

My name is Angus Robson. I represent both myself as a submitter, and Save Lake Karapiro Inc, an organisation with 700 supporter members.

I am based in Matamata and Karapiro is my main recreational lake. I am a mechanical engineer with 35 years of innovation, business and exporting experience worldwide.

I have spent approximately 5000 hours learning the problems of, and solutions to, New Zealand's freshwater quality issues. I am a founder member of the Landcorp Environmental Reference group, which was established to try to resolve environmental issues across Landcorp's farm operations throughout New Zealand.

I have worked, with other environmental NGO's and other organisations such as F4PC, on the issues of allocation, pollution taxes, pollution economics, Overseer, irrigation, effluent problems, sediment, nutrient management, heavy metal contamination, farm best management practices, Attributes for the NPSFM NOF, Lake and river restoration, Regional Council politics and obstacles to change, compliance, consents and PA deficiencies etc. In many cases I was the developer and proposer of the solutions. The purpose of all solutions was best long-term bang for buck, combined with genuine action.

I have tried, with Landcare Research and Agresearch, to advance a project to calibrate Overseer cheaply and effectively, within a useful timeframe.

Today I will talk about particular aspects of the plan which I oppose but wish to reserve the right to talk about other aspects of the plan mentioned in the submission, at future hearings.

The summary of my submission, and relief sought, is:

1. Allocation (grandparenting) should not be used. Offset programs should not be used. Natural capital / Land use capability is a suitable alternative.
2. Overseer should not be used until it is fit for purpose. Overseer can be made fit for purpose, and WRC should help fund the work.
3. Benchmarking is unnecessary in the absence of allocation.
4. Economic modelling must include externalities and natural capital.
5. WRC must eliminate its 'get rid of water' philosophy.
6. Self-management of any environmental requirement does not work and must be proscribed.
7. Best Management Practices should be required and enforced for the next 10 years, supported by a calibrated version of Overseer which is fit for purpose for this duty. BMP's must include all known mitigations and be updated regularly as new improvements are proven.
8. Currently there are no legally binding sanctions on WRC for performance failure regarding implementation and enforcement of the plan. WRC must have legally binding obligations to enforce Best Management Practices and relevant aspects of the RMA, the Vision and Strategy and the NPSFM. Citizens must be funded to seek relief from the Environment Court for WRC failure to meet these legally binding obligations.
9. The timeframe is so long as to be meaningless and gives cover for business as usual; major improvements can be made well inside 10 years at minimal cost using Best Management Practice and the timeframe should not form part of the plan.

Submission on Healthy Rivers PC1, from Save Lake Karapiro Inc. (hereinafter SLK), Submitter No

SLK opposes PC1 (The Plan) wholly and in part. The references, reasons and relief sought are tabled below. In addition SLK opposes PC1 on other matters which will be brought up during the Plan Change, submission and hearings process.

