

Report to White Lake Town Board February 2023

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LIMNOSCIENCES

1. Much time and effort are devoted to summarizing data and other information about White Lake. There are two objectives: explaining complex concepts in a way that is understandable to the lay audience and explaining how an unusual and complex lake system works for a scientific audience. Information posted to White Lake Watch can target both audiences, but to ensure that the data retains its value, it needs to be accessible more broadly in the form of peer-reviewed scientific journal publications. The Town has supported several projects and continuing monitoring work that has provided the means for better understanding of the lake and how it functions, and that needs to be better appreciated.
2. The WLW web site now has a correct version of the report on groundwater that was provided to the Lumber River COG (the version in the COG report was not the final one). This report can be found by using the link on the home page that is just below the link for Reports to Town Board. The report begins with a list of key findings, and I have been working with the author to interpret them in way that is understandable. This is still a work in progress, but the first page (attached) shows key concepts in fewer words, with diagrams that are annotated. Again, it is important to recognize how much work has been done on groundwater studies, with the financial support of the Town.



What to Know About Groundwater Flow Interactions with White Lake

Based on the work of Consolvo (2022) and Shank and Zamora (2019)

- Sources of water supplying White Lake: rainfall and groundwater from the surficial or water table aquifer, which surrounds and underlies the lake. There is no evidence for any deeper confined aquifer contribution to the lake.
- The higher the water table level is above the lake level, the greater the hydraulic gradient—the driving force to move groundwater into the lake.
- **Rainfall**, and its effect upon water table elevations, is the primary variable affecting how much groundwater enters or exits the lake.
- Groundwater flow interactions with White Lake are **variable**, depending on the dynamics between **lake levels** and **water table levels**.

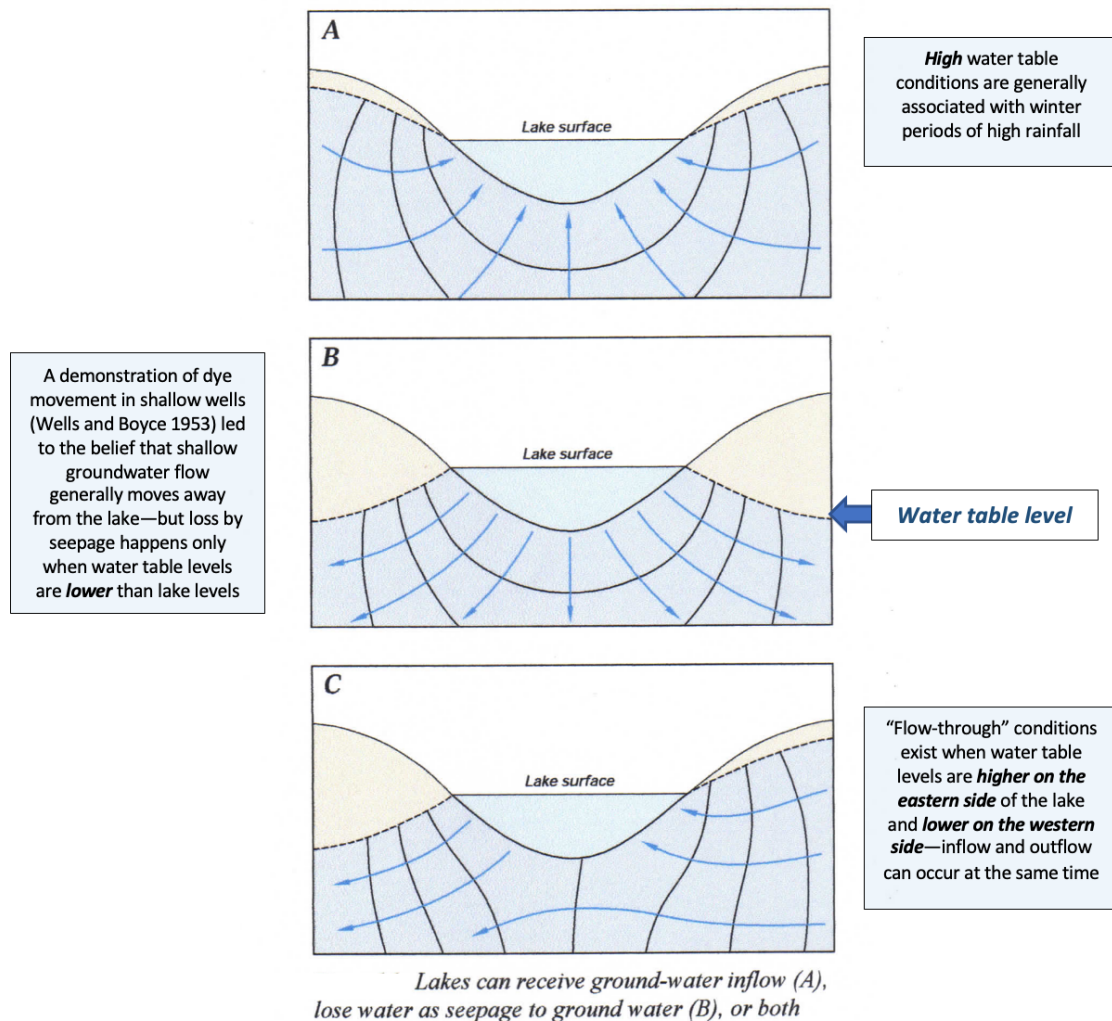


Figure reproduced from: Winter, T.C., W.H. Judson, O.L. Franke, and W.M. Alley. 1998. Ground water and surface water: a single resource. U.S. Geological Survey Circular 1139 <https://doi.org/10.3133/cir1139>