



State of Wisconsin

DEPARTMENT OF NATURAL RESOURCES

Carroll D. Besadny
Secretary

North Central District Headquarters
P.O. Box 818
Rhineland, Wisconsin 54501
(715)362-7616

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Dr. Daniel J. Price, M.D.
Route 1, Box 70
Crandon, Wisconsin 54520

Dear Dr. Price:

Your letter about Lake Lucerne in Forest County was referred to me for a response. In your letter, you were concerned about the low water level in Lake Lucerne.

Even though other lakes in the immediate area may not have declined in water level as much, I am certain that the lack of rainfall is responsible for the low levels you observe. Each lake varies in response to drought because water supply mechanisms are variable between lakes.

In general, lakes that depend mainly on rainfall show the greatest fluctuation of levels. In contrast, lakes that receive most of their water from the groundwater table are generally the most stable. Other lakes that receive mostly overland flow from streams are usually intermediate in response of water levels to drought. Please keep in mind that lake water supplies can vary along the entire spectrum from rainfall dominated to groundwater or surface runoff dominated - it depends on how the lake basin was formed by the last glaciation.

Lake Lucerne is classified as a drained lake. This indicates that its water supply comes from both groundwater and rainfall, but only a detailed hydrologic study would reveal the proportion supplied by each source.

To put Lake Lucerne's water level fluctuation in perspective, please refer to the attached table from a publication about lake levels (now out of print). Lake Lucerne is closest in type to the "Ground-Water Discharge" category. As you can see, these other similar Wisconsin lakes have fluctuated in level (during the period of record) from a minimum of about 17" to a maximum of about 42". Other lake types in Wisconsin varied up to almost 11 feet during the period of record!

I hope this information addresses your concerns about Lake Lucerne. When we finally return to normal weather patterns, I'm sure the lake will return to normal water levels. Please remember that the groundwater table responds fairly slow to changes in rainfall, so there may be a delayed response of Lake Lucerne's water level. Eventually, however, normal precipitation will result in normal lake levels.

Sincerely,



Robert D. Young
Lake Management

RDY:ck

cc: Lake Management Section, WR/2