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**Ventilation of an hydrofoil wake**[1] ROGER ARNDT, Retired, SEUNG JAE LEE, GARRETT MONSON, Saint Anthony Falls Laboratory, University of Minnesota — Ventilation physics plays a role in a variety of important engineering applications. For example, hydroturbine ventilation is used for control of vibration and cavitation erosion and more recently for improving the dissolved oxygen content of the flow through the turbine. The latter technology has been the focus of an ongoing study involving the ventilation of an hydrofoil wake to determine the velocity and size distribution of bubbles in a bubbly wake. This was carried out by utilizing particle shadow velocimetry (PSV). This technique is a non-scattering approach that relies on direct in-line volume illumination by a pulsed source such as a light-emitting diode (LED). The data are compared with previous studies of ventilated flow. The theoretical results of Hinze suggest that a scaling relationship is possible that can lead to developing appropriate design parameters for a ventilation system.

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