Oysters make meal of prawn farm waste

PRAWN farms are causing environmental havoc in coastal waters around the world — but a young Australian scientist has devised a system that beats pollution and boosts the output of fresh seafood.

Mr Adrian Jones, a doctoral researcher with the CSIRO's division of fisheries at Cleveland in southern Queensland, has found that oysters, clams and seaweed can be used to purify the effluent discharged from prawn farms.

Not only do these natural filters remove the nutrients and suspended particles from farm discharge — they appear to thrive on it. So much so that the Sydney rock oysters Mr Jones used to trial the new system grew to marketable size in just four months — six times faster than usual.

The effluent from prawn farms contains high levels of nutrients, large amounts of phytoplankton, ammonia, suspended solids and lots of bacteria," he explains. If discharged regularly into a bay or estuary it can constitute a serious environmental insult and possibly give rise to algal blooms.

Mr Jones's solution was to build a series of concrete ponds below the prawn farm's discharge outlet, where his bio-filters go to work cleaning up the stream.

"The oysters are very successful at taking out the bacteria and phytoplankton. After that the water is still high in ammonia — which makes it ideal for growing edible varieties of seaweed."

Phytoplankton levels were cut by 96 per cent, bacteria by 88 per cent and suspended solids by 84 per cent in his trials, though Mr Jones believes these figures can improve.

Oysters and seaweed are not the only combination of cleaning agents that can be grown — he considers a wide range of marine organisms such as mussels, edible clams, bloodworms (for bait) and algae which yield agar or carrageen, can be raised.

The result has been to turn an environmental problem into a fresh source of income for prawn farmers — who are impressed.

Mr Jones believes the technology has the potential to nip a major problem in the bud — sparing Australia's $20 million-a-year prawn farming industry from tough new environmental laws which would force producers to build what amounts to a sewage farm below their outlet.

There is also potential to use the purified runoff or its products as feed for the prawns, so reducing the farmer's feed bills.

Mr Jones is confident the technology will take off not only in Australia. Asia's prawn farms are in crisis due to pollution of coastal waters, ecosystem destruction and viruses. In the past two years China's output has crashed from 220,000 to 60,000 tonnes.

Biofiltration could reverse this cycle of degradation and unlock a valuable new food source, he says.

— JULIAN CRIBB