



Keeping tabs on paradise

In each issue of **Waterlines**, we sit down with one team at ORC to learn a bit more about what they do and why they do it. For this issue, we spoke to the adventurous Environmental Monitoring team.

If you've ever come across someone in high-vis, standing knee-deep in the icy cold water of a remote Otago waterway and wielding some unfamiliar gadget, or towing a kayak from a helicopter against rushing water, or downloading data from an air quality station – you may have witnessed the work of ORC's Environmental Monitoring team.

Comprising 20 members, the Environmental Monitoring team is broadly responsible for collecting all manner of crucial data from around Otago, on river flows, lake and groundwater levels, rainfall, air quality, water quality, and more. All up, the team manages 273 monitoring sites around Otago, made up of 169 State of the Environment sites and 104 project-specific sites.

The data from these sites is essential to the operation of many other ORC functions, including consenting and

policymaking, science and strategy, and natural hazards and engineering.

Manager Eike Breitbarth says the environmental measures his team monitors are growing.

“Water level and flow information is often seen as the bread and butter of our work, but our water quality work is crucial to the public as well, and will expand over the upcoming years. Our biodiversity work includes fish species and is currently being developed further. Monitoring programs for climate and coastal monitoring, as well as a soil monitoring network, are also being developed, so we are making some big advances in our understanding in different dimensions of Otago's environment.”

The Environmental Monitoring team is at its busiest during flood events, where up to date and accurate data on rainfall and

river flows may be crucial for civil defence decision-making.

“A lot of our work is essential for public safety and decision making by Civil Defence,” Eike tells us.

“Our hydrographic data, together with information from MetService, feeds into flood protection modelling. A lot of people don't realise that a complex network of monitoring sites sits behind the information they get on river flows and rainfall, and that network is maintained and monitored by our team.”

Asked his favourite part of working in Environmental Monitoring, Eike answers without hesitation: “The team itself, that's my favourite part of the job – a highly skilled, hard-working group of people who share a good sense of humour and are simply great to work with.” **Continued on page 4.**

Get to know the Environmental Monitoring team



ORC's Environmental Monitoring team at a recent team day in Dunedin.

Continued from cover. One member of the Environmental Monitoring team, senior environmental technician Lauren Hunter, is dedicated to all things air quality. Her workday involves regular checks on air quality telemetry, to make sure the monitors in seven towns and cities around Otago are functioning as intended, and to remedy any problems that the equipment might throw up.



“There’s also monthly maintenance on all monitors, to make sure they are performing properly and to clean certain parts that could affect data collection,” Lauren tells us.

“It’s really important that we understand the quality of the air we’re breathing, because poor air quality can have detrimental impacts on our health. Monitoring air quality in Otago gives us an idea of how it changes within each day, seasonally, and over the years. For instance, we know air quality gets worse in certain towns in the winter evenings, when people get home and light the fire.

“Having this understanding of how air quality changes over time helps us to know where and when interventions are needed to improve air quality,” Lauren said.

Out and about

Environmental Technicians Emily Olson and Jono Young are focused on a different natural resource in Otago: water. A field day for these two means travelling to some of the most remote and picturesque corners of the region to perform maintenance on rain gauges, or measure flow rates in rivers and tributaries.

Emily and Jono cover the area from Cromwell to the Main Divide at Otago’s western boundary.

“All of our monitoring sites constantly need to be maintained, surveyed and

expanded upon; there’s always something across the monitoring network that needs to be done,” Emily explains.

“Our monitoring sites also provide the public with live rainfall and river flow data that is used mainly for flood warning, irrigation, and recreational purposes. We’re improving the way the public can access all of the data we collect, so I’m excited for it to be used for so much more, especially research and educational purposes, in the future.”

Jono enjoys seeing a side of Otago that most tourists don’t get to see.

“Not many people get to see Otago from the perspective that we do. Visiting remote areas and seeing popular sights from the perspective of the river, the change of view can bring out little secret gems that people just don’t notice.”

Emily tells us her favourite monitoring site to visit is the Young River, north of Lake

Wānaka, but it's tricky to pick just one: "I love them all. If I had to choose it would be the Young, it always reminds me how I honoured I am to do my job."

People are often surprised to learn what the monitoring team are up to when they're out in the field.

"Most people, when they see me standing in a river, they think I'm fishing or panning for gold," says Jono. "It can be hard to get my friends and family to get their heads around my job as well; they don't really understand how much information we collect and what it's used for. They just see photos from the parts of Otago I get to visit."

Visiting Otago's most beautiful untouched waterways can have its downsides though, especially around this time of year.

"Standing in the rivers during stream gaugings can get pretty cold in the winter," Emily tells us.

"The water temperatures dip below 5°C, gauging can take up to 35 minutes, and you have to stand as still as possible while recording. Ironically, it's one of the most pleasant parts of the job any other time in the year!"

If you're thinking a job in the Environmental Monitoring team sounds pretty sweet – well, you'd be right, but there's some very specific training you'll need to go through first.

"Learning how to exit a helicopter upside-down, underwater, and in the dark is probably the most exciting thing I've picked up over the years," says Emily.

Yes, you read that right.

"Everyone that does flood gauging from a helicopter on the Environmental Monitoring team has to go through helicopter underwater evacuation training every two years," she explains.

"So, they lower the simulator down facing up at first to get you used to exiting it underwater, then they pull a pin on it that allows it to roll upside-down when it hits the water. You practice unbuckling yourself and others, opening the doors from all different locations, and then they hand out blacked out goggles to make it more realistic for night landings and murky water.

"It's such an amazing training tool, I had no idea this was a thing until I worked here and absolutely loved it!"



Environmental Technician Emily Olson at the Stoney Creek rain gauge, above Lake Wānaka.



River gauging from a helicopter during high flows in December 2019.



Before they can undertake river gauging from a helicopter, members of the Environmental Monitoring team undergo Helicopter Underwater Escape Training, which simulates escaping a submerged helicopter in different scenarios.