It's been a hot, dry summer

Hot, dry conditions across the Horizons Region in the last quarter of 2017 raised concerns for many irrigators as some river flows decreased to levels not previously recorded at that time of year.

A number of water use restrictions were in place in late-November/December, which typically would not be expected until much later in the summer season. This pattern was also observed across much of the rest of the North Island with drought being declared in some areas, including in parts of our region.

Thunderstorm and rainfall activity helped relieve pressure in a number of areas in January, however rainfall in the coastal areas remained low and were generally at or below the lowest recorded over the last ten years.

Support has been made available for the worst-hit farmers, recognising their drought recovery journey is in its early stages and some are still suffering.

The Manawatū-Whanganui Rural Co-ordination Group worked together to organise a range of events over the summer, from technical conversations about rebuilding farm systems and budget advice and information, to family-friendly barbeques and pool parties.

Chair of the Manawatū-Whanganui Rural Coordination Group, Chalky Leary, says their focus has been on supporting farmers as they worked through the drought impacts and find a way forward.

"The impact of droughts doesn't stop with the first rainfall. The Rural Support Trust has reported there is a high level of stress in the farming community as farmers run out of feed and have to use supplementary feed designated for winter," says Mr Leary.

"Supplementary feed growth is also only yielding about half of normal volumes."

The Rural Support Trust is considering a workshop aimed at assisting farmers in decision making and planning for the winter.

"There are also pockets scattered across the region that didn't receive any rain and can't be forgotten about. While there has been greening of pasture, it hasn't always resulted in growth. Some areas have recovered however the effects of the drought certainly aren't over and there are still areas that are really struggling.

"We highly recommend farmers have a chat to their bankers and accountants regarding their situation and see what measures can be put in place to help them recover from the financial burden of the drought. Also don't forget Federated Farmers has activated Feedline on its website, open to both members and non-members who want to request or offer feed."

Farmers are also concerned about animal welfare so the group recommends making decisions on selling excess stock sooner rather than later. It is also best to keep an eye on possible issues such as facial eczema.

Concerns still exist regarding the risk of *Mycoplasma Bovis* when moving stock for grazing. MPI has produced a factsheet for farmers moving stock and feed so they can prevent further spread of the disease, and has regularly updated information on its website. Farmers are also welcome to contact MPI directly or talk to their veterinarian.

Farmers are encouraged to contact their local Rural Support Trust on 0800 RURAL HELP (0800 787 254) or www.rural-support.org.nz to get pointed in the right direction for advice or information, whether they are concerned about a friend, a neighbour, a worker, or just need a private chat. Services are free and confidential.

Sheep graze poplar trees in drought conditions.

"The impact of droughts doesn't stop with the first rainfall. The Rural Support Trust has reported there is a high level of stress in the farming community as farmers run out of feed and have to use supplementary feed designated for winter."

Woodville drinking water processing plant.

Decision making around drinking water

In August 2016, around 5,500 people in the town of Havelock North became ill from campylobacter in the local public water supply, resulting in widespread outbreak of gastro-enteritis in the community.

Investigation into the source of the contamination identified that the shallow groundwater supply became contaminated by sheep faeces that had washed into nearby waterways and been drawn down into the pumping bore.

The recent enquiry into the contamination of the Havelock North public water supply has highlighted a number of areas for improvement in the management of public water supplies throughout New Zealand.

To ensure the relevant agencies in our region are meeting their requirements regarding the protection of drinking water quality, Horizons Regional Council is working in consultation with local public health officers and territorial authorities to improve overall management of drinking water supplies.

Information on drinking water supplies and their contamination risks is held by a number of organisations. Maintaining a continual flow of information is key to ensuring any risks to public health are identified and communicated to the right people at the right time.

A stocktake and risk assessment for community drinking water supplies in the Horizons Region has also been completed. This assessment has highlighted a number of areas for improvement which is now informing the development of a dedicated work programme to inform decision making around the management of both existing and future public water supplies.

ROLES AND RESPONSIBILITIES

Regional councils have responsibilities pertaining to water quality under both the Resource Management Act (RMA) and also under National Environmental Standard for Sources of Human Drinking Water regulations. Drinking water suppliers (primarily district and city councils) require resource consent from the regional council to take water and as part of the determination of that consent, the regional council must have regard to the relevant provisions of national environmental standards.

The functions of the city and district councils are narrower than those of the regional council, however they have responsibilities as holders of water take consents and must comply with the conditions of those consents.

Drinking water suppliers have responsibilities under the Health Act both as local authorities and as drinking water suppliers. A local authority is obliged to inspect its district to ensure that nuisances that may affect (i.e. make liable to contamination) any source of supply that may be used for domestic purposes is removed. In addition, the local authority must enforce regulations for the protection of any water supply.

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Spotlight on kākahi, freshwater mussels

Kākahi can be found in many of the Horizons Region's rivers, streams, and lakes. However they are infrequently encountered by everyday river and lake users due to their cryptic nature and being difficult to distinguish from rocks.

They can often be found in those slow-moving parts of rivers where macrophytes grow, sediment has come out of suspension, or beneath a log. All are habitats that provide stability, although survey work has also found them hidden among rocks in the main flow of rivers. In lakes, they can be present throughout the entire lake system.

