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CHLORIDE CONTENT OF GROUND WATER IN PINELLAS COUNTY, FLORIDA, IN 1950 AND 1963

By
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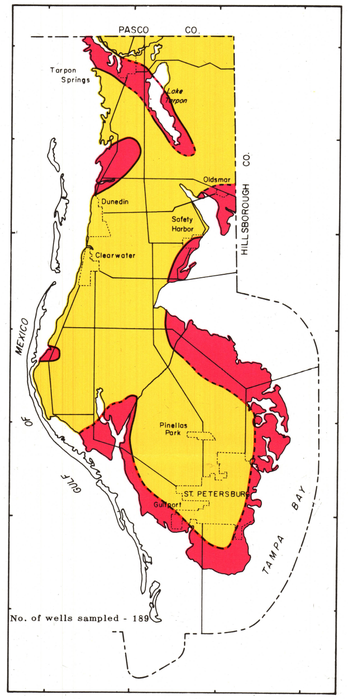
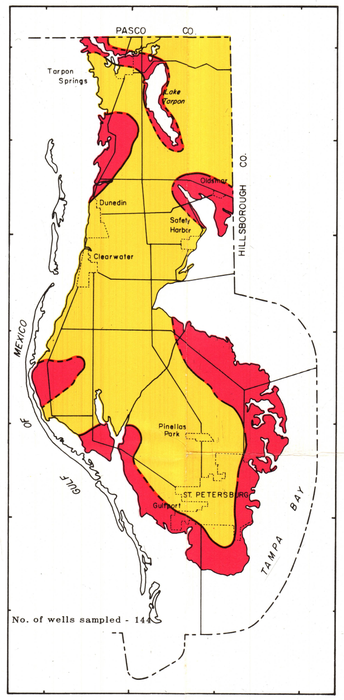
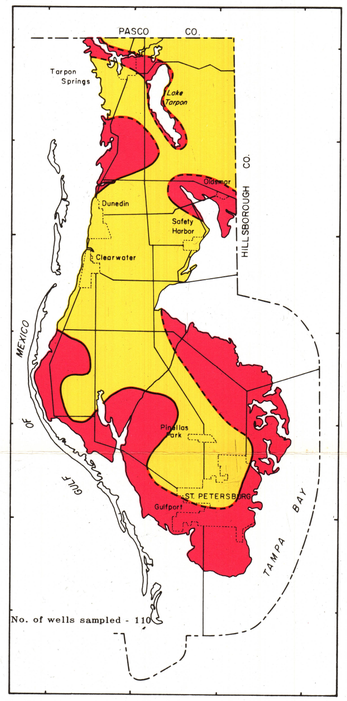


