



## **Utilization of an echosounder in observing and quantifying methane ebullition**

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In temperate lakes and reservoirs, an essential amount of gas bubbles rising from the bottom to the water surface can be observed during fish acoustic surveys. To quantify methane ebullition from acoustic records, the first thing is to distinguish gas bubbles from other acoustically similar objects based on vertical movement of the bubbles. Second, acoustic sizes of bubbles are converted to adequate gas volume using a regression model based on a functional response between acoustic and real size of bubbles. The model was developed from an experiment with artificial methane bubbles of various natural sizes, mainly focused on the most used 120 kHz frequency operated by the echosounder EK 60. Finally, overall quantification of methane ebullition in open waters of lakes and reservoirs is feasible.