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Significance of Decision: Low

Report To: Strategy, Policy and Planning Committee

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Options for Managing Gorse for Water Quality Purposes

Executive Summary

Studies and expert opinion have suggested that gorse stands can leach significant amounts of nitrogen to groundwater and that the removal of gorse can be a relatively cheap and cost-effective way of reducing the nitrogen load.

In 2011, the Bay of Plenty Regional Council proposed that the Draft Regional Pest Management Plan for 2011-2016 include new rules to either destroy or control gorse in the Rotorua and Ōkāreka lake catchments. After considering the submissions, the Board of Inquiry did not recommend a rule in the Regional Pest Management Plan, but instead recommended further investigation.

OPUS were engaged to investigate a series of approaches to manage gorse for water quality purposes in the Rotorua lakes. The report found that the most effective way to manage gorse to improve lake water quality is likely to be through applying a combination of regulatory changes with property specific advice and incentives to encourage voluntary action.

Staff have considered the report's findings and have developed a proposed Council position for managing gorse for water quality purposes in the Rotorua lakes catchment[1].

The recommended position is:

In the Rotorua lakes catchment, Council support for land use change on gorse infested land will be considered where gorse affects water quality.

1 Recommendations

That the Strategy, Policy and Planning Committee under its delegated authority:

1 Receives the report, Options for Managing Gorse for Water Quality Purposes.

[1] The Rotorua lakes catchment includes the catchments of Lakes Rotoiti, Rotorua, Rotehu, Ōkaro, Ōkāreka, Rotomā, Ōkataina, Tarawera, Tikitapu, Rotokakahi, Rerewhakaaitu and Rotomahana.

2 Notes that an independent report *'Options for managing gorse for water quality purposes'* has been completed by OPUS.

3 Adopts the following Council position on gorse:

In the Rotorua lakes catchment, Council support for land use change on gorse infested land will be considered where gorse affects water quality.

4 Notes that this report will be presented to the Rotorua Te Arawa Lakes Strategy Group for feedback and endorsement at their next meeting

5 Confirms that the decision is within the Bay of Plenty Regional Council's strategic planning framework (Council's Ten Year Plan, and planning documents and processes under the Resource Management Act 1991, Biosecurity Act 1993, Land Transport Management Act 2003, Civil Defence and Emergency Management Act 2002, and Local Government Acts 1974 and 2002).

1 Purpose

The purpose of this report is to present a Council position on the removal of gorse for water quality purposes in the catchments of the Rotorua Lakes. This position has been informed by the OPUS International Consultants commissioned report - *Options for managing gorse to improve water quality in the Rotorua lakes*.

2 Background

Lake Rotorua is under pressure from development and land use changes that have reduced lake water quality.

The Proposed Regional Policy Statement (Proposed RPS) identifies the catchments of the twelve Rotorua Lakes (collectively the Rotorua lakes catchment) as catchments at risk and requires limits to be set for the total amount of contaminants (such as nitrogen and phosphorous) that can enter each lake. For Lake Rotorua, the Proposed RPS specifies a nitrogen limit of 435 tonnes per annum.

Removing gorse has been found by recent studies to be a relatively cheap and cost-effective way of reducing nitrogen loads to lakes. There are substantial stands of gorse in the Lake Rotorua and Lake Okareka catchments (about 869 ha and 70 ha respectively). Most of the gorse in these catchments is on privately owned or multiple-owned Māori land. In Ōkāreka, 99% of gorse is on private land while in the Rotorua catchment 32% is on private and 61% is on multiple-owned Māori land.

In 2011, the Bay of Plenty Regional Council proposed that the Draft Regional Pest Management Plan for 2011-2016 include new rules to either destroy or control gorse in the Rotorua and Ōkāreka lake catchments.