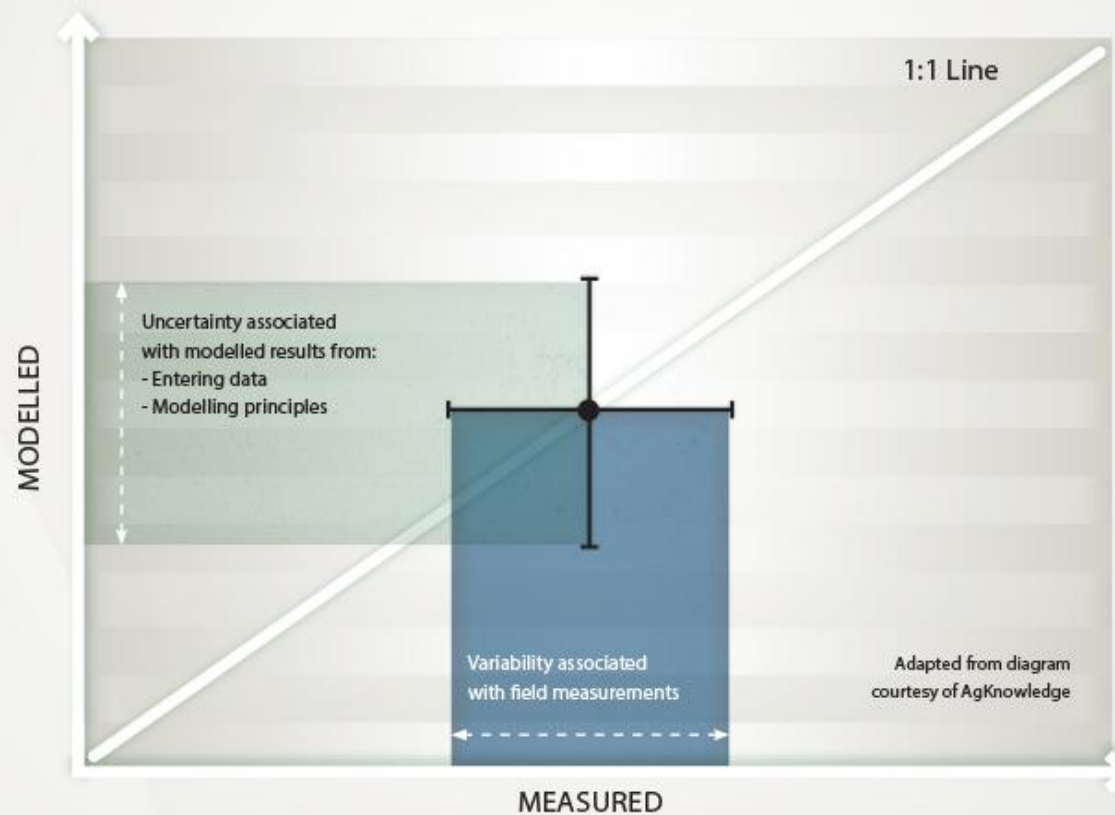
Ref	Support/ oppose	Comment	Relief sought
3.11 pp14	Oppose use of allocation	<p>The plan requires allocation of nutrient based on past activities and an overall nutrient load historical to the catchment/subcatchments.</p> <p>Allocation is unfair – it rewards past polluters, penalizes land users who do not pollute and limits land use flexibility. These are all complete negatives and it makes no sense to promote them as this plan does.</p> <p>Allocation misdirects efforts into fighting over the share of the pie and trying to maintain the size of the pie, rather than the real gain which is to reduce the size of the pie.</p> <p>Allocation relies on benchmarking, which we cannot currently do with our measuring capability, and on ongoing measurement of pollution, which we cannot do either. Thus the size of the pie which polluters base their economic plans on may be drastically reduced when it is able to be measured properly. At that point either the pie must be enlarged so as to avoid large economic pain (and all the pollution objectives lost) or the polluters lose a large piece of pie and they suffer the economic loss. Neither of these scenarios is acceptable.</p> <p>Allocation stifles and discourages innovation compared to alternatives.</p> <p>An allocation is perceived to have a value for a landuse, so the tendency is to try to hold onto allocation and maintain landuse to maintain that value even if the landuse is inappropriate for water quality effects. A pollution ‘right’ which is built in at no cost to the polluter is not acceptable to the public.</p> <p>Conversely, if pollution is levied, the drivers for pollution reduction are strong and land use will tend to the best balance between pollution cost and economic gain. This will drive innovation and land use optimization which is far more appropriate a scheme where pollution is to be reduced, and where large management and technological advances can be expected in the next few decades.</p>	<p>1. Do not use allocation or benchmarking.</p> <p>Instead use pollution levies based on outputs above the assimilative capacity of the land.</p> <p>For this we need a measuring system.</p>

