

1. INTRODUCTION

Irrigation water in many agricultural areas in New South Wales and Queensland is stored in above ground storages referred to as ring-tanks. In Queensland alone these structures number as many as 3,000 which together hold up to 500,000 ML of water (DNR, 1999). Ring-tanks have an average surface area of 10 – 50 ha with average depths ranging between 4 to 9m when at full capacity.

Typically used to store water for use on irrigated crops such as cotton and rice, ring-tanks are also used by farms producing less water intensive crops such as wheat, sorghum or barley. Although water retention systems are employed on-farm to reduce run-off, the water held in ring-tanks is typically used for a single crop. In many countries, irrigation water is first utilised to produce an aquatic crop, fish, before being used to irrigate. This approach not only provides additional farm income, it also reduces the required amount of chemical fertilisers, increases nutrient availability in the soil, encourages alternate application methods for agricultural chemicals, and makes better use of infrastructure and natural resources.

The CRDC provided \$4,000 for DPI, specifically BIARC, to conduct field investigations and construct economic models to assess the potential for farming fish using water from farm ring-tanks. Four economic models were constructed using three species and four different production scenarios. The fish fauna in six ring-tanks in the Dalby region was also investigated to assess the potential impact of agricultural chemicals. This information was then used to produce the following document outlining the benefits and difficulties of fish production in on-farm water storages.

While this document explores the potential for using existing ring-tank infrastructure for aquaculture, it is only a preliminary discussion paper, and more detailed field investigations are recommended.