The Board of Inquiry appointed to consider the issues noted that despite submitter support in principle for control of gorse, there were issues related to:

- *Inequity in the compliance costs associated with a gorse rule and that the few landowners that would have to eradicate most of the gorse would not benefit.*
- *Inequity with the implementation of Rule 11 in the Regional Water and Land Plan.*

After considering the submissions, the Board of Inquiry did not recommend a rule in the Regional Pest Management Plan, but instead recommended further investigation. An excerpt from the Board of Inquiry's recommendation report relating to the decision is provided at Appendix 1.

In response, OPUS International Consultants were commissioned to investigate a series of approaches for managing gorse to improve water quality in the Rotorua lakes.

The findings of this investigation are provided in the supporting document.

3 OPUS report

OPUS was asked to carry out:

1. A critical review of the evidence base – what do we know about the impacts of gorse on water quality, how certain is the science and can it be applied to all catchments in the Rotorua lakes?
2. A description of the measures available for destroying or controlling gorse, including how proven and practicable the measures are, and how much they cost in the short, medium and long term.
3. Identification and description of the suite of (policy) options available for managing gorse for water quality purposes (including regulatory and non-regulatory measures).
4. An analysis of the costs, benefits, impacts and risks of all options identified, including an assessment of each option in reference to efficiency, effectiveness, fairness and practicability.

3.1 Report Findings

3.1.1 Gorse and water quality

The report prepared by OPUS confirms that gorse stands, in particular mature gorse, can leach significant amounts of nitrogen to groundwater. Based on available evidence OPUS recommended a best estimate leaching rate for mature gorse of 38kg N/ha/yr and a range of 24kg to 64kg N/ha/year.

A quantitative cost-benefit analysis undertaken by OPUS identified gorse removal measures to be a cost effective way of reducing the nitrogen load to the lakes compared to recent estimates of land-use change.

Despite the cost effectiveness of gorse removal, large areas of gorse remain in the lakes catchment. The authors suggest that the mismatch between who pays and who receives the benefits of gorse removal as one possible reason. They identified a toolbox of policy approaches to incentivise removal.

3.1.2 Policy approaches

Four different policy approaches were identified by OPUS to encourage the removal of gorse in the Rotorua Lakes. These were:

a. Regulatory control of current gorse

List gorse as a containment pest in the Regional Pest Management Plan and require landowners and occupiers to control patches of mature gorse on all land occupied in the Rotorua lakes catchment unless being controlled by Minimal Interference Management[2]

b. Regulatory control of future gorse

List gorse as a containment pest in the Regional Pest Management Plan and require landowners and occupiers to prevent the establishment or expansion of new gorse patches on land in the Rotorua lakes catchment.

c. Benchmark gorse leaching at 15 kgN/ha/yr

Modify the implementation of Rule 11 so that land with mature, moderate-dense gorse is ascribed a leaching rate 15kg N/ha/yr during the benchmarking process. This is higher than currently assumed (2.5-3kg N/Ha/yr) for land with gorse but less than OPUS's best estimate of what gorse actually leaches (38kg N/Ha/yr). The intention is to incentivise removal without providing for higher N leaching landuse activities.

d. A funded gorse control programme

A gorse control programme to provide funding and incentives to encourage voluntary removal.

Following their analysis OPUS concluded that the most effective way to manage gorse was likely to be through applying a combination of the above policy options.

In their view the most effective combination would be a funded gorse control programme combined with benchmarking gorse leaching at 15kg N/ha/yr and/or regulatory control of future gorse (***approaches d, c and/or b***).

OPUS estimated the cost of removal of gorse in the Rotorua and Ōkāreka catchments at about $1.7 million and recommended that this cost be covered by the Regional Council.

OPUS considered a funded programme to be more effective if implemented alongside other policy measures, sending the message that despite financial assistance gorse removal is ultimately the responsibility of the landowner.

