



Ministry for the
Environment
Manatū Mō Te Taiao



Te Kāwanatanga o Aotearoa
New Zealand Government

Our Water, Our Lives: The Stories Behind the Numbers

Tō Tātou Wai, Ō Tātou Ora: Ngā Kōrero mō ngā Tau



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Photo: Spid Pye, truestock.

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Why freshwater matters

Te hira o te wai māori

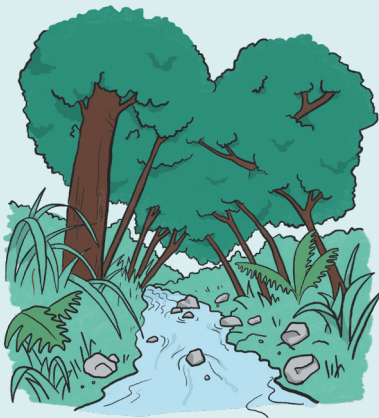
Our Freshwater 2026

Why freshwater is important to us

Freshwater supports daily life in Aotearoa New Zealand. It keeps people healthy, supplies drinking water, supports homes and businesses, sustains ecosystems, and shapes how we experience the places we live.

It supports our economy, growing exports, powering hydroelectricity, underpinning forestry, tourism and regional business. When freshwater quality or flows decline, daily life is impacted.

Freshwater moves through a connected system, flowing through our towns and cities while linking mountains, rivers, wetlands, aquifers and estuaries. It moves quickly on land, travelling slowly underground. What happens to the water beneath us shapes rivers, lakes and wetlands long after the pressures above ground are first felt.



Why groundwater is the focus of the report

Groundwater is central to this story. It stores water for years and releases it into rivers and lakes, keeping them flowing during dry periods. In many catchments, groundwater supplies most of the water in rivers at low and mid flows. As rainfall patterns change and droughts become more frequent, this hidden store becomes increasingly important for our water security. Sea-level rise is driving changes in coastal aquifers, raising some groundwater levels and increasing saltwater intrusion risk.

In 2026 we focus on groundwater because it reveals long-term pressures in the system. Groundwater holds the imprint of past land use and climate, carrying it into rivers, lakes and springs today. The slow-moving nature of groundwater means the impacts of our decisions take a long time to surface: today's actions shape future conditions.

Our Freshwater 2026 is a body of evidence describing the national picture. This is the companion document to the main report, bringing the stories behind the numbers to life. It shows what is possible when we combine knowledge and evidence to make informed decisions, both now and for our future.

Environmental data to support informed decisions

The Ministry for the Environment, in partnership with Stats NZ, reports on different aspects of our environment every six months and provides an overview of the whole environment every three years.

These reports draw on data from research literature, public research organisations, regional and district councils, mātauranga Māori (Māori knowledge), and government reports. This comprehensive body of evidence allows us to track human impacts, identify emerging challenges and support informed decision-making for managing natural resources and adapting to environmental change.

How the freshwater system works

He pēhea te pūnaha wai māori e mahi ai

Our choices above ground affect the water beneath us

The decisions we make above ground impact the water beneath, shaping the future of the freshwater we rely on. When we concrete a green space, we reduce the rainwater that can seep into the ground and feed our living waterways. When we use pesticides and herbicides in our gardens and farms, they enter the underground freshwater system.

Because much of our groundwater moves slowly, these contaminants can take years to show. But eventually, they can add to the pollution coming from run-off, turning swimming and fishing spots into places to avoid and making our drinking water unsafe. This slow movement also means improvements we make on land today can shape freshwater for future generations.

Groundwater is like a savings account

Groundwater acts like a savings account for the freshwater system. Rainfall fills it up, and groundwater releases water steadily into rivers, lakes and wetlands, especially in dry periods. This slow, reliable contribution stabilises rivers, buffering communities from drought. But when there is less stored underground, there is less for the system to draw on.

Climate change is increasing this pressure. Hotter conditions and longer dry spells reduce the natural recharge groundwater depends on. When heavy rainfall arrives, it can run off quickly without soaking into the ground. Along the coast, rising seas can increase the risk of saltwater mixing with freshwater resources. These changes affect both how much water is available and its quality.

To protect the freshwater system, we need to understand how groundwater is changing – where levels are rising or falling, where contamination is increasing, and how climate is reshaping the balance in the system. With good evidence, communities can make informed decisions that protect freshwater for people and ecosystems today and in the future.

Protecting water quality and sharing responsibility

Our Freshwater 2026 shows why it's important that people consider water when deciding how they use land. Robust evidence and data about our freshwater system can help all of us make better choices that protect this precious resource.

