Clean Ocean Foundation's position on the Warrnambool Wastewater Treatment Plant "Upgrade".

The Clean Ocean perspective

For twenty years, Clean Ocean Foundation (COF) has been advocating for the closure or upgrade of all treated sewage outfalls around Australia.

COF has shared the journey with many Australian communities advocating for a better approach to the treatment of effluent. These communities regularly find themselves at odds with what most cash strapped, water authorities propose.

In an attempt to break this relentless cycle of conflict, for the past five years, Clean Ocean Foundation, under the auspices of the Marine Biodiversity Hub, has committed itself to a unique combination of citizen science coupled with rigorous academic science to establish the National Outfall Database (NOD).

The NOD data has been used by COF in ground-breaking independent research. COF analysed the economics of upgrading ocean outfalls (to quality of the Class A+ discharge from Melbourne's Eastern Treatment Plant) from a national perspective, because the ocean knows no borders. It found that the potential net benefits to the nation of this approach were staggering (12-28 Billion dollars over a 30-year payback)[1].

Key recommendations of this research were to select trial sites around Australia to receive extra funding. This would allow refinement of the costs/benefit analysis as part of a National Outfall Upgrade Strategy (NOUS).

The current proposal related to the Warrnambool Wastewater Treatment plant, fails to meet community expectations and basic environmental standards for the treatment of the complex mix of domestic and trade waste. The upgrade proposal must be altered to adopt the standard set by Victoria's ETP outfall discharge (Class A+).

With this in mind COF would propose that existing Warrnambool Wastewater Treatment Plant would be an excellent candidate as a pilot site for the NOUS. It would provide essential information into the economics of the NOUS as well as develop critical insights into the complex relationship between publicly funded WTPs and the subsidised disposal of trade waste.

John Gemmill

CEO Clean Ocean Foundation

0409 425 133

Peter Smith

President Clean Ocean Foundation

0417 337 717

[1] https://www.cleanocean.org/2019-upgrading-australias-outfalls.html

COF's Key Concerns

Wannon Water has submitted plans for its sewage treatment plant upgrade for works approval by the EPA. We believe that these plans are insufficient to:

- Protect the health of local residents who use the seaside for recreation and fishing.
- Maintain a healthy ecosystem at and near the outfall.

The works approval application uses high energy and high cost arguments to rule out various treatment options that we believe are miss-founded. The cost to us and the environment of poor-quality effluent, leading to health and ecological degradation are well beyond the costs in monetary terms. Energy should not be an argument in that a conscientious organisation should be using renewable energy sources now to avoid Greenhouse implications of energy use.

The issues identified as deficiencies in the upgrade plans follow.

1.WHERE DOES THE SEWAGE GO WHEN THE PLANT FAILS

Treatment is biological and subject to fluctuations in bacterial populations and death of bacteria due to the presence of various toxins in the influent. Treatment failure may be partial leaving the sewage itself partially treated. There is no capability for this plant to hold up a significant volume of sewage for retreatment. Such a withholding system is necessary to be able to handle bacterial population fluctuations. The other option is to ensure the design of the plant has sufficient system and equipment redundancy. Recent events suggest this is not the case and this is simply not acceptable with any proposed expansion.

Power failures can also lead to treatment failure. Using a bypass system in this case is risking the health of the local residents and the ecology. A temporary storage should be considered and/or a backup power supply

2.HIGH NUTRIENT DISCHARGE RISKS ALGAL BLOOMS

Phosphorus concentrations from the Warrnambool plant are about five times higher than for a similar plant treating domestic sewage or 15-60 times higher for a plant designed to remove phosphorus to 0.5-2mg/l. This is a primary nutrient that will affect the receiving environment leading to a reduction in plant species diversity and higher potential for algal. Some of these effects have been observed at the outfall. These effects have demonstrated the inability of Wannon Water to keep nutrient levels at a suitably low level

Wannon Water has stated that they do not meet the State Environmental Protection Policy criterion for phosphorus outside the mixing zone of the effluent with marine water. This is unacceptable. Phosphorus reduction in concentration and annual kg load should be a major focus of any treatment upgrade plan.

3.PLASTICS CARRY TOXINS AND BACTERIA

Wannon Water has recognised the risk of plastic pollution (even though it is not a requirement of their EPA discharge licence). However, they have not taken sufficient steps to reduce this plastic risk in the effluent. The works approval plans provide a 1mm screen of the final effluent. This will catch visible plastic pieces, but not the true micro plastics in the forms of fibre, nano particles, and other fine plastic forms used in the home.

The option of either next stage membrane filtration or effluent filtration (2-10microns need to be adopted so most of the offending plastics can be removed. This next step was flagged for 2040, we don't believe we can wait until then to clean up the marine environment.

4.EMERGING POLLUTANTS ARE REAL

The works approval application pays no attention to emerging pollutants that we are aware of but just not sure about their impacts. Items such as:

- Per and Poly Fluorinated compounds (PFAS and PFoA)
- Organo-chlorines
- Disinfectants / biocides in personal care products
- Nanoparticles in personal care products
- Pesticides

All of these are worthy of consideration in a treatment system upgrade.

5.BACTERIA CAN BE DISINFECTED

There is no plan for effluent disinfection in the works approval from Wannon Water. Physical, or chemical disinfection will provide a much safer marine environment for recreational water users and fishers. This should be included in upgrade plans.

6.IT'S NOT THE CONCENTRATION IT'S THE LOAD

Wannon Water is proposing to increase the volume / flow of the effluent to the outfall from 13-14ML/d to a week-day peak of 29ML/d This is presumably to be done with the same limits on the concentrations of pollutants to be discharged. This means that the ocean will receive a further 100% load in these pollutants. Given there are significant doubts over the mixing zone modelling and a proven inability of the receiving environment to cope with existing pollutant loads let alone a doubling of the pollutant load. The planned works should be set to improve the environmental and health outcomes. This plan can only make outcomes worse.

7.BETTER TREATMENT = BETTER OUTCOMES

The Warrnambool community can enjoy improved health and an improved environment from the use of more advanced treatment technologies. The best outcome for wastewater treatment is the ability to reuse this fresh water in a dry land environment. There are acceptable and cost-effective processes available to maximise the opportunity to reuse the wastewater on land. We believe that the Warrnambool community can benefit from a rethink of the wastewater treatment plans to truly upgrade the technologies rather than simply expanding the existing treatment systems.