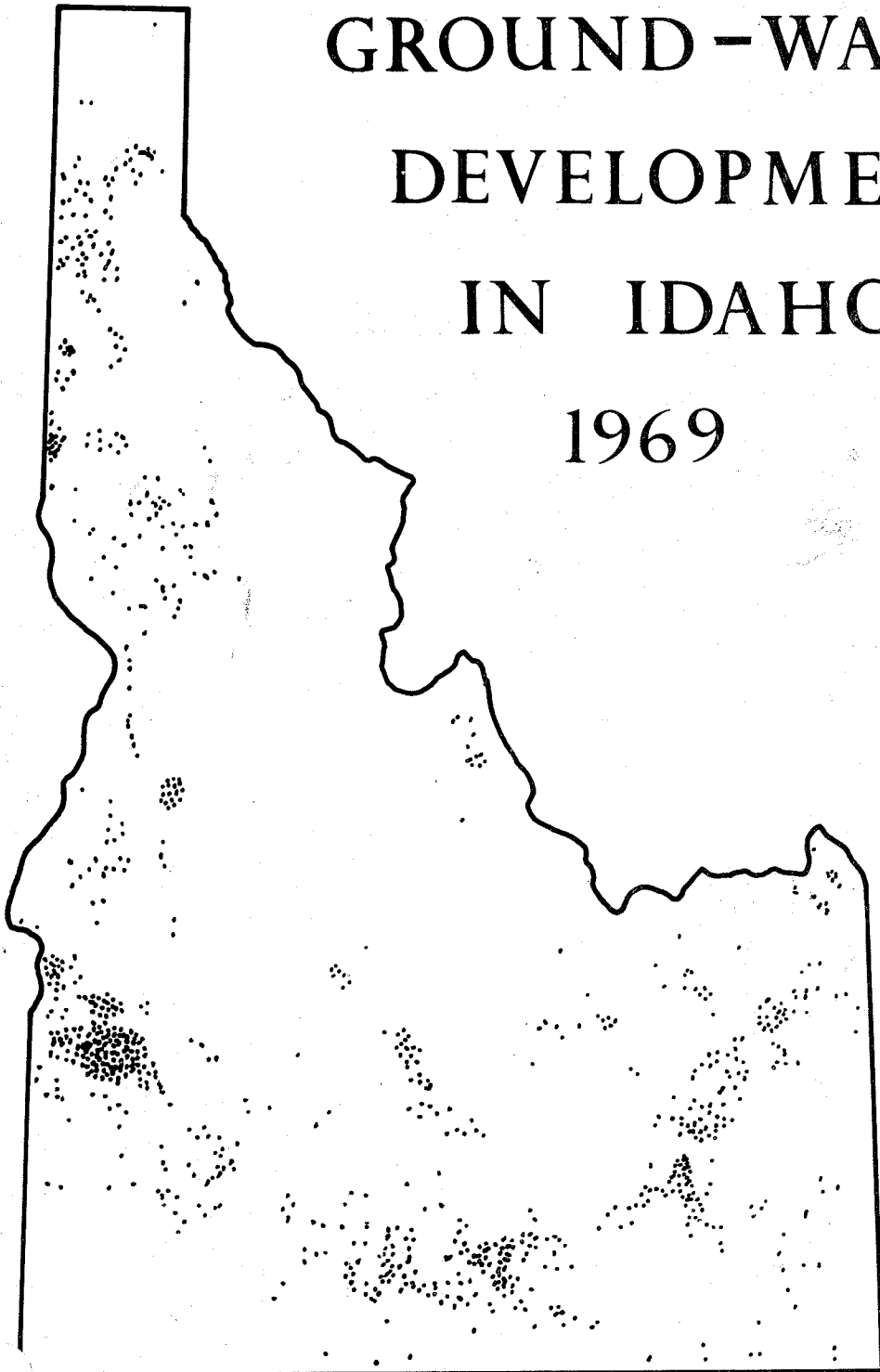


# GROUND-WATER DEVELOPMENT IN IDAHO 1969



WATER INFORMATION BULLETIN No.17  
IDAHO DEPARTMENT OF RECLAMATION  
JUNE 1970

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GROUND-WATER DEVELOPMENT

IN IDAHO - 1969

by

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Prepared and Published by

Idaho Department of Reclamation

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State Reclamation Engineer

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## INTRODUCTION

### Purpose and Objectives

The ground-water resource of Idaho is a major key to the future economic development of the state. A large portion of the agricultural water supply, as well as municipal, industrial, and domestic supplies are derived from this vast underground resource. The rate of development of ground water in the state is an indicator of the agricultural and industrial prosperity as well as an indicator of population growth. This report is the third in an annual series analyzing the development of this resource.

The administration of the ground-water resource of Idaho is the responsibility of the State Reclamation Engineer. This report is prepared to provide him and the public with quantitative information on the location and extent of the present and projected ground-water development in the state.

The objectives of the study can be divided into four headings:

1. Determine the rate of development of the ground-water resource in the state during 1969.
2. Determine the location of ground-water development in the state during 1969.
3. Compare the data collected in 1969 with that collected in 1967 and 1968 to determine any trends in development.
4. Estimate where ground-water development will occur in future years.

### Method of Analysis

Ground-water development in Idaho in 1969 was analyzed using two sources of information: well drillers' reports submitted for wells drilled in 1969 and applications received for the appropriation of ground water during the year. Estimates of future development were based on comparison of 1967, 1968, and 1969 data. The estimates did not include assessments of hydrologic capabilities or water rights administration.

Information from well drillers' reports was compiled by hydrologic area or drainage basin (fig. 1). This information included the date the well was completed and the use, diameter and depth of the well. A summation of this data is presented in table 1.

Information from applications submitted to appropriate ground water in 1969 have also been compiled by hydrologic area and are presented in table 2. The data presented include the number of filings, the total quantity appropriated, and the average quantity appropriated for each hydrologic area in the state. More recent compilations of the 1967 and 1968 data on wells reported drilled and applications received for ground water are also presented for comparison.

#### STATEWIDE DEVELOPMENT

Well drillers' reports have been submitted for 1,222 wells reported drilled during 1969 (table 1). The areal distribution of these wells is shown in figure 2. This compares with 1,468 reported drilled during 1968, and 823 reported drilled during 1967 (fig. 3). The average diameter and depth of wells drilled in 1969, 8.5 inches and 189 feet are the same as the corresponding averages for the previous years. Approximately 15 per cent of the wells reported drilled in 1969 were intended for irrigation uses, 80 per cent for domestic, and 5 per cent for other uses. As in previous years, the most common diameter well drilled in the state was six inches (fig. 4). The eight inch well was the next most predominant size. The small diameter of these wells indicates a great interest in the use of ground water for domestic and small irrigation purposes.

