

MHVwater Scheme News



Message from the CEO

I find myself writing this three quarters of the way through the lockdown period.

As a proud supporter of Agriculture we are an essential service, however, the team are only heading out, strictly following the government guidelines, to do jobs associated with the immediate delivery of water.

The investment in automated gates has made the remote management of water possible and given the time of the season the individual team members are typically only out once a day, if at all.

All our admin, management, shared support and hydrogeology team members are working remotely from home. We have embraced our team having the ability to work flexibly and remotely for some time which has paid dividends under the current lockdown regime with an easy and smooth transition and people working as normal, other than the obvious additional family dynamics/disruptions!

Operationally, we have time locked, scheduled and prioritised our winter maintenance and under Level 3 Lockdown, tasks that can be completed whilst observing distancing and in isolation, have begun.

We have arranged for online training for excel, SCADA and other software to take advantage of the time members of the team would not normally be at the computer which has been well received. I'm really impressed by the way the team are challenging themselves and embracing the extended functionality of our systems, which will be a huge benefit to us all moving forward.

As well as our internal focus on the team strength, our other usual workstreams on Water for Optimal Growth, Environmental and Economic Sustainability and Enabling Innovation continue as normal, including our ability to pass on some savings for you which are detailed later in the newsletter, and we are looking forward to sharing our progress with you in Shed Meetings once things settle.

On behalf of our wider team I wish you and your families safe passage through these uncertain times and a strong and uninterrupted internet connection.



Melanie Brooks, Chief Executive

Ngā mihi, *Mel*

Contact Us

Valetta & Ruapuna Pipe Phone

027 239 5199

pipeoperations@mhwwater.nz

Lateral 1 & 2 Phone

027 435 6256

raceoperations@mhwwater.nz

Main Race, Laterals 3, 4 & 5 Phone

027 435 6252

raceoperations@mhwwater.nz

See further contacts on Page 5.



Water for Optimal Growth

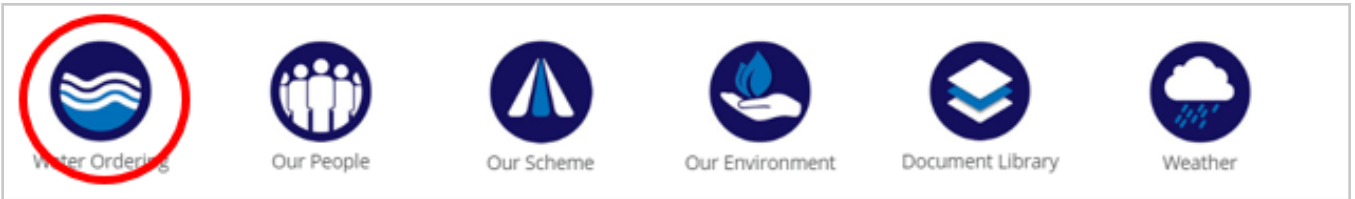
Tips and Tricks - Viewing Pond Level and Flow Information

The installation of automated equipment over the last year now allows shareholders on the open race system to view their current flows and pond levels. We encourage you all to take a look at this. It will help inform your water ordering decisions and enable you more control over your water levels.

If for some reason you are unable to access this information, please contact one of the team (see page 5 for contacts).

This guide is also available [online](#).

