Citizen Science: Integrating Community Groups into Basin-Scale Fish Tagging and Recovery Programs

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Background

There are thousands of barriers throughout the rivers of the Murray-Darling Basin (MDB). Those barriers block fish migrations and alter river flow. This has led to the decline of fish populations and impacts on water quality. Fishways are installed at some barriers, but those fishways do not always function properly.

Traditionally, most of the MDB research and management decisions for fish and water management have been the responsibility of scientists and government organisations. Government agencies require assistance to enhance the pool of tagged fish and community groups are eager to be involved.

Our project addresses the needs of MDB communities by providing opportunities to engage regional communities (recreational fishers, First Nations groups) in scientific research, specifically fish tagging and recovery activities.

Objectives

- Engage First Nations people and recreational fishers to tag and release fish to support basin-wide scientific programs;
- Integrate both traditional and western fish capture methods for fisheries management and conservation.

Tag type use

- **PIT tag** (Passive Integrated Transponder; Internal tag): Each PIT tag contains a specific code, an antenna coil, capacitor, circuit chip, and ferrite rod. PIT tags do not require an internal battery to operate. They are powered when they come into range of a handheld or stationary reader/ scanner that produce an electromagnetic field when turned on.

Project activities

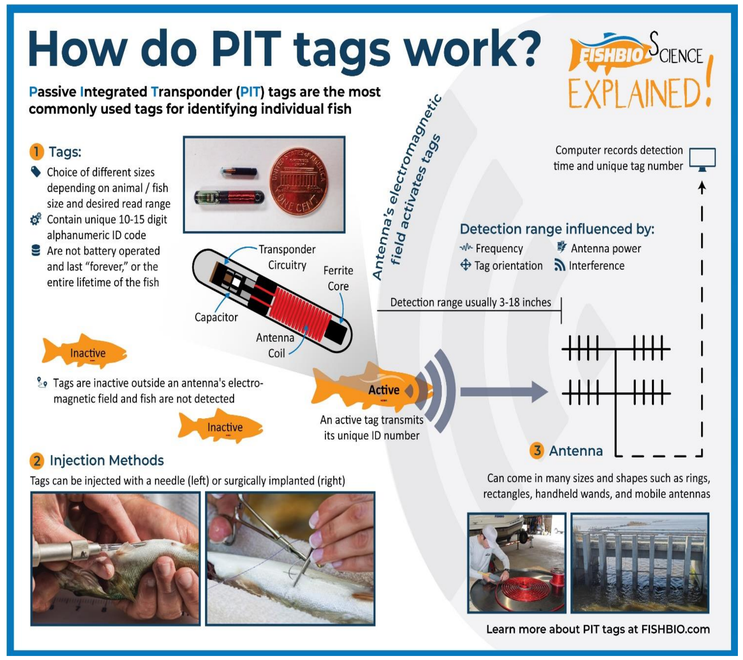
- Develop tagging guidelines for recreational fishers
- Train recreational fishers and First Nations groups for tagging in the field
- Perform tagging trials at: Swan Hill, Mildura, and Deniliquin
- Manage fish tag database & analyse data

Key outcomes

- Proof of concept that local and First Nations communities can be integrated into scientific (fish tagging) projects
- Empowering regional communities through a structured program with sufficient training and meet basic animal care requirements to undertake this work at scale
- Training for widespread and longer-term uptake of the methodology and technology
- Data centred on fish migration from tagging to feed into decision making processes related to water management and delivery and ecological protection

