MAINTAINING BAIT WORMS IN A SIMULATED ENVIRONMENT

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Recreational fishing is a major industry in Queensland, and its total value reaches $500 million per annum. The industry utilises significant amounts of marine worms (polychaetes) as baits. Although the most common bait worm species is blood worm (*Marphysa sanguinia*), other worms such as wrigglers (*Nereis* spp.) are also used. Worms are harvested in seagrass beds by turning over the top level of the sea bottom with a spade. Later, worms are kept in shallow trays at low temperatures (below 20°C) until packing in dry sawdust for wholesale. Shallow trays failed to keep worms alive more than 15 days. Development of a biological system is essential to hold wild harvested worms for a longer period, and to keep adult and juvenile worms for successful breeding and growth. This paper briefly describes such a biological system that was developed at the Bribie Island Aquaculture Research Centre.

The system consisted of a 150 L rectangular tank (Figure 1). Seawater was delivered to one end of the tank which was divided with a piece of PVC sheet for gentle introduction of seawater to the system. At the other end of the tank, a piece of PVC pipe (20 cm high and 50 mm Ø) was positioned around the drain hole to stop the substrate and worms escaping. Coarse river sand was used as substrate for worms to live in. Sand was laid over a piece of geotextile fabric which was covered over an elevated platform.

The water was delivered by a small submersible pump connected to a timer. The timer was set to run for six hours and then would switch off for the same period, to allow the tank to return to the low tide level. The flow rate was approximately 1 L/m. The standpipe had a small hole drilled near the lower end of the PVC pipe, half way through the substrate. Water was drained through this hole at a rate of 0.5 L/m to the low tide level over a six hour period once the incoming water was switched off.

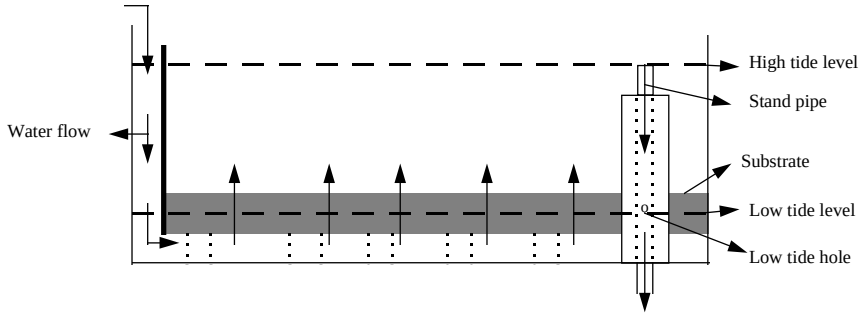

Figure 1. Design of the worm rearing tank

Bait worms especially *M. sanguinia* are carnivores and they can eat a variety of natural food such as pilchards, pipi and mussel. They can also eat wounded or weak members of their own species. Feeding worms with natural food is not practical since uneaten food can quickly foul the water. We have found it more practical to use an artificial diet. The diet was a carrageen or alginate bound soft feed. It had mainly squid meal as protein source. This diet appears to particularly suit the worms mode of feeding as they are able to bite away ingestible sized pieces. Worms were fed daily at 2.5% of body weight at 24°C water temperature. Currently feeding trials are underway to develop more suitable diets for bait worms.