1. Go to www.mhvwater.nz and click on the **water ordering** icon.



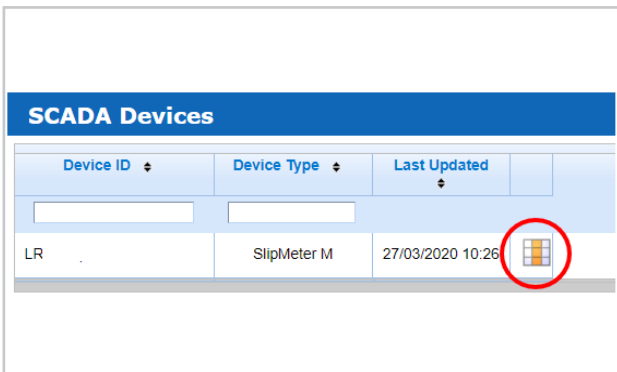
2. Login to WaterLINE Online



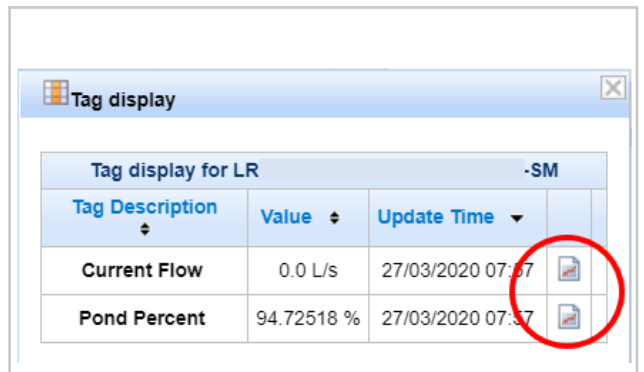
3. Hover over the **Farm Connect** tab and click on **SCADA site data**.



4. Click on the **Device Data** icon.

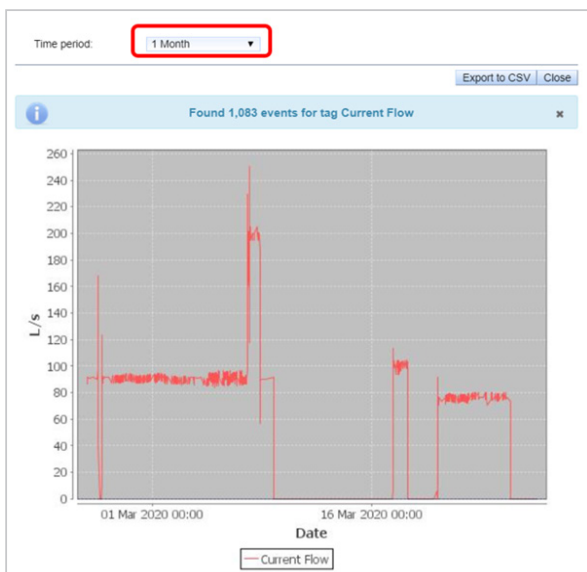


5. This will bring up options to view the **Current Flow** or **Pond Percent**.

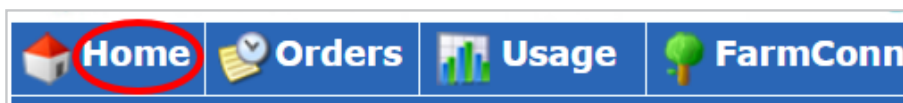


Click the icon to open a graph view

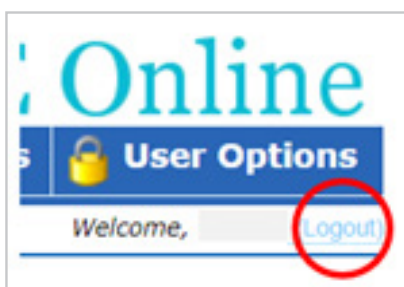
- 6. You can alter the time period by selecting one of the options in the drop down list.
- 7. You are also able to export the data to a CSV file.



- 8. To return to the home page, click the crosses at the top of each box and then click on the **Home** tab.



- 9. Don't forget to log out when you have finished, and if you have any problems, please contact one of the team.



Stay Strong: Our People, Our Culture, Our Values

2020 - 21 Water Charges

The Water Charges have been reviewed and set for the 2020-21 season.

Like last year, Environmental charges have again been split out and charged based on the number of hectares in your Farm Environmental Plan (FEP). This more fairly reflects the value you are getting as the FEP covers the full area of your farm, not just the shared area.

Line	Charge	Change from 2019-20 water charges (FY20)
M & MG shares - Open Race*	\$1.78 per share	Decrease from \$1.83 FY20
M & MG shares - Ruapuna	\$8.25 per share	No change from FY20
V shares	\$2.97 per share	No change from FY20
V Capacity Charge **	\$105.32 per lps	New charge for those holding extra capacity in V line
Environmental Charge	\$8.50 per ha	No change from FY20

These new season charges are effective from 1 June 2020 with the first payment due 20 July 2020.

