

## Sampling fish communities using cast nets

### 1 Purpose and scope

This document describes the basic use of a cast net 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 cast net alone may not fulfil these objectives, users should consider using a cast 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.

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 cast nets.

### 6 Equipment

See Appendix 1 for example equipment checklist

## 7 Procedure

### 7.1 Preparation for sampling

Check the cast net for any tangles or debris caught in the net. If you haven't used a cast net previously, it may be suitable to practice various techniques on a clear area of land prior to sampling to find one that suits you best.

### 7.2 Sampling

There are many techniques for throwing a cast net (e.g. off the shoulder, elbow, wrist or hand) and it will take practice to get the best technique. It will also depend on whether you prefer left or right handed throwing. The aim is to throw the net to allow it to fully open up and catch fish. There are a variety of online resources and books with details on cast netting that can be referred to for further information. General steps to cast netting are outlined below.

1. Select a suitable section of water for cast netting that is free of woody debris, rocks, algae or plants that may snag the cast net. It may be impractical to use cast netting as a means of fishing in some streams and waterbodies due to the presence of snags.
2. Secure the hoop on the hand-line drawstring at the top of the net around your wrist.

3. With the excess drawstring, make loops and order these within the palm of the same hand to which the hoop is attached



4. Working from the top of the net, measure off one loop of net and hold it in the throwing hand (in this case, the right hand is used as the throwing hand). The length of the loop will differ depending upon length of net, height and personal preference.



5. The net should be spread out forming a rough triangle shape. With your left hand, reach down to the bottom of the net and pull up the upper section of the leadline. Place this leadline into the right hand (still holding the loops).



6. With your left hand, collect the right side of the leadline, also gathering up handfuls of this side of the net, placing it carefully into your right hand.



7. Use your left hand to pick up a leadline section of the left hand side of the net, and gather handfuls along this side of the net and hold in your left hand. The net is now ready to be cast.



8. With the majority of the net held in your right hand, extend your right arm out, parallel to the ground. Place feet approximately shoulder width apart, with the left foot forward. Extend your left arm across your body, with arms approximately shoulder-width apart, and the left arm slightly lower than the right arm. Try to keep your lower body in the same place, and let your upper body twist. The throwing movement is similar to throwing a discus.



9. To release the net, the right arm will come over to the left shoulder in a rapid movement. Follow the throw all the way through with your arms, releasing the net from both hands.



10. Once the net hits the water, it will sink to the bottom. Slowly pull the drawstring to close the net and capture fish.



11. Carefully pull in the net, quickly retrieving captured fish.

### 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 cast net 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.

## 8 References and additional reading

Online resources with step-by-step guides to throwing a cast net include:

- <http://www.fishingnoosa.com.au/Page34.htm>
- <http://www.catfishedge.com/how-to-throw-cast-net/>
- <http://www.wikihow.com/Throw-a-Cast-Net>
- <http://www.castnetworld.com/cast-net-throwing.html>
- <http://www.gcfishing.com/castnet.html>

# Appendix 1

**Table 1: Equipment checklist**

| Equipment   | ✓ |
|---|---|
| Cast net (available in various sizes)                           |   |
| Buckets   |   |
| Large holding containers (e.g. Nally® bin)                      |   |
| 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.