3.2 Staff response

Staff do not recommend adopting either of the regulatory approaches proposed by OPUS (***approaches a and b***). This is because:

- The regulatory difficulties originally identified by Regional Pest Management Plan submitters and the Board of Inquiry still stand [see Appendix 1]

[2]Minimal Interference Management (MIM) is the natural succession, over a period of decades, of gorse to native bush. This will occur so long as there is a nearby source of native seeds and the area is not disturbed by, for example, grazing, fire or cultivation.

- They could only be applied to the Lake Rotorua and Ōkāreka catchments at this stage as there is not enough information to support a rule in any other catchment[3]

- Discussions with land management staff identified that both regulatory approaches would be equally difficult to apply and impractical to enforce. For example, it would be very difficult to define "mature gorse" or "new gorse patches" accurately from a compliance perspective.

Staff also do not recommend adopting the modified rule 11 benchmarking approach (***approach c***). Not only have benchmarks in relevant lake catchments already been issued under the Regional Water and Land Plan, work is now underway on new rules to significantly reduce nitrogen in the Lake Rotorua catchment. These new rules will replace Rule 11 for the lake so any benchmarking changes will not be helpful.

A funded gorse programme (***approach d***) is considered by staff to have merit, but only in certain circumstances. For instance, where water quality is of concern there are likely to be wider community benefits from managing gorse.

The expectation remains, however, that landowners undertake pest control, including for gorse, as part of good management practice on their land.

4 Comment

Given the impact that gorse can have on water quality in the Rotorua lakes, the removal of gorse in these catchments is considered to be a priority.

The OPUS report identified that funded programmes:

- provide more certainty that gorse will actually be removed
- are a cost-effective way to remove nitrogen
- are equitable because the community receives considerable benefit from less nitrogen leaching

Resources to support landowners and the community to manage pests (including gorse) are available through a variety of Council programmes:

- Biodiversity Management Plans (BMPs)
- Care Groups
- Riparian Management Plans (RMPs)
- Council/Industry partnerships
- Joint agency partnerships
- Property Pest Control Plans

While these programmes can support the management of gorse, they are unlikely to provide the level of resources required to permanently remove gorse in heavily infested areas.

[3] The Biosecurity Act 1993 requires that for any species or rule to be included in a Regional Pest Management Plan, it must meet specific requirements set out in the Act. The benefit of the action must outweigh its cost, taking into account what might happen if no action is taken

For example, RMPs are fairly broad in scope and provide real potential to fund land use change from gorse, but the level of subsidy is relatively low at 25%. The reason that some properties in the lakes catchments are so heavily infested is the lack of resources, and it is unlikely that owners of these properties will have the additional 75% of costs required.

Biodiversity Management Plans (BMPs) provide a higher level of funding at 50% – 75%, but are limited to areas where gorse is threatening biodiversity values (as are care groups). Gorse incursion on pastoral land (much of the heavily infested areas in the lakes catchments) is unlikely to be eligible as it will have little biodiversity value.

Staff consider additional support outside of these programmes could be provided to support the removal of gorse in the Rotorua lakes catchment. However simply supporting gorse "control" is not the solution. Gorse generally ends up being a significant problem where cleared land is either left unmanaged or is not farmed intensively enough to manage regrowth (e.g. on steep slopes).

Applying traditional gorse control techniques in these situations will most likely result in regrowth once the control has been completed. Further, on steep land and land prone to erosion, removing gorse could cause increased erosion, and increase phosphorous loads to waterways.

If Council is to consider supporting gorse management where water quality is at risk, it needs to be through permanent land use change to minimise the likelihood of further incursions.

4.1 Staff recommended policy approach

Council currently have a significant programme of work underway to improve water quality of the Rotorua lakes. Gorse is an issue that needs to be dealt with as part of this programme.

Land management staff have confirmed that for water quality purposes gorse is best addressed as a land management issue rather than as a pest management biosecurity issue.

