Photosynthesis **Respiration**

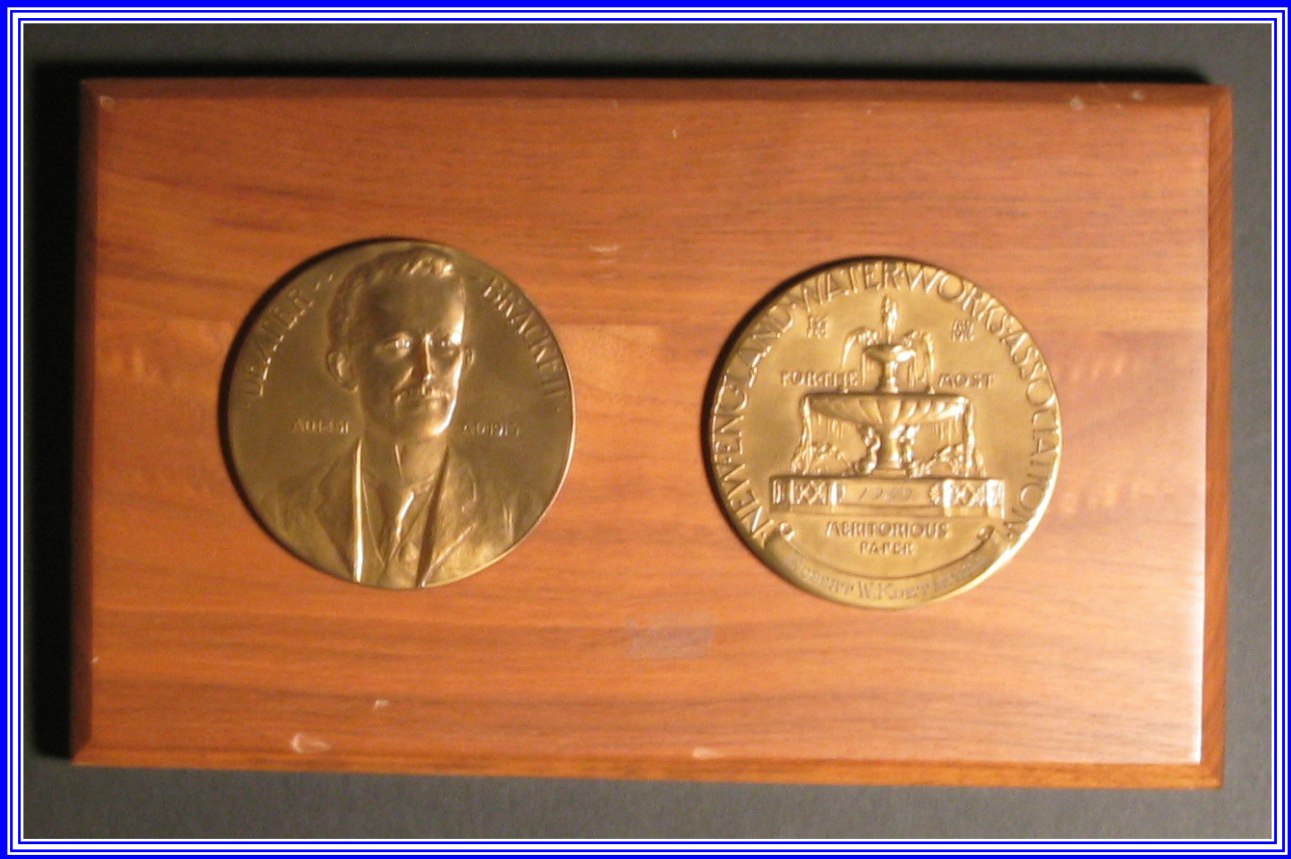
$CO_2 \rightarrow (CH_2O)_n \;\ldots\ldots\; (CH_2O)_n \rightarrow CO_2$

$H_2O \xrightarrow{e^-} O_2$ — ***Layer Aeration*** — $O_2 \xrightarrow{e^-} H_2O$

Innovation: Layer Aeration

Layer Aeration is an aeration process used in lakes and reservoirs to manage water quality impacts from oxygen loss during summer thermal stratification. The process uses oxygen produced by photosynthesis in the trophogenic zone (water serves as the electron donor) to offset oxygen consumption by respiration in the tropholytic zone (oxygen serves as the electron acceptor). The process manipulates how a waterbody stratifies thermally, in order to manage biological oxygen production and consumption processes. *Layer Aeration works in concert with the Nature of the Aquatic Ecosystem…to improve water and habitat quality!* Layer Aeration is very cost-effective for restoring coldwater habitat in lakes, creating high quality water layers for raw supply water withdrawal, and to reduce internal nutrient loading for eutrophication abatement.

