

Lake Hugh Muntz Management Plan Suggestions.

Dear Residents,

The Lake Hugh Muntz Committee are seeking your views and feedback to present to GCCCC as to how the restoration of Lake Hugh Muntz can be managed with the development of both a short term and long term Management Plan. Below are some suggestions.

The lake has been suffering for a long time with algal clouding resulting in very little underwater aquatic plant growth around the perimeter of the lake!

Short Term - Stage 1

The Four main suggestions for the Management Plan include:

- **Real time Water quality monitoring** to accurately gauge effectiveness of the following;
- **Urgent treatment of the Algae**
- **Dredging the Lake**
- **Implementation of the Aerators**

Urgent Treatment of Algae.

Returning aquatic plant growth in the lake will aid in reduction of nutrients, stabilise the foreshore embankments and is necessary to return the lake to a healthy state as part of a long term plan.

However the urgent treatment of the algae needs to be a priority whilst other solutions to excessive nutrients are being investigated and implemented. Treatments such as Biostim or similar products allow for the biological removal of Algae.

Estimated cost of Biostim to treat LHM is approximately \$3500 and would require periodic treatment..

Water quality has been on the decline for 20 years. It can take many years to gain improvements in nutrient reduction so URGENT treatment is required NOW!

Dredging.

The photos below taken in 2011 are an indication of what is on the bottom of the lake.



In a healthy lake, organic matter is recycled leaving very little build-up of sediment on the bottom. This is not the case with LHM. The concern is that the ongoing excessive algal growth and subsequent die off has just added to the problem seen above.

*Water quality info released to the Care Group under the Right to Information Act show serious problems in the West part of the lake at depths. **Water quality tests at depth indicate up to 20 times the nutrient levels compared to the surface and NO oxygen!** The lake is DEAD in the lower levels. From the map it is expected this covers a large part of the blue area in the west side of the lake.*



Whatever improvements are implemented, they will be battling with the release of nutrients from bottom deposits.

Dredging will enable the removal and long term benefits in nutrient reduction.

GCCC has indicated that another of its swimming lakes at Evandale was due for a clean out after 20 years. LHM has not received the same treatment for over 35 years!

Vacuum dredging offers minimal bottom disturbance and Council has successfully used this process to clean a lake in Currumbin. Bottom sampling around drain outlets and in the middle of lakes should also be carried out to determine the extent of the dredging required.

Possible Alternatives to Dredging.

Phoslock is a clay based product that once distributed over the lake bottom, locks up phosphorus therefore starving the Algae and offers medium term improvements.

Alum (aluminum sulfate) is used in lakes to reduce the amount of the nutrient phosphorus in the water. It binds to the phosphorus as it falls and also binds to phosphorus on the bottom.

Aeration.

*The installation of Aerators will increase diffused oxygen in the water, which in turn supports and encourages the growth of beneficial aerobic bacteria. These beneficial bacteria break down organic matter and consume excess nutrients, which helps to create a balance and improve water quality and **reduce algae blooms.***

Clearly the whole lake can benefit from Aerators – the rear lake should have had aerators fitted years ago to avoid the severe oxygen depletion that currently exists.

There are several Aerator designs but the preferred option is the Air injected diffuser system. This has a diffuser resting on the bottom of the lake with no visible structure on the surface. Air is pumped from a shore mounted compressor through air lines to the diffuser.

The difficulties facing Council is that possible Algae treatments require oxygen- the lack of oxygen particularly in the West side of the lake could be improved with aeration BUT aeration would distribute the high nutrient levels throughout the water column possibly feeding more Algae!

Long Term - Stage 2.

Effective and measurable reductions in Nutrient Levels.

It is pointless to implement initial solutions without reducing the nutrient levels – Possible improvements include;

- *Secondary Treatment of stormwater runoff. Old drains are systematically being replaced in the catchment area such as this work in Wild Duck Drive.*



This is a great opportunity to fit effective secondary treatment measures such as Streetscape Bio-retention filters instead of wasting money on standard drain installation.



- *Improvements in Park drainage/runoff.*
- *Mowing parks with Catchers etc.*
- *Feasibility study into introducing aquatic plants and subsequent harvesting to remove nutrients.*

Ongoing Maintenance Plan.

An ongoing Dynamic Maintenance Plan to monitor and react if necessary to changes should include;

- *Effective and meaningful long-term water quality results including Algae with regular updates.*
- *Thresholds/trigger levels and Water Quality Objectives clearly defined and appropriate actions.*
- *Community Visibility on Water Quality trends – if there is a problem, we want to know about it not have it covered up!*

It has become very clear that the GCCC has not been working to a Management Plan that maintains Lake Hugh Muntz.

We as residents need to identify the Key strategies to inform and then ensure that the GCCC are held accountable for their responsibilities in developing and implementing an effective Management Plan.