Kākahi are different to marine mussels in that they do not attach themselves to objects and can move around in the waterway in which they are found by using their foot, although at an extremely slow rate. Their initial discovery at a site is typically from seeing the equivalent of a 'slug trail' from where they have moved around.

Kākahi have an interesting life cycle in that the juveniles depend on fish to be able to complete the life cycle. The breeding cycle involves males releasing sperm into the water column and females then taking this in through their siphons and fertilising eggs. The kākahi larvae are parasitic and when released attach themselves to a fish's gills, fins, mouth or lips. It is during these few weeks when the larvae are attached to a fish that they can be shifted upstream in the catchment.

Recent surveys of kākahi have frequently failed to find any juvenile kākahi (less than 20mm long) within populations, which represents a lack of recruitment into the population. The reason for this is not fully understood however is likely to be a combination of factors, such as a reduction in fish numbers (i.e. host species), water quality and suitable stable habitat such as logs in streams.

A recent kākahi survey in Lake Horowhenua by NIWA found 103 kākahi. Although a great result to still see kākahi present within the lake, the number is significantly lower than historically would have been found in the lake with dead and composing shells covering the entire lake bed. All the kākahi recovered were measured and returned to the lake. The smallest measured was 70mm with a few longer than 100mm. No juvenile kākahi were found during the survey and this may be a consequence of ammonia levels within the lake as larvae are known to be particularly sensitive to ammonia. The positive news is that evidence of brooding sacs where larvae are housed prior to release was found in a number of kākahi that were searched.

This means when conditions within the lake once again become suitable there is a source of juveniles to be released into the water. Horizons, as a signatory of the Lake Horowhenua Accord, is currently undertaking a number of activities that aim to improve water quality. This includes riparian planting, a sediment trap, and harvesting of lake weed.

IN BRIEF

CHECKING ENVIRONMENTAL DATA ON HORIZONS' WEBSITE

Did you know you can check environmental data such as river heights on our website? Use the handy tool on our homepage at www.horizons.govt.nz to check information near you.
Horizons' resource consent holders with telemetered water use monitoring can also register for a log-in for Horizons WaterMatters pages, which will allow them to view their own water use and access river flow information specific to their resource consent conditions. Register on our website at the link above.

CAN I SWIM HERE?

If you're heading out for a swim, don't forget you can check the status of 80 spots on our interactive swim spot map on our website. Here you can find the traffic light system as advised by the Ministry of Health and make informed decisions before diving in. Land Air Water Aotearoa's (LAWA) website www.lawa.org.nz also has a handy 'Can I swim here?' module.

DISCOVERING THE REAL DIRT IN HYDROLOGY

The New Zealand Hydrological Society workshop entitled "Discover the real dirt in hydrology" will be held at Palmerston North Conference Centre in March. Over the four days, delegates will hear from a number of members of the hydrology industry, including overseas expert, John Gray (formerly of the USGS) on a range of subjects related to the challenges and successes in monitoring both water quality and quantity.
The specific topic that this workshop will address will be suspended sediment loads and the latest in best practice data collection, analysis and quality assurance of related data. Included in this will be comparisons of different data capture methods, laboratory analyses and surrogate technologies.

Warm and dry weather creates ideal cyanobacteria conditions

Cyanobacteria, also known as blue-green algae, has had a lot of coverage in the public domain this summer as it thrives in the warm, stable conditions we've been experiencing.

So what are cyanobacteria? Well, for a start they are among the oldest and most primitive forms of life known, and are found in freshwater throughout the world – usually in low concentrations. The individual cells are not visible without the use of a microscope.

However, during favourable conditions cyanobacteria multiply at such a rate that they can dominate the local aquatic environment. This is referred to as a 'bloom' and is naturally occurring. Conditions that can lead to an algal bloom include warm temperatures, sunlight, low or stable river flows or a calm lake, and elevated nutrient levels, especially of phosphorus and nitrogen. River growths are slimy black or dark brown and attached to rocks. Growths can dislodge and float downstream or dry out on gravel beaches as flows drop.

Unfortunately, most types of cyanobacteria are capable of producing toxins which can be a health threat to people and animals. These are known as cyanotoxins and the factors that trigger them are not completely understood. If people ingest these toxins, or come into contact with algal scum, it can result in skin rashes, stomach upsets, flu like symptoms and worsening of allergies such as hayfever and asthma according to the World Health Organisation. For animals such as dogs and mammals it can be fatal.

Cyanobacteria is still an emerging issue for the Horizons Region. While it has been known of for a long time by our staff, it is getting increasing levels of coverage and public awareness. We now monitor it weekly from the start of November to the end of April every year as part of our swim spot monitoring programme at 80 lake, river and stream sites across the region. Where cyanobacteria may pose a risk, signage is erected in conjunction with public health and district councils to warn members of the public. The results are posted on our website and at lawa.org.nz.

Our science team also monitors cyanobacteria at 67 sites monthly year round. We recognise there is still work to be done clarifying risk levels and factors that promote cyanobacterial growth. Interventions such as riparian planting and land use management may help to reduce the occurrence of cyanobacteria in some catchments, however drivers are complex and site-specific. As not all cyanobacteria are toxic, there is currently research being carried out to understand why, when and how cyanobacteria produces toxins.

A Horizons Regional Council staff member monitoring cyanobacteria.

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