Water Institute Distinguished Scholar Seminar Series

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University of Florida
Tuesday, April 12, 2011
3:00 PM – 4:00 PM
209 Emerson Alumni Hall

Title:

Setting the numeric nutrient criteria for Florida lakes; why one size does not fit all

Abstract:

The United States Environmental Protection Agency has established numerical nutrient criteria for Florida lakes based on two assumptions. All biologically productive lakes (eutrophic) are the result of man-caused additions of phosphorus and nitrogen to less productive lakes (oligotrophic and/or mesotrophic), and that all eutrophic lakes fail to meet their designated uses as established under Florida law. An analysis of several different kinds of data indicated that many Florida lakes are naturally eutrophic and are not significantly different from their presettlement condition. Natural geographic factors such as geology, soils, and hydrology are the most important variables determining nutrient concentrations. An analysis of published studies on biological communities and the algal toxin microcystin did not support the assumption that eutrophic Florida lakes fail to meet their designated uses. The current law will find that 65% of Florida lakes are impaired by nutrients, with the result that a large amount of scarce resources will be wasted trying to remove phosphorus and nitrogen from naturally eutrophic lakes. Florida lakes can be grouped into six phosphorus zones and five nitrogen zones for a more logical method of setting numeric nutrient criteria.

Dr. Bachmann joined the Florida LAKEWATCH program in 1993. He had previously served 30 years on the faculty of Iowa State University where he taught limnology and conducted research on lake eutrophication, nutrient cycling, stream ecology, and quantitative relationships in lakes. In Florida, he has looked at relationships between lake trophic states and fish populations, scientific bases for determining eutrophication in large Florida lakes, the application of the theory of alternative stable states to shallow Florida lakes, the role of wind in resuspending lake sediments, the use of biocriteria for evaluating lakes, and lake restoration strategies.