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Front cover: The Fish Vet's logo. Part fish, part vet.

Dr Matt Landos

Dr Landos is the Founding Director of Future Fisheries Veterinary Service, is an honorary lecturer in aquatic animal health and associate researcher at the University of Sydney, Faculty of Veterinary Science and in 2011 he was the president of the Aquatic Animal Health Chapter of the Australian & New Zealand College of Veterinary Scientists.

Dr Landos commenced his consultancy practice in aquatic animals in 2005 after a 5 year stint with the NSW DPI as the Veterinary Officer in Aquatic Animal Health. The client base is located throughout Australia, and it ranges from small native fish hatcheries to 3,000 tonne sea cage operations. He works with all aquatic species including molluscs, crustacea and finfish. He reviews emergency disease preparedness plans and develops health management plans for aquaculture industries. He has had a prominent media profile in recent years associated with investigation of the impacts of environmental pollutants on fisheries in relation to the notorious two-headed Australian bass larvae case from the Noosa River.

Nitrate

The problems with elevated nitrate (NO_3^-) levels are that it creates considerable stress to fish, retards their growth rate, lowers their capacity to resist disease and delays wound healing. It may present clinically as redness in the fins or body - the dilated blood vessels are especially prominent on white coloured fish.

Nitrate is the end-product of organic and inorganic decay. In the natural environment, nitrate is removed through organic usage, however, in the closed system, nitrate will accumulate if not removed. Thus, high levels indicate poor husbandry from prolonged waste build-up. Partial water changes using a gravel siphon and filter clean is necessary. Occasionally, water can be contaminated by manure and fertilizers (see newspaper article below).

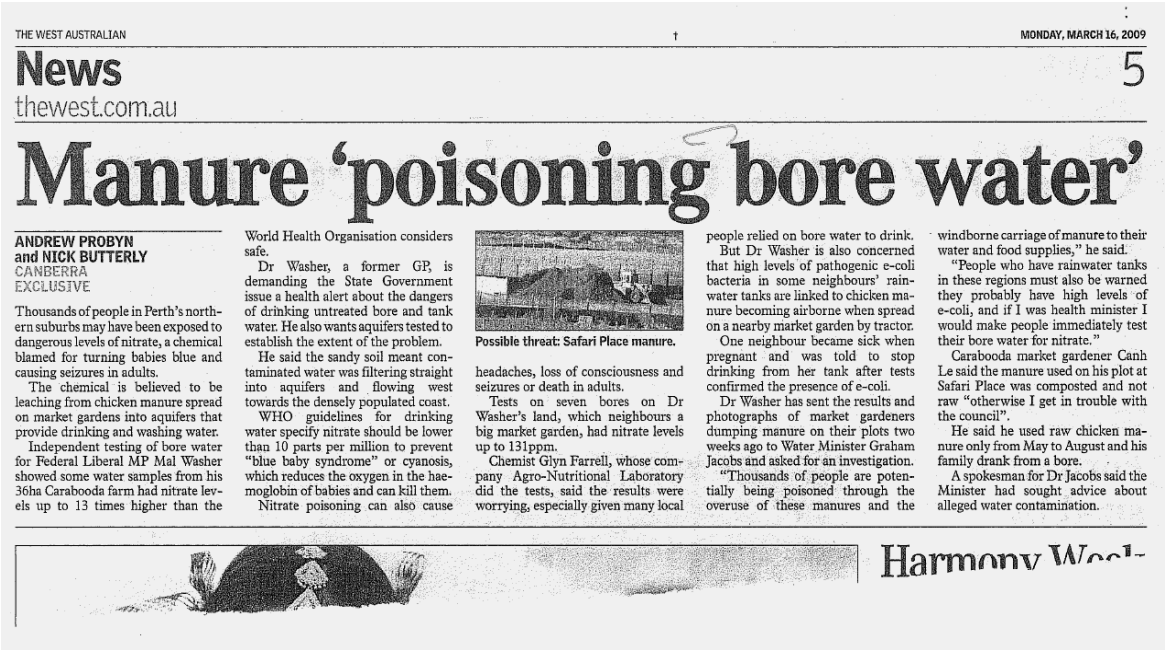
Nitrate poisoning can be thought of as an "Old Tank Syndrome".

There has been reports to suggest that high nitrates can be toxic under conditions of reduced dissolved oxygen because it can do damage to the fishes' red blood cells and to their vascular performance.

*NB: High nitrite levels may interfere with some nitrate tests.

Nitrate limits

Freshwater: 110mg/L (optimal 20-60mg/L)
Marine fish: 40mg/L
Marine invertebrates: 15-20mg/L



THE WEST AUSTRALIAN MONDAY, MARCH 16, 2009

News 5

thewest.com.au

Manure 'poisoning bore water'

ANDREW PROBYN and NICK BUTTERLY
CANBERRA
EXCLUSIVE

Thousands of people in Perth's northern suburbs may have been exposed to dangerous levels of nitrate, a chemical blamed for turning babies blue and causing seizures in adults.

The chemical is believed to be leaching from chicken manure spread on market gardens into aquifers that provide drinking and washing water.

Independent testing of bore water for Federal Liberal MP Mal Washer showed some water samples from his 36ha Carabooda farm had nitrate levels up to 13 times higher than the World Health Organisation considers safe.

