Title: Relationship between wind speed and reaeration in small aquaculture ponds.

Author(s): Claude E. Boyd and David Teichert-Coddington
Department of Fisheries and Allied Aquacultures
Auburn University, Alabama 36849, USA

Date: October 1, 1993 Publication Number: CRSP Research Report 93-57

Price: The CRSP will not be distributing this publication. Copies may be obtained by writing to the authors.

Abstract: Two 1000 m² ponds at the El Carao National Aquaculture Center at Comayagua, Honduras were deoxygenated by treatment with sodium sulfite and cobalt chloride, and biological activity was suppressed by formalin and copper sulfate application. Wind speed and the change in dissolved oxygen concentration were monitored with a data logger system during reaeration period. Standard oxygen transfer coefficients were related to wind speed measured at 3-m height by the equation:

\[
K_a a_{20} = 0.017X - 0.014; \quad r^2 = 0.882
\]

where \(K_a a_{20}\) = standard oxygen transfer coefficient at 20°C (h⁻¹) and X = wind speed (m s⁻¹). A method for computing pond reaeration rate from the standard oxygen transfer coefficient is presented.

This abstract was excerpted from the original paper, which was published in Aquacultural Engineering 11:121-131, 1992.