Direction from Council to support the removal of this gorse to reduce nutrient loss could enable an appropriate level of funding to be provided, not otherwise available through existing land management programmes. This would also provide for a degree of control over where and how gorse is removed and the landuse with which it is replaced (e.g. to ensure a low nitrogen leaching output). Funding would need to be specifically identified.

The water and landuse section of the Proposed Regional Policy Statement (Proposed RPS) encompasses a number of water quality policies; defining catchments at risk, establishment of contaminant discharge limits, assimilative capacity allocation and the management of nutrient losses through land use change and best management practices.

Within the Proposed RPS catchments at risk policy framework, where limits are set and the assimilative capacity of a catchment is allocated, nutrient losses will need to be directly managed. In some cases it may be beneficial to include gorse removal as part of a package of management measures available to improve water quality. Where both public and private benefits exist, they can be funded accordingly.

Staff recommend that Council align gorse management for water quality purposes with the Proposed RPS, particularly the catchments at risk policy framework. The following Council position on gorse is proposed:

In the Rotorua lakes catchment, Council support for land use change on gorse infested[4] land will be considered where gorse affects water quality.

This position statement signals that:

a) Council expects gorse management to be undertaken as part of good management practice

The position does not alter landowner responsibilities or Council's expectations of landowners in any way. Landowners are expected to undertake pest control, including for gorse, as part of good management practice on their land.

b) In the Rotorua lakes catchment, gorse management will be considered as part of a package of measures to lower nitrogen discharges for water quality purposes

Where gorse is identified as a problem in the lakes catchment, decisions on management will be considered alongside other available water quality improvement measures. The most effective combination of measures for improving water quality in a catchment will be ascertained as part of the planning process; this may or may not include land use change of gorse infested land.

c) Council will consider funding land use change to an appropriate level on gorse infested land where gorse affects water quality.

In some instances support may be available to reduce nitrogen discharges to achieve water quality targets in the Rotorua lakes catchment.

Where an assessment of a catchment shows gorse to contribute significant nitrogen to the catchment Council may choose to assist with land use change through funding or other mechanisms beyond what current Council approved programmes are able to provide.

The outcome Council is seeking through adopting the proposed position is nutrient reduction. Therefore, in all circumstances Council would only assist with land use change to a low nitrogen discharge land use.

Where assistance is available, the level of funding provided may need to be considered in relation to the level of public versus private benefits received.

The proposed position is a reflection of the Council's commitment to protecting the Rotorua lakes. It is also an acknowledgement that the wider community receives benefits from improvements in water quality.

4.1.1 Implications for the Rotorua Te Arawa Lakes Programme

Rotorua lakes catchment

[4] Categorised by patch size, density of cover and age as per OPUS (2012).

The twelve Rotorua Te Arawa Lakes in the Bay of Plenty Region are identified as at risk catchments.

Managed reduction of nutrient losses will be considered through the action planning process for each lake to determine the most effective combination of measures for improving water quality.

Under the proposed Council position, any decisions on managing gorse for water quality purposes could be considered as part of the action planning process. This will include the provision of an appropriate level of assistance for land use change on gorse infested land.

Lake Ōkāreka

Significant stands of gorse have been identified in the Lake Ōkāreka catchment. OPUS has recommended removing this gorse as a cost effective way of reducing nitrogen and improving water quality.

Lake Ōkāreka is a priority lake for which monitoring is currently being undertaken. A budget has been set aside for incentives in this lake. Under the proposed Council position, funding could be used to support land use change of gorse infested land in this catchment if required.

Lake Rotorua

For Lake Rotorua, the Proposed RPS specifies a sustainable load of 435 tonnes of nitrogen per year. The current load has been estimated at 755 tN/yr, so a reduction of 320 tN/yr is required.

The Proposed RPS requires that the sustainable load of 435 tN/yr be allocated amongst land use activities in the catchment, and that rules be developed to ensure this sustainable load is not exceeded by 2032. Staff have already commenced work to give effect to this allocation and rule requirement.