Projects underway across the country show how different sectors and communities are addressing freshwater issues highlighted in *Our Freshwater 2026*. We share these stories in this companion document.

Collaboration brings urban stream back to life

- ▶ After over a century of neglect, Wellingtonians are bringing one of the capital's most precious urban streams back to life.
Read about this project on page 5.

Healthy soil helps reduce farm pollution

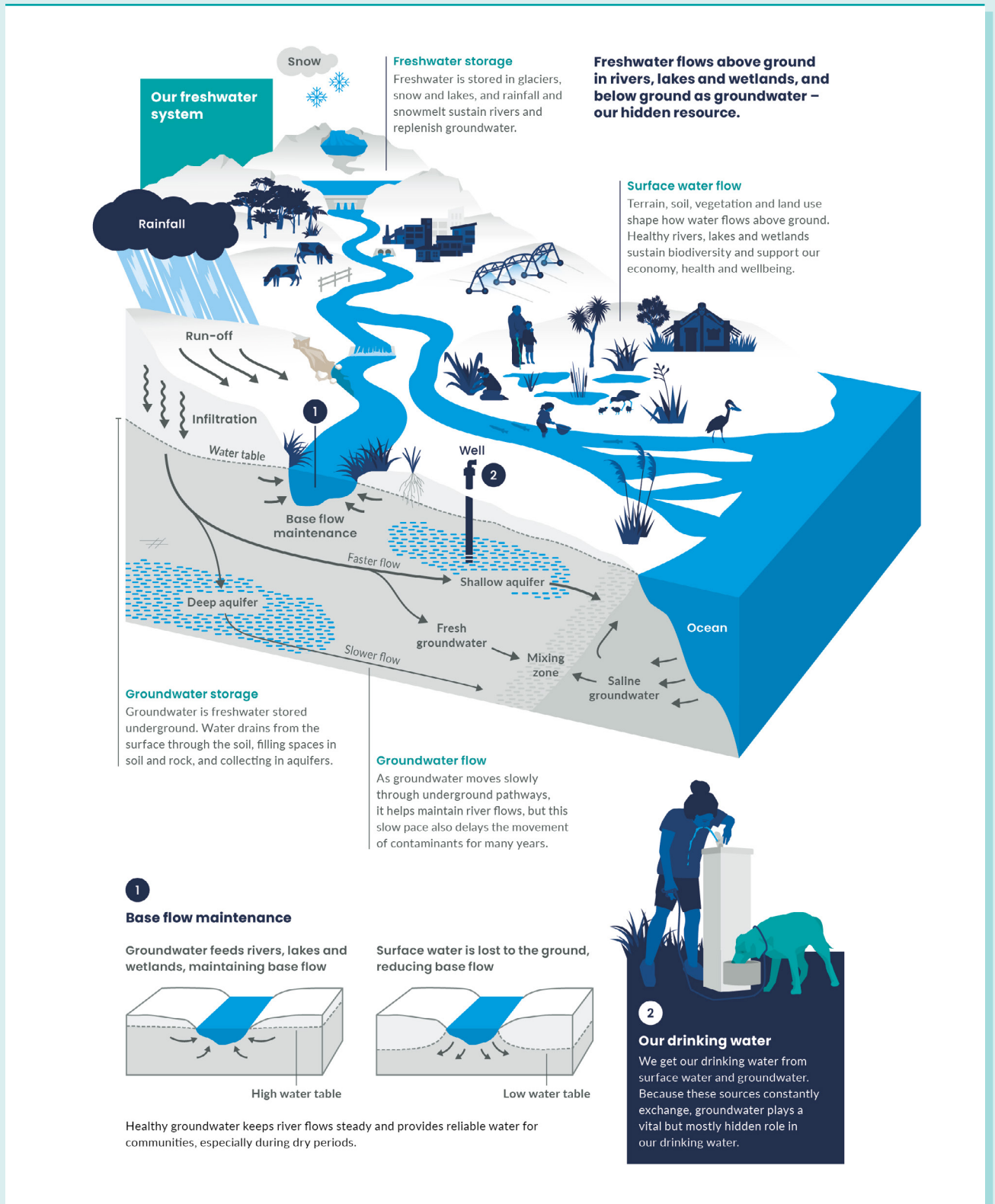
- ▶ A project in the Waikato has brought together mātauranga Māori, biophysical science and farmer knowledge to help restore soil health and reduce water pollution from farms.
Read about this project on page 7.