**Harris Drain has additional infrastructure charges.*

*** Some Valetta Line shareholders have capacity reserved in the line, over and above the level of their shareholding. They initially paid for the capital cost of the additional capacity, therefore it isn't appropriate for them to pay annual charges equivalent to the normal V shares, however, a contribution is now sought to be made towards the repairs and maintenance and capital expenditure. This charge is equivalent to a four year rolling average of Valetta Line specific charges.*

Please note that the Environmental Charge for April and May 2020, will not be charged. This equates to \$0.70 per ha in April and \$0.80 per ha in May.

Change is our new “norm”

The staff of MHV Water along with the Irrigo administration and environmental teams, have been working from home in response to the COVID-19 pandemic.

We are fortunate that our IT systems allow us to do this and to operate as usual.

The Operations team is working remotely and as an essential service, have only been out and about for essential tasks. At all times our entire team will be observing all Ministry of Health guidelines to keep ourselves and others safe.

Water is still available and we ask that you continue to communicate via phone or text to the duty phones, or order online. Pond level info can be accessed via PC logins under Farm Connect/Scada tabs.

Please continue to liaise with the wider team as necessary.

Melanie Brooks – 027 435 6882 mel@mhvwater.nz
Sam Anderson - 027 435 6251 sam@mhvwater.nz
Jo Naylor – 027 335 5524 jo@mhvwater.nz
Justin Legg - 027 223 7260 justin@mhvwater.nz

Pipe Operations - 027 239 5199 pipeoperations@mhvwater.nz
Laterals 1 & 2 - 027 435 6256 raceoperations@mhvwater.nz
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Carmen Foster – 027 646 1543 carmen@irrigo.co.nz
Eva Harris – 027 550 0129 eva@irrigo.co.nz
Nicole Matheson - 027 205 2355 nicole@irrigo.co.nz

SUPPORTING FARMER WELL BEING

Rural Support Trusts

0800 787 254

Calls are answered by your
local Rural Support Trust

www.rural-support.org.nz




RuralSupport

Stay Strong: Our People, Our Culture, Our Values

Together Apart

We have a full video team meeting once a week including our members of our wider support team in Irrigo.

It is a great way for the team to stay connected which is even more important in today's environment where we cannot physically meet.

So, like many of you out there, we are taking to technology to bridge that gap and I must thank the team for their suggestion and now the added pressure to find a different quirky hat for each meeting. I'm not entirely sure what the question is, but humour is definitely the answer in this scenario!



Stay Strong: Our People, Our Culture, Our Values

Carew Pond Signage

Have you visited the Carew Ponds lately?

Earlier this year we installed information boards at the Carew Ponds viewing platform on Withells Rd.

These signs provide a history of the scheme, details of the Carew Pond build and information about MHV and the regulatory environment in which we operate.

So if you are out and about, pop in and take the short walk up the path. It's a great view.



Irrigo Team Update

We are pleased to let you know we have a new staff member within the Enviro Team, Will Wright.



Will Wright comes to Irrigo from Waterforce, having previously worked for IrrigationNZ in their first season of the bucket testing programme.

Will is an accredited Irrigation Evaluator and has an excellent understanding of irrigation maintenance and scheduling.

Will is based in Chertsey and will predominantly work with BCI and Acton shareholders, however is available to assist MHV shareholders with anything you need.

Feel free to contact Will on 027 551 0344 or email william@irrigo.co.nz

Nicole Matheson will now be MHV's primary Enviro team contact to support you with all your environmental needs. Nicole replaces Nick Hand.

Nicole grew up on a sheep and beef farm in North Canterbury, is a certified FEP Auditor and has been working with Irrigo for nearly two years.

Nicole also has an excellent understanding of Overseer, dairy effluent storage calculator and can walk you through anything you need to know.

If you have any questions, feel free to call Nicole on 027 205 2355 or email nicole@irrigo.co.nz



2019-20 Audit Results

MHV shareholders continue to demonstrate on-going environmental improvements on their property, with almost 60% of audits this year receiving an “A” grade.

As the process goes on, audits are getting tougher and expectations are higher and it’s fantastic to see such a large proportion of shareholders achieving the standards expected of them.

However, we are also starting to see an increase in “C” and “D” grades where shareholders have not taken steps to address issues raised the first time round. Some activities are considered “high risk”, such as a lack of effluent storage or irrigation scheduling, and auditors have been given clear guidance to expect these matters are addressed on follow up audits.

