

NETLAKE Citizen Science 2017
Lake Sedimentation Rate Comparison - Analysis

Introduction

This protocol describes how to make a retrieve your sediment trap, to measure its dry weight and send a sample for organic matter content measurement.

Please read the entire protocol before starting! Normal health and safety precautions should be taken at all times, for more information see website: www.nioo.knaw.nl/Netlake-Citizen-Science

Materials:

- A rubber stopper to fit your sediment collect tube OR Clingfilm and tissue
- 2 X 10 litre plastic buckets
- 2-3 large coffee filter papers (conical shape)
- Additional 30 cm Wavin tube (to hold the coffee filter)
- Small flat pan weighing scales to at least 0.1 g (a postal type weighing scale will be suitable)
- Small mixing bowl or box
- Small plastic bottle (c. 20-30 ml; a small empty medication bottle could be used)

Retrieval:

1. Retrieve the sediment trap either by boat (where you have deployed at the deepest point) or from the pier (where you deployed in shallow water) by **slowly** bringing it to the surface using the mooring rope/s.
2. Take care to ensure that the base stopper does not detach, and that any water is retained in the tube as it leaves the water column.
3. The top of the tube should be sealed/stoppered once it is out of the water, to ensure no spillage of material. If you use Clingfilm, dry the top of the tube well before you warp several layers of Clingfilm over the top.
4. Keep the tube upright while you transport it to your workroom or lab!

Measure the dry weight of sediment

1. In your workroom or lab, weigh each coffee filter paper and record the weight (suggestion: you should label each filter paper with a number and weight in pencil).
2. Place the piece of Wavin tubing upright in the bucket. Place a filter paper in the top of the tubing (the tubing just acts as a holder for the coffee filter).
3. Working in the bucket (in case of any spills!) filter all the water in the collection tube through the coffee filter. If the first filter clogs, material may also be collected in a second filter. If there is material in the base of the tube add a little tap water, swirl and empty. If any material is lost into the bucket, move the tube and a fresh filter to the second bucket and collect this material in a filter also.
4. Write a short description of your sediment using the words in table below. Base the texture on appearance so that you do not lose any material!

Sediment Description			
Colour	Light	Medium	Dark
Texture	Soft - clay	Medium - silt	Coarse - sand grains
Visible plant fragments	Leaves	Twigs/stems/roots	Seeds
Visible invertebrates	Live	Dead	Fragments

5. Dry all coffee filters with the sediment material in an oven for 2 hours at 40 °C.
6. Allow the dried filter and material to cool and then reweigh, taking care to not lose any material from the filters.
7. Subtract the filter weight from the final dried weight to give the sediment weight. Sum all the sediment weights if you used more than one coffee filter.

Send sample for measurement of sediment organic matter content:

8. Pour all the collected sediment from one trap into a bowl or box, and mix well.
9. Take a subsample of c. 5 g and place in a small washed plastic bottle (one similar to those used for medication of 20-30 ml will be fine).
10. Post to your science partner who will burn the sediment at a high temperature to get an estimate of how much organic matter it contains. The % carbon can be estimated from this result.

To get postal details of your science partner email: eleanor.jennings@dkit.ie.

Example:

Lake IJzeren Man, Vught, the Netherlands	
Colour	Dark
Texture	silt
Visible plant fragments	Not found
Visible invertebrates	Life midge larvae

Lake IJzeren Man	Filter 1	Filter 2
Weight empty coffee filter	0.86 grams	0.87 grams
Weight dry filter + sediment	5.44 grams	2.94 grams
Send to science partner	Yes (all material: 6.65 grams in bottle)	