WELL DEPTH 0-125 FEET

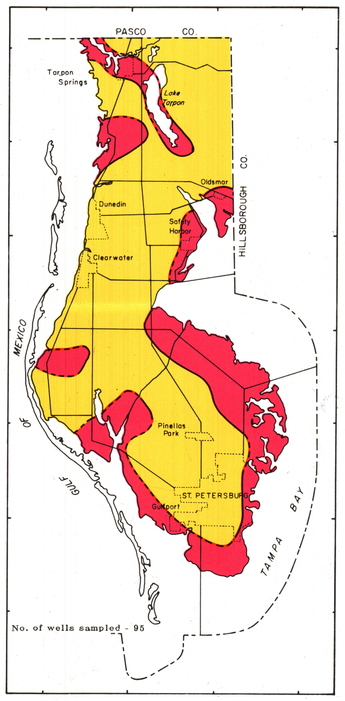


WELL DEPTH 126-250 FEET



WELL DEPTH GREATER THAN 250 FEET

CHLORIDE CONTENT IN 1950



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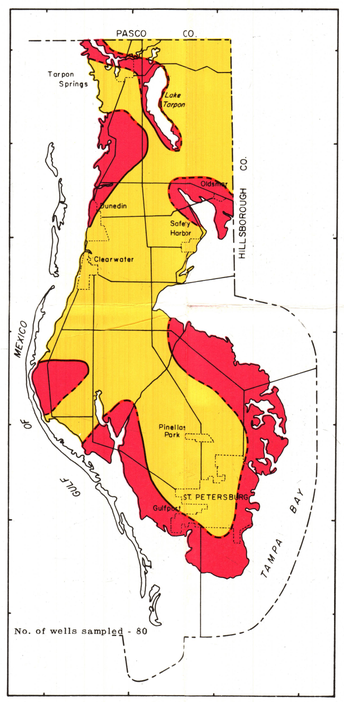
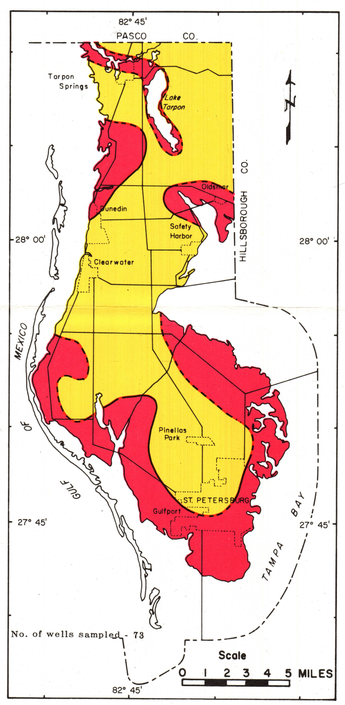


WELL DEPTH 126-250 FEET



WELL DEPTH GREATER THAN 250 FEET

CHLORIDE CONTENT IN 1963

Salt-water encroachment has occurred in many coastal areas of Florida and may be defined as present-day movement of salt water into the unconfined and/or confined fresh water. Encroachment may be caused by lowering of water level or piezometric surface. Chloride is a principal constituent of salt water and therefore can be used to detect and measure the degree of salinity. Chlorides occur in practically all natural waters; the concentration ranges from a fraction of a part per million in some rain water to 19,000 ppm in sea water and generally exceeds 100,000 ppm in brine.

The two sets of inset maps, 1950 and 1963, show that no significant salt-water encroachment has occurred in Pinellas County during this period, probably because there have been no large increases in water withdrawals during the period. Although some water is still being pumped for lawn watering, suburban domestic supplies and small municipalities, most of the water supplied to the larger municipal systems in Pinellas County is pumped from wells located in northeastern Pinellas County and western Hillsborough County. Many of the large wells once used for irrigating orange groves have been abandoned because the grove land is now used for housing projects.

Standards for chloride concentration in drinking water are usually based on potability requirements. The U. S. Public Health Service (1962) recommends that the chloride concentration in drinking water not exceed 250 ppm. These maps show that water with less than 250 ppm occurs in much of the county.

The maps have been prepared as part of the Middle Gulf Basins Project that is being conducted in cooperation with the Southwest Florida Water Management District. They are highly generalized and are based on data collected by Brown (1958), Heath and Smith (1954), and data collected by the Florida Division of Water Resources and Conservation and by the U. S. Geological Survey. Most of the data collected by Brown, Heath, and Smith were within the period 1946-1948 and are shown on the map as 1950. The current data collected by the Florida Division of Water Resources and Conservation and the U. S. Geological Survey were collected within the period 1958-1963 and are shown on the map as 1963. Where possible, the same wells were sampled in 1963 as in 1950. The chloride concentration represents the average of the water-producing zones of the well. A total of 691 analyses of water from wells was used in this comparison.

REFERENCES

Brown, D. W.
1959 Changes in the chloride content of ground water in Pinellas County, Florida between 1947 and 1958: Florida Geol. Survey Inf. Circ. 16.

Heath, R. C.
1954 (and Smith, P. C.), Ground water resources of Pinellas County, Florida: Florida Geol. Survey Rept. Inv. no. 12.

McKee, Jack E.
1963 (and Wolf, Harold W.), Water quality criteria, State Water Quality Control Board, pub. 3A, Sacramento, Calif.

U. S. Public Health Service
1962 Public Health Service Drinking Water Standards, 1962.

Prepared by the U.S. Geological Survey
in cooperation with the
Florida Geological Survey
and the
Southwest Florida Water Management District

EXPLANATION

Line represents approximately 250 ppm chloride, dotted where inferred

Chloride content less than 250 ppm

Chloride content greater than 250 ppm

LOCATION MAP