The State Reclamation Engineer received 333 applications to appropriate ground water during 1969 (table 2). The locations of the permits are shown in figure 5. The 1969 total is down from the 1968 total, but is up slightly from that recorded in 1967. Of particular interest is the total quantity of water filed on in 1969. Applications received in 1969 involved 901 cubic-feet per second (cfs) of water compared with over 1,600 and 1,400 cfs for the two previous years. The average quantity of water requested in 1969, 2.7 cfs, was less than either 1967 or 1968. The uses noted on the applications indicated a predominant interest in the utilization of ground water for irrigation purposes (66 per cent). Applications were also received for domestic (26 per cent) and for industrial and other purposes (8 per cent). The difference in number of wells drilled and applications received is probably the result of provisions of state law requiring that a permit be filed with the Department of Reclamation prior to the commencement of the drilling of a well for any purpose other than drainage or domestic use. In many locations, however, persons wishing to drill a domestic

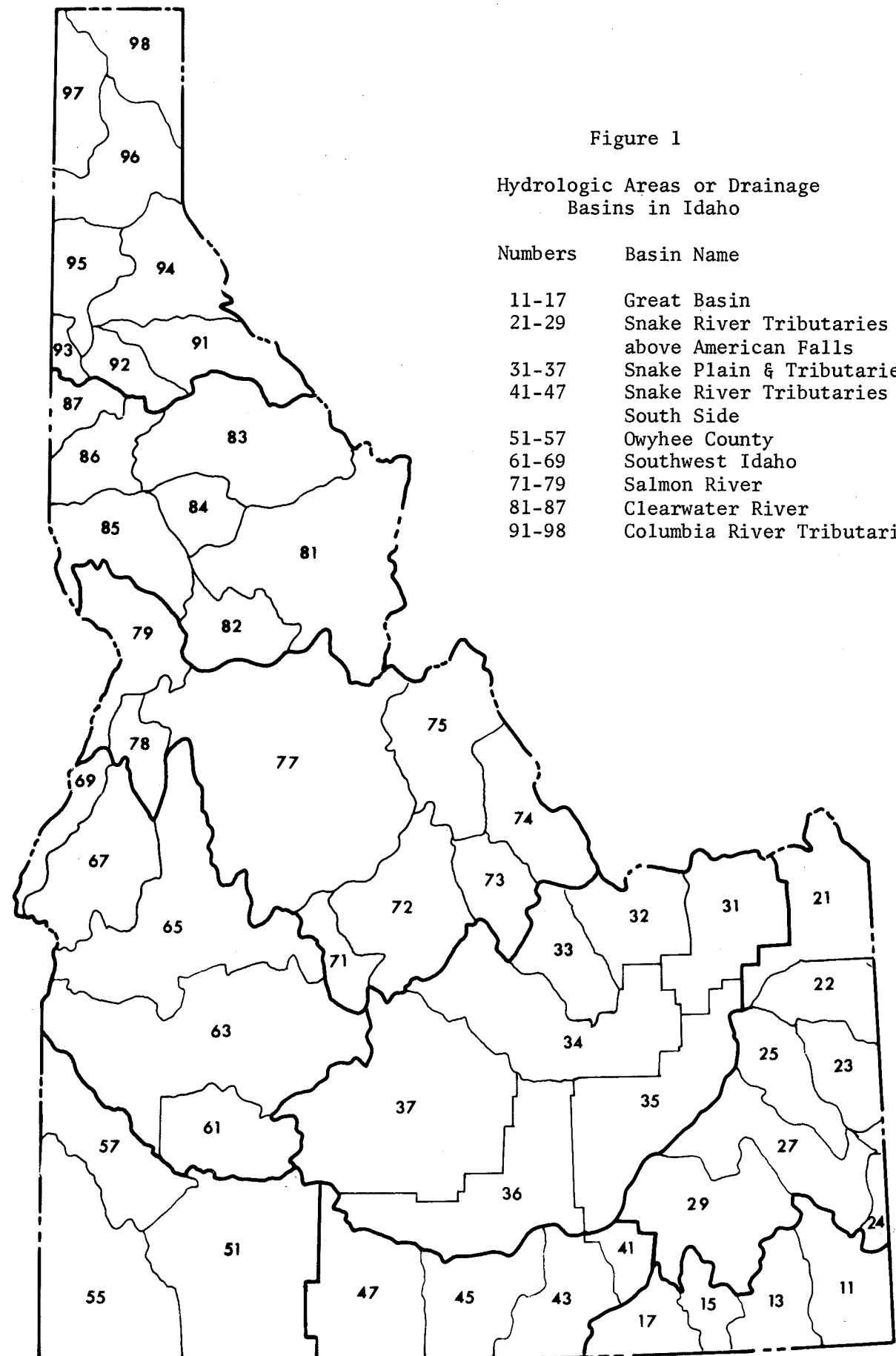


Figure 1

Hydrologic Areas or Drainage Basins in Idaho

Numbers	Basin Name
11-17	Great Basin
21-29	Snake River Tributaries above American Falls
31-37	Snake Plain & Tributaries
41-47	Snake River Tributaries - South Side
51-57	Owyhee County
61-69	Southwest Idaho
71-79	Salmon River
81-87	Clearwater River
91-98	Columbia River Tributaries



TABLE 1  
NUMBER, AVERAGE DIAMETER AND AVERAGE DEPTH OF WELLS  
REPORTED DRILLED IN IDAHO IN 1967-69 BY HYDROLOGIC BASIN

Area Number	Hydrologic Area	Number of Wells Reported Drilled				Average Diameter				Average Depth			
		1967	1968	1969	1967-69	1967	1968	1969	1967-69	1967	1968	1969	1967-69
11	Bear River above Alexander	14	9	4	27	7.7	6.4	6.5	7.1	89	107	105	97
13	Bear River - Alexander to State Line	1	4	9	14	12.0	7.4	8.8	8.6	200	171	229	210
15	Malad River	5	0	3	8	8.4	0	6.7	7.8	250	0	288	264
17	Great Salt Lake	3	4	3	10	13.3	14.5	17.3	15.0	150	370	670	394
11-17	Great Basin	23	17	19	59	8.8	8.6	9.4	8.9	137	184	282	197
21	Henry's Fork	30	33	19	82	7.2	8.1	6.9	7.5	117	157	134	137
22	Teton River	20	35	27	82	10.0	9.9	11.7	10.5	323	181	252	239
23	Snake River Tributaries above Heise	1	0	1	2	6.0	0	6.0	6.0	100	0	80	90
24	Salt River	0	3	1	4	0	6.0	12.0	7.5	0	55	52	54
25	Willow Creek	34	36	18	88	7.6	7.5	8.2	7.7	176	178	128	167
27	Blackfoot River	38	52	45	135	8.2	7.9	10.0	8.7	107	99	181	129
29	Portneuf River	36	54	52	142	10.9	8.4	10.6	9.8	159	182	162	169
21-29	Snake River Tributaries above American Falls	159	213	163	535	8.7	8.3	9.9	8.9	162	155	174	163
31	Camas Creek and Mud Lake	11	16	14	42	11.8	15.1	20.4	15.6	389	280	243	290
32	Medicine Lodge and Birch Creeks	0	4	3	7	0	19.0	11.3	15.7	0	480	147	337
33	Little Lost River	13	4	6	23	15.7	14.0	17.5	15.9	305	207	306	288
34	Big Lost River and N.R.T.S.	4	7	10	21	12.0	12.2	15.2	13.6	226	173	237	214
35	Aberdeen-Springfield	43	66	44	153	11.7	10.0	12.2	11.1	228	196	233	216
36	Minidoka-Jerome	29	65	54	148	9.5	6.5	10.8	8.7	265	270	226	253
37	Wood Rivers	18	66	57	141	9.8	7.4	8.4	8.1	159	156	152	155
31-37	Snake Plain and Tributaries	118	228	189	535	11.2	10.1	11.6	10.9	250	216	208	221
41	Rock Creek	0	1	0	1	0	6.0	0	6.0	0	115	0	115
43	Raft River	10	34	19	63	19.8	11.1	9.4	12.0	375	330	284	323
45	Goose Creek - Rock Creek	20	46	42	108	9.4	10.0	9.2	9.6	317	312	292	305
47	Salmon Falls Creek	22	74	44	140	8.2	8.0	8.7	8.3	319	274	235	269
41-47	Snake River Tributaries - South Side	52	155	105	312	10.9	9.2	9.0	9.4	329	297	269	293
51	Bruneau River	6	16	12	34	13.3	12.6	14.2	13.3	758	749	952	822
55	Owyhee River	3	2	0	5	6.7	11.0	0	8.4	188	454	0	294
57	Snake River Tributaries	12	21	19	52	9.8	8.7	8.5	8.9	352	485	333	399
51-57	Owyhee County	21	39	31	91	10.4	10.4	10.7	10.5	445	592	572	551

