



TOMAHAWK LAGOON

WATER QUALITY REPORT CARD

February – November 2017



A keen group of citizen scientists and students from Bayfield High School, John McGlashan College, Otago Girls High School and Tahuna Normal Intermediate School have met fortnightly to monitor the biodiversity, chemical and physical patterns of the Tomahawk Lagoon.

Samples were taken from five locations around the Lagoon and the results are presented on the reverse. These were compared with the National Policy Statement for Freshwater Management and the limits found in the Otago Water Plan.

ECOTAGO was funded for this project in 2016-7 by the Participatory Science Platform (PSP). The PSP is designed to encourage communities – particularly young people, educators and scientists – to work together on collaborative science projects so that they become more enthused and informed about the role that science plays in their lives.

What are we testing for?

Nitrogen + Phosphorus	Algae	Turbidity	E.coli
<p>These nutrients are essential to plant and algae growth, if levels of these nutrients are too high there can be excessive plant or algal growth, which can affect the Lagoon ecosystem.</p>	<p>A measure of the amount of biological activity in the Lagoon – high values can be an indicator of an algal bloom.</p>	<p>A measure of the cloudiness of water, if too cloudy this may affect the feeding tubes of filter feeders or cover plant surfaces so grazers have feeding problems.</p>	<p>An indicator of the suitability for swimming or stock drinking water. If too high there is an increased risk of illness if in contact with the water.</p>

Results

	Nitrate	Phosphate	Algae	Max Algae	Turbidity	E. coli
Creek (Site 3)	Fail	Fail	-	-	Fail	Fail
Upper Lagoon (Site 2)	Fail	Fail	C	C	Fail	Pass
Upper Lagoon (Site 1)	Fail	Fail	C	D	Fail	Pass
Lower Lagoon (Site 4)	Fail	Fail	D	D	Fail	Fail
Lower Lagoon (Site 5)	Fail	Fail	D	D	Fail	Fail

All results were compared with the Otago Water Plan Receiving Water limits, except for Algae and Max Algae which were graded based on the guideline values found in the National Policy Statement for Freshwater Management (NPSFM).



What the results mean

Nitrogen + Phosphorus

These nutrients exceeded the limits contained in the Otago Water Plan, and indicate that the Lagoon could have a tendency towards excessive plant or algal growth.

Algae

We have graded the algae results according to the NPSFM guideline values. The levels measured indicate that the Lagoon's ecological communities are moderately impacted by additional algal and plant growth arising from nutrient levels that are elevated well above natural reference conditions.

There is a possibility of the reoccurrence of algal blooms. Reduced water clarity is likely to affect habitat available for native aquatic plants.

Turbidity

Turbidity did not meet the limits contained in the Otago Water Plan, and this indicates that the Lagoon and creek are cloudy, which can affect the function of the aquatic ecosystem. This is not unexpected due to the shallow nature of Tomahawk Lagoon.

E.coli

The Upper part of the Lagoon met the limits contained in the Otago Water Plan, indicating it is suitable for recreation. However, the Creek and Lower part of the Lagoon did not meet these limits, indicating there is an increased risk of illness if in contact with this water.

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