



Focus on Minjerribah water

SIMO is your island-based community organisation championing environmental, social and educational causes since 1978. We value your membership and encourage your feedback.



Water: the lifeblood of the island

Almost 70% of Queensland is currently in the grip of drought, with the Redlands and Logan Shires drought-declared, in early December 2019.

This fact sheet provides a summary of the information we have on the Minjerribah (North Stradbroke Island) water levels and some answers provided by Seqwater earlier this year at a meeting in Amity.

Currently, around 20-25 megalitres (ML) of water are piped daily from the island's underground aquifer to the mainland by Seqwater, for use in the Redlands.

Seqwater's licence allows for up to 57.6ML a day to be taken. The clean, sand-filtered water requires very little treatment for human consumption, making it a preferred, cheap source for the bulk water supplier.

However, many island wetlands, streams and vegetation (including mangroves) rely directly on flows from this same aquifer. Some residents say vegetation in the swamps is already changing.

The aquifer-dependent (groundwater-dependent) systems are on the front line. How far Minjerribah's unique ecosystems can tolerate beyond the point of extraction is only poorly understood.

When the aquifer drops, and the water flows dwindle, swamps will be more exposed to destructive peat fires, as we have seen. Many plants are situated at particular heights above the typical water level. Mangrove roots take up fresh water flowing from the aquifer, and will die without it.

Should salt water infiltrate the aquifer, it will damage the island's plants, animals and fragile ecosystems – and potentially pollute drinking water.

Focus on the facts:

- Seqwater has individual bores at Dunwich, Amity and Point Lookout to supply island townships with water.
- Water for export to the mainland via the submarine pipeline is sourced from Main Borefield south of Dunwich (total licence amount 8250 ML/year) and Herring Lagoon on 18 Mile Swamp (total licence amount 12,775 ML/year). Main Borefield is preferred over Herring Lagoon because Herring water has tannins that are difficult to treat.
- There is an annual limit on each bore licence (550 ML/year for each of the 15 bores at Main Borefield, but no trigger level on the licence – meaning no specified level in the aquifer at which pumping must cease because it would risk environmental harm. Herring Lagoon does have a water level limit.
- Currently, Seqwater exports 20-25 ML/day to the mainland, mostly from Main Borefield. Given the large allocation at Herring Lagoon, daily export could be increased to 57.6 ML/day under current licences.
- Redland Water is a commercial business unit within Redland City Council focused on delivering high-quality water safely and reliably to residents.
- Redland City Council buys bulk water from Seqwater, which owns and operates the bores, dams, reservoirs, water sources and catchments. Water is distributed around the city via a network of 1301km of water mains. (Source RCC website)
- 'Seqwater is the Queensland Government statutory authority responsible for providing a safe, secure and cost-effective bulk drinking water supply for 3.1 million people across South East Queensland.' (Seqwater Annual Report, 2017)

SIMO, Quandamooka People and other individuals and groups have been asking for information and raising concerns about water mining on Minjerribah for many years. SIMO met with Seqwater in February 2019, and at a public meeting in September 2019 at the Amity Hall, we expressed specific concerns again.

We remain alarmed at an apparent disconnect between the extraction service delivery system on the one hand, and on the other the needs of the island ecosystems and associated dependent human activities, including tourism.

We are collating what we learned and are planning for future meetings. The following notes of questions and answers at the meeting (and other research) convey why water is such a critical issue:

How much has water extraction had measurable impacts on the water table?

Seqwater showed a graph illustrating how aquifer levels follow rainfall trends. This is not surprising: aquifer levels rise in wet periods, fall in dry periods. However, a graph for the monitoring bore closest to Main Borefield (RN 14400074), printed to a different scale by a local islander, shows aquifer levels at the borefield have been quite different from the rest of the island.