TABLE 1 (continued)

Area Number	Hydrologic Area	Number of Wells Reported Drilled				Average Diameter				Average Depth			
		1967	1968	1969	1967-69	1967	1968	1969	1967-69	1967	1968	1969	1967-69
61	Mountain Home	19	52	32	103	11.4	10.6	10.6	10.7	355	329	412	360
63	Boise River	202	363	305	870	7.6	7.5	6.9	7.3	163	168	153	162
65	Payette River	46	127	95	268	6.5	7.4	6.2	6.8	93	87	80	86
67	Weiser River	8	16	35	59	7.5	8.4	8.2	8.2	181	139	159	157
69	Snake River Tributaries - Weiser to Grande Ronde River	0	0	1	1	0	0	6.0	6.0	0	0	100	100
61-69	Southwest Idaho	275	558	468	1301	7.7	7.8	7.1	7.5	165	164	156	161
71	Stanley Basin	5	5	5	15	6.0	6.4	6.0	6.1	62	59	59	60
72	Salmon River - Stanley to Ellis	4	3	1	8	6.0	6.0	8.0	6.3	74	44	62	61
73	Pahsimeroi River	0	4	1	5	0	11.0	20.0	12.8	0	127	150	132
74	Lemhi River	15	6	5	26	7.8	6.0	6.0	7.0	56	59	65	58
75	Salmon River - Ellis to Middle Fork	25	18	8	51	6.5	6.0	6.0	6.2	37	43	40	40
77	Salmon River - Middle Fork and South Fork to Riggins	1	4	0	5	6.0	6.0	0	6.0	48	49	0	49
78	Little Salmon River	0	9	7	16	0	6.8	6.3	6.6	0	81	70	76
79	Salmon River - Riggins to Mouth and Snake River Tributaries - Grande Ronde to Salmon River	0	6	13	19	0	6.0	6.5	6.3	0	260	186	209
71-79	Salmon River	50	55	40	145	6.8	6.5	6.6	6.6	48	83	101	76
81	Middle Fork	1	4	5	10	6.0	6.0	6.0	6.0	118	95	163	131
82	South Fork	1	5	0	6	6.0	6.4	0	6.3	114	139	0	135
83	North Fork	1	1	1	3	8.0	8.0	6.0	7.3	79	205	282	189
84	Main Stem and Tributaries - Kooskia to Ahsahka	15	10	20	45	10.2	6.6	6.6	7.8	156	113	219	174
85	Camas Prairie - Lewiston	10	41	32	83	7.8	6.5	6.7	6.7	225	230	178	209
86	Potlatch River	8	18	16	42	7.2	7.1	7.4	7.2	251	227	157	205
87	Palouse River	12	25	16	53	7.7	7.3	7.9	7.6	219	236	175	214
81-87	Clearwater River	48	104	85	237	8.4	6.8	7.0	7.2	199	210	184	198
91	St. Joe River	0	4	3	7	0	7.0	8.0	7.4	0	91	132	109
92	St. Maries River	4	10	3	17	6.0	6.2	6.0	6.1	140	93	139	112
93	Spokane River Tributaries	1	1	11	13	6.0	6.0	6.0	6.0	168	300	200	205
94	Coeur d'Alene River	7	10	5	22	8.0	7.4	8.0	7.7	150	138	108	135
95	Lake Coeur d'Alene - Rathdrum Prairie	26	43	49	118	7.6	8.4	7.3	7.8	137	171	171	164
96	Pend Oreille	20	27	45	92	10.4	7.4	7.7	8.2	92	134	141	128
97	Priest River	18	3	5	26	6.0	15.3	6.0	7.1	98	44	66	86
98	Kootenai River	1	1	1	3	6.0	6.0	6.0	6.0	128	60	54	81
91-98	Columbia River Tributaries	77	99	122	298	7.9	7.9	7.3	7.7	118	143	153	141
	Total State	823	1468	1222	3513	8.7	8.3	8.5	8.5	184	195	189	190

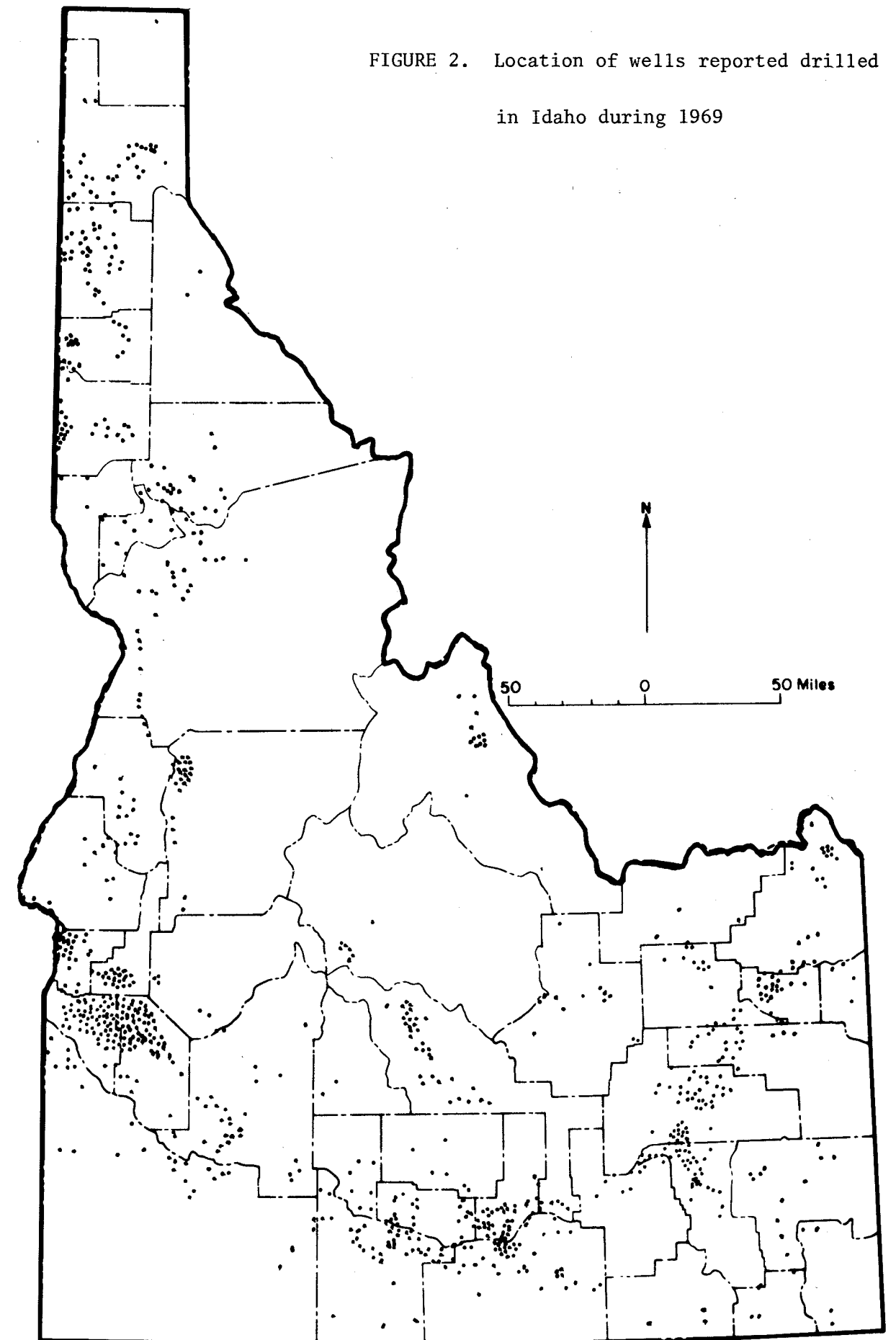
TABLE 2  
 NUMBER OF APPLICATIONS RECEIVED TO APPROPRIATE GROUND WATER AND  
 TOTAL AND AVERAGE QUANTITY REQUESTED IN IDAHO IN 1967-69 BY HYDROLOGIC BASIN