Dr Washer, a former GP, is demanding the State Government issue a health alert about the dangers of drinking untreated bore and tank water. He also wants aquifers tested to establish the extent of the problem.

He said the sandy soil meant contaminated water was filtering straight into aquifers and flowing west towards the densely populated coast.

WHO guidelines for drinking water specify nitrate should be lower than 10 parts per million to prevent "blue baby syndrome" or cyanosis, which reduces the oxygen in the haemoglobin of babies and can kill them.

Nitrate poisoning can also cause headaches, loss of consciousness and seizures or death in adults.

Possible threat: Safari Place manure.

Tests on seven bores on Dr Washer's land, which neighbours a big market garden, had nitrate levels up to 131ppm.

Chemist Glyn Farrell, whose company Agro-Nutritional Laboratory did the tests, said the results were worrying, especially given many local people relied on bore water to drink.

But Dr Washer is also concerned that high levels of pathogenic e-coli bacteria in some neighbours' rainwater tanks are linked to chicken manure becoming airborne when spread on a nearby market garden by tractor.

One neighbour became sick when pregnant and was told to stop drinking from her tank after tests confirmed the presence of e-coli.

Dr Washer has sent the results and photographs of market gardeners dumping manure on their plots two weeks ago to Water Minister Graham Jacobs and asked for an investigation.

"Thousands of people are potentially being poisoned through the overuse of these manures and the windborne carriage of manure to their water and food supplies," he said.

"People who have rainwater tanks in these regions must also be warned they probably have high levels of e-coli, and if I was health minister I would make people immediately test their bore water for nitrate."

Carabooda market gardener Canh Le said the manure used on his plot at Safari Place was composted and not raw "otherwise I get in trouble with the council".

He said he used raw chicken manure only from May to August and his family drank from a bore.

A spokesman for Dr Jacobs said the Minister had sought advice about alleged water contamination.

Harmony Wool-

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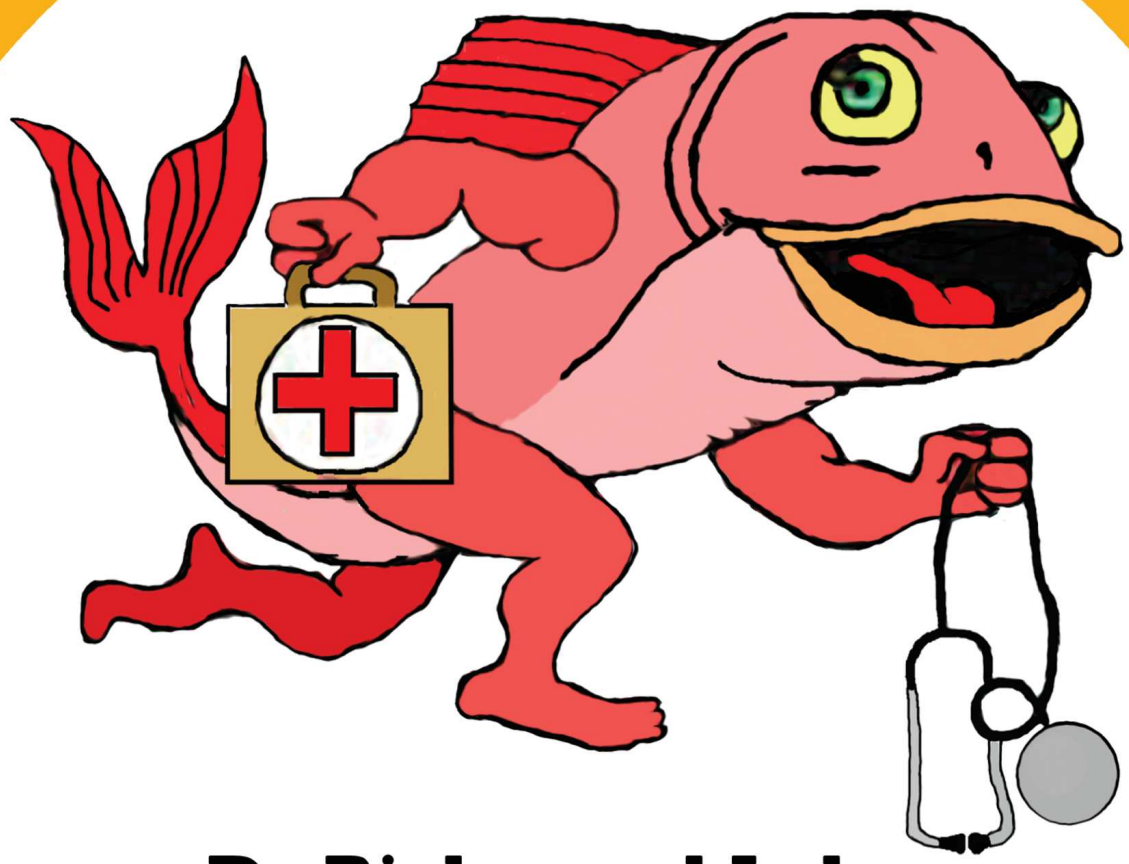
FISH VETTING ESSENTIALS



Dr Richmond Loh
&
Dr Matt Landos

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