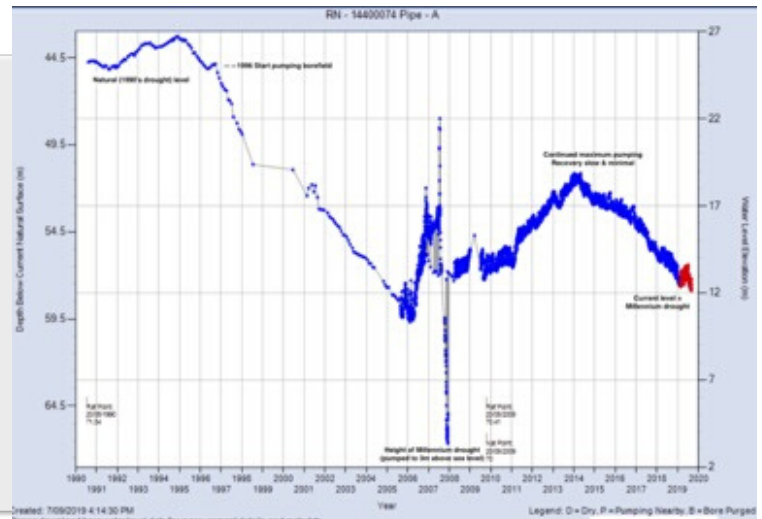
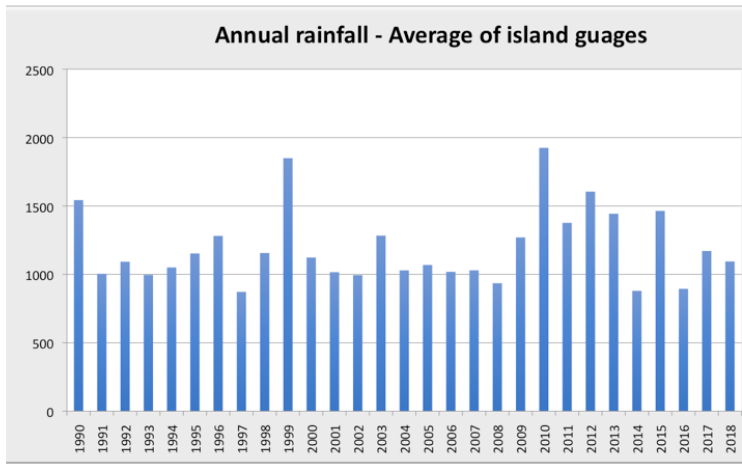
In 1996 (already a dry period) – when export to the mainland began from Main Borefield – the aquifer level there halved in just a few years and has never been allowed to return to even that low 1996 level. During the millennium drought, the borefield was pumped very low. During the 2009-2013 wetter years, the rest of the island aquifer recovered to moderate levels. However, the same extent of recovery didn't occur at the borefield because pumping continued at around 20ML/day.

Since 2014, the island-wide aquifer has been falling steadily again, but especially so at the borefield, where levels are now very low – below the level it was at the end of the millennium drought. Even if we do get above average rainfall, the bore and rainfall data we were presented with suggest the current rate of extraction (20-25 ML/day) is not sustainable. There simply may not be enough reserve in the aquifer to support current extraction, let alone taking any additional water, which may be planned for drought times.



If you are on Facebook, follow our page @SIMOstradbrokeisland to stay up to date with what's happening in our group. Invite your like-minded friends to like our page, and don't forget to share and comment to keep us in your newsfeed.

The graphs below show the rainfall across the island and the aquifer level (at Main Borefield) which has never had the chance to recover, even to the low 1996 level:



Why hasn't the drop in the water table triggered water restrictions in Redlands?

This was given a curious answer. There is, to date at least, sufficient water in the dams that supply the whole SEQ grid to supply all consumers. Therefore no one goes on restrictions. Redlands, though, is connected to the grid by only a small pipe.

Currently more than 60 per cent of Redlands' water comes from Minjerribah. The remainder comes from Leslie Harrison Dam, and a small amount from outside the Redlands via the Eastern Interconnector Pipeline (EPI).

Minjerribah's aquifer is being treated as if it were just another dam on the grid. Dams are essentially ecologically useless, the water being all but disconnected from living systems. But this is absolutely not the case for the island's aquifer, whose environmental flow is critical to sustaining all life on the island.

Why isn't Redlands already on water restrictions, given that the island's aquifer has not recovered from the millennium drought?