Number	Hydrologic Area	Number of Applications Submitted to Appropriate Ground Water				Total Quantity of Water Applied for (cfs)				Average Quantity of Water Applied for (cfs)			
		1967	1968	1969	1967-69	1967	1968	1969	1967-69	1967	1968	1969	1967-69
11	Bear River above Alexander	1	2	0	3	2.0	4.3	0.0	6.3	2.0	2.15	0.0	2.1
13	Bear River - Alexander to State Line	2	1	2	5	3.0	0.05	3.94	6.99	1.5	.05	1.97	1.39
15	Malad River	2	2	0	4	8.0	1.12	0.0	9.12	4.0	.56	.00	2.28
17	Great Salt Lake	8	4	2	14	47.6	17.70	10.0	75.30	6.0	4.42	5.0	5.38
11-17	Great Basin	13	9	4	26	60.6	23.17	13.94	97.71	4.7	2.57	3.48	3.76
21	Henry's Fork	0	5	0	5	0.0	14.32	0.0	14.32	0.0	3.86	0.0	2.86
22	Teton River	5	7	8	20	18.8	41.02	43.39	103.21	3.8	5.86	5.29	5.16
23	Snake River Tributaries above Heise	1	1	0	2	6.4	.04	0.0	6.44	6.4	.05	0.0	3.22
24	Salt River	0	0	0	0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.00
25	Willow Creek	0	3	3	6	0.0	17.2	6.62	23.82	0.0	5.73	2.21	3.97
27	Blackfoot River	4	4	2	10	54.6	15.7	7.30	77.6	13.7	3.92	3.65	7.76
29	Portneuf River	12	17	13	42	34.1	41.84	26.04	101.98	2.8	2.46	2.0	2.43
21-29	Snake River Tributaries above American Falls	22	37	26	85	113.9	130.12	74.25	318.27	5.2	3.52	2.86	3.74
31	Camas Creek & Mud Lake	14	11	11	36	89.5	63.54	89.60	242.64	6.4	5.78	8.14	6.74
32	Medicine Lodge and Birch Creeks	3	3	0	6	19.0	15.8	0.0	34.8	6.3	5.27	0.0	5.8
33	Little Lost River	2	5	2	9	10.4	23.20	14.0	47.6	5.2	4.64	7.0	5.29
34	Big Lost River and N.R.T.S.	7	4	2	13	52.6	14.36	5.73	72.69	6.6	3.59	2.87	5.59
35	Aberdeen-Springfield	31	57	41	129	191.5	204.49	131.30	527.29	6.2	3.59	3.20	4.09
36	Minidoka-Jerome	30	31	29	90	119.4	131.55	109.97	360.92	4.0	4.24	3.79	4.01
37	Wood Rivers	8	23	11	42	41.9	150.98	7.60	200.48	5.1	6.56	.69	4.77
31-37	Snake Plain and Tributaries	82	134	96	312	524.4	603.92	358.2	1486.52	5.5	4.51	3.73	4.76
41	Snake River Tributaries - South Side	0	0	1	1	0.0	0.0	.07	.07	0.0	0.0	.07	.07
43	Raft River	0	2	3	5	0.0	6.9	3.75	10.65	0.0	3.45	1.25	2.13
45	Goose Creek - Rock Creek	21	9	10	40	160.9	40.42	62.42	263.74	7.7	4.49	6.24	6.59
47	Salmon Falls Creek	18	30	14	62	82.9	143.35	49.02	275.27	4.6	4.78	3.50	4.44
41-47	Snake River Tributaries - South Side	39	41	28	108	243.8	190.67	115.26	549.73	6.2	4.65	4.12	5.09
51	Bruneau River	18	24	11	53	97.5	127.53	49.28	274.31	5.4	5.31	4.48	5.18
55	Owyhee River	0	1	1	2	0.0	14.44	.06	14.5	0.0	14.44	.06	2.25
57	Snake River Tributaries - Grand View to Homedale	7	15	4	26	45.6	66.65	23.22	135.47	6.5	4.44	5.80	6.58
51-57	Owyhee County	25	40	16	81	143.1	208.62	72.56	424.28	5.7	5.22	4.53	5.24

TABLE 2 (continued)

Number	Hydrologic Area	Number of Applications Submitted to Appropriate Ground Water				Total Quantity of Water Applied for (cfs)				Average Quantity of Water Applied for (cfs)			
		1967	1968	1969	1967-69	1967	1968	1969	1967-69	1967	1968	1969	1967-69
61	Mountain Home	15	34	14	63	83.2	179.40	46.69	309.29	5.5	5.28	3.34	4.91
63	Boise River	58	101	80	239	198.6	232.02	103.47	534.09	3.4	2.30	1.29	2.24
65	Payette River	10	13	13	36	13.7	42.45	3.74	59.89	1.4	2.30	.29	1.66
67	Weiser River	5	8	12	25	10.3	15.82	14.60	40.72	2.1	1.98	1.22	1.63
69	Snake River Tributaries - Weiser to Grande Ronde River	0	0	0		0.0	0.0	0.0		0.0	0.0	0.0	
61-69	Southwest Idaho	88	156	119	363	305.8	469.69	168.50	943.99	3.5	3.01	1.42	2.60
71	Stanley Basin	0	0	0		0.0	0.0	0.0		0.0	0.0	0.0	0.00
72	Salmon River - Stanley to Ellis	2	1	0	03	0.3	.22	0.0	.52	0.2	.22	0.0	0.17
73	Pahsimeroi River	1	1	2	4	3.0	4.0	12.0	19.00	3.0	4.0	6.0	4.75
74	Lemhi River	0	0	2	2	0.0	0.0	5.60	5.60	0.0	0.0	2.80	2.80
75	Salmon River - Ellis to Middle Fork	0	1	0	1	0.0	.04	0.0	.04	0.0	.04	0.0	0.04
77	Salmon River - Middle Fork and South Fork to Riggins	0	0	0		0.0	0.0	0.0		0.0	0.0	0.0	0.0
78	Little Salmon River	1	1	2	4	0.5	.02	2.07	2.59	0.5	.02	1.03	0.65
79	Salmon River - Riggins to Mouth and Snake River Tributaries - Grande Ronde to Salmon River	0	0	0	0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
71-79	Salmon River	4	4	6	14	3.8	4.28	19.67	27.75	1.0	1.07	3.28	1.98
81	Middle Fork	0	0	1	1	0.0	0.0	.16	.16	0.0	0.0	0.0	0.16
82	South Fork	0	0	0		0.0	0.0	0.0		0.0	0.0	0.0	0.0
83	North Fork	0	0	0		0.0	0.0	0.0		0.0	0.0	0.0	0.0
84	Main Stem and Tributaries - Kooskia to Ahsahka	0	1	1	2	0.0	.72	.02	.74	0.0	.72	.02	0.37
85	Camas Prairie - Lewiston	1	2	2	5	0.1	2.91	14.10	17.11	0.1	1.45	7.05	3.42
86	Potlatch River	1	1	0	2	0.01	.11	0.0	.12	0.01	.11	0.0	0.06
87	Palouse River	0	3	1	4	0.0	.78	.87	1.65	0.0	.26	.87	0.41
81-87	Clearwater River	2	7	5	14	0.11	4.52	15.15	19.78	0.05	.64	3.03	1.41
91	St. Joe River	0	0	0		0.0	0.0	0.0		0.0	0.0	0.0	0.00
92	St. Maries River	0	0	2	2	0.0	0.0	.57	.57	0.0	0.0	.28	0.28
93	Spokane River Tributaries	0	0	1	1	0.0	0.0	.04	.04	0.0	0.0	.04	0.04
94	Coeur d'Alene River	0	4	1	5	0.0	2.90	2.0	4.90	0.0	.72	2.0	0.98
95	Lake Coeur d'Alene - Rathdrum Prairie	13	12	20	45	30.4	12.94	49.42	92.76	2.3	1.08	2.47	2.06
96	Pend Oreille	3	5	7	15	6.1	7.97	11.60	25.67	2.0	1.59	1.66	1.71
97	Priest River	0	2	0	2	0.0	.06	0.0	.06	0.0	.03	0.0	0.03
98	Kootenai River	1	0	2	3	3.0	0.0	.15	3.15	3.0	0.0	.08	1.05
91-98	Columbia River Tributaries	17	23	33	73	39.5	23.87	63.78	127.15	2.3	1.04	1.93	1.74
	Total State	305	451	333	1076	1435.0	1658.86	901.31	3995.18	4.7	3.68	2.71	3.71