Recent studies suggest that gorse could be leaching up to 35 tN/yr in the catchment (<5% of the current load). However, while nitrogen losses from gorse are recognised, they are not specifically accounted for. The Lakes model for example does not explicitly model nitrogen losses from gorse in the catchment; losses from gorse are simply included through calibration of the model[5].

Likewise, Rule 11 benchmarks provided using Overseer to calculate the total nitrogen discharge allowance for each property in the catchment do not include provisions for gorse. This decision was made for a number of reasons, including not wanting to incentivise poor land management.

For benchmarking purposes gorse cover is captured as “bush and scrub” with an average discharge of 3kg N/ha. This is significantly lower than the potential nitrogen loss from gorse, which could be as high as 38kg N/ha.

Because gorse is not specifically accounted for in the lake modelling or benchmarking, the nitrogen allocation and rules process currently underway will not

[5] Adjusting the model to account for differences between results from on-ground monitoring and initial model outputs.

provide any regulatory incentive to remove gorse. This is because removing gorse won't actually be recognised as helping a landowner meet their allowance.

However, it is important to address gorse as best we can for long term improvements in the water quality of the lake. Nitrogen reduction is the key factor for water quality improvements in Lake Rotorua and removing gorse in the catchment is worthwhile in that context. As with Lake Ōkareka, funding could be used to support land use change of gorse infested land in this catchment.

An Incentives Scheme is currently being developed in conjunction with the allocation and rules. The purpose of the Incentives Scheme is to encourage land use change to help achieve the sustainable nitrogen load for the lake.

Whether or not land use change on gorse infested land is supported through the Incentives Scheme will depend on the way the scheme is designed. Council will need to be clear about how they want to deal with gorse in the Lake Rotorua catchment through the development of principles for the Scheme.

For example:

a) If the Incentives Scheme is about directly assisting landowners to meet the requirements of new rules (e.g. reducing their benchmarked nitrogen losses), gorse conversions will not be funded because gorse is not directly recognised in the benchmarking process.

   If Council is willing to assist landowners with land use change on gorse infested land an alternative funding source would be required.

b) If the Incentives Scheme is about directly mitigating nitrogen losses, gorse conversions could be funded because gorse is a known contributor of nitrogen.

   The Lakes Programme has already funded gorse conversions in the Rotorua catchment. Further gorse conversions could be considered as part of this scenario despite being outside the scope of the allocation and rules work.

The proposed position would enable Council to make a decision to support land use change on gorse infested land regardless of how the Incentives Scheme is developed. How support is funded will however be determined by the underlying principles the Incentives Scheme is based upon, either assisting landowners or mitigating nitrogen losses.

4.1.2 Implications outside of the Rotorua lakes catchment

Management of gorse outside of the Rotorua lakes catchment is not in scope of this proposed Council position. Currently only the 12 Rotorua Te Arawa Lakes are defined as catchments at risk in the Proposed RPS. Additional catchments may be identified in the future through a change to the Regional Water and Land Plan. Should this occur Council may wish to consider how best to address gorse on a catchment by catchment basis.

It is Council's expectation that gorse management is undertaken as part of good management practice and that landowners comply with existing boundary control rules within the Regional Pest Management Plan. Funding for gorse removal within

this context is the responsibility of the individual landowner. However, Council resources are available to support landowners and the community to manage gorse through a variety of approved programmes.

5 Next Steps

If adopted, staff will consider the position in relation to the Incentives Scheme currently being developed to mitigate nitrogen losses to Lake Rotorua.

Staff will also need to take note of the Council direction when addressing gorse within the other Rotorua lakes catchment

6 Financial Implications

Current Budget

Incentives funding for identified at risk catchments is incorporated within the existing Lakes Programme budget.

Future Implications

The adoption of the position may have future financial implications. Some of these are likely to be met through existing programme budgets. Decisions on any new expenditure required will be made through financial planning processes.

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