

MEASURING AND MODELLING THE DYNAMIC RESPONSE
OF REMOTE MOUNTAIN LAKE ECOSYSTEMS TO
ENVIRONMENTAL CHANGE

A programme of **MO**untain **LA**ke **R**esearch

MOLAR

SAMPLING RECENT ZOOPLANKTON

PROTOCOL FOR SITE OPERATORS
Work Package 3.

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Protocol WP3 - Sampling recent zooplankton

1. Sites, site operators and analysts to whom the samples will be sent

Øvre Neådalsvatn, overlap with WP1 (Lien > Fott) - Lago Redo, overlap with WP1 (Catalan > pelagic samples to Cruz Pizarro, littoral samples to Brancelj) - Gossenköllesee, overlap with WP1 (Psenner > Fott) - Terianske Pleso (Sporka > Fott) - Jezero Ledvicah (Brancelj) - Saanajarvi (Korhola), Hagelsee (Lotter > Hofmann)

2. Objective

Sampling pelagic and littoral zooplankton with the emphasis to:

- a. description of the communities and their seasonality
- b. species leaving subfossil remains in the sediment

3. Equipment and materials

- boat (inflatable or other), anchor, line
- plankton nets:
 - a. AL:PE net (1): quantitative pelagic net, Apstein type, #200 µm
 - b. AL:PE net (2): qualitative pelagic, #40 µm
 - c. AL:PE net (3): qualitative littoral, #100 µm
- formaldehyde, plastic bottles 100 - 250 ml

4. Sampling procedure

4.1 Large pelagic zooplankton, quantitatively (ZOO)

Quantitative sample from the open water, using the net (1). The boat will be anchored close to the maximum depth. Tow the net from 1 - 2 m above the bottom to the surface, the towing speed being about 0.3 m per second (time in seconds = length in m x 3). After each haul the inner surface of the net must be rinsed carefully by lowering the net (bucket closed) into the water. Then the contents of the bucket is emptied into a sampling bottle. Repeat until all animals are emptied into the bottle. Take several hauls in order to get rich material. Write down the towing length and the number of hauls per sample. Preserve with formaldehyde to the final concentration of 4%. The sampling bottle must be almost full. Label: ZOO, lake, date, Length (m), number of tows, net opening diameter (cm) - or: AL:PE (1) net, if you use a net supplied from Prague.

Note: This sample is taken also for WP1 (take only once at Øvre Neådalsvatn, Redo and Gossenköllesee).

4.2 Pelagic zooplankton, all sizes, qualitatively

Qualitative sample using the net (2): take vertical and long oblique hauls in order to obtain a rich sample. Preserve with formaldehyde. Label: Lake, date, qualitative sample #40.

Note: This sample is taken also for WP1 (take only once at Øvre Neadalsvatn, Redo and Gossenköllesee).

4.3 Littoral zooplankton, qualitatively

Qualitative sample using the net (3): throw the net repeatedly from the rocky shore and tow it along solid surfaces (rocks), partially touching them (but avoid losing the net by getting it caught on a rock). The sample will contain a certain amount of debris. Preserve like the previous sample and label: Lake, date, littoral.

Note: This is a sample from a shallow water < 2 m.

Note to the preservation of all plankton samples: Preserve with formaldehyde to the final concentration of 4%. Do not leave too much air in the bottles, after preservation the bottles should be almost full. Be sure that all sampling bottles are tight and put the preserved samples into a plastic bag anyway. Good field bottles for 40% formaldehyde are plastic shampoo bottles - they use to be tight enough.

Note to the sampling from ice: Sampling zooplankton from thick ice may be limited by the possibilities of making holes of sufficient diameter.

Overlap with WP1: For Øvre Neådalsvatn, Gossenköllesee and Redo, see also WP1 protocol "Sampling large zooplankton with nets".