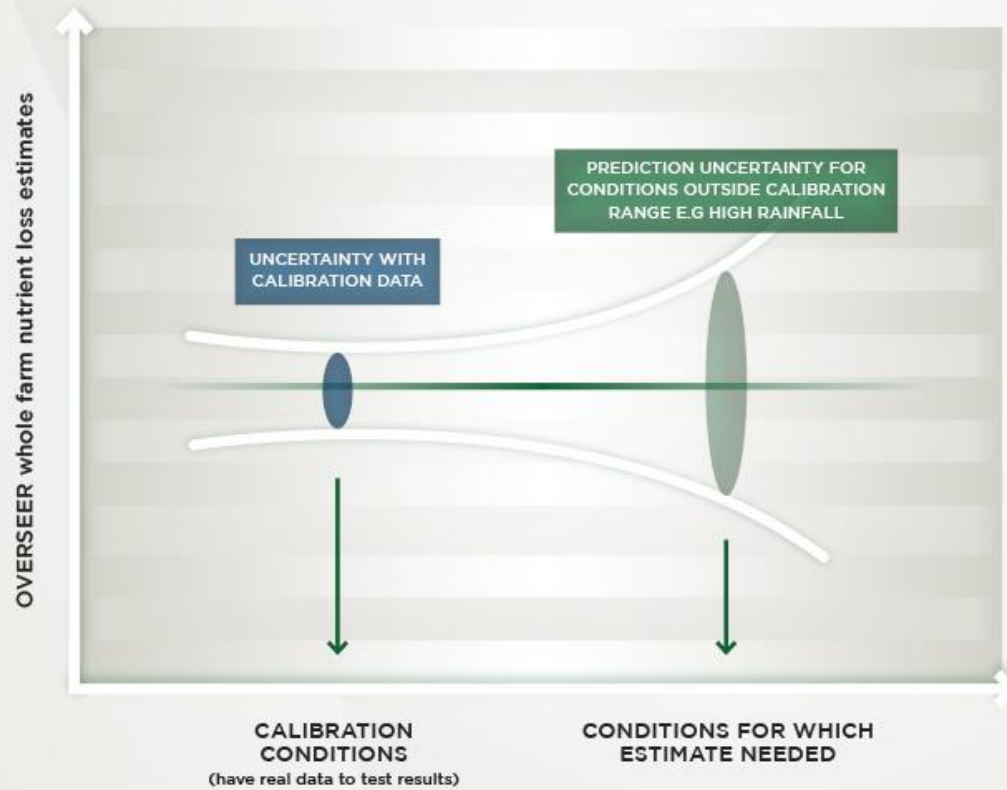
<p>3.11.1.2 pp25</p>	<p>Oppose assumptions about primary production.</p>	<p>The implication is made that Waikato service sectors are dependent on primary production, including the worst polluters, when this is not the case.</p> <p>The service sector would survive and thrive if the worst-polluting operations were heavily constrained or incentivized to reduce pollution and to use land for less-polluting activity. Tourism as a benefactor, or even as an economic heavyweight in the region, does not receive a mention. This appears to support the view that WRC has developed this plan with only primary producers in mind, and particularly the most polluting of those primary producers.</p> <p>No effort is made in the plan to differentiate between the economic contribution of heavily polluting primary production, and non-polluting land uses (those which operate within the assimilative capacity of the land). This is a consequence of using poor, opaque and selective economic modelling.</p> <p>The economic models used to determine costs and timeframes, relative benefits etc for the plan have been wholly inadequate to date. They have the following deficiencies:</p> <p>Do not include natural capital or externalities.  Missing entire large sectors e.g. tourism.  Are a snapshot which does not cover economic variability over time.  Biased to one sector (are clearly favouring dairy as an economic activity and land use).  Are not transparent.  Are not able to have their assumptions questioned or modified.  Rely on faulty data from Overseer®.  Do not cope with innovation, improved technology or forced land use change such as from climate change or substitutes for milk and meat.  Do not include a study on the effects of a pollution levy at different rates and kick-in points.  Have not had a rigorous, available peer review which demands inclusion of the above.  Graeme Doole was funded by the dairy industry during the economic study and is now principal economist for Dairy NZ.</p>	<p>If economic models are to be used to drive the plan they must include all the missing factors listed adjacent.</p>
<p>3.11.1.2 pp26</p>	<p>Oppose plan approach to mitigating flood hazards.</p>	<p>The plan does not deal with the current problem of over-engineering of drainage works, and very unnatural timeframes for removal of stormwater. WRC does not realise it has a cultural problem with managing storm water in that its goal is to get rid of water as fast as possible, and the drainage programme and works reflect this. Consequently we get high overland and in-drain (and consequently in-river) flow velocities which make erosion, sediment transport, pathogen and phosphorus</p>	<p>Treat drainage as a central part of the problem.  Solve the cultural problem of the 'get-rid-of-water mentality'.  Put a price on quality soil based on the amount it costs to make a cubic metre</p>