If you are unsure about what you need to do to address previous actions, just have a chat with our Enviro Team and we can sort you out. Our team are available to complete and explain the Dairy Effluent Storage Calculator for you and talk you through your options when considering an upgrade.

Workshops

We are still planning to continue with our workshop programme, however we need to review how these are delivered.

We are looking at running webinars, group sessions or a series of short online videos. Let us know what you would prefer. Key topics coming up include:

- New ways to reduce fertiliser usage
- OverseerFM – the why and how to use it

2020 FEP Updates

Remote FEP Updates are now starting for this season, using online meetings or phone calls.

We have developed a number of resources to make sure you still receive the most out of these appointments and we would appreciate if you could make yourself available if you can, to complete these online.

We may not have enough time to complete updates for everyone if we wait until we can see you in person.

FEP Audits

FEP Audits for this season were cancelled due to lockdown, but we are working with our auditors and Environment Canterbury to find ways to complete audits with no or minimal contact.

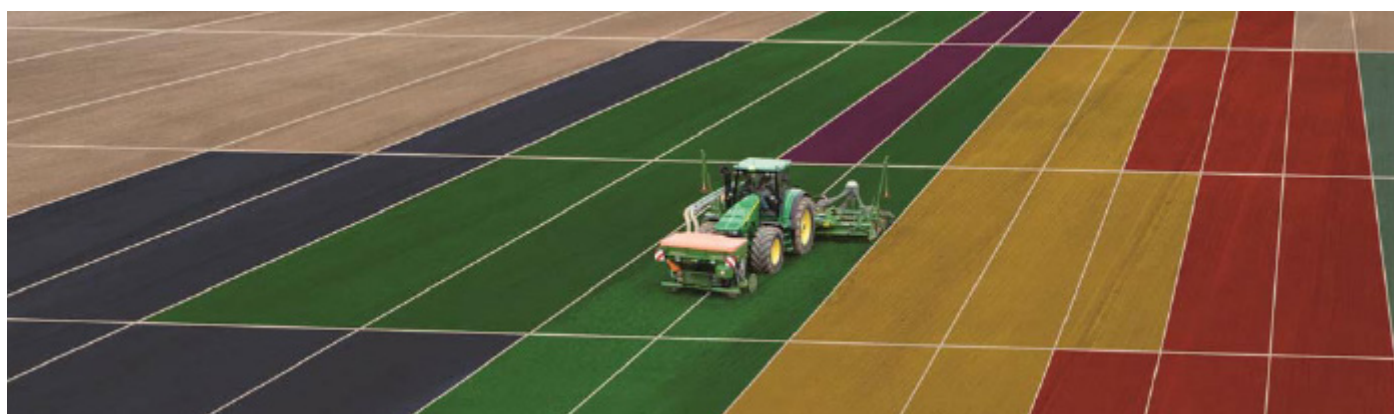
We hope to re-start audits in June and we will be in touch with you in the next few weeks to explain how these audits will work.

Please let us know if you have any internet connectivity issues or if you or anyone in your bubble is considered high risk.

2019-20 Bucket Tests

Irrigo is not providing bucket testing during the COVID period, however we are available to coach you on how to do these yourself.

If you have bucket tests to complete for your audits, give our team a call and we can take you through the process step by step.



New Arrival

Kia ora!

If we haven't yet met face to face, I'm the new Senior Hydrogeologist with MHV Water.

Since graduating from Uni in '97, I've worked predominantly as an Exploration Geologist in Australasia.

After a hitch in Aotearoa in 2010, I completed a Master of Integrated Water Management with a focus on the Managed Aquifer Recharge (MAR) program at Lagmhor, Ashburton.

Away from work, I'm a frustrated rock climber, mountaineer & tramper; father of two; and hobbyist beekeeper.

Mā te wā
Justin



Justin Legg
Senior Hydrogeologist
Kaimātai Wainuku Matua
027 223 7260
justin@mhwwater.nz

Groundwater Survey Report

Introduction

During March, MHV completed its quarterly round of routine groundwater monitoring of Nitrite-Nitrogen (NO₃-N) levels within the MHV irrigation scheme and surrounding areas.

