a highly valued recreational fishery with sea-run brown trout representing the main target species although the catch rate is low. Angling days increased by 62% to 1840 days per annum (plus or minus 410) between 1994/95 and 2007/08.
Impacts on farm businesses and families

6. High levels of nutrient reduction could have significant impacts on farm profitability and employment.
7. Opportunities for further land development and dairy conversions will be lost under the high-end scenarios.
8. Any reduction in farm capacity and profitability will impact agricultural land values and saleability, with consolidation likely for some land areas. Interviews indicated that the threat of major limits has already had a depressing effect on existing land values in the catchment.
9. At higher levels of N reduction (> 35%) there will be a significant impact on Sheep and Beef and Dairy Support units, with a major drop in profitability and the viability of some units.
10. A reduction in farm profit and employment will have flow-on effects for local support businesses including agricultural and fencing contractors, excavating firms and transport operators, which employ a number of residents. As most farm expenditure occurs outside of the catchment, the effects of a reduction in on-farm business on the wider Invercargill economy are likely to be very minor.

Impacts on the Waituna community:

11. The social impacts on the Waituna community are expected to be relatively minor for the low N reduction scenarios.
12. At higher levels of N reduction (35% or greater), the net social impacts are likely to be significantly negative, with considerable stress on farmers and farm families and reductions in the social and economic wellbeing of people and communities. Conversely, social cohesion across the Catchment could be strengthened by a collaborative approach to limit setting.
13. Loss of employment across the catchment could range from 5 to 70 fulltime equivalent (FTE), depending on the level of N reduction required (Table 2).
14. Catchment population could fall by 16 people for the low N reduction scenario, to 140 for the high N scenario.
15. Any decline in population arising from the N-25% scenario or higher will have significant impacts on the Gorge Road School and Rimu School rolls, staffing levels and bulk funding.
16. A change in population structure is likely due to the loss of younger dairy farm staff and their families.
17. There will be further loss of social cohesion, community viability and social capital.
18. Any efforts to change land uses and farming practices to improve water quality are likely to be a long-term challenge for the community, causing stress for individuals, families and the community itself.
19. The proposed changes are already creating stress in the community, and the level of stress amongst farmers, farm families and the wider community is likely to increase and require support from agencies such as the Rural Trust and other support organisations.
20. Farmers need to be empowered as both key stakeholders and leaders in managing the catchment and lagoon, which can be an important outcome of a collaborative approach.

Impacts on lagoon recreational values:

21. An improvement in water quality and lagoon ecological status should enhance recreational values and increase visitor numbers, although due to the complex set of interactions around the timings of lagoon openings, the expectations for all values may not be met all of the time.
22. Regular lagoon openings are also considered important for maintaining and enhancing some recreational values, for example fishing.
Table 1: Changes in usually resident population of Waituna Catchment, 2001-2013

<table>
<thead>
<tr>
<th>Area</th>
<th>2001</th>
<th>2006</th>
<th>2013</th>
<th>% Change 2001-2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waituna catchment</td>
<td>639</td>
<td>627</td>
<td>708</td>
<td>10.8%</td>
</tr>
<tr>
<td>Waituna Area Unit</td>
<td>1644</td>
<td>1629</td>
<td>1683</td>
<td>2.8%</td>
</tr>
<tr>
<td>Southland District</td>
<td>28,716</td>
<td>28,440</td>
<td>29,613</td>
<td>3.1%</td>
</tr>
<tr>
<td>New Zealand</td>
<td>3,737,277</td>
<td>4,027,947</td>
<td>4,242,048</td>
<td>13.5%</td>
</tr>
</tbody>
</table>

Table 2: Estimated catchment impacts of four nitrogen reduction scenarios on Full Time Equivalent (FTE) employment for Dairy, Dairy Support, Sheep & Beef and all farms in the Waituna catchment. Values estimated based on changes in stock number as a result of the implementation of on-farm mitigation strategies to meet each scenario. Economic analysis undertaken by DairyNZ.

<table>
<thead>
<tr>
<th>Farm type</th>
<th>Base FTE</th>
<th>N-10%</th>
<th>N-25%</th>
<th>N-35%</th>
<th>N-50%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dairy</td>
<td>225</td>
<td>-3%</td>
<td>-8%</td>
<td>-11%</td>
<td>-12%</td>
</tr>
<tr>
<td>Dairy Support</td>
<td>20</td>
<td>-1%</td>
<td>-7%</td>
<td>-50%</td>
<td>-100%</td>
</tr>
<tr>
<td>Sheep &amp; Beef</td>
<td>23</td>
<td>-1%</td>
<td>-3%</td>
<td>-1%</td>
<td>-100%</td>
</tr>
<tr>
<td>Whole catchment</td>
<td>268</td>
<td>-2%</td>
<td>-8%</td>
<td>-13%</td>
<td>-26%</td>
</tr>
</tbody>
</table>

This work was undertaken by Taylor Bains & Associates and funded by DairyNZ. More detailed findings can be found in the final report on the DairyNZ webpage.


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