NOTICE OF PUBLICATION

RESEARCH REPORTS
TITLE XII POND DYNAMICS/AQUACULTURE COLLABORATIVE RESEARCH SUPPORT PROGRAM

Title: Modification of Stratified Temperature Model to Accommodate Reduced Data Inputs: Identifying Critical Requirements

Author(s): Steven D. Culberson and Raul H. Piedrahita
Department of Agricultural Engineering
University of California
Davis, California, U.S.A.

Date: 27 February 1995 **Publication Number:** CRSP Research Report 95-81

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

Abstract: Accurate characterization of temperature stratification in ponds used for aquaculture is of critical importance in understanding how these ponds may be constructed, oriented, or otherwise managed biophysically when one wishes to provide optimal environmental conditions for the organisms cultured therein. While field studies can provide characterizations of water quality stratification at a single locale, to date there have been few attempts at developing reliable models which can be used at a variety of sites after initialization with appropriate local geographic and atmospheric data. In conjunction with Pond Dynamics/Aquaculture Collaborative Research Support Program (PD/A CRSP), the authors have modified a previously developed water quality model which closely predicts temperature stratification at several different sites in northern California. Changes in model structure and reduction of data requirements reflect the desire to provide for culturists the opportunity to predict stratification events with commonly available data, obtained either by hand or from a simple weather station located at or near the pond site. Validation of the model has been conducted with data sets generated through PD/A CRSP experiments, and the importance of wind vector and relative humidity inputs is considered here.

This abstract was excerpted from the original paper, which was presented at the Aquaculture '92 International Conference sponsored by WAS/AFS/NSA/ASAE, 21-25 May 1992 in Orlando, Florida, U.S.A. American Society of Agricultural Engineers paper No. AQUA-92-102, 37 pp.

CRSP RESEARCH REPORTS are published as occasional papers by the Program Management Office, Pond Dynamics/Aquaculture Collaborative Research Support Program, Office of International Research and Development, Oregon State University, Snell Hall 400, Corvallis, Oregon 97331-1641 USA. The Pond Dynamics/Aquaculture CRSP is supported by the U.S. Agency for International Development under CRSP Grant No.: DAN-4023-G-00-0031-00.