The groundwater program is a tangible expression of MHV's mission to provide "*Sustainable Solutions for our Shareholders and the Community*". By monitoring groundwater behavior and character across the scheme, MHV intends to provide data and complimentary information that will enable evidence-based decision making that lead to environmentally and sustainable water management practices.

Responding to your feedback, MHV has undertaken to report the results of this and future surveys so as to allow us as a community to improve and/ or develop water management strategies that are socially and economically sustainable, ethical, equitable and environmentally responsible.

What did we do?

MHV visited 75 sites (57 within the MHV scheme and 18 in the surrounding areas) and were able to obtain samples from 56 (Figure 1). The discrepancy was due to a number of factors such as access to the bore, the type of bore, the irrigation schedule etc. This was done from Carew to Ashton during March 2020.

As part of this survey MHV tested for:

Nitrate – Nitrogen: The concentration of nitrogen (N) present in the form of the nitrate (NO₃) – often reported as NO₃-N

Dissolved Oxygen - the amount of oxygen (O₂) dissolved in water.

Conductivity - a measure of water's capability to pass electrical flow; which is directly related to the concentration of ions in the water from dissolved salts; and

pH: a scale used to specify how acidic or alkaline a water-based solution is. Acidic solutions have a lower pH, while basic solutions have a higher pH. Pure water is neutral and has a pH of 7.

How did we do it?

Since 2016, MHV has developed a list of locations (bores) that we routinely test and monitor. This entails visiting the bore and purging it of the residual water – i.e. run it for >10 minutes and then taking a sample.

Figure 1 presents a map of the bores (and depths) that were visited with a 2km radius.

NO₃-N levels for all samples were determined inhouse via a HydroMetrics® Nitrate GW50 Groundwater Optical Nitrate Sensor. As an additional cross check, 29 samples were analyzed at Hills Laboratories (Hornby) via Automated Azo dye colorimetry.

What were the results?

The NO₃-N results ranged from 3.4 to 22.2 with an average of 8.7 g/m³ – see Table 1.

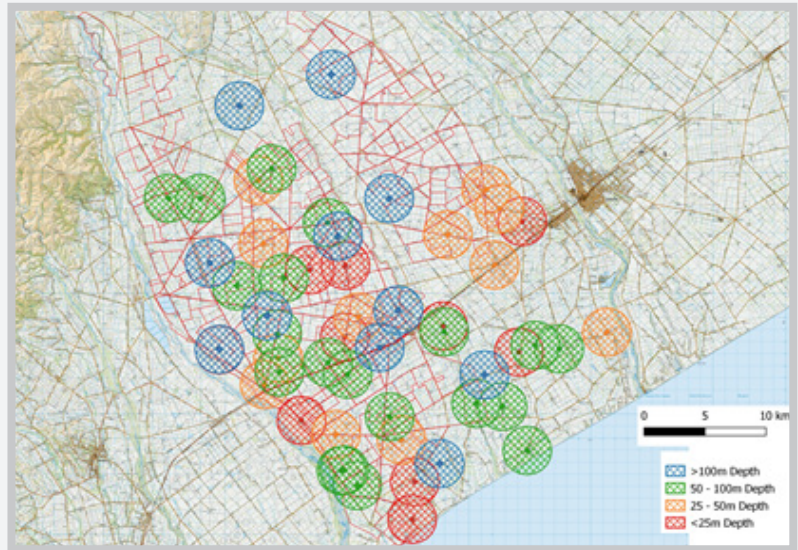


Figure 1: Locations sampled; 2km buffer colored by total depth of bore sampled

Table 1: Summary of results for March Sampling Program

Variable	Min	Max	Range	Most Common Value	Average
NO ₃ -N (g/m ³)	3.39	22.17	18.78	10.5	8.71
pH	6.10	8.40	2.30	7.4	7.21
Dissolved Oxygen (mg/l)	0.31	10.80	10.49	8.05	7.01
Conductivity (µS/cm)	165.80	512.00	346.20	321.00	280.43
Temp. °C	11.80	17.50	5.70	13.27	13.45

When the Optical Nitrate Sensor results were compared to the Automated Azo dye colorimetry, the results had an acceptable regression factor of R²=0.9856 with <10% difference between the results.

