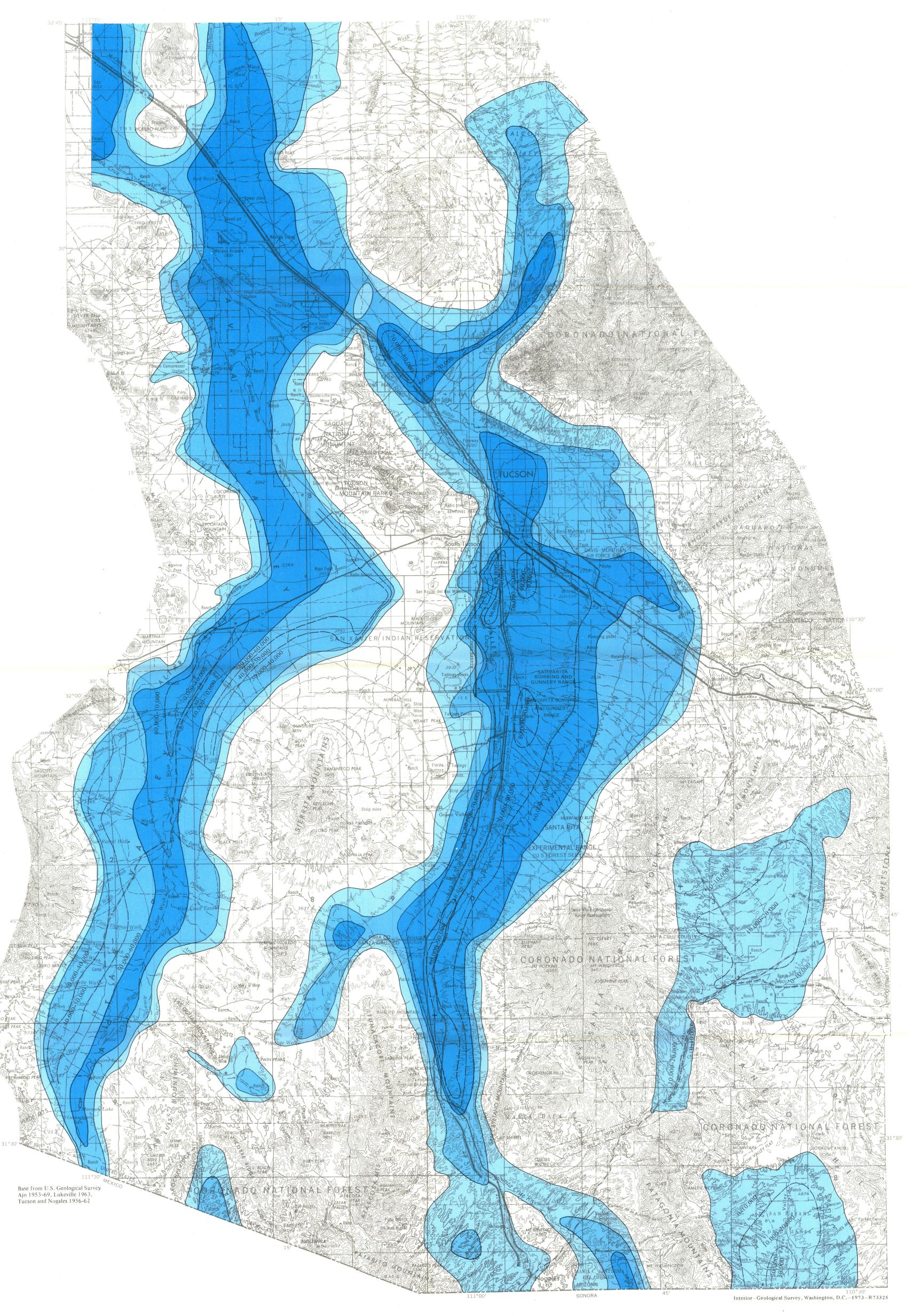


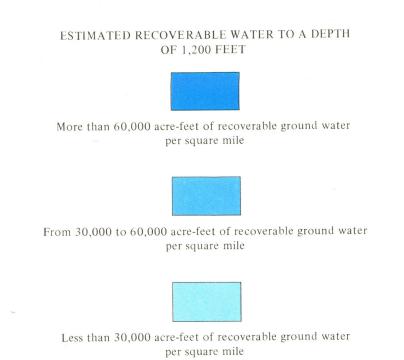
TABLE 1 – Estimated recoverable ground water in storage, Tucson area