		<p>problems worse. We call this the 'get-rid-of-water' mentality. It not only causes soil loss, and the previously mentioned problems, it means we reduce the saturation of the Waikato catchments over time. This means drought affect the land earlier and for longer. The solution to this unintended consequence is partly to irrigate.</p> <p>A great deal of ratepayer money is spent engineering water of the land just so a whole lot more can be spent engineering water back on again.</p>	<p>of topsoil e.g. by composting. Assess the loss and levy it.</p> <p>Show by research the value of reducing overland flow velocities in terms of reduction in lost sediment, P and pathogens. This research is available. Use these velocity and flowrate reductions as part of best practice mitigations.</p>
<p>3.11.2 Objective 3</p> <p>3.11.3 Policy 5</p> <p>Policy 14</p>	<p>Oppose timeframe and use of timeframe.</p>	<p>The timeframes are so long that they are essentially meaningless. They are far beyond the life of the plan or the current stakeholders, except young people. Most of the improvement demanded by the plan is outside the plan timeframe or lifespan of the policy negotiators. Young people were not adequately represented at the CSG. Therefore it can be said that the interests of the main stakeholders are not served by the plan or those who are determining it.</p> <p>Many of the actions to mitigate very significant pollutants are already known, and known to be affordable. The mitigation actions, if diligently pursued, would result in far greater improvements than 10% in 10 years and 50% in 60 years. Nothing in the plan requires diligent pursuit of known mitigations.</p> <p>The timeframe's only purpose appears to be to provide shelter for business-as-usual.</p>	<ol style="list-style-type: none"> <li>1. Abandon the timeframe, and require best current practices to be used for all polluting activities.</li> <li>2. Make the plan require that the most-polluting activities are subjected to the greatest mitigation requirements, penalties, oversight, research, measurement and regulation. Ensure however that there is room to innovate mitigations as new practices and methods develop.</li> </ol>
Policy 2a	Oppose	We are concerned that there is no way to use Overseer for mitigation risk management, so what is the viable alternative?	<ol style="list-style-type: none"> <li>1. Do not use Overseer.</li> <li>2. Do not use overseer for any mitigation practice.</li> </ol>
<p>Policy 2c</p> <p>3.11.3 Policy 3c</p> <p>Rule 3.11.5.3.2</p> <p>Rule 3.11.5.4.5</p> <p>Matters of</p>	Oppose use of NRP	<p>Calculation of a Nitrogen Reference Point, either relatively between land uses, or absolutely, cannot be done with Overseer and is therefore wrong on both counts, and badly misleading for when a suitable measuring method is available.</p> <p>Overseer® is not designed or calibrated to use in the way the plan anticipates. It should not form the core of the measuring process.</p> <p>It has many failings in this duty, which WRC has not researched, does not acknowledge and has not considered alternatives to.</p> <p><a href="https://www.overseer.org.nz/uncertainty-in-model-results">https://www.overseer.org.nz/uncertainty-in-model-results</a></p> <p><a href="https://www.pce.parliament.nz/media/196493/overseer-and-regulatory-oversight-final-report-web.pdf">https://www.pce.parliament.nz/media/196493/overseer-and-regulatory-oversight-final-report-web.pdf</a> pp34-35, pp47-48</p>	<p>.</p> <ol style="list-style-type: none"> <li>1. Do not use Overseer® or any other measuring tool in this plan, until it is accurate both relatively and absolutely.</li> <li>2. Do not use any measuring system unless it is accurate.</li> <li>3. Do not do benchmarking or allocation.</li> </ol>

<p>control iii</p> <p>3.11.5.5</p> <p>Schedule B (all)</p> <p>Schedule 1</p> <p>FEP 5 a &amp; b</p>		<p>Overseer;</p> <p>Is no repeatable between versions and not accurate (within +/-50%) across land uses and versions.</p> <p>Does not cope with mitigation</p> <p>Is easy to game (cheat).</p> <p>Has not been calibrated except in 1 soil type, which it does not always match up to.</p> <p>Assumes BMP when this is clearly not 'standard'.</p> <p>Does not assume there are very bad practices occurring, when they are.</p> <p>Subject to political interference (funding to make it work properly is withheld, and one version had severe accuracy problems because the conversion rate of ammonium to nitrate had been deliberately retarded)</p> <p>Is a snapshot process which is not appropriate for a dynamic problem.</p> <p>It is important for any land user intending to reduce their pollution to be able to predict the effects of various mitigations on their pollution footprint, as all mitigations involve time and many involve money, sometimes very significant money. Overseer® does not respond to many known mitigations. This is not acceptable, as one of the main purposes of using Overseer® in the plan is to drive reductions in footprint, which it cannot do.</p> <p>A measuring system for a problem of this significance and cost should have, at the very least, both accuracy of absolute measurement (if the true amount is 20 then Overseer® should show 16 – 24) and relative accuracy between land uses (if a dairy operation is 2 x emission of a deer operation then Overseer® should indicate 1.6 – 2.4 times). It cannot and does not.</p> <p>Overseer® is not accurate in either absolute or relative terms, and should not be part of the plan.</p> <p><a href="file:///C:/Users/Why/Downloads/Valuation%20of%20the%20Benefits%20of%20the%20OVERSEER%20Nutrient%20Budget%20Model.pdf">file:///C:/Users/Why/Downloads/Valuation%20of%20the%20Benefits%20of%20the%20OVERSEER%20Nutrient%20Budget%20Model.pdf</a> 3.3bn valuation, and calibration budget of &lt;1m?</p>	<p>4. Use and drive best management practices to achieve the pollution reduction objectives.</p> <p>5. Prohibit and strongly prosecute the worst practices, maintaining pressure on the 'tail' as it improves.</p> <p>Research a series of mitigations with strong data to support their efficacy, and help introduce them, These will in combination with pollution levies, have the greatest and fastest effect on water pollution.</p>
<p>Policy 2d</p> <p>Policy 3g</p>	<p>Oppose proportionality.</p>	<p>This is grandparenting, which is the worst system in aspects of fairness, allocation, future improvement, theft of the public estate, reward for past polluters and many other reasons.</p>	<p>Do not use a proportional system. Use pollution levies.</p>