Strengthening our understanding of groundwater

- ▶ Earth Sciences New Zealand is leading research to investigate how aquifers store and transport groundwater, filling gaps in our knowledge and highlighting risks and vulnerabilities in our freshwater system.
Read about this project on page 9.

Our freshwater Tō tātou wai māori

Water moves through the landscape as a system, so changes in one place affect other areas connected by the flow of water.



Our health

Tō tātou hauora

Freshwater is essential for our health. We cannot survive without clean water to fill our glasses and grow our food. If we drink, swim in or gather food from untreated polluted water, people get sick and communities are put at risk.

Pollution enters freshwater from many everyday activities, and heavy rain washes pathogens into rivers. Nitrates can travel through soil and build up in groundwater over long periods, affecting drinking water. Water from storms can carry sediment and contaminants into the places we like to swim or fish.

Climate change increases these risks by driving intense rainfall, flooding and dry spells, which reduces how much clean water is available.

Keeping freshwater healthy protects all of us. Good information about water quality helps communities, iwi, businesses and councils understand where the risks are and how to act early to keep water safe now and into the future.



What we build on land shapes how water moves through our environment. Hard surfaces in towns and cities mean contaminants wash quickly into stormwater, pushing pollution into our rivers and lakes.



Climate change can affect our health by changing how water moves through the system. Floods wash sediment, pathogens and contaminants into freshwater. Droughts reduce the amount of clean water available, increasing the risk to drinking water.



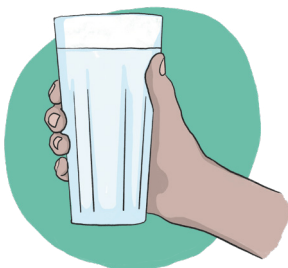
Intensive agriculture adds nitrogen to the land. Nitrogen from fertiliser and animal waste can leach into groundwater. Because groundwater moves slowly, nitrate can build up in aquifers affecting drinking water over time.



We can make choices around land use and soil management to improve freshwater health. These actions help protect community health and create healthier freshwater over time.

What Our Freshwater 2026 tells us

Between 2019 and 2024, *E. coli* was detected at least once in 45 percent of 998 monitored groundwater sites. If used to supply drinking water, these groundwaters would require treatment before it is safe to drink.



In 2024, there were 364 reported cases of campylobacteriosis, 71 of giardiasis, and 113 of cryptosporidiosis where the people seeking treatment reported drinking untreated water as a potential risk factor.

\$21m

Havelock North's waterborne disease outbreak in 2016 cost New Zealanders more than \$21 million.

Between 2004 and 2024, nitrate-nitrogen concentrations were very likely increasing at 39 percent of 512 monitored groundwater sites and very likely decreasing at 26 percent. Nitrate takes years or decades to reach bores, springs and rivers, so concentrations can rise after practices on land improve.



Case study: Collaboration brings urban stream back to life



Te Kaiwharawhara awa (stream) winds from the hills to the harbour, and Wellingtonians are bringing it back to life after over a century of neglect.

An almost 10-year partnership between Zealandia Te Māra a Tāne, the community, businesses, council and mana whenua Taranaki Whānui ki Te Upoko o Te Ika is restoring the health of one of the city's most significant urban waterways.

Kia Mouriora Te Kaiwharawhara – Sanctuary to Sea is a whole-of-catchment programme working to strengthen the mauri (life force) of Te Kaiwharawhara. The awa flows from Karori through Zealandia Te Māra a Tāne, across Ōtari-Wilton's Bush, merges with waters flowing from Tarikākā/Mt Kaukau in Trelissick Park, and out to Wellington Harbour – connecting native wildlife, ngahere (forest) and neighbourhoods along the way.

For more than a century, the stream was impeded by forest clearance, dam construction, landfill, piping and industrial development. These changes altered its path, degraded habitats and reduced the health of the catchment.

Community groups, mana whenua and agencies are now working together to reverse these impacts. Volunteers in Ōtari-Wilton's Bush and Trelissick Park have planted tens of thousands of native plants, reduced pest populations and reopened critical habitats. This work is helping to regenerate forest, improve water quality and create safe passage for native fish, while reconnecting people with an awa that holds so much historical and cultural significance.

Te Kaiwharawhara shows how an urban stream can recover when communities work together. While challenges remain, ongoing restoration is reconnecting people with nature and improving the health of the awa – from Zealandia Te Māra a Tāne to the sea.

Restoration on Te Kaiwharawhara is visible on the ground and in the water.