CONTOUR INTERVAL 500 FEET
DATUM IS MEAN SEA LEVEL
INDEX MAP SHOWING SUBAREAS LISTED IN TABLE 1

Sub	area					
Number		Water in upper	Water between	Water between	Water between	Water between
(see	Square	100 feet of	land surface and	300 and 700 feet	700 and 1,200	land surface ar
index	miles	saturated	300 feet below	below land	feet below land	1,200 feet belo
ap for		sediment	land surface	surface	surface	land surface
cation)					500,000	060,000
1	20.2	140,000	10,000	460,000 890,000	500,000 840,000	960,000 1,700,000
2 3	28.6 26.6	230,000 210,000	10,000	210,000	870,000	1,100,000
4	26.6	220,000	0	620,000	440,000	1,100,000
5	28.6	220,000	50,000	800,000	590,000	1,400,000
6	25.4	210,000	0	520,000	860,000	1,400,000
7	23.9	220,000	50,000	500,000	70,000	620,000
8	36.0	320,000	110,000	1,100,000	1,100,000	2,300,000
9	32.4	280,000	0	560,000	1,100,000 400,000	1,700,000 990,000
10 11	19.8 37.5	180,000 360,000	40,000 90,000	550,000 1,100,000	1,200,000	2,400,000
12	21.0	190,000	30,000	620,000	620,000	1,300,000
13	17.1	160,000	0	410,000	180,000	590,000
14	30.0	290,000	70,000	920,000	960,000	2,000,000
15	24.8	220,000	30,000	630,000	470,000	1,100,000 510,000
16	14.0	140,000	0	270,000 790,000	240,000 960,000	1,800,000
17 18	30.0 12.9	290,000 130,000	0	270,000	180,000	450,000
19	24.5	230,000	0	610,000	630,000	1,200,000
20	24.0	230,000	0	510,000	500,000	1,000,000
21	19.2	180,000	220,000	560,000	370,000	1,200,000
22	36.0	300,000	0	910,000	1,200,000	2,100,000
23	19.1	140,000	160,000	280,000 540,000	470,000 310,000	750,000 1,000,000
24 25	20.3 35.7	210,000 340,000	160,000 170,000	790,000	1,100,000	2,100,000
26	24.1	180,000	0	60,000	600,000	660,000
27	20.3	210,000	0	310.000	550,000	860,000
28	30.0	290,000	90,000	850,000	960,000	1,900,000
29	15.0	150,000	0	120,000	400,000	520,000
30	12.0	120,000	0	190,000	300,000	490,000 1,700,000
31	28.5	270,000	20,000	760,000 270,000	910,000	610,000
32 33	13.8 12.0	140,000 120,000	0	100,000	330,000	430,000
34	36.0	350,000	0	830,000	1,200,000	2,000,000
35	15.6	160,000	0	280,000	330,000	610,000
36	30.6	270,000	0	350,000	900,000	1,200,000
37	23.6	210,000	10,000	600,000	510,000	1,100,000
38	18.0	160,000	0	320,000	450,000	770,000 970,000
39	20.6	180,000	30,000	470,000 440,000	500,000 330,000	800,000
40 41	18.6 18.7	170,000 150,000	240,000	60,000	0	300,000
42	17.8	180,000	330,000	260,000	20,000	610,000
43	37.9	370,000	20,000	350,000	160,000	530,000
44	30.1	310,000	20,000	640,000	140,000	800,00
45	23.6	220,000	240,000	310,000 840,000	640,000	550,00 1,900,00
46 47	31.6 33.9	300,000 280,000	430,000 120,000	890,000	930,000	1,900,00
48	24.4	200,000	120,000	600,000	260,000	980,00
49	20.8	160,000	220,000	320,000	200,000	740,00
50	36.0	290,000	520,000	1,000,000	650,000	2,200,00
51	29.0	240,000	490,000	500,000	80,000 430,000	1,100,00 1,400,00
52	28.0	210,000	390,000	560,000 690,000	680,000	1,500,00
53 54	30.0	190,000 170,000	170,000 140,000	530,000	330,000	1,000,00
55	34.4	380,000	670,000	550,000	180,000	1,400,00
56	42.0	480,000	330,000	1,400,000	1,300,000	3,000,00
57	31.2	250,000	80,000	780,000	810,000	1,700,00
58	31.4	230,000	330,000	490,000	200,000	1,000,00 2,700,00
59	36.6	300,000	430,000	1,100,000 750,000	1,200,000 1,100,000	1,900,00
60	35.4	250,000	20,000	230,000	540,000	770,00
61 62	18.1 27.4	140,000 190,000	170,000	690,000	350,000	1,100,00
63	42.8	410,000	280,000	1,300,000	1,400,000	3,000,00
64	23.3	190,000	0	390,000	680,000	1,100,00
65	35.3	270,000	270,000	980,000	690,000	1,900,00
66	36.3	260,000	100,000	880,000	1,100,000	2,100,00 1,000,00
67	39.1	380,000	550,000 120,000	490,000 210,000	40,000	370,00
68 69	15.1 40.9	120,000 340,000	390,000	1,200,000	1,100,000	2,700,00
70	27.0	220,000	220,000	640,000	660,000	1,500,00
71	30.9	250,000	380,000	830,000	700,000	1,900,00
72	29.2	230,000	400,000	710,000	660,000 170,000	1,800,0 790,0
73	29.9	160,000	150,000 110,000	470,000 290,000	170,000	530,0
74 75	30.3 25.4	80,000 210,000	310,000	290,000	0	310,0
75 76	31.4	160,000	130,000	230,000	50,000	410,0
77	20.9	200,000	360,000	420,000	120,000	900,0
78	22.0	70,000	110,000	60,000	0	170,0
79	29.3	110,000	70,000	220,000	20,000	310,0 740,0
80	40.9	130,000	300,000	360,000	80,000 20,000	230,0
81	25.8	80,000	60,000	150,000 250,000	30,000	390,0
82.	37.0 21.7	120,000 60,000	110,000 90,000	150,000	20,000	260,0
83 84	46.4	150,000	170,000	320,000	80,000	570,0
85	50.3	160,000	240,000	320,000	70,000	630,0

