

MMCP Collaboration

Fish Movement

Background

The Sea to Hume fishway construction program was a \$77M program that spanned ten years — the biggest fish passage rehabilitation program ever undertaken in Australia. As such, it formed an essential component of the MDBA Native Fish Strategy. The Sea to Hume program included the installation of automated Passive Integrated Transponder (PIT) technology to monitor the movements of migratory fish.

To be effective, the program requires a population of tagged fish being present within the river. Naturally occurring population processes dictate that the tagged fish population slowly turns-over through time. Over 40 000 tagged fish were liberated into the Murray River over the past decade. However, due to natural attrition, it is expected that this number of tagged fish would now be severely depleted.

MDBA analysis has shown that tagging by lock-staff will be much more cost-effective than the Tri-state Murray River Fishway Assessment Program. Tagging rates during the Murray River Fishway Assessment Program ranged from 4 000 to 6 000 tags per year. The cost effectiveness was analysed in the Pilot Program Proposal — Fish Tagging at River Murray fishway sites' and states "*When an estimate of training costs are included, this works out to be just over \$5 per tag, which is considered to be very cost-effective compared to other alternative tagging methods*" (MDBA 2016). Staff at CFE's Lower Murray Laboratory are highly experienced in fish tagging and fish handling techniques, and are well-placed geographically (Mildura) to cost-effectively train lock-staff with necessary skills to tag fish.

Management implications

Protect and restore water dependant ecosystems

This project will build the capacity to tag fish through the training of Lock staff thereby increasing the number of tagged fish in the system.

Objectives

- Develop a program for training lock staff to enable tagging of fish at up to three locks. This will provide a cost-effective means of maintaining tagged populations.

Outcomes

- Lock-staff at three sites along the Murray River will be trained to trap & PIT-tag fish.

Current Research

The MMCP collaboration is helping to monitor the movement of fish through fishways by training local lock staff to tag fish with microchips.

Weirs on the Murray River are barriers to the movement of fish. Structures to help fish pass over these weirs, called 'fishways', have now been installed on all of the weirs along the Murray River from the sea to Lake Hume. Fishways along the Murray are equipped with automated detection systems to pick up microchip signals (like the microchips we use for pet cats and dogs). Fish that have been implanted with these microchips (passive integrated transponder or PIT tags) are recorded moving upstream or downstream to help inform researchers and river managers about the effects of river-operations and flow management on fish migration and the overall well-being of fish stocks.



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