FIGURE 2. Location of wells reported drilled  
in Idaho during 1969



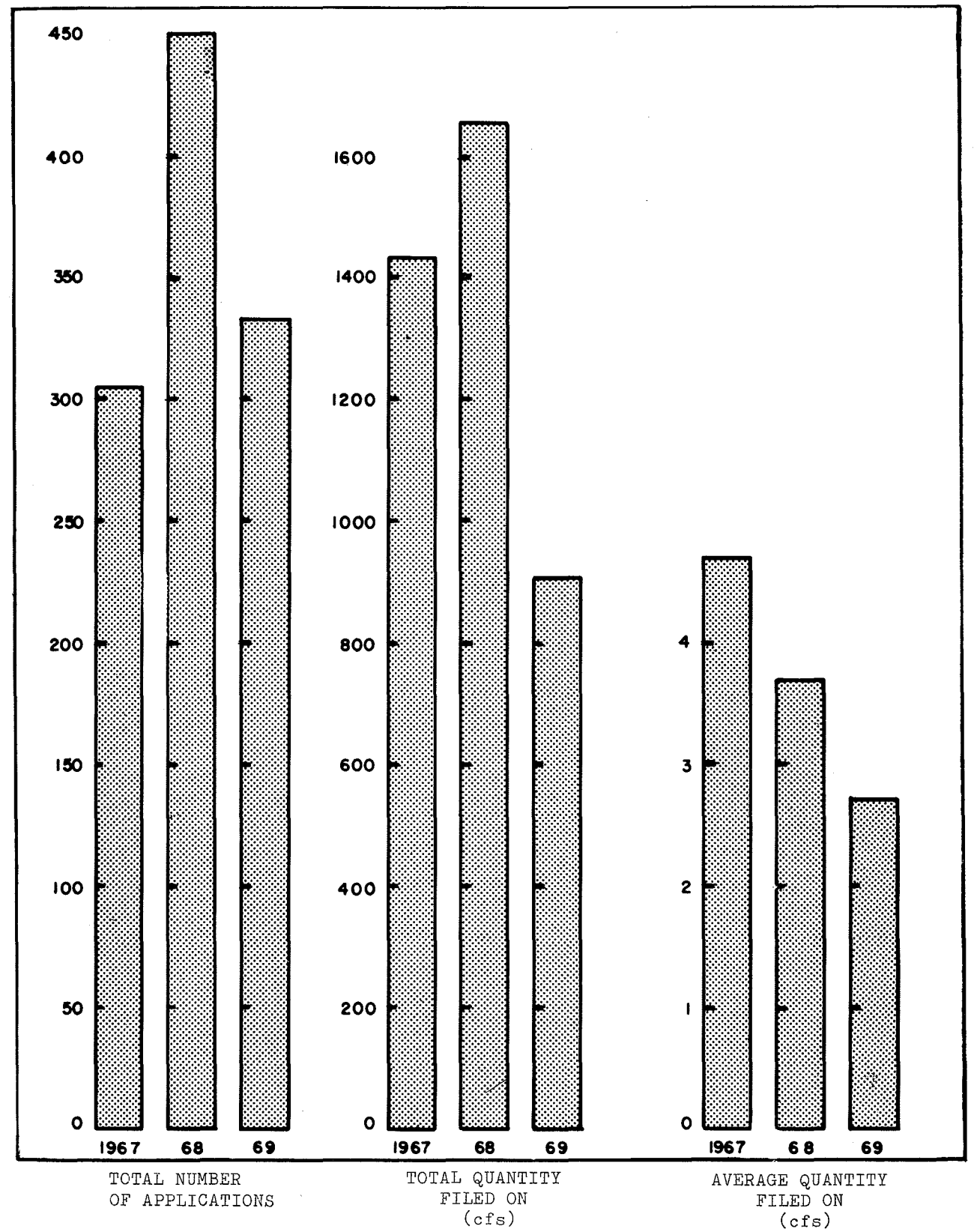