- ▶ Across the catchment, people have planted more than 130,000 native trees and plants, hauled out more than 3 tonnes of rubbish and weeds, and returned native fish to where they belong.
- ▶ By removing non-native fish including trout and perch, and releasing more than 300 toitoi (common bully) and kākahi (freshwater mussel) into the Zealandia headwaters, the programme is boosting upstream fish populations and helping the awa function as a healthier, living system again.

Above: Morphem Environmental and Zealandia staff work together to create habitat for inanga (whitebait) in Te Kaiwharawhara stream. *Photo: Zealandia Te Māra a Tāne.*

Our livelihoods Ō tātou oranga

Freshwater supports the jobs, businesses and industries that keep New Zealand's economy moving. It irrigates farms, supplies towns and cities, powers hydroelectricity, supports tourism and shapes the landscapes we love.

When water quality or flows decline, the effects reach far beyond the environment and can influence food production, energy supply and regional economies.

Climate change is putting pressure on freshwater, which puts pressure on our economy. Hotter temperatures and more frequent droughts reduce the water available for irrigation, further straining water supplies. Lower rivers make it harder to generate hydropower, and intense storms can damage infrastructure and move contaminants into rivers and groundwater, impacting businesses and households.

Tourism can be affected by freshwater health. Visitors come for our clean water and wild places, but when these are degraded it reduces their appeal and puts tourism jobs at risk.



New Zealand's economy depends on freshwater. Primary industries (like farming), tourism and hydroelectricity rely on it. Changes to water quality or flow can affect jobs in these sectors.



Agriculture needs freshwater for irrigation. In Hawke's Bay, climate change is expected to reduce groundwater recharge, making irrigation less certain in the future.

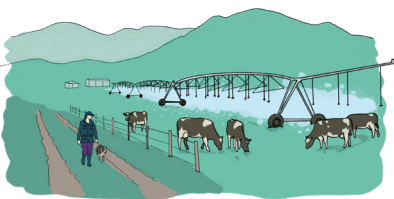


Declining freshwater quality could lower the appeal of New Zealand's outdoors, affecting visitor experience and reducing tourism revenue.



Reliable evidence helps people, businesses and communities understand risks and make decisions to protect our freshwater.

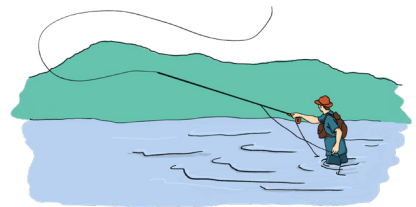
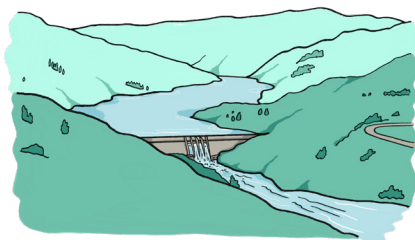
What *Our Freshwater 2026* tells us



74%

Seventy-four percent of New Zealand's freshwater allocated for use is used to produce food, with dairy farming a major consumer. Reduced flows brought about by climate change can affect irrigation, production and regional economies.

Hydropower underpins our economy. In the 10 years between 2014 and 2024, a yearly average of 58 percent of New Zealand's electricity was produced from hydropower. Climate-induced shifts in rainfall affect water supply and the amount of renewable energy we can produce and could put our energy system under strain.



1,000

Freshwater angling is a measurable source of tourism, supporting around 1,000 jobs.

Case study: Healthy soil helps reduce farm pollution



A collaborative research project across 12 farms from Northland to Taranaki is helping reduce the impact farming has on the health of our freshwater.

Rere Ki Uta, Rere Ki Tai aims to improve farm soil health, which protects freshwater by safeguarding the groundwater that flows into our rivers and lakes.

A team of farmers, researchers and mātauranga Māori practitioners are behind the project, combining diverse knowledge and expertise to guide more sustainable land use on farms.



In farming regions like the Waikato, synthetic fertilisers and heavy concentrations of livestock have over time resulted in nitrates leaking into groundwater. In areas such as the Hamiton Basin, more than 40 percent of shallow groundwater has been found to have nitrate levels exceeding safe drinking water standards.

Other parts of the country are facing similar challenges. A recent study from Environment Southland found an increase in nitrate levels in groundwater reserves across Southland.

Farms that took part in the Rere Ki Uta, Rere Ki Tai research adopted a range of practices to improve soil health and reduce pollution of groundwater. This included reducing their use of nitrogen fertiliser, planting diverse pastures and trees, and using deferred grazing where specific paddocks are excluded from grazing from mid-spring to late summer/early autumn to protect the soil.