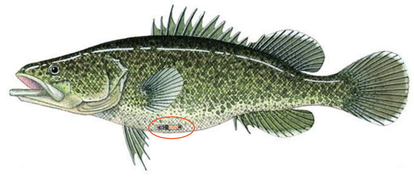
Tagging fish species

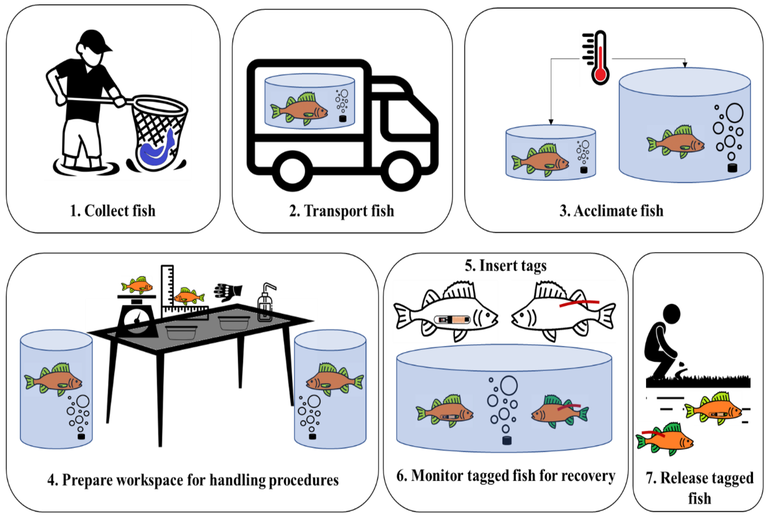
- Murray cod
- Golden perch



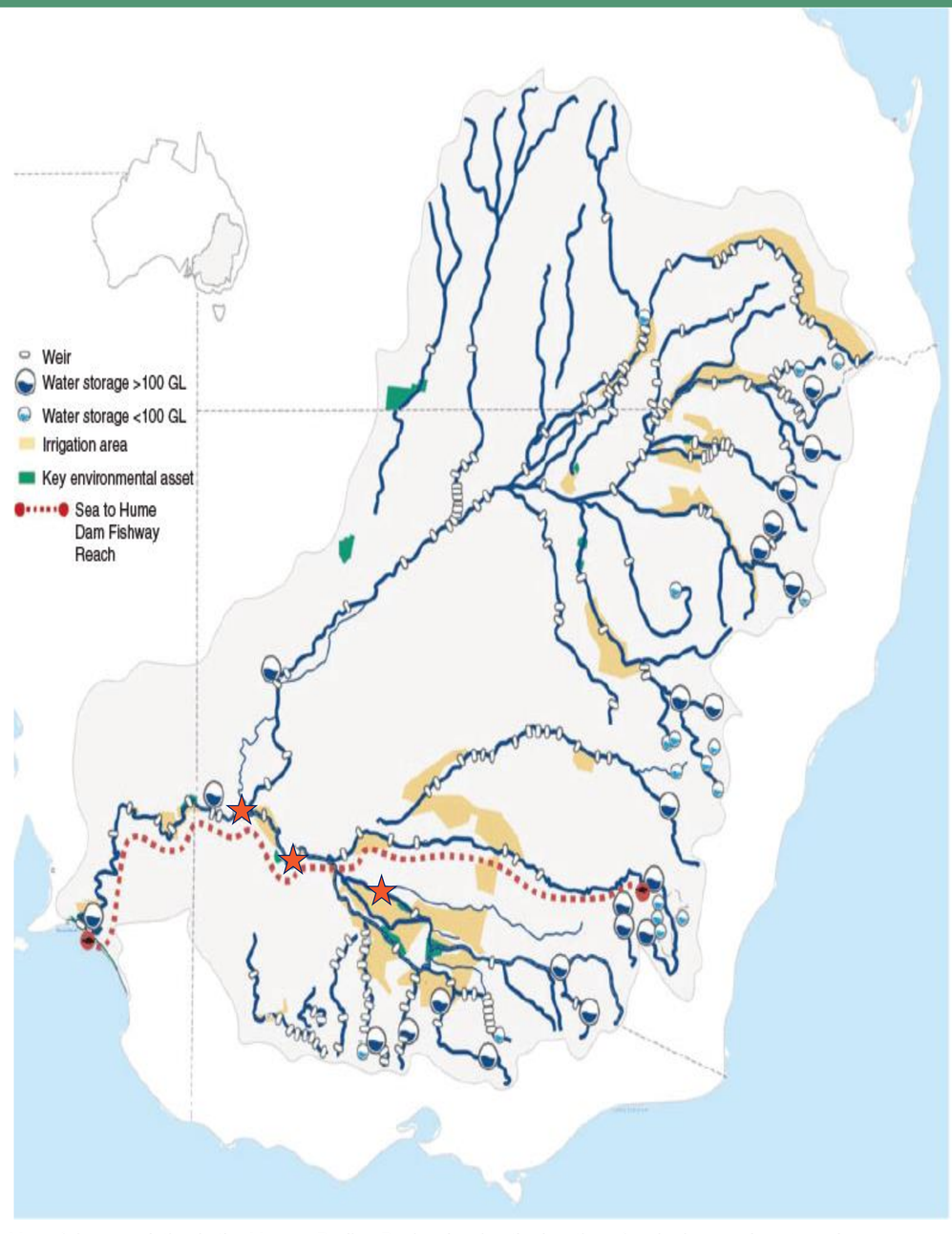
PIT tag

Murray cod with a PIT tag





Flow diagram summarising protocols for fish tagging trials. Source: Weatherman et al. 2021.



Map of river regulation in the Murray–Darling Basin: showing the location of major impoundments and regulating weirs; and field tagging trial sites (★). Source: Murray-Darling Basin Authority.