FIGURE 3. Graph of hydrologic data for Idaho

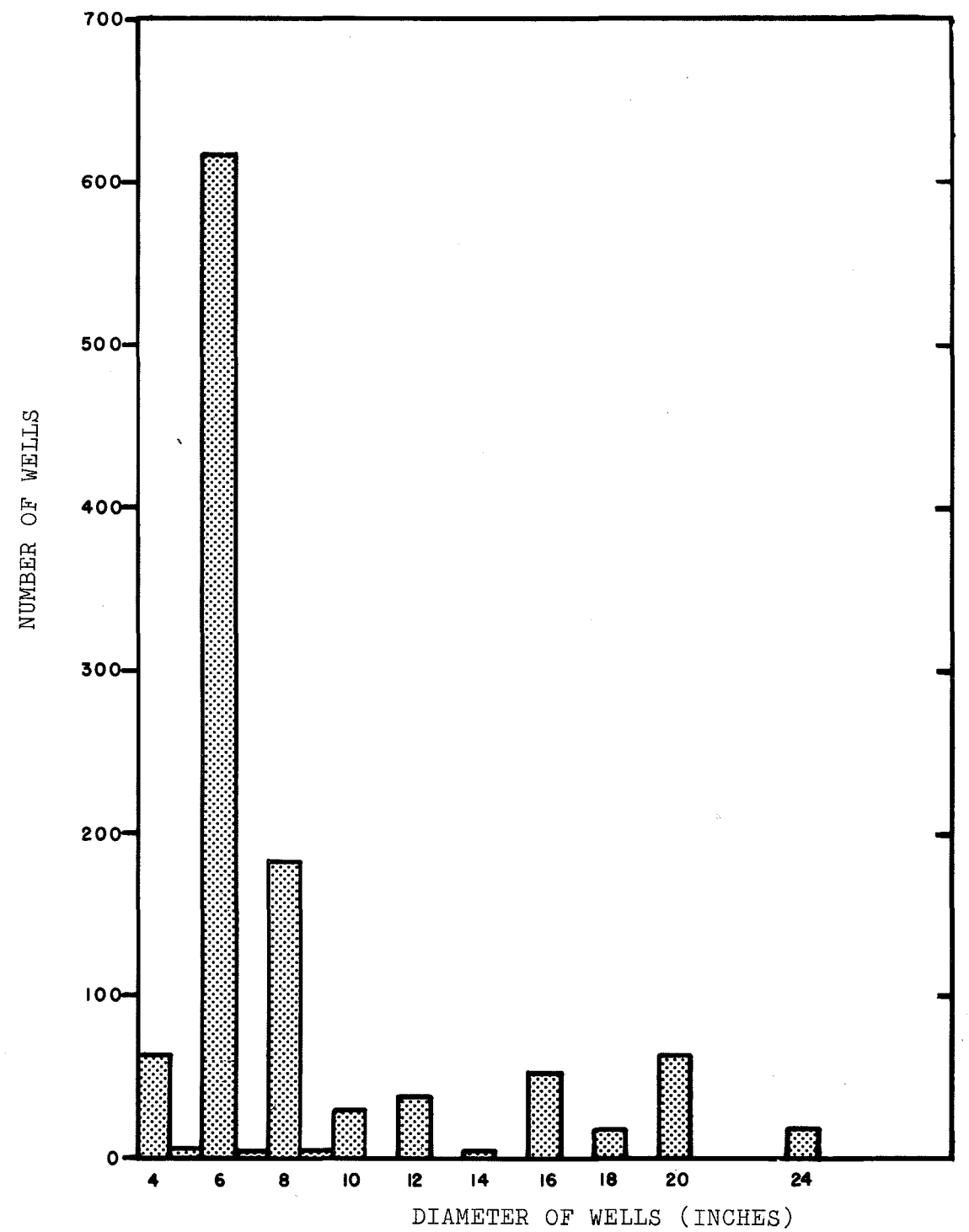
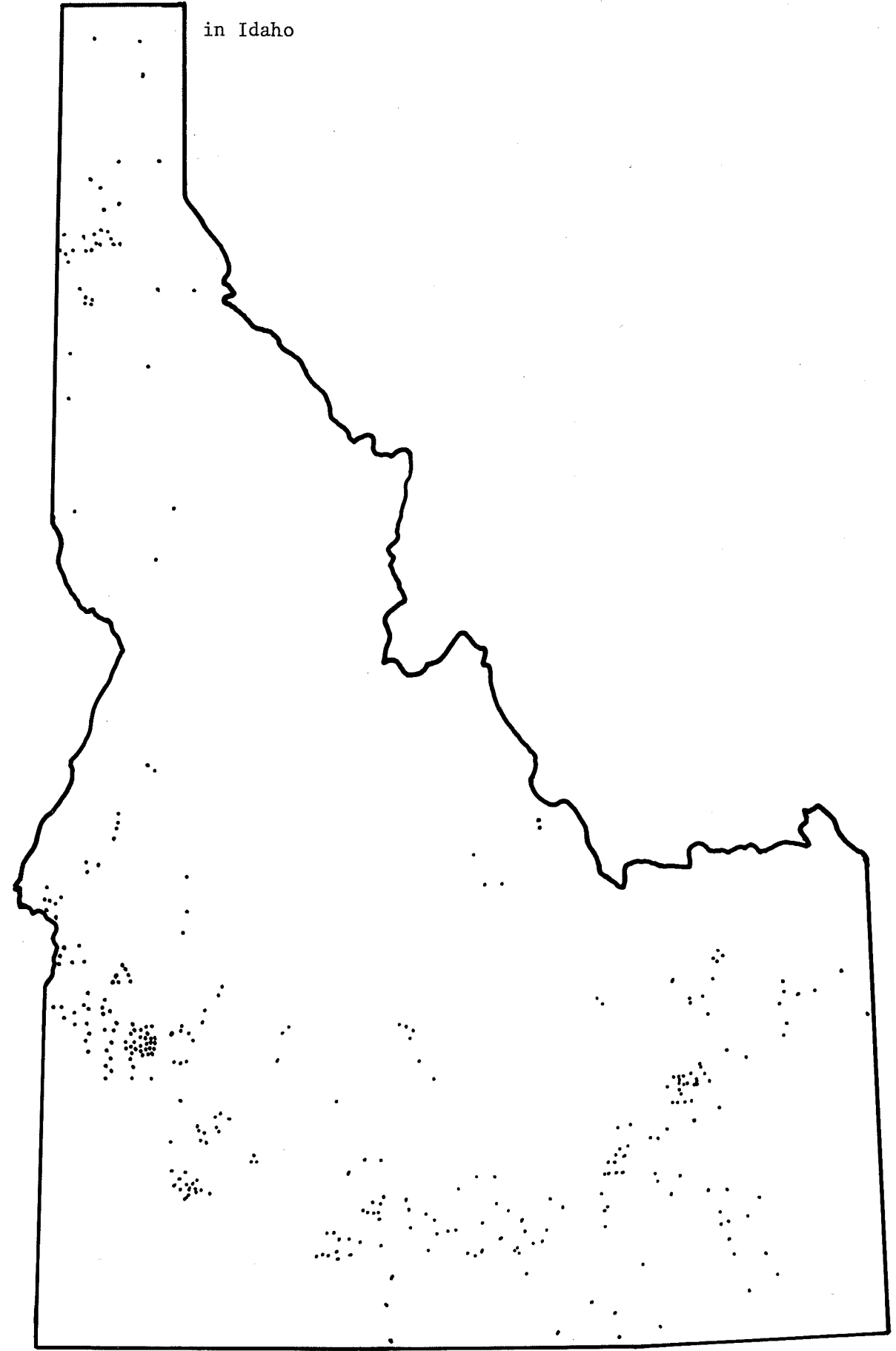