Matters of control, iv			
Policy 11	Oppose	Meta-analysis of Offset programs shows they rarely work in practice. WRC has not demonstrated any proof to the contrary, therefore it can be assumed that an offset program will be a policy and practical failure, resulting in lack of progress on water quality improvement.	Do not allow offset programs. Use pollution levies to achieve the required outcome.
Policy 13	Oppose 25 year timeframe	Timeframe is too long to respond to innovations and public demand for improvement. Many consents are unaudited during the consent term. The certainty around investment etc could be improved, for consent holders who conform, by giving an automatic rollover subject to prevailing laws at the time if they pass regular and transparent audits.	Reduce timeframe to 10 years with 10 year automatic rollover if audits are clean.
3.11.4.5 3.11.4.6	Support, but:	What are the sanctions against WRC if it fails to deliver these objectives?	Some measure of accountability and sanction for poor performance is required.
3.11.4.11e	Oppose	The plan envisages several approved industry schemes.. The schemes run by the agricultural industry themselves are notorious for failing to adhere to their agreed performance, rules and timeframes so early knowledge of the lack of data is helpful in determining whether a scheme is running properly or should be replaced with proper oversight.	Accounting system must measure, monitor and publish all recorded metrics and audits from industry schemes in a way that is transparent, clear and accessible to the public.
Rule 3.11.5.1	Oppose in part	It is not clear from this rule whether all conditions of the RMA for contaminants to land and water will also be met, or which rules take precedence.	All conditions of the RMA for must be met.
Rule 3.11.5.4  Schedule 2 Industry schemes	Oppose	Audited self-management does not work in industries with a history of poor compliance. Please see appendix 1. Self management has never worked according to any meaningful standard in the agricultural industry in NZ. WRC has not studied this and is being led by strong industry figures over the efficacy of it. An excellent example of this is WRC's passing on the soil cadmium problem to self interested industry bodies. No aspect of the cadmium management plan has been instigated after 9 years of self management. Soil cadmium levels remain the same or higher than they were when Cadmium went under an industry self management scheme. Self management is wholly inappropriate for implementation of PC1	No Industry self management schemes to be used.





Most of the calibration data used to date is from flat, pastoral, dairy enterprises, with free-draining soils and moderate rainfall.

The model is capable of extrapolating outside of these conditions; however, the uncertainty is greater because there is less available information supporting the modelled estimate.



From PCE report pp34 – 35.

Assumptions:

Assumptions are inevitable when developing a model

..... several assumptions reflecting good farming management practices are incorporated into Overseer, and the model produces outputs accordingly.

These assumptions include the following:

- effluent is stored in sealed structures (i.e. sealed non-leaky ponds)
- dairy cows use laneways to move from the paddock to the milking shed
- fertiliser is applied according to Fertmark41 and Spreadmark42 Codes of Practice (i.e. evenly at the time and rate stated, without any poor management).

*However, if good management practices are not followed, environmental losses will in reality likely be higher than those estimated by Overseer.*

From PCE report pp46 – 47.

Overseer CANNOT:

- accurately model situations when farm management is changing, which happens, for example, when a land use has changed or intensified
- check if the inputs result in a farming operation that is realistic or not
- capture any variation in nutrient losses within a block

*• model some novel farming practices and mitigations to reduce environmental footprint, such as urease inhibitors, pastures with plantain and chicory, use of dietary salt, and a full range of crops*

- produce accurate estimates outside calibration ranges
- provide the uncertainty associated with an estimate of nutrient loss or greenhouse gas emissions (e.g. Overseer does not provide a range of values within which an estimate could lie, or the level of confidence associated with the range)
- model phosphorus lost with mass movement of sediment (i.e. slips and landslides) from large storms
- identify critical source areas on a farm (such as stock camps established on hill slopes) – unless these are modelled as separate blocks