

Sampling fish communities using seine nets

1 Purpose and scope

This document describes the basic use of a seine net in shallow (wadeable) water. As use of a seine net alone may not provide a representative sample of the local fish community, users should consider using a seine net 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
- prior experience in the use of seine nets.

6 Equipment

See Appendix 1 for example equipment checklist.

7 Procedure

7.1 Preparation for sampling

- Check the specifications of the seine net (e.g. mesh size, length, depth) to be used are suitable for the fishing conditions, target species and aims of fishing. The use of a seine net is likely to be biased towards catching small fish in shallow waters and the mesh size of the seine net used may strongly influence the size of fish caught. The use of a seine net with a large (>6mm) mesh size may preclude the capture of small species (e.g. *Hypseleotris* spp.) and the use of a small mesh size (<6mm) may slow hauling of a seine net such that fast moving fish (e.g. mullets, grunters) can avoid or escape the net.
- Check the seine net for any tangles or debris caught in the net.

7.2 Sampling

1. Select a suitable section of stream for seining that is relatively free of woody debris, rocks, algae or plants that may snag the seine net. Ensure there is a flat area to process catch within the section of stream being fished. Note that it may be impractical to seine in many streams due to the presence of snags or fast-flowing water.
2. Deploy the seine net perpendicular to the stream bank between two people with each person holding the foot rope against the substrate (usually with their foot) as firmly as practical and holding the head rope (usually in the hand) so that it lies along the water surface. In flowing waters, seining should be undertaken against the direction of water flow (Figure 1).
3. Haul the extended seine along the desired section of stream as briskly as possible to reduce the likelihood of fish avoiding or escaping the net. The escape of fish can often be reduced by ensuring the seine net maintains a “U” shape and/or the use of a seine net with an integrated pocket. It may be useful to have a person walking behind the net to quickly clear the net from any obstructions during seining, otherwise it may be required to stop seining and start again if the net gets caught.
4. Complete seining by having the person holding the shoreward end of the seine stop so that the person holding the other end can swing towards the shore and towards their colleague—the seine net will thus form a loop with both ends at the water edge.
5. Retrieve the seine net and catch fish by simultaneously hauling both the foot- and head-rope of both ends of the looped net shoreward. Ensure the foot-rope maintains contact with the substrate to reduce the escape of fish. It may also be useful to ensure the head-rope lies forward of the foot-rope to reduce the likelihood of fish jumping over the net.



Figure 1: A seine net being used to fish a wadeable pool

7.3 Catch processing

Unless the fish can be quickly processed directly from the wet net to avoid double-handling, the fish catch should be transferred to a holding container (e.g. Nally® bin) with aerated stream water. See *Fish holding, identification and measurement of length and weight* document for further information.

7.4 Cleaning and maintenance of nets

- Rinse, clean and dry seine net as practical before leaving an assessment site to prevent transfer of pathogens and pest plant and animal species to other locations.
- Ensure net is maintained free of debris and holes.
- Clean/repair as necessary before storage or redeployment.

Appendix 1

Table 1: Equipment checklist

Equipment	✓
Seine nets (available in various sizes)	
Buckets	
Large holding containers (e.g. Nally® bins)	
Portable aerator (with spare batteries) with air hose and stone	
Gloves for handling fish (optional)	
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.