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water engineering and research solutions

Brief: **Design Construct Install and Monitor Destratification Project**
Client: **Wingecarribee Shire Council**
Storage: **Medway Dam**
Location: **Southern tablelands near the Bangalow State Forest, NSW**

This reservoir is part of a supply system for the Wingecarribee Shire Council The catchment area is about 103km2 and the reservoir storage is about 0.2km2. The capacity at full supply level is 1300 ML. The maximum depth of the storage is about 20m. This small reservoir is closed to the public access.

The storage had a history of BGA blooms each summer season. Heavy agriculture within the catchment contributed to high nutrient loads being flushed into the storage and along with favourable conditions causing frequent out-breaks of Blue Green Algae. The average depth of the storages main basin is about 17m.

During times of sever algal out-breaks the water treatment plant was inadequate to the extremely high algal content and Council stopped drawing water from the Medway storage and pumped water from other sources. This increases the operating cost of the water supply. Powdered Activated Carbon (PAC) treatment was also used at times although expensive. In addition there are times when water becomes very low in dissolved oxygen (DO) and therefore high in dissolved metals.

The unit created a uniform temperature profile, apart from the surface layer due to the expected heat gain. As the unit pumped high DO saturated surface water down the nett effect has been the reduction in total bio-mass, create a uniform chemical gradient and thermal gradient, less expensive treatment costs at only about 600 Watts of electrical energy.