We received this answer: people get 'restriction fatigue'. But that's no excuse, especially when consumers in Redlands are less than fully educated about the effect their rate of water use is having on the aquifer. It is also not true: the public responded well during the last drought, limiting water consumption.

What marked effect on the ecosystems on Minjerribah would be considered unacceptable and trigger a reduction – or halt – to extraction? How do we know when we are approaching this limit? What would be the level in the aquifer at this point?

Monitoring the aquifer levels takes place across the island, although more monitoring bores are needed at strategic places. From the meeting it was unclear what ecological monitoring is being carried out, if any, and how early warning signs are defined. The authorities are not saying what the critical level in the aquifer is at which extraction must cease.

They implied that once the updated modelling of the aquifer was complete, there would be answers. Also, Seqwater would reduce/cease extraction if it caused environmental harm. But they did not define what constitutes environmental harm. There is also no clear link between consumption of island water and water restrictions on the mainland. Indeed, Redlands will only go on water restrictions when all the metropolitan area goes on restrictions. This is how the regulatory framework is set up. There is no special dispensation safeguarding Minjerribah's aquifer.

The operating model has failed the Murray-Darling. Why should things be any different for Minjerribah?

Seqwater and DNR assured us it was completely different. In the Murray-Darling, water is sold for money to large commercial users to irrigate. Redland City Council buys bulk water from Seqwater, and consumers (mainly residents) pay the council. Consumption rates, and thus extraction rates (we were told), are not money-driven. Seqwater is wholly owned by the state: it belongs to us.

Given that the aquifer has not recovered from the millennium drought (2001-2010) – even after a very wet period – how do you expect to support the massive increase in consumer demand from urban development planned for the Redlands Coast?

By way of an answer, Seqwater gave the example of Beaudesert. After the town was greatly expanded with new housing estates, authorities were concerned whether the water supply would cope. But the existing infrastructure was able to supply the expansion. The only element of the system that was compromised was reduction of the volume of reserves held in case of extended dry weather – thus eliminating the system's resilience. No mention of reduced environmental flows down the river. No mention of Stanthorpe or other towns having to truck in water at great expense when the reserve runs out.

The Eastern Pipeline Connector (EPI) that connects Redlands to the rest of the South-East Queensland water grid can only deal with 22 ML per day. Water in the pipeline can flow both ways – but it's likely the intended purpose was to ship Minjerribah water beyond the Redlands in times of drought. If no water is available from Minjerribah – say, because the aquifer is too low – then the EPI **could not deliver even half** of Redlands' current daily water usage (40ML/day) from other sources, let alone projected growth demands.

However, come the crunch, if people need drinking water, emergency powers can intervene to ensure water extraction on Minjerribah continues or expands, no matter the cost to the environment. We surely don't want to get to that point.

Why, then, has there been no substantive talk of trigger limits and water restrictions, and factoring in of the Redlands urban growth plans? Why is the legislative framework so incomplete?

The crop in the Redlands is, sadly, no longer food grown on the rich red soils. It is the growing housing estates and the construction industry, and the rates and employment that flow from them. Obsession with perpetual growth is trying to bully the hydrology into feeding it, and so bullying the public authorities that have responsibility for supplying water.

What is very clear to so many cities across the country and the world is that limits to growth are being framed by availability of water.



We have lost much of the ecological service of our rivers flowing into the bay – including the fisheries of the coastline. It is hard to appreciate, as it largely predates living memory or reliable data.

What have been the effects so far of water extraction on Minjerribah, and what will they be in the future? So far we have little convincing assurance from DNR, DES or Seqwater that there will be restraint on consumption in order to limit environmental harm.

One further comment: Following the closure of sand mining on the island, two very large voids will be left sitting within the aquifer at Yarraman and Enterprise. These artificial "lakes" will be bigger and deeper than any natural lake on the island and may stratify, leading to water quality problems. They are vast gaping holes exposing the aquifer to evaporation. Water will flow into the holes from the aquifer, another drain the aquifer can ill-afford. In the absence of aquifer-replenishing rain, there will be an ever-increasing radius of effect on the aquifer. The unconsolidated sands of the void walls are also likely to be unstable.

Is this permitted?