How do they compare to the previous survey?

The previous survey was not as extensive as the latest survey and was also completed in September 2019 – hence there are some inherent differences between the surveys. None the less, there appears to have been a slight reduction in NO₃-N concentrations across the catchment.

- the rainfall data NIWA weather stations Lismore (39845), Arundel (39315), and Mayfield (43538);
- a rolling 3-month (i.e. seasonal) average of the combined rainfall data;
- the average NO₃-N groundwater concentrations for each of the previous MHV groundwater surveys undertaken on a quarterly basis
- the Minimum Acceptable Value (MAV) for NO₃-N in groundwater (11.3 mg/l); and,
- the proposed NO₃-N target of 6.9 mg/l as per the NPS-FWM.

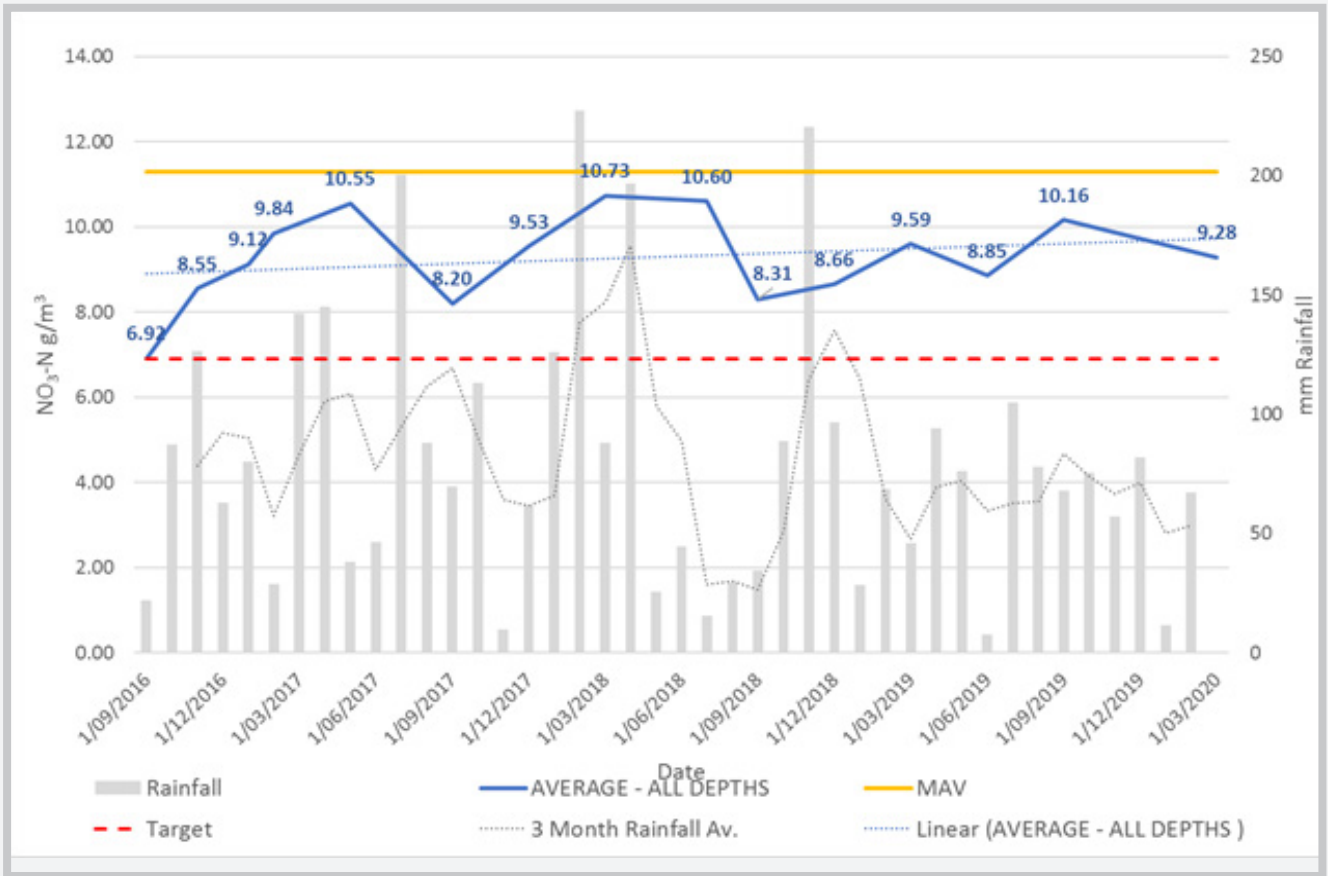


Figure 2: Gross arithmetic mean NO₃-N results over time

FAQ's

Q: Does the reduction in NO₃-N mean that we no longer have to make improvements on farm?

