Case Study 3

Biological remediation in the Ross River Dam spillway

Townsville City Council – Disaster Recovery, Biological Remediation and Catchment Priming using Probiotic Formulations. Ross River Spillway Event, February 2019.[177]

A consequence of the receding water below the Ross River Dam was a large concentration of dead fish contained within the spillway. Townsville City Council staff suggested that 95% of the deceased fish mass was comprised of the noxious fish, *Tilapia sp*. Total deceased fish numbers were estimated by council staff in the field as being upwards of 100,000 and at a weight of approximately 100 tonnes.

Tilapia are an invasive species, 'mouth breeders' and can carry more than 1,000 eggs at a time in their mouths to protect the eggs from predators. In Queensland it is illegal for anyone to have Tilapia in their possession including eating them.

As the fish began to decay, Townsville City Council was required to develop a solution to manage not only the noxious odours but also ensure that the noxious fish did not spread downstream. Clean-up strategies considered included removing the fish to a secondary site for disposal but with the costs of doing this estimated to be well over $100,000 this was viewed as prohibitive.

The General Manager (GM) of Environmental Services for Townsville City Council, who oversaw the clean-up, began to look at alternative solutions to deal with the dead fish. One method considered was the use of probiotics to rapidly decompose the large volumes of dead fish. The GM had previously used probiotics to aid in decomposing vegetation matter post-flooding, however its effectiveness on decomposing fish and animal products was not known.

A number of local organisations began working with the Townsville City Council to plan how best to dispose of the rotting fish including Ecocentric Services (environmental consultants) and VRM BioLogik, which prepared the probiotic treatment. To spread the prepared treatment, Townsville City Council crews worked with a local metal fabrication company to modify a hydrovac truck, (normally used for excavation of earth by using high pressure water and a powerful vacuum) to allow for rapid application and extended use of the products.

Over a four-week period, the various organisations were able to administer a combination of biological treatments to manage odours, accelerate biological decomposition of the fish, reduce risks of spreading noxious fish, significantly reduce clean-up costs, improve water quality prior to release of water downstream and ultimately convert approximately 100 tonnes of putrefying noxious fish into a positive environmental outcome.

Finding 36

Agencies often relied on informal interpersonal relationships to develop innovative solutions to overcome significant challenges in managing relief and recovery activities.

Progressive treatment of the spilling basin beneath the Ross River Dam wall began with the sprayed application of a priobiotic agent on the near-solid mass of dead tilapia (background photo, day 1); within three weeks the decontaminated water could be released downstream.

Townsville City Council