Ecosystem Consulting Service, Inc. received the Environmental Technology Innovator Award from the EPA-New England for inventing and developing the Layer Aeration Process.



Dexter Brackett Publication Award

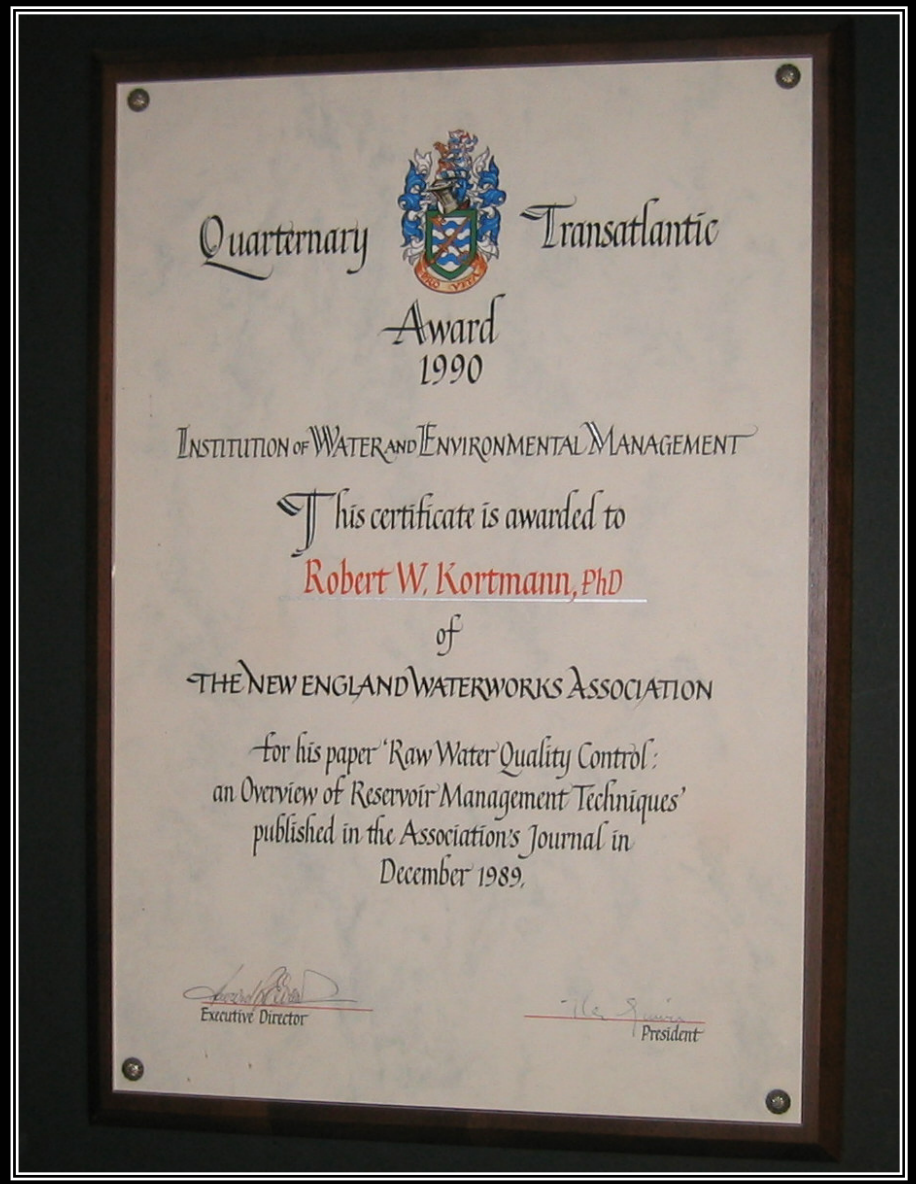
Dr. Kortmann received the Dexter Brackett Publication Award from the New England Water Works Association. The award recognizes excellence in publication within the water treatment industry. This award was presented for:

"Raw Water Quality Control: an Overview of Reservoir Management Techniques"

By: Robert W. Kortmann, Ph.D., Applied Limnologist, Ecosystem Consulting Service, Inc.

Robert W. Kortmann, Ph.D.

Dr. Kortmann (a principal of Ecosystem Consulting Service, Inc.) received the Quarternary Transatlantic Publication Award from the Institution of Water and Environmental Management, England. The award is presented once every four years to an author publishing significant research for the advancement of Water and Environmental Management Technology.



Quarternary Transatlantic Award 1990

Institution of Water and Environmental Management

This certificate is awarded to

Robert W. Kortmann, PhD

of

The New England Waterworks Association

for his paper 'Raw Water Quality Control: an Overview of Reservoir Management Techniques' published in the Association's Journal in December 1989.

Executive Director

President