FIGURE 4. Number and diameter of wells reported drilled in Idaho during 1969

FIGURE 5. Location of applications to appropriate ground water received in Idaho





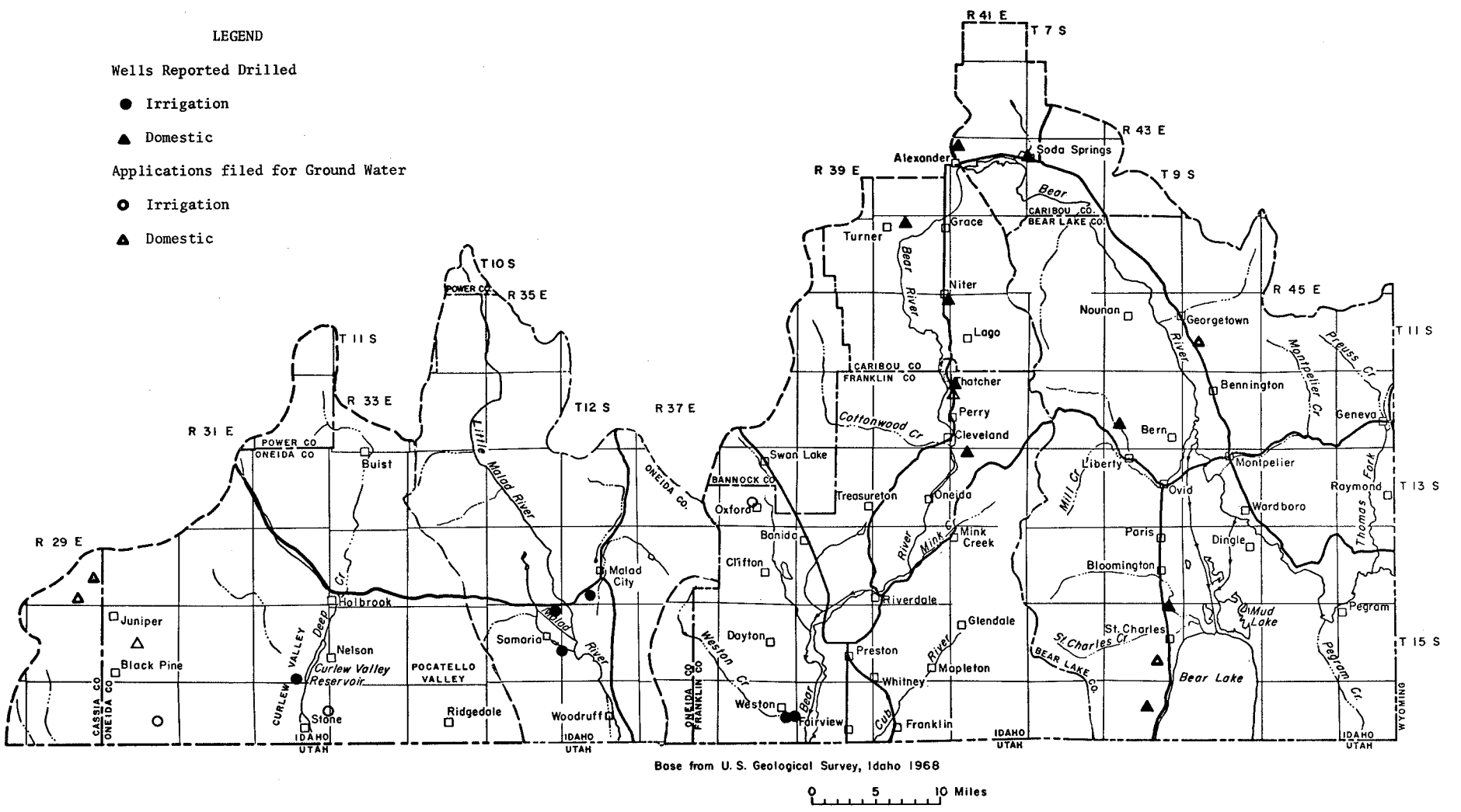


FIGURE 6. Location of wells reported drilled and applications to appropriate ground water received in the Great Basin in Idaho (Areas 11 - 17)

well have followed the permit system in order to record evidence of their water right with the department. This trend is shown in the decrease in average quantity appropriated.

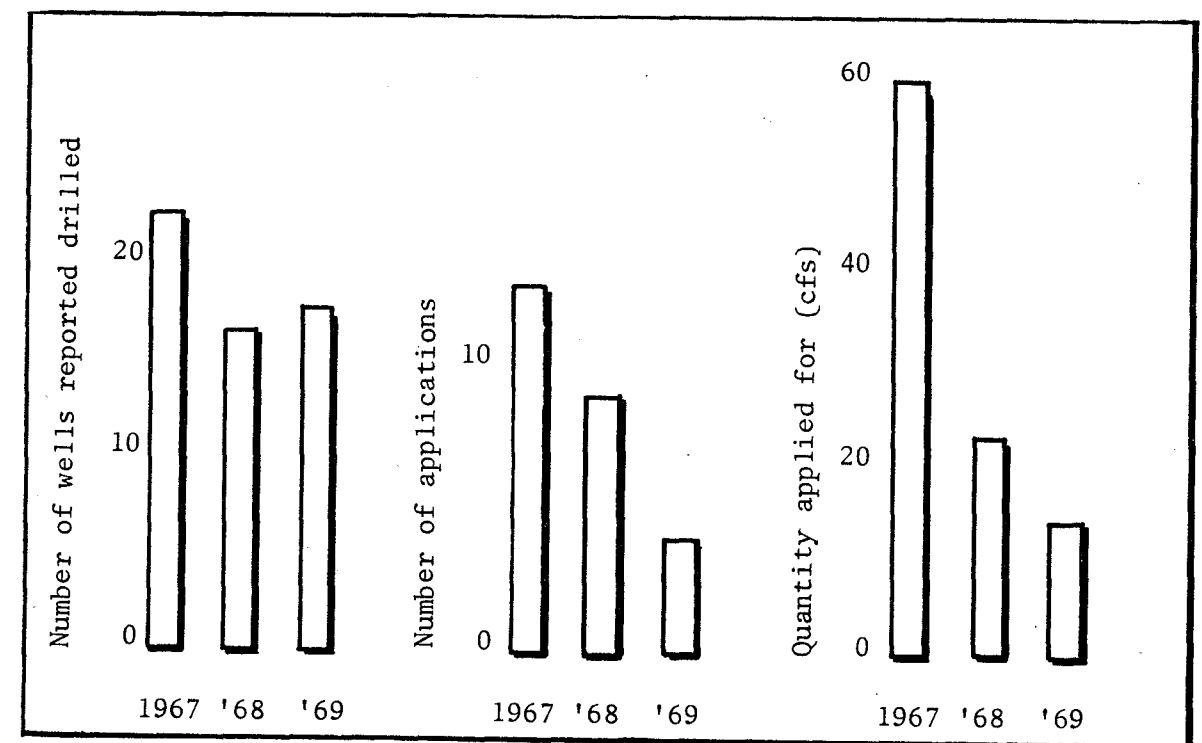
### BASIN DEVELOPMENT

The brief discussion of ground-water development throughout the state is presented in the following sections. The state is divided into 9 major drainage basins for this discussion (fig. 1).

#### Great Basin (Areas 11-17)

The locations of the 19 wells reported drilled in 1969 and the four applications submitted for ground-water appropriation are shown in figure 6. Most of the wells reported drilled were used for domestic use, and were scattered throughout the Great Basin drainage in Idaho. The number of wells reported drilled in the area in 1969 is approximately the same as that in previous years (fig. 7). The number of applications submitted to appropriate

FIGURE 7. Graph of hydrologic data for Great Basin in Idaho (Areas 11-17)



ground water, however, has decreased in each of the last three years. A corresponding decrease in the total quantity to be appropriated is also noted.

A significant change in the pattern of well development in the Great Basin area in Idaho is not expected to occur in 1970. The primary interest in the development of ground water will continue to be for small irrigation and domestic purposes.

#### **Snake River Tributaries above American Falls**

##### **(Areas 21-29)**

The rate of development of ground water for irrigation and domestic supplies decreased in the area noted in the Snake River Tributaries above American Falls in 1969 from the level of 1968. The locations of the wells reported drilled and the applications received to appropriate ground water in Areas 21 and 22 are noted in figure 8. The well development in the Henry's Fork region, Area 21, was primarily for domestic use for recreational home sites. A number of wells were reported drilled in the area near Island Park Reservoir and Macks Inn. Nine irrigation wells were reported drilled in the Teton area (Area 22) in 1969. Most of the domestic wells reported drilled in the area were in the Rexburg area for urban development. All of the new applications to appropriate ground water in the two areas were in the Teton Valley region. One application not presented in table 2 was submitted by the U. S. Bureau of Reclamation in connection with their Teton Project. The appropriation requested totalled 670 cfs.

The location of wells reported drilled and applications received in Areas 25 and 27, the Willow Creek and Blackfoot River areas, are noted in figure 9. All of the wells reported drilled in the Willow Creek area were for domestic usage and were in the Rigby, Ririe and Idaho Falls areas. This development was associated primarily with the urbanization in the area. The well development in the Blackfoot River Basin is primarily along the Snake River near Fort Hall, Blackfoot and Shelley. A number of new irrigation wells were reported drilled in the Michaud Flat area. Only a small number of new ground-water applications were received for these areas.

