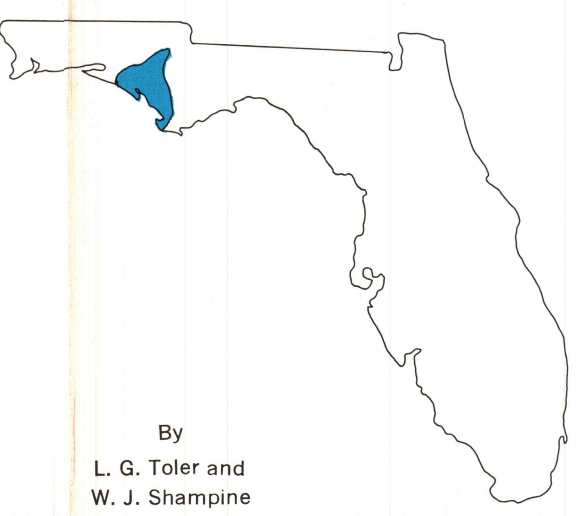


QUALITY OF WATER FROM THE FLORIDAN AQUIFER
IN THE ECONFINA CREEK BASIN AREA
FLORIDA
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The Econfina Creek Basin area encompasses about 800 square miles in Northwest Florida and includes most of Bay County and parts of Calhoun, Gulf, Jackson, and Washington Counties.

Ground water is obtained in the basin from three aquifers, a water-table aquifer, a secondary artesian aquifer and the artesian Floridan aquifer. The secondary artesian aquifer yields water from a zone intermediate in depth to the water-table aquifer and the Floridan aquifer.

The Floridan aquifer is the principal producer. The top of this aquifer is at an elevation of about sea level in the northern part of the area and dips to about 260 feet below sea level near the coast. Most of the wells penetrate only the upper 100-200 feet of the Floridan aquifer but several of the deeper wells near the coast yield water from 400-500 feet into the aquifer. Deepening of some wells has indicated a general increase in mineral content of the water with depth.

The water-bearing rocks are predominantly limestone, which causes the natural hardness of the water and the high pH. With the exception of iron and silica, all the mineral constituents determined show a general increase toward the coast coincident with the general direction of dip of the rocks and of water movement. A higher percentage increase of magnesium, sodium and chloride in the down dip direction suggests a mixing of saline water with fresh water. The source of the saline water may be from salt-water encroachment or incomplete flushing of salts from the containing rocks.

Many of the wells that penetrate the Floridan and secondary artesian aquifers yield water that contains hydrogen sulfide gas and high sulfate. Hydrogen sulfide makes the water taste and smell badly. It is found in most wells in the area 15-20 miles wide and adjacent to the coast.

The accompanying table lists the maximum and minimum concentration for all the mineral constituents determined in water from the Floridan aquifer. The recommended maximum limits are those of the U.S. Public Health Service (1962) and are for potable water. The maximum desirable concentration of many constituents have been determined for most industrial uses (CAHF, State Water Pollution Control Board, 1952, 1954; U.S. Salinity Laboratory Staff, 1954). The quality of any water can be defined as good or poor, depending on whether or not the concentration of the dissolved constituents exceeds the maximum for any particular use. This map depicts concentrations only and will enable the user to determine whether or not the water is suitable for his purpose.

References
California State Water Pollution Control Board
1952 Water Quality Criteria, SWPCB Pub. No. 3
1954 Water Quality Criteria, Addendum No. 1, SWPCB No. 3
U. S. Public Health Service
1962 Drinking Water Standards, PHS Pub. No. 956
U. S. Salinity Laboratory
1954 Diagnosis and Improvement of Saline and Alkali Soils,
U. S. Department of Agriculture Handbook No. 60

Mineral Constituent	Concentration in parts per million		Recommended Maximum Concentration
	Maximum	Minimum	
Silica	24	5.6	
Iron	1.7	.01	.3
Calcium	87	18	
Magnesium	48	7	
Sodium	198	1.4	
Potassium	12	.1	
Bicarbonate	280	76	
Sulfate	145	0	250
Chloride	349	1.3	250
Fluoride	3.1	.1	
Nitrate	2.0	0	45
Dissolved Solids	903	76	500
Hardness as Calcium Carbonate	330	58	
Non-Carbonate Hardness	190	0	
pH	8.5	7.4	