A: No, we must continue to strive for improvements in on farm practices to drive improved environmental outcomes. The target for Plan Change 2 of the LWRP is 6.9 ppm NO₃-N which we remain well above on average. We know from our Farm Environment Plan Audits that there have been improvements in on farm practices by MHV Shareholders which is positive, however, it is too early to tell if this is the start of a decreasing trend as this is one quarterly result which could be disproportionately influenced external factors such as by rainfall, irrigation schedules etc. As seen in Figure 2, there appears to be some similarities between NO₃-N trends and rainfall patterns.

More importantly, we have not seen 3 consecutive reductions in NO₃-N results since monitoring began in 2016. This would indicate that NO₃-N levels are at best stabilizing and or slowly increasing over extended time frames.

Q: How is MHV using real time data?

A: MHV works closely with internal and external stakeholders who have real time NO₃-N monitoring and rainfall data - this information will be used in future to validate and enhance quarterly survey data. The data available ranged from 6.46 g/m³ to 8.15 g/m³ with an average of 7.18 g/m³ over the reporting period.

FAQ's continued

Q: Are there 'hot spots' around the catchment and what might be causing them?

A: Yes. Ecan investigated this issue between 2018 – 2019 and found that areas of elevated NO₃-N are due to a number of contributing factors such as:

- The [historical] use of inorganic fertilizers;
- a lack of dilution from lower nitrate surface waters – i.e. the surface waters flowing in the area have elevated NO₃-N thus inhibiting any potential dilution;
- less denitrification potential to lower nitrate once it is in the groundwater due to soil types and other hydrogeological considerations; and,
- the use of spray irrigation using local groundwater - that recirculates NO₃-N laden water on top of additional nitrate inputs from current land use practices.

Q: What happens if I have elevated Nitrate values?

A: Firstly, Don't Panic.

ECan noted in their 2019 study "Accounting for nitrate concentrations in farm nutrient budgets may result in less nitrate leaching and fertilizer cost-savings for farmers." so a review of your farm nutrient budget may help explain why you may have elevated NO₃-N results.

Secondly, MHV is working closely with research organizations (Lincoln AgriTech, Aqualinc), governance groups (HHWET, Ecan), and external consultants to investigate how and why NO₃-N concentrates in certain areas. It is important to note that we are working collaboratively rather than combatively to assist farmers to develop appropriate solutions to the problem

Q: When will the next survey be conducted?

A: The surveys will coincide with the seasons, so the next survey will be concluded by the start of winter at the end of June 2020.

Q: How can I get my bore added to the survey?

A: MHV will be reviewing the survey parameters before the next survey as we have double ups in some areas and no testing in others. Nevertheless, if you'd like your bore to be tested routinely, please contact Justin to discuss your options.

Q: Can I get my water tested for NO₃-N?

A: Yes, we have an Optical Nitrate Sensor in the Irrigo Office. However, MHV is not a certified laboratory, nor health care service provider. Hence any information provided by MHV would be considered indicative only.

Q: What happens to the results and information?

A: The results confirm the importance and relevance of specific research focused on the Hekeao/Hinds Plains. In future surveys, MHV is proposing to collaborate with other stakeholders in the region such as

- The Hekeao Hinds Water Enhancement Trust
- The Hinds Drains Working Party
- Federated Farmers
- Fish and Game
- Local Farmers
- Independent Experts
- Te Arowhenua Rūnanga
- Local and Regional Councils

By sharing ideas and information MHV intends to be an integral part of developing sustainable strategies with a focus on management and migration of nitrate in both surface and groundwaters, that will ultimately drive improved environmental results; whilst reducing the risk (and associated costs) of duplication and misinformation.



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