

Sampling fish communities using bait traps

1 Purpose and scope

This document describes the basic use of bait traps as part of sampling designed to either provide a representative sample of the local fish community or to target individual species for specific purposes. As use of a bait trap alone may not fulfil these objectives, users should consider using a bait trap as one component of a suite of different fishing gear types.

2 Associated documents

Sampling design and preparation:

- *Permits and approvals*
- *Record keeping, including taking field photographs and videos*

Biological assessment:

- *Background to fish sampling and index calculation*
- *Fish holding, identification and measurement of length and weight*

3 Health and safety

Before following the methods contained in this document, a detailed risk management process (identification, assessment, control and review of the hazards and risks) must be undertaken. All work carried out must comply with the Queensland Work Health and Safety legislative obligations.

4 Permits and approvals

A general fisheries permit is required for all work that involves 'fish' as defined in the *Fisheries Act 1994*. Note that early life stages such as eggs, spat or spawn of fish are considered as fish under the Act. Under the *Animal Care and Protection Act 2001*, prior approval in writing from an Animal Ethics Committee is required for the use of animals for scientific purposes. All work carried out must comply with Australian Code for the Care and Use of Animals for Scientific Purposes (National Health and Medical Research Council 2013).

Permits and approvals may be required to conduct activities involving animals, plants and/or in protected areas (for example National Park/Regional Park, State Forest or State Marine Park).

See *Permits and approvals* document for more information on requirements.

5 Skills, training and experience

Skills, training and/or experience required to understand and/or undertake this method include:

- ability to identify fish to species level
- experience in the use of bait traps.

6 Equipment

See Appendix 1 for example equipment checklist.

7 Procedure

7.1 Preparation for sampling

- Establish target species and aims of sampling. Bait traps primarily sample smaller fish, such as *Hypseleotris* spp. and setting traps overnight might favour the collection of nocturnal and crepuscular (active at dawn and dusk) species.
- Select appropriate trap type and number. Note that different trap types are available, including opera house and box traps (commonly known as 'funnel' traps) as well as round traps and collapsible traps. The number of traps will be dependent on project aims.
- Select bait/attractant. Commonly used attractants are dried cat food and chemical light attractants (e.g. glow sticks). The chosen attractant should be kept consistent throughout the study. Note that some brands of dried cat food may work better than others and fish species may have individual preferences. Fisheries legislation prohibits the use of certain baits taken from a marine environment unless the bait has been frozen, cooked or preserved. Use of live baits is also restricted in some circumstances.

7.2 Deployment of traps

1. Select suitable location/s within the stream for deployment. Traps may be deployed from the bank or by boat or wading.
2. Target in-stream habitat such as snags and aquatic vegetation. Depending upon the aims of sampling it may be necessary to ensure representation of all habitat types and various depths, e.g. bare stream banks and minimum to maximum depth available.
3. Plan to distribute traps so they will be independent of each other.
4. Place a small amount of bait in zipped compartment (Figure 1). If chemical light sticks are used as an attractant, crack a chemical light stick and place inside the bait trap. One light stick per trap is sufficient.
5. Ensure rope is attached to the trap and tie the other end to vegetation, a float or a stake (Figure 2). This will assist in locating the bait trap, and will also prevent the bait trap from floating away.
6. Ensure all entries into the bait trap are submerged (Figure 3). The depth at which they are deployed may depend on available habitat and target species.
7. Record deployment time.



Figure 1: Bait trap showing zip pocket for bait



Figure 2: Securing bait trap to a snag



Figure 3: Setting the bait trap

7.3 Retrieval of traps

1. Record retrieval time to assist in calculation of effort measures. If multiple traps are used, retrieve in the order they are deployed.
2. Deposit fish catch into a holding container (e.g. Nally® bin) with aerated stream water. If catch volume is small it may be possible to process directly from the trap.
3. Ensure details about the site are recorded such as the number of traps used and where they were situated, habitat type and depth.

7.4 Catch processing

Complete processing as quickly as possible to minimise stress. See *Fish holding, identification and measurement of length and weight* document for further information.

7.5 Cleaning and maintenance of nets

- Rinse clean and dry the bait traps after all of the fish have been released.
- Clean/repair as necessary before storage or redeployment.

8 References and additional reading

- Gehrke, PC, Brown, P, Schiller, CB, Moffatt, DB and Bruce, A 1995, 'River regulation and fish communities in the Murray-Darling river system, Australia', *Regulated Rivers: Research and Management* 11, 363-375.
- Marshall, J, Steward, A, McGregor, G, Marshall, C, Negus, P, Johnson, D, Lobegeiger, J, Davies, P, Harch, B, Winning, M, Choy, S and Cockayne, B 2003, 'Condamine-Balonne Integrated Monitoring Pilot Project: Methods', *Aquatic Ecosystems Technical Report No. 41*, Department of Natural Resources and Mines, Brisbane.

Appendix 1

Table 1 Equipment checklist

Equipment	✓
Collapsible bait traps with rope attached to each	
Bait/attractant	
Holding container (e.g. bucket)	
Portable aerator (with spare batteries) with air hose and stone	
Fisheries permit signs	
Fish measuring and sample processing equipment	
Fish identification field guide	
Field data sheets	
Waterproof marker, pens and pencils	

Note: Equipment numbers/amount to be determined by the study design.