

DNV GL IL approach to measuring organisms in the size classes 10-50 μm and >50 μm

Dear ETV panel,

Counting of organisms in the size classes 10-50 μm and >50 μm depends on how the size is measured and interpreted. DNV GL IL has agreed with sub-labs on a methodology for determining sizes of organisms in the 10-50 μm and >50 μm size classes, provided below.

The document could be used by ETV as a generic approach to measuring size of zooplankton and phytoplankton.

Zooplankton (>50 μm)

As a general rule, size is measured as the maximum width of the minimum axis of the organism as viewed, without including cilia, spikes and appendages. Smaller zooplanktons possess a more or less bilateral symmetry, and the size should be interpreted as the width of a pore that the organisms could pass through (without the cilia, spikes and appendages). Examples of how to determine size of zooplankton is given in Figure 1.

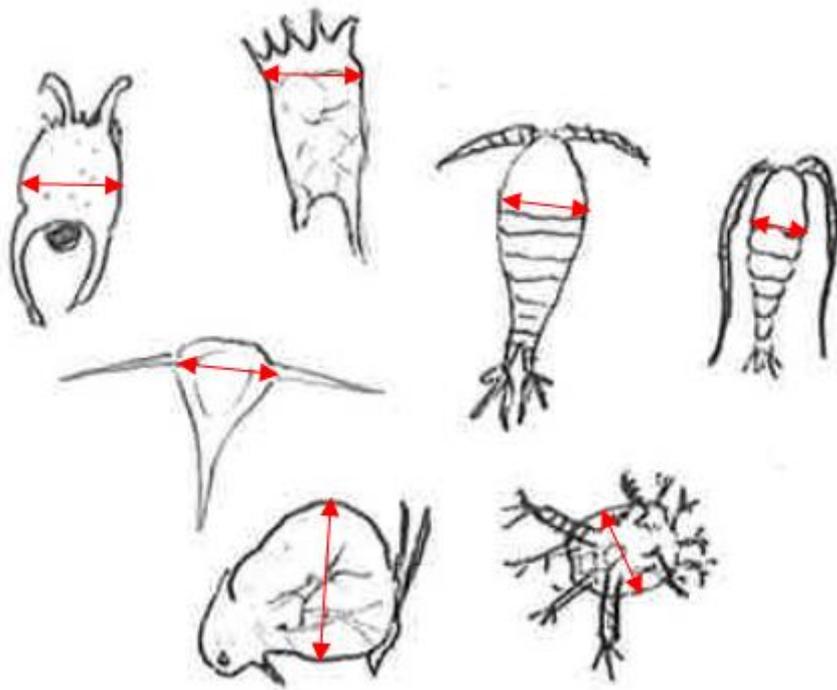


Figure 1 Examples of determination of zooplankton size. Red arrows indicate how size is measured.

Phytoplankton (10-50 μm)

Phytoplankton could have very different shapes, from radial and spherical symmetry to asymmetry or chain forming colonies. As a general rule, phytoplankton size/diameter is measured as the minimum diameter of width of cell (cell body which includes cytoplasm) as viewed excepting

spikes, chaeta or hair like structures. Cell chains and colonies that easily observed as single units are measured on cell basis and all cells are counted. Colonies and filaments where cells are permanently attached are considered 1 unit and the minimum diameter of the unit is measured. Examples of how to determine size of different phytoplankton groups are given in Figure 2.

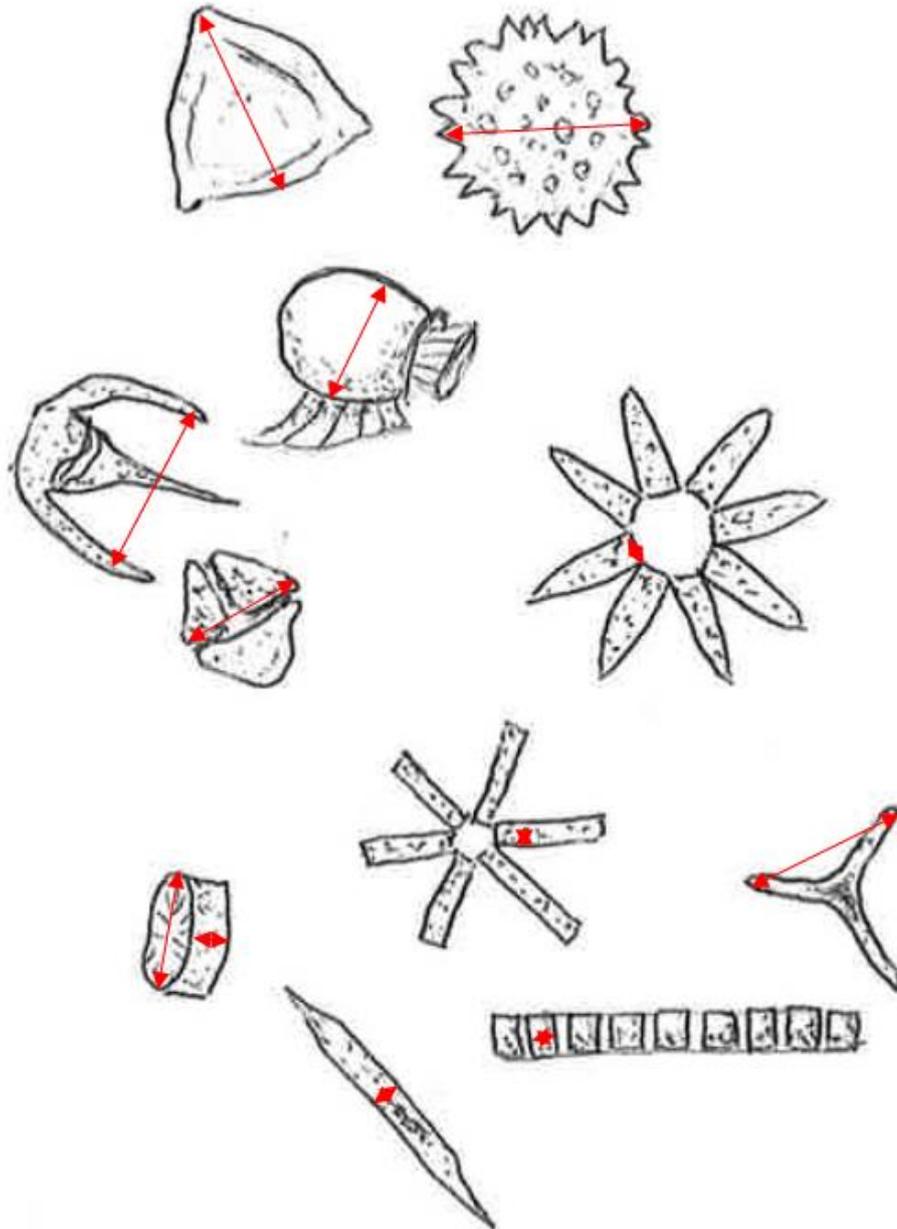


Figure 2 Examples of determination of different phytoplankton groups. Red arrows indicate how size is measured. One cell has 2 diameters drawn because either one may be used depending on which side faces towards the viewer.