CASE STUDY

PROJECT	MUNICIPAL STP LAGOON AERATION
PRODUCT	Floating Brush Aerators
INDUSTRY	Municipal
LOCATION	Victoria, Australia

mak water
water | wastewater | sewage

BACKGROUND

A large Victorian Municipal Water Authority was upgrading its waste water lagoons to cater for additional loads and required an aeration system to improve the wastewater treatment process.
Key requirements for the aeration system included:

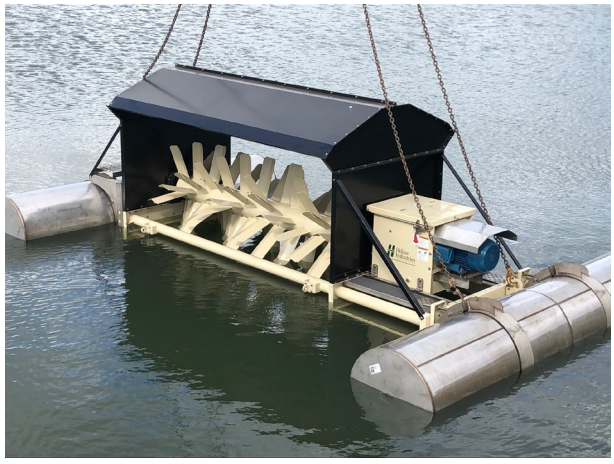
- Shallow draft as the lagoons are only 1.5m deep
- Quiet operations due to proximity of local residents (<70DbA)
- Aeration Demand requirements
  - BOD (Peak) - 231 kg O_2/d, Actual Oxygen Transfer Rate (Peak) - 15 kg O_2/hr

SOLUTION

The floating brush aerator provides effective and efficient wastewater treatment through superior oxygen transfer and mixing rates, leading to increased performance using less power. Additionally, the high pumping rates lead to efficient mixing profiles in multiple wastewater applications. Key features of the Floating Brush Aerators provided included:

- Stainless steel grease lubricated drive end and non-drive end bearings with L10 Life of >100,000 hours
- Triple seal protection system to completely seal the gear drive enclosure. This eliminates the risk of wastewater coming into contact with the key drive components thus providing complete corrosion protection.
- Motors: 7.5kW, TEFC, 415V, 3-ph, 50 Hz, with IP56 protection
- Conservative motor design: at the correct rotor immersion depth, each electric motor operates at 90% load based on the nameplate data.
- Rotor covers for quiet aerator operation

Typical Aeration & Mixing pattern by Floating Brush Aerators



Floating Brush Aerator with rotor covers removed during installation

RESULTS AND BENEFITS

Performance

- High Standard Aeration Efficiency (SAE) of 1.8 kgO_2/kWh
- High mixing efficiency of 17.8 m^3/min per kW
- Unique horizontal flow pattern distributes oxygenated water over the entire lagoon surface.

Unique Capabilities

- Aerator operates at lower noise levels compared to conventional aerators.
- Aerators can completely mix 3m deep ponds
- Reduce overall power usage based on high oxygen transfer and flow rates.
- Aerators equipped with splash shields as standard with rotor covers as an option to reduce aerosol sprays.