

The rainfall deficiency of the past seven years isn't the reason for the drop in the water table in this lake, the engineer commented. He explained that Big Lake Wailes has had enough rainfall, plus runoff from a drainage area five times the size of the body of water, in the past seven years to offset losses from evaporation.

"Theoretically, Lake Wailes should not have lost ground in these past seven years. This isn't a pot-hole lake. It benefits from surface runoff. Yet the table has declined from 115 feet above sea level to 104.8 feet a month ago—a loss of more than 10 feet in the water level in only seven years.

"Because of the heavy pumping from the underground aquifer," Johnson said, "we have upset the delicate balance created by nature over a period of many years in respect to our lakes.

"Our lakes are leaking (because of the withdrawal of the ground water beneath the surface) and we are going to lose most of these lakes in our Ridge section."

Johnson does not point the finger to the phosphate industry alone as the sole heavy pumper of underground water. The second villain is in citrus production and processing.

The engineer said that reliable figures on the gallonage of water pumped from the aquifer for grove irrigation and citrus processing are not known, but that the gallonage is substantial.

The Citrus Experiment Station at Lake Alfred reports that an average of one foot of water per acre (325,850 gallons) per year is needed for irrigation. The U.S. Department of Agriculture reports that 1.95 acre feet of water per acre is used for citrus irrigation under average conditions in West Central Florida.

The USGS states that 82 per cent of the water used for citrus irrigation comes from the underground storage aquifer—the balance from surface water sources, i.e., lakes.

The water-use for citrus has increased from about 20 billion gallons per year in 1956 to 52 billion gallons per year in 1965 and the Soil Conservation Service predicts that the water demand in the five-county area comprising the Peace and Alafia River basins will climb to 125 billion gallons per year by 1980.

Add the present citrus water consumption and the increased gallonage anticipated by 1980 to present demands of the phosphate industry and its future projected needs and Johnson's dire outlook on the lakes of Polk dying appears to be all too realistic.

The Florida Board of Conservation cites that four billion gallons of ground-water is needed to produce a million long tons of phosphate. From 1934 to 1965, ground-water consumption by the phosphate industry soared from eight billion gallons per year to 72 billion gallons in 1965.

Polk County has the highest industrial use of water of any county in Florida. The Florida Board of Conservation says that this peak demand reflects the phosphate and electric power generating industries within the Peace and Alafia River basins.

"Total industrial water use in Polk County was reported at 133.5 billion gallons per year in 1962," the USGS stated. "The Florida Board of Conservation projection to 1980 indicates an industrial water use of 316 billion gallons per year."

Johnson said that the future salvation water-rise of Polk and its lakes depends on severe conservation in the areas of phosphate, citrus and electric power production. (Municipal water use accounts for less than 10 per cent of the total pumped from the aquifer.)

"The phosphate industry in North Africa's desert operates with only a little salt water," he said. "We need to get our phosphate industry to recognize the problem and to take the steps necessary to change its mining-processing processes. It needs a closed water system—taking only enough of the ground water supply to replace the loss by evaporation. It is entirely feasible.

"The citrus industry needs to know much more about its irrigation needs. I am not suggesting that some irrigation isn't needed. We need to have better guide lines than the three o'clock wilt to know when to irrigate and how much to irrigate. Certainly, irrigation should at least be at night when the humidity is high, when the wind is low, when evaporation can be held to a minimum. I do suggest that we need to irrigate most beneficially.

"Large quantities of ground-water are used for cooling generators in electric power plants. Just because it is easy to get and because the ground-water temperature is low. We should be looking at this real hard. Power plants can be built that use almost no water.