

Sampling zooplankton with a Schindler-Patalas trap

1 Purpose and scope

This document describes the sampling of zooplankton communities using a Schindler-Patalas zooplankton trap.

2 Associated documents

Sampling design and preparation:

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

Biological Assessment:

- *Background to sampling zooplankton*

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

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 to undertake this method should include at least one member of the sampling party with previous training and experience in the use of this method.

6 Equipment

See Appendix 1 for example equipment checklist.

7 Procedure

7.1 Preparation for sampling.

1. Choose a suitable sized Schindler-Patalas zooplankton trap: The size of the trap will depend on the study aims.
2. Choose an appropriate mesh size: The mesh size used will be based on the objectives of the study (i.e. the size of the target organisms).

7.2 Shallow water

1. Prior to entering the water, the height of the trap should be measured against the operator's body. For the trap to operate correctly, the water depth must be greater than the height of the trap.
2. Wade into the water (with the trap out of the water) to a depth that is adequate for sampling. For example, if the trap height is equal to the user's hip height, the trap can be operated when the user is standing in water up to their hip.
3. Lower the trap into the water at an angle perpendicular to the substrate. As the trap enters the water, the hinged doors, top and bottom, open upwards as water (and zooplankton) flows through. Lower the trap until it is below the water level.



4. Once the trap is full of water, raise it above water level. Water will flow through the netting at the bottom of the trap, and zooplankton will flow into the small sampling container attached at the bottom of the trap.



5. Tilt trap slightly so that the entire sample flows out of the trap and through the net to the collecting container.



6. Wash the sides of the netting down with water from the river.



7. Open the bottom of the sampling container and pour the contents into an appropriate vial. The contents should be approximately 20mL.



8. Label the vial and add a preserving agent (e.g. 100% methylated spirits or ethanol) if required. The amount used should be enough to have a final concentration of preservative in the sample of approximately 80%.
9. Record the site name, sample name, date and time and samplers name. Record the volume of the sampler.
10. Store sample in an upright position in a safe and secure storage place until it is submitted to experts for analysis.

7.3 Deep water

In deep water, the Schindler-Patalas trap can be used to sample zooplankton from a boat. The procedure is the same as in shallow water, except the person places the trap into the water from a boat.

7.4 Replicate samples

Zooplankton community distribution tends to be patchy, varying horizontally and vertically. Spatial heterogeneity is a function of density, taxonomic species, body size, developmental stage, season, and thermal stratification (Pinel-Alloul et al. 1988). The acceptable number of replicates generally required for zooplankton sampling with a trap in rivers is between two and four (Shiel et al. 1982, Evans and Sell 1983, Downing et al. 1987, Baranyi et al. 2002, King 2004).

7.5 Limitations

- The Schindler-Patalas trap can only be used in water deeper than the trap length (approximately 60-70cm).
- Sampling using the Schindler-Patalas trap is limited to the dimensions of the trap and the number of samples taken. Therefore, depending on the spatial distribution of zooplankton at a given time, a large number of samples may need to be taken to detect zooplankton assemblages, as opposed to pulling a net through the water for a given distance/time, so that a large volume of water can be sampled in a short time.
- The Schindler-Patalas trap is designed for collecting zooplankton samples from the water's surface (to a depth of 60–70cm).

8 References and additional reading

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Appendix 1

Table 1 Equipment checklist

Equipment	✓
Schindler-Patalas zooplankton trap:	
Mesh net for zooplankton trap:	
Plastic vials/jars	
Waterproof pen/pencil for labelling	
Bucket (Optional)	
Methylated spirits 100%, or Ethanol	
Pipettes (to add preservative)	