Size fractionating zooplankton samples for Fatty Acid and Isotope Analysis

Sieve set

4mm

2mm

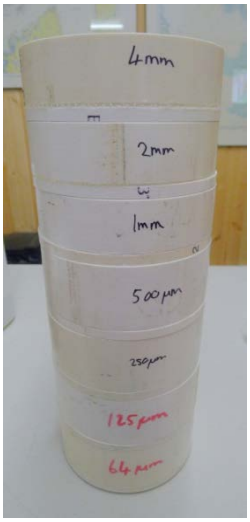
1mm

500µm

250µm

125µm

64µm



Sieving Steps:

1. Place the sieve column inside a plastic tray so that water is not spilled in the lab. Make sure that the sieves are in the correct order of descending size!
2. Pour zooplankton sample through the set of sieves.
3. Using the pressurised spray bottle (or squeeze bottle), filled with **GF/F filtered sea water**, gently spray down the top (4mm) sieve so that any animals smaller than 4mm wash into the sieve below. Keep the sieve on the column while doing this so that any animals that pass through will fall into the sieves below.
4. Gently transfer the animals remaining on the 4mm sieve to a labelled whirl-pack bag. Close the bag and transfer to a liquid nitrogen cooler (dry shipper), cooler filled with dry ice, or -80^{o}C freezer for storage.
5. Repeat the washing down process for each subsequent sieve until you reach the smallest sieve. This smallest sieve does not need to be washed down.

Removing zooplankton from sieves

- Aim to collect all of the animals on a sieve into the whirl-pack.
- Collect animals gently – what is important is not to damage the animals and risk losing lipids / liquid body content. This will affect the biochemical readings obtained.

Useful methods:

- Using the spray / squeeze bottle wash all of the animals to one corner of the sieve.
- Use a spoon or a small spatula to collect the animals off the sieve.
- Try not to transfer too much liquid to the whirl-pack, even if this means leaving some of the sample behind.

Once finished, wash all sieves under freshwater or particle free water so that they are clean for the next station.

Storing the samples

It is essential that the samples remain at -80^{o}C at all times.

Equipment list

- ~ 200 µm zooplankton net (Bongo, WP2)
- Large diameter sieve set – the sieves use are ideally 4mm, 2mm, 1mm, 500µm, and 250µm. Other size within this range can be used if all else fails.
- 100-200ml Whirl-pack bags
- Marker pens
- External sample labels
- Liquid nitrogen dry shipper - no power required; filled with liquid nitrogen but the liquid is absorbed within the shipper so that there is no liquid washing around, hence “dry shipper” – this is considered safe for aeroplane travel. Once charged it will stay cold for ~ 14 days. Alternatively, for short trips, a cooler filled with dry ice can be used.
- Large volume garden spray bottle
- Small volume hand held spray bottle

Brian Hunt

May 2017