Rere Ki Uta, Rere Ki Tai has helped some farms reduce:

- ▶ nitrogen inputs by 62 to 80 percent without reducing milk solids per cow
- ▶ on-farm greenhouse gases by 5 to 23 percent.

Top: Members of Rere Ki Uta, Rere Ki Tai's Living Soil project gather at least twice a year. *Photo: Hannah Fromont.*

Above: Rere Ki Uta, Rere Ki Tai member Nick Collins (right) helps Waikato farmer Matt Rout (left) smell some soil. Soil smell is one of many indicators assessed during a visual soil assessment. *Photo: AgriSea NZ.*

Our connection to place

Tō tātou toiwhenua

Freshwater shapes places that matter most to us, bringing life to our rivers, lakes, wetlands, springs and estuaries. It creates habitats for plants and wildlife, while anchoring the sense of belonging that communities feel in these places.

When water quality deteriorates or flows change in these places, the connection people have can be weakened or lost.

Many taonga (treasured) species, including tuna (eel), īnanga (whitebait), kōura (freshwater crayfish), kākahi (freshwater mussels), and kōwhitiwhiti (watercress), rely on healthy freshwater. Their decline affects mahinga kai (traditional food gathering) and the cultural knowledge and practices passed from one generation to the next.

Wetlands play a vital role in this connection, filtering pollution and supporting biodiversity flows. Many have been lost or degraded, reducing our ability to protect freshwater.



Freshwater systems are interconnected. Pollution in one place can move into rivers, lakes and estuaries, especially during storms that transport contaminants across the landscape.



Many native species depend on freshwater habitats. Changes to water quality, habitat and flow place pressure on these species and the ecosystems they support.



Our taonga species – tuna, īnanga, kōura, kākahi, and kōwhitiwhiti – are not only sources of food but resources that are gathered and used in ceremony, teaching and trade. They are central to mahinga kai, and freshwater pollution threatens their survival.



Wetlands help protect freshwater by filtering sediment and nutrients and supporting wildlife. Their loss reduces this natural protection and adds pressure to rivers, lakes and estuaries.

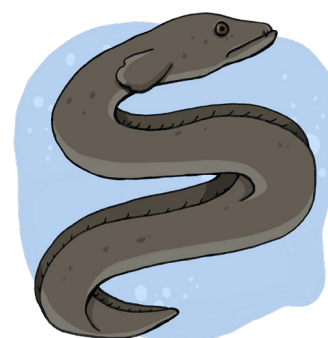
What Our Freshwater 2026 tells us



Wetlands play a crucial role in filtering pollution from our freshwater. Wetlands continue to be lost, although the rate of loss from 2018 to 2023 was the lowest of any period since 1996.

44%

Between 2020 and 2024, modelling estimated that 44 percent of New Zealand's river length was not suitable for swimming due to the risk of infection from the faecal bacteria *Campylobacter*.



89%

In 2023, 89 percent of indigenous freshwater fish and 43 percent of indigenous freshwater plants were threatened with extinction or at risk of becoming threatened.

River habitats are generally in good condition, with 85 percent of 814 river and stream sites rated good or excellent between 2020 and 2024. However, engineered barriers continue to harm native fish.

Case study: Strengthening our understanding of groundwater



A multi-year research programme aims to fill gaps in our knowledge about groundwater and the broader freshwater system.

Earth Sciences New Zealand is leading the Future-proofing Groundwater Systems Research Programme, which investigates how aquifers store and transport groundwater.

Groundwater supplies more than 80 percent of the water flowing across the surface of New Zealand. It also supports rivers and streams during droughts by keeping them flowing when there is no rain.



Top: Uwe Morgenstern (left) and Peter Gardner (right) of Earth Sciences New Zealand sample water in Pukekohe. *Photo: Earth Sciences New Zealand, Stuart MacKay.*

Above: Samples are taken from a groundwater monitoring well near Lake Ngatu in Northland. *Photo: Earth Sciences New Zealand.*

As climate change brings hotter, drier conditions, demand for groundwater will increase. Despite groundwater's importance, current assessments of the risks of longer and more severe drought do not effectively account for the integrated groundwater and surface water system.

Earth Sciences New Zealand's research will create stronger data about our groundwater that will help:

- ▶ accurately identify places that can use groundwater to increase resilience to drought
- ▶ communities create practical plans for protecting groundwater from climate change
- ▶ build a common understanding of how land-use choices affect drought risk.

The Future-proofing Groundwater Systems Research Programme is also studying how resilient groundwater is to nitrate contamination. This research will support informed land-use decisions that balance risks and potential consequences for water quality and availability.

