ARTIFICIALLY INDUCED CIRCULATION IN THERMALLY STRATIFIED LAKES

BY

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A thesis submitted to the Graduate School of the University of Wisconsin in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

by

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To Professors: [illegible]

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This thesis having been approved in respect to form and mechanical execution is referred to you for judgment upon its substantial merit.

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Dean

Approved as satisfying in substance the doctoral thesis requirement of the University of Wisconsin.

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Major Professor

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Date of Examination, June 4 19 58

PREFACE

The purpose of this paper is to describe some aspects of an artificial physical disturbance in the lake environment. It is with some misgiving that the words of Aldo Leopold are recalled (1949, p. 221):

"Conservationists are notorious for their dissensions Superficially these seem to add up to mere confusion, but a more careful scrutiny reveals a single plane of cleavage common to many specialized fields. In each field one group (A) regards the land as soil, and its function as commodity-production; another group (B) regards the land as a biota, and its function as something broader. How much broader is admittedly in a state of doubt and confusion." He goes on to say, "In the wildlife field, a parallel cleavage exists. For group A the basic commodities are sport and meat; the yardsticks of production are ciphers of take in pheasants and trout. Artificial propagation is acceptable as a permanent as well as a temporary recourse - if unit costs permit. Group B feels the stirrings of an ecological conscience."

I feel that this work is unfortunately proximal to "A group." It can only be hoped that in some measure the results may serve to enlarge our understanding of the aquatic environment as it will aid in our exploitation of it.

The guidance of Professor Arthur D. Hasler is gratefully acknowledged. The counsel of Professor James R. Villemonte is also acknowledged.

Only those who have extracted limnological measurements from a frozen lake can appreciate the real contri-

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William Schmitz