

My bore's gone dry!



A guide to bore water problems and maintenance

I need water!

People need water for their homes, businesses and recreation. More people in the Bay of Plenty are using groundwater because it is often a more reliable source of water compared to surface water, especially as during dry periods there is less river water available when it is needed most.

Yet, the widespread nature and occurrence of groundwater means that it is not always possible to monitor it as accurately as other resources.

We know that usually groundwater flows from high country to low country through aquifers. In the Bay of Plenty these aren't underground rivers, but is where water moves through cracks in the rock, and via pore spaces in sands and gravels and other rock material.

I had water yesterday so where did it go?

When you have a bore or shallow well that has been reliable for many years but stops providing water, you naturally worry.

In most situations, your bore is unlikely to dry up instantaneously. Generally, there would be a gradual decline in the water level over time. However because water levels in bores are often not monitored, it may appear as an instantaneous decline because the pump will stop. This however does not mean that you do not have access to water.

Dry seasons, especially summer, impact water levels indirectly. A dry summer not only means less rainfall is available to recharge aquifers and waterways, it also often means increased abstraction by groundwater users, which in turn increases the cumulative drawdown in the aquifer. This can be the cause of some bores running dry in summer.

Shallow wells in unconfined aquifers are more susceptible to running dry than deeper bores or wells in confined aquifers. Access to water is still available, however the wells may need to be drilled deeper, or the pump lowered, to ensure continued water access.

Another common cause of not being able to access water is lack of maintenance to the bore or pump.



What maintenance should I do?

Bores and pumps require regular maintenance so they keep working efficiently. This should be carried out every five to eight years for both the bore and the pump.

Most commonly, a clogged or corroded screen makes it harder to draw water into a bore. This results in a much lower water level inside the bore than exists outside in the aquifer. This increases with bore age and screen clogging.

The type of pump installed can also be a factor in a 'dry' bore. Surface pumps are limited with the depth that they can pull water up from; submersible pumps can be used to reach water from greater depths more reliably.

Who's responsible?

The bore owner manages their own bore and is responsible for maintenance of bore and pump, bore depth and appropriate design (for screen, pump, etc).

The driller acts on behalf of the bore owner and is responsible for drilling the bore into the aquifer, completing the bore (screen, pump, etc.) and they carry out maintenance under instruction from owner.

The pump supplier acts on behalf of the bore owner, and provides advice and supplies the pump, organises the electrical work, and carries out maintenance when requested by the owner.

The meter installer acts on behalf of the bore owner. In some cases meters are required as a condition of consent for taking water and must be installed and verified by a suitably qualified person. The Irrigation NZ website provides information on BlueTick operators and verifiers.

Bay of Plenty Regional Council manages the aquifers as a resource. They assess and monitor long term water availability, monitor long term water quality, issue drilling permits (bore permits), issue resource consents for water takes, receive and manage water records, ensure water meters are meeting legal requirements, monitor aquifer levels and seasonal variations.

How to fix a bore problem

Your well driller is best to investigate and advise on problems with your bore or well. Regular maintenance is essential – check out the Q and A below. There are also practical things you can do to keep an eye on your bore's long-term use:

- Measure water level – we recommend installing a logger to continuously measure water levels. The value of this data far outweighs the cost. If that is not an option, then take manual readings on the first day of spring, summer, autumn, and winter.
- Ensure the pump intake is just above the screen to allow for maximum water level decline.

Bore maintenance Q&A

How old is an old bore?

In the Bay of Plenty, bores can generally last on average around 20 to 25 years. This is dependent on the environment, the water quality and the construction material. Bores that are constantly used (water supply) are unlikely to last as long as bores that are used only for domestic or irrigation purposes.

Bores that are completed in aquifers with a higher conductivity or poor water quality (e.g. saline, geothermal or warm water) are susceptible to corrosion and may only last 15 to 20 years. The degradation of the bore casing, the reduction in the efficiency of the screen and the wear and tear on the pumping system should be assessed on a regular basis. Information on the lifespan of a bore can be provided by your driller as this will be dependent on the type of casing used (including wall thickness) and water quality.

Damaged casing indicates that the bore may need replacing. Drillers are able to use a downhole camera to inspect the casing and screens to check the standard of the casing. Often bores older than 25 years will need replacing. When replacing a bore the original bore will

be decommissioned in line with the drilling standards (NZE4411:2001) and a new replacement bore drilled. A new land use consent will be needed prior to installing a new bore.

What is bore maintenance?

The driller makes sure that the borehead does not leak at the land surface and that the pump works. They can redevelop the bore by blowing out the sediment that is clogging the screen or that has settled in the casing. When the bore is being developed, all pumps will be removed or disconnected – this is a good time to have them checked over.

In addition to the maintenance, if you notice that floods or water ponding typically goes over top of the concrete pad surrounding the bore then it is advised that you have the driller pour a higher pad and finish the bore further above ground level to reduce contamination risk.

How often is maintenance needed?

You should get a well driller to do maintenance on your bore once every 5 to 8 years, this can change based on the geology that has been screened. More frequent maintenance is needed for bores in geothermal or warm water or bores that are in aquifers where there is an increased risk of corrosion.

How much does bore maintenance cost?

It is dependent on what size and condition the bore and pump are in, as well as how long the redevelopment takes. The costs will likely be higher for seriously neglected bores. If you have the bore maintained on a regular basis it will reduce the build-up of sediment and therefore the cost.

We recommend you always seek advice from reputable well drillers.

How long will maintenance take?

This will depend on the size and depth of your bore as well as how often you have it redeveloped – it can be anywhere from a few hours to a couple of days.

When is it best to do the maintenance?

Obviously it's best to organise your bore maintenance or development before you need it most. Summer is often impractical, as the increased demand on the aquifer can make it harder to develop. Ultimately there is no bad time to have your bore redeveloped, there can be wait times with drilling companies to come out and complete the work during warm/dry months.

For more information

There is more information on groundwater (including live data), consenting and compliance requirements in the Bay of Plenty at www.boprc.govt.nz

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