The most intensively developed portion of the area in the Snake River Tributaries was the Portneuf River drainage (fig. 10). Domestic wells were drilled in the Pocatello area in connection with urban development. Irrigation wells were reported drilled west of Pocatello and in Gem Valley. Applications for ground-water permits were received for areas

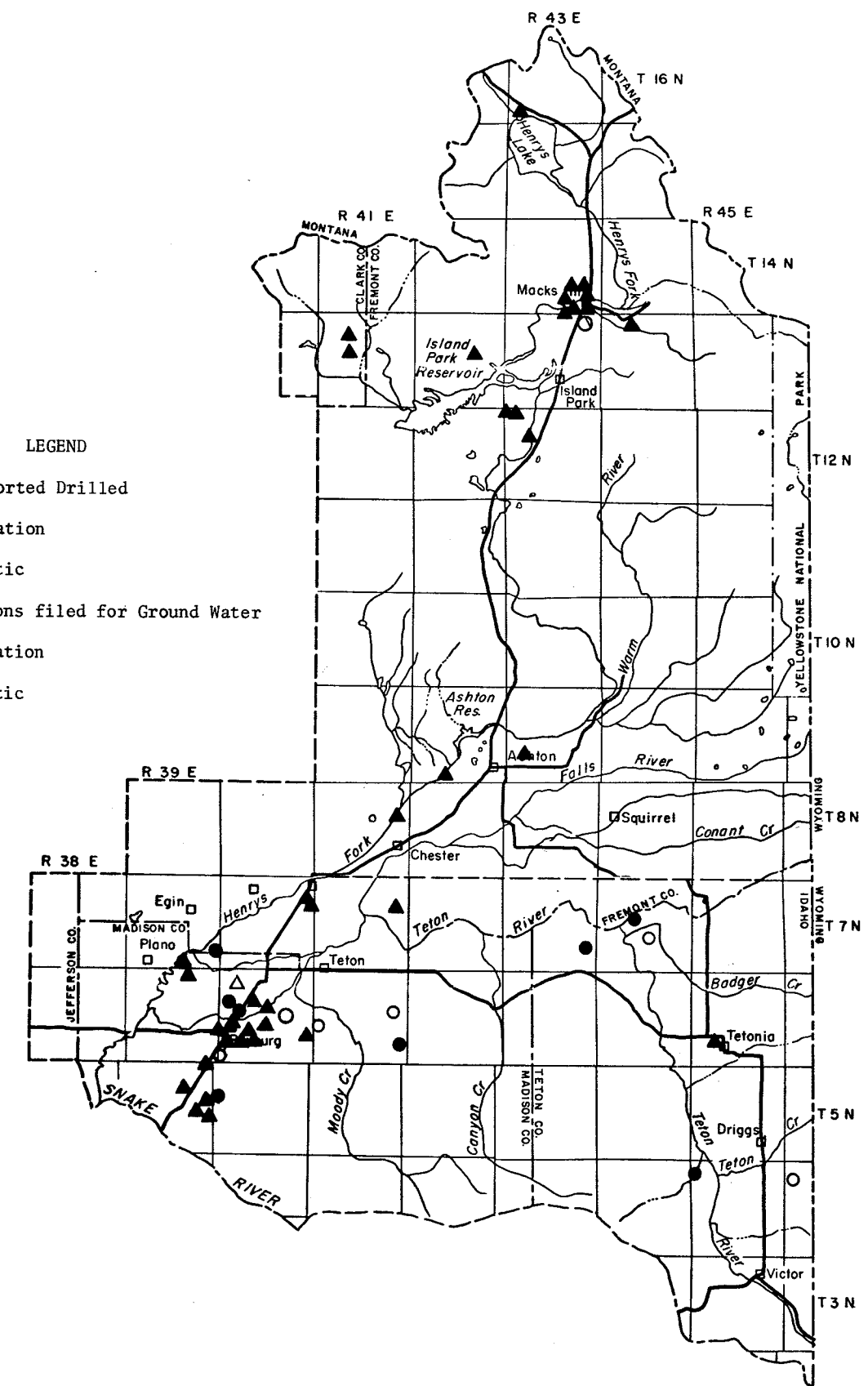


FIGURE 8. Location of wells reported drilled and applications to appropriate ground water received in the Henrys Fork and Teton River Basins (Areas 21 - 22)

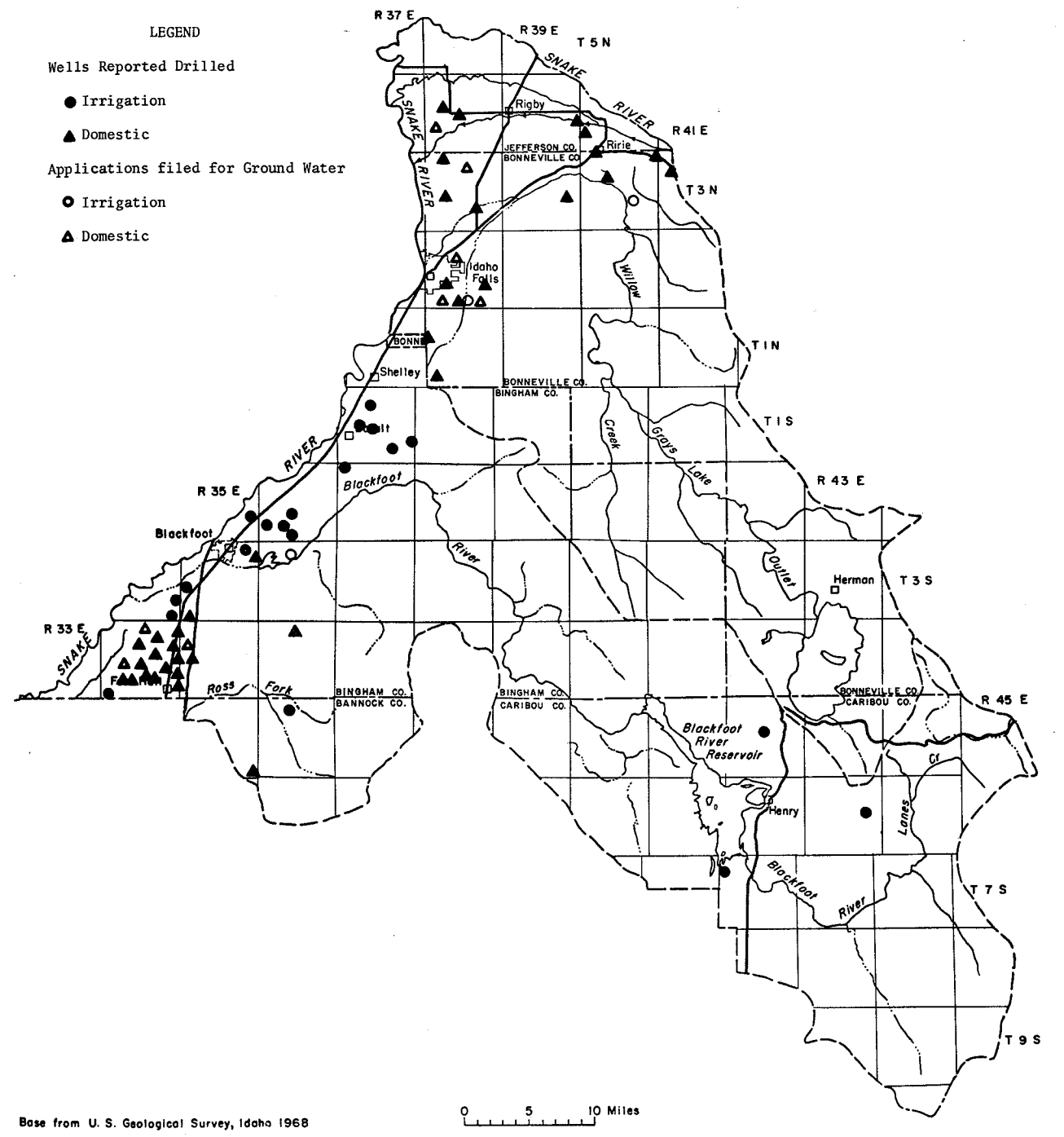
