

EXPLANATION



Areas in which properly located and developed wells will sustain yields of sufficient magnitude for municipal supply or other large-scale use. Aquifers consist predominantly of relatively fine-grained glacial outwash deposits, but they include some ice-contact deposits which are generally coarser-grained. Most of these stratified deposits underlie organic swamp deposits. Saturated thicknesses of the stratified deposits are known or inferred to be near the maximum thicknesses in the drainage basin, and opportunity for recharge of ground-water aquifers is excellent. The quality of the water is generally good, although in waters from stratified deposits underlying swamp deposits concentrations of iron and manganese are often sufficiently high to require treatment. Careful exploration is required in order to locate zones of maximum permeability within the deposits.



Areas in which properly located and developed wells can be expected to yield small to moderately large supplies of water. Aquifers consist mostly of relatively fine-grained outwash deposits, but they include numerous ice-contact deposits which in general are more coarse-grained. Saturated thicknesses of the deposits are generally above average for the drainage basin, and opportunity for recharge of ground-water aquifers is generally good. In places where saturated thicknesses of the stratified deposits are greatest the grain sizes in the deposit are likely to be predominantly small. Careful exploration of these deposits is required in order to locate the zones of greatest relative permeability. The quality of water is generally good although in waters from stratified deposits underlying swamp deposits, concentrations of iron and manganese are often sufficiently high to require treatment.



Areas in which ground-water supplies are generally limited to small domestic supplies derived from shallow dug wells in unconsolidated deposits or from wells drilled into bedrock. Most of the unconsolidated deposits are composed of till. However, numerous stratified deposits which mantle or fringe topographic highs and which are known or inferred to be relatively thin are also included in this category. At most places the till yields small supplies of water to dug wells, although many of the wells are dry in dry seasons. The high-level stratified deposits also are likely to yield no water during dry seasons, and most new wells constructed in these areas are drilled into bedrock. Properly constructed wells in bedrock generally sustain small but reliable yields the year around. The quality of water from both bedrock and till is generally adequate for domestic needs, although relatively high concentrations of iron and manganese are common.



Ground-Water Supply



Surface-Water Supply

Locations of sources of municipal water supply. Diameter of circle indicates average daily pumpage in 1960. Major sources of water supply are indicated by open circles; additional locations are indicated by closed circles (●).

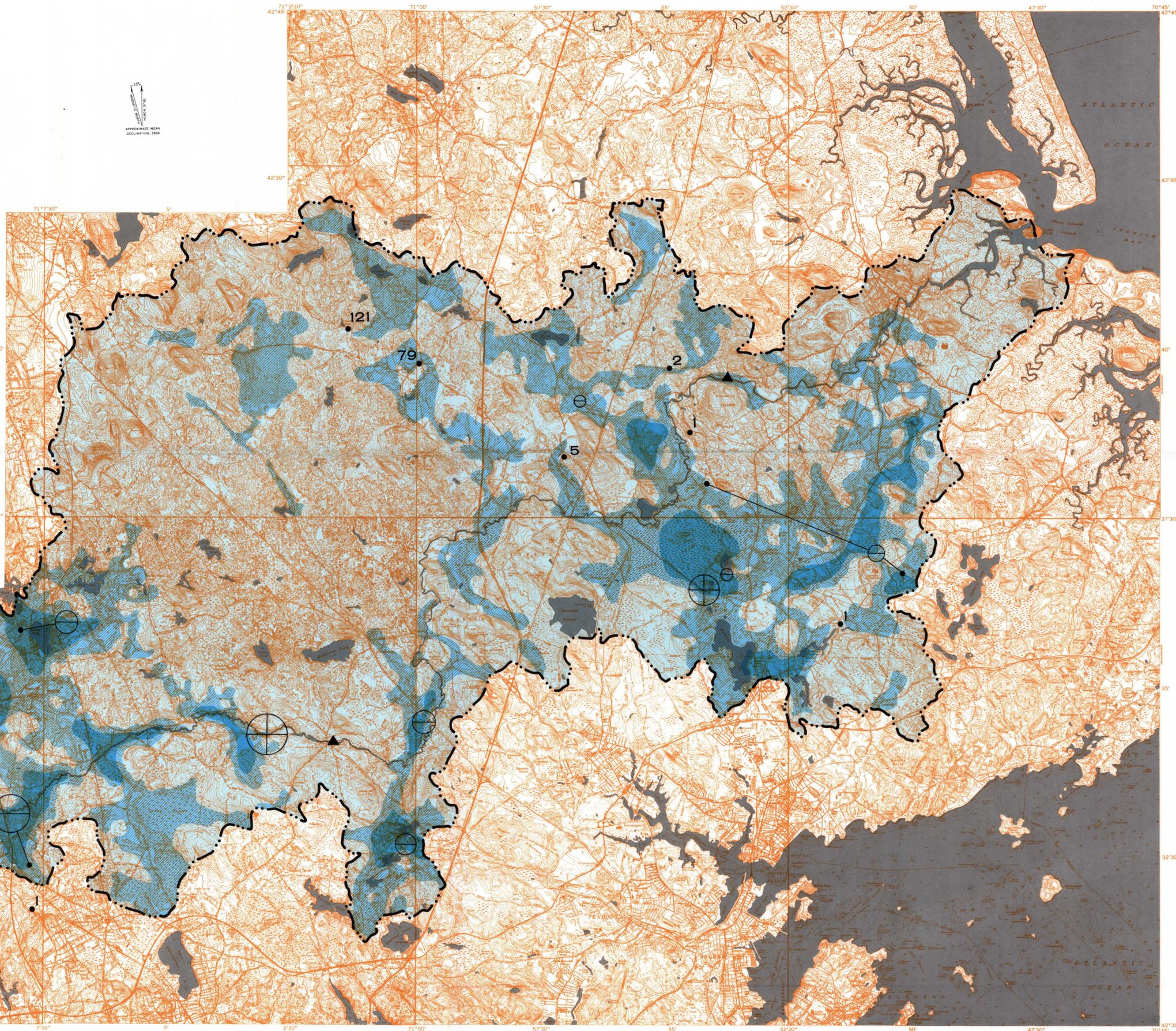


Stream-gaging station



Observation well

Boundary of the Ipswich River basin



Base map from U.S. Geological Survey topographic quadrangles: Ipswich, 1950; Georgetown, 1953; South Groveland, 1952; Lawrence, 1955; Wilmington, 1950; Reading, 1951; Salem, 1956; Marblehead North, 1956

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Hydrology by E. A. Sammel

MAP SHOWING AVAILABILITY OF GROUND WATER AND LOCATIONS OF MUNICIPAL WATER SUPPLIES
SYNOPSIS OF WATER RESOURCES OF THE IPSWICH RIVER BASIN, MASSACHUSETTS

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