

RESEARCH DIRECTIONS

Is Treated Waste a Treat for Wetlands?

Associate Professor Shelley Burgin and Associate Professor Basant Maheshwari, CRC for Irrigation futures, along with Dr Ian Wright and Dr Adrian Renshaw from the School of Natural Sciences are exploring the impact of treated effluent on biodiversity in water storage dams through funding from the UWS Hawkesbury Foundation.

'In Australia, climate change and an unprecedented demand for water have increased the use of sewage for agricultural irrigation' says Associate Professor Burgin. 'Increasingly, this water is stored in existing wetlands. Research on effluent released to flowing waters (rivers and creeks) has demonstrated an impact on some plants, animals (including frogs and fish), algae and microbes. We don't know what the impact on biodiversity and ecosystem function of effluent release would be in standing waters such as dams and lakes, but we can assume it will have more impact than in flowing waters due to the limited water movement in these bodies. This project will compare key flora and fauna, including birds, fish, frogs, algae and plants across water-bodies used for effluent and stormwater storage, and those without effluent to determine the impacts on resident freshwater life, and to model the effects on the ecosystem'.

The research team will compare wetlands with or without effluent supplementation by testing water quality markers such as water temperature, depth, light penetration and the presence of chemicals, nutrients and metal compounds. The presence of, and relative variety of different species of birds, frogs, fish, macro-invertebrates and algae present in these wetlands will be recorded in addition to what plants are present in and around the wetlands and



whether the plants are indigenous to the area and expected, or are introduced or exotic species.

The results of this project will provide information and evidence regarding wetland ecosystems in the Hawkesbury area, and the impact of treated effluent release into similar areas. This will provide valuable knowledge of water and irrigation management practices to assist the Australian agricultural sector, local councils and environmental management authorities to build and maintain safe water resources while protecting Australia's unique wetland biodiversity.

Project Title: Impact of treated effluent on storage impoundment biodiversity

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