

LETTERS *reta*

This panoramic photo of the lagoon at Avana was taken by Jamie Scott, using a drone.

Algal bloom issue due to groundwater

Dear Editor,

The presentation by the team at Mei Te Vai Ki Te Vai had surprising new scientific data from their study of the Muri area.

The study was commissioned by MFEM for the government of the Cook Islands, to see what could be done to combat the occasional algal bloom that has

impacted negatively on our tourism industry.

The issue lies in the groundwater and where it enters the lagoon.

While most local people are already aware of groundwater entering the lagoon, the new study confirms that excess nutrients are in the groundwater

and can pinpoint precisely where it enters the lagoon and also the source and age of the water.

One source is very deep down into the earth located at the basalt rock base of the island; and this ancient source of water is about 100 years old and enters the lagoon at the outer edges of the motu or fringing reefs in the area. The other source of groundwater is perhaps 30 metres under the surface and is said to be about 30 to 35 years old.

Questioned as to how they could possibly know the age of the water, the presenter gave us a very convincing reply about traces of H₃O (not H₂O) which persist in the water (something like that) which can be tested and dated accurately.

The study found that the ancient and deeper groundwater exits on the ocean side of the Motus of Koromiri and Oneroa in Muri; whereas the relatively newer source enters the lagoon somewhere in front of the Pacific Resort and surrounding area and the other is in front of part of Aroko. One of the recommended options is to harvest the seaweed and use it as fertiliser as the need arises.

The study debunks some urban or village myths about how to handle the problem.

For the last few years, before the scientific studies carried out by Mei Te Vai Ki Te Vai, quite a few of the Muri community advocated dredging the lagoon. They were convinced that flushing out the lagoon would resolve the environmental issues that have been building up over the years.

Not so, say the experts after having studied the currents of the lagoon under all sorts of conditions, they have dug deep wells into the earth and used transects and drones and much more to come up with their findings. That is why Mei Te Vai Ki Te Vai have ruled that out as not an option - because it would have no effect in clearing the lagoon, according to the study.

Apparently, it is partly to do with where the groundwater enters and the way that freshwater cannot penetrate the denser/heavier quality of the seawater which acts as a barrier that keeps the freshwater

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in place. They were clear that no matter how deep the lagoon or the channels, that would not move the groundwater. A more scientific explanation can be seen on their website.

The more controversial options are to install an ocean outfall, which prominent families in the Muri district have already stated they would oppose. Environmentalists such as Dr Teina Rongo are also opposed for the potential adverse effects on our marine ecosystems.

The land-based treatment of effluent by installing a reticulated sewage system including oxidation ponds is also running into difficulties for a variety of reasons, including sourcing suitable land for the purpose.

Apparently, the treatment plant would perhaps one or two hectares (2.5 or 5 acres) to ensure viable area. MFEM admitted that their call for expressions of interest from landowners has yielded only a few inquiries. Those that responded are having their land assessed for suitability but it may not be large enough for the purpose.

Well, there is the principle of user pays or the principle of the cost-of-doing-business, where the resorts ought to pool their financial resources and purchase the lease on a suitable piece of land to install the treatment plant. Realistically, that will not happen, when they can shift the burden onto the government and taxpayers to pay for sewage treatment that the resorts, under our existing Public Health department and environmental laws, ought to have installed at their individual resorts in the first place.

*Concerned Environmentalist
(Name and address supplied)*



An aerial view of Muri lagoon and the entrance at Avana.

CAREFUL - WE DON'T KNOW HOW WHAT'S IN THERE MIGHT AFFECT US!



KATA