

Water quality report – 15 April 2021

On Monday morning, Copa beach was again closed to swimming due to dangerous seas. This followed two weeks of beach closures due to poor water quality following the heavy rainfall and resultant floods in the Hawkesbury (and places). In parallel with the rainfall, our lagoon was opened in order to avoid the risk of flooding in the lower elevations in Copa and remained open for around a week, where tidal exchange occurred. Following the closure, waves at high tide are now overtopping and bringing oceanic water into the lagoon, which will become more obvious with these recent southerly swells.

I just wanted to provide some perspective on this recent account of events, based on my experience with water quality issues and oceanic processes as my research background (and employment). I will also take this chance to comment on the recently released review (6th April) of lagoon openings by Central Coast Council ([click here for background info](#), with the short report at the bottom of the webpage).

This information was not presented at the meeting. Members should also view the most recent report card for Cockrone lagoon (released 13th of April), in which the chlorophyll-*a* (a measure of primary productivity via plant plankton) and turbidity (a measure of the water cloudiness) were at levels rated “excellent” during 2019-2020. This rated far better than the other lagoons, and particularly Avoca Lagoon (p15), with Council identifying that investigations will be conducted for Avoca. Access the [Waterways report card here](#).

- **What do Council mean when they say the water quality is poor?** During heavy rainfall events, water is discoloured and can contain flood debris – which is a potential hazard. During heavy rainfalls, rainwater enters stormwater drains and potentially also the sewage network. This means that flood waters have the potential to contain disease-causing organisms in humans, due to the shedding of these pathogens in their poo. The main pathogens of concern (in Australia) are norovirus (that causes gastro) or Hepatitis A. Council does weekly monitoring at areas of recreational water activities for these pathogens – but indirectly, by monitoring for organisms (like *Enterococcus*) that are very common in poo and are thus very likely to show if there has been evidence of such contamination. Both the pathogens and *Enterococcus*, once outside the body, will die off over time. **So, when Council close the beaches, they are basing these decisions on such monitoring results, the knowledge that there will be dieoff and with the long-term data set to guide those decisions.**
- **Why was the beach closed for so long?** Partly as relatively mild oceanic (and wind) conditions followed the floods, and the large freshwater plume from the Hawkesbury travelled up the coast – you could easily see the edge of this brown water in Copa. Fresh and salty waters have different densities and do not like to mix – they will mix more if there is wind or waves, so it is taking a while for that to happen. Certainly, the recent southerly swells and wind should promote the mixing. It is also possible that there was ongoing sewage contamination from a range of different sources during this time.
- **What about the lagoon opening?** Our lagoon was opened in line with the recommendations in the recently released Review of Central Coast’s Councils Lagoon and Lake Entrance Management, Policies and Practices. This is Report No 2021/3, and includes Tuggerah Lakes (which is the most complex of all such lagoons). For Copa lagoon entrance management, this falls under the “*former Gosford Council Entrance Management Policy; a policy that has been evolving over decades of application and operational experience*”. Council are presently developing a new policy for lagoon opening, based on this original policy and a detailed report that was produced in 2017 ([click here to](#)

[access](#)). This current review also recommended better communication of lagoon opening policies to the general community. A main conclusion in this current review is that *“In addition to the Policy CCC, is currently looking to improve its on-line communications with the community so that members of the community can not only access real time lagoon levels, as is currently possible, but also can monitor and be advised of the status of proposed management actions such as when the Lagoon breakout is planned to occur.”* **The CCA welcomes the provision of such information to the general community.**

- **Why do lagoons close?** Our exposed coastline and waves carry sand onto the entrance on flood tides. But lagoons do not export sediment in the same way. Closure typically occurs after low rainfall and eventually large swells. Overtime, the height of the sand berm will build up, and should there be a large rainfall event in the catchment, the water will not be able to leave the lagoon easily, resulting in low-lying flooding. Thus artificial openings are often undertaken to protect housing and other infrastructure.
- **How do Council decide openings?** Remember, three other coastal lagoons that are probably behaving similarly. Each lagoon has a trigger level – Copa has the highest at 2.53 m above AHD (another way of saying the typical, average level of the ocean) at which council must open the lagoon. Council also has a responsibility to manage the height of the sand berm so that lagoons could potentially break out by themselves in severe events, which explains the occasional “action” on the berm. Council also recognized that the means to measure sand berm height is resource hungry (surveying), and are considering alternative options. **Do members have any ideas?** Council will also not place staff at risk, but recognize that there should be no delay in opening lagoons once conditions are safe. A preference is for daytime (to reduce risk), and it is recognized that body surfing is a potential issue plus a need to liaise with Surf Clubs, although Council recognised this liaising can be better promoted. There is a statement within the current review that perhaps Council will start opening the lagoon to time the breakout to be just after high tide, and this (or something like that) will be contained in the new Policy (currently being developed and which will be open for public consultation).
- **How do Council communicate re openings?** This current review recognized that communication is out of date, that no clear officer in charge is designated and there is no chain of responsibility. There *“isn’t a current contact number for the public if they become concerned at developments in regard to water levels in the lagoons. It is however understood it is intended to deal with these matters in the new policy”*. Council did state that *“The lagoons have automatic water level gauges that can be accessed by the community online through the MHL website and Council is working with MHL to provide near real time Review of the Entrance Management Policies and Practices for the CCC Open Coast Lagoons”* **The CCA welcomes the provision of such information to the general community.**

What can we do?

Recommendation 1: *The proposed updated CCC Policy for entrance management of the four lagoons, Cockrone, Avoca, Terrigal and Wamberal, be completed, placed on public exhibition, finalised and adopted by Council.* **The CCA, its members and other interested parties should view and comment if necessary. CCA will communicate knowledge of the public exhibition when available.**