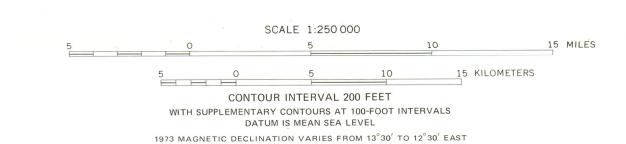
Table 1 lists the estimated amounts of recoverable ground water that are stored in the Tucson area by depth zones for the subareas shown on the index map. The index map and table 1 should be used in conjunction with the depth-to-water map (U.S. Geol. Survey Misc. Geol. Inv. Map I-844-D). The values given in the column entitled "Water in upper 100 feet of saturated sediment" are the average amounts of water that can be pumped from a subarea with a resultant average water-level decline of 100 feet; the values are highly dependent on the size of the subareas. The values given in the column "Water between land surface and 300 feet below land surface" are the amounts of water that probably can be removed without creating hazards, such as land subsidence. The values given in the columns "Water between 300 and 700 feet ..." and "Water between 700 and 1,200 feet below land surface" are estimates of the amount of water available for intermediate to long-range use. It should be emphasized that the amount of ground water stored in a subarea varies from place to place in the subarea, and, therefore, the areal-distribution map can be used to estimate the amount of water in storage at a specific site. The index map and table 1 can be used to provide estimates of the amounts of water stored at the different depth ranges. It should be emphasized that all subarea boundaries are artificial boundaries selected for convenience in compilation and do not represent physical boundaries; therefore, a well in the extreme northeast corner of subarea 65 will withdraw water from parts of subareas 62, 63, 66, and 65.





20,000-30,000 Intermediate amounts

In the Tucson area nearly all water used by man is from the alluvial deposits. The average water use (1940–65) is about 195 acre-feet per year per 1,000 population, which is equivalent to about 175 gallons per day per person. At the present time (1973), pumpage exceeds the annual rate of recharge, and, as a result, ground water is being removed from storage—that is, it is being mined. The map and table 1, based on data collected during several recent years and representative of conditions in 1973, can be used to determine the amount of available ground water at a site or locality. The map provides estimates of the total amount of recoverable ground water in storage only to a depth of 1,200 feet below ground; additional water can be recovered at greater depths where the alluvial deposits are thick enough. Removal of water causing a water-level decline of 100 feet and more is expected to create serious hazards—such as land subsidence—and, therefore, the use of this water should be considered carefully in planning.



## MAP SHOWING DISTRIBUTION OF RECOVERABLE GROUND WATER IN THE TUCSON AREA, ARIZONA

By
W. R. Osterkamp

1973