

# Pandemic workaround: Keeping eyes on Pacific water quality from afar

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A Griffith University researcher has overcome a key challenge posed by

the COVID-19 pandemic to lead a monitoring program in Vanuatu aiming to improve the water quality of a popular lagoon used for fishing and swimming.

Coastal and Marine Research Centre Ph.D. candidate Gaëlle Faivre had commenced her project into "Improving the risk assessments in coral reef lagoons in [small island](#) developing states (SIDS)" in May 2019 where [monitoring](#) detected the presence of Escherichia coli (E.Coli) in a [lagoon](#) on Efate Island.

From June 2019 to June 2020, Faivre worked with the Department of Water Resources Vanuatu and researchers from The University of the South Pacific (USP) to continue the [water](#) monitoring project after her departure.

When the COVID-19 pandemic ground international travel to a halt, Faivre had to review her initial plans to revisit the lagoon on Efate Island to gather further data sets on water quality parameters such as dissolved oxygen, pH, temperature, turbidity and salinity.

These additional data sets would be used for future research into the impact of climate variability (seasonal) and potential anthropogenic effects on the water quality.

The monitoring program included the collection of base points in the lagoon and a permanent station, so to ensure data was still being collected Faivre sent a water monitoring instrument to the Department of Water Resources Vanuatu to continue the research.

After multiple training meetings with the Department and researchers from USP via video calls, the Vanuatu team was ready to deploy the instrument.

"Thanks to a great team, the first deployment was done successfully," Faivre said.

"There is a lot of invisible work in the deployment of an instrument; you have to make sure it is well calibrated regularly, it has enough battery and memory during the deployment period, and also placed in a safe location and does not move.

"This research needed to be completed by long-term monitoring to get a clearer idea of water quality parameters variations. The aim of the program is to improve the water quality of the lagoon and establish a long-term water management plan by understanding the climate variation and potential anthropogenic effects on the water quality."

To develop a good understanding of the E.Coli levels, monthly samples were collected from five places within the lagoon.

From the initial data collected by the team, Faivre found E.Coli in various parts of the lagoon at levels higher than what is considered safe for recreational use.

The presence of E.Coli suggested a microbial contamination and could indicate the presence of sewage potentially due to a high residence time from nearby villages.

"For coastal water management, data is crucial," Faivre said.

"The earlier we start the data campaign, the more we can collect and the sooner we can find solutions to improve water quality. This is a critical issue in this region that needs to be solved as soon as possible and research like this will assist in their long-term planning."

The research, "Water circulation and impact on water quality in the

Southwest of Efate Island, Vanuatu," has been published in *Marine Pollution Bulletin* Journal.

**More information:** Gaelle Faivre et al, Water circulation and impact on water quality in the southwest of Efate Island, Vanuatu, *Marine Pollution Bulletin* (2021). [DOI: 10.1016/j.marpolbul.2021.112938](https://doi.org/10.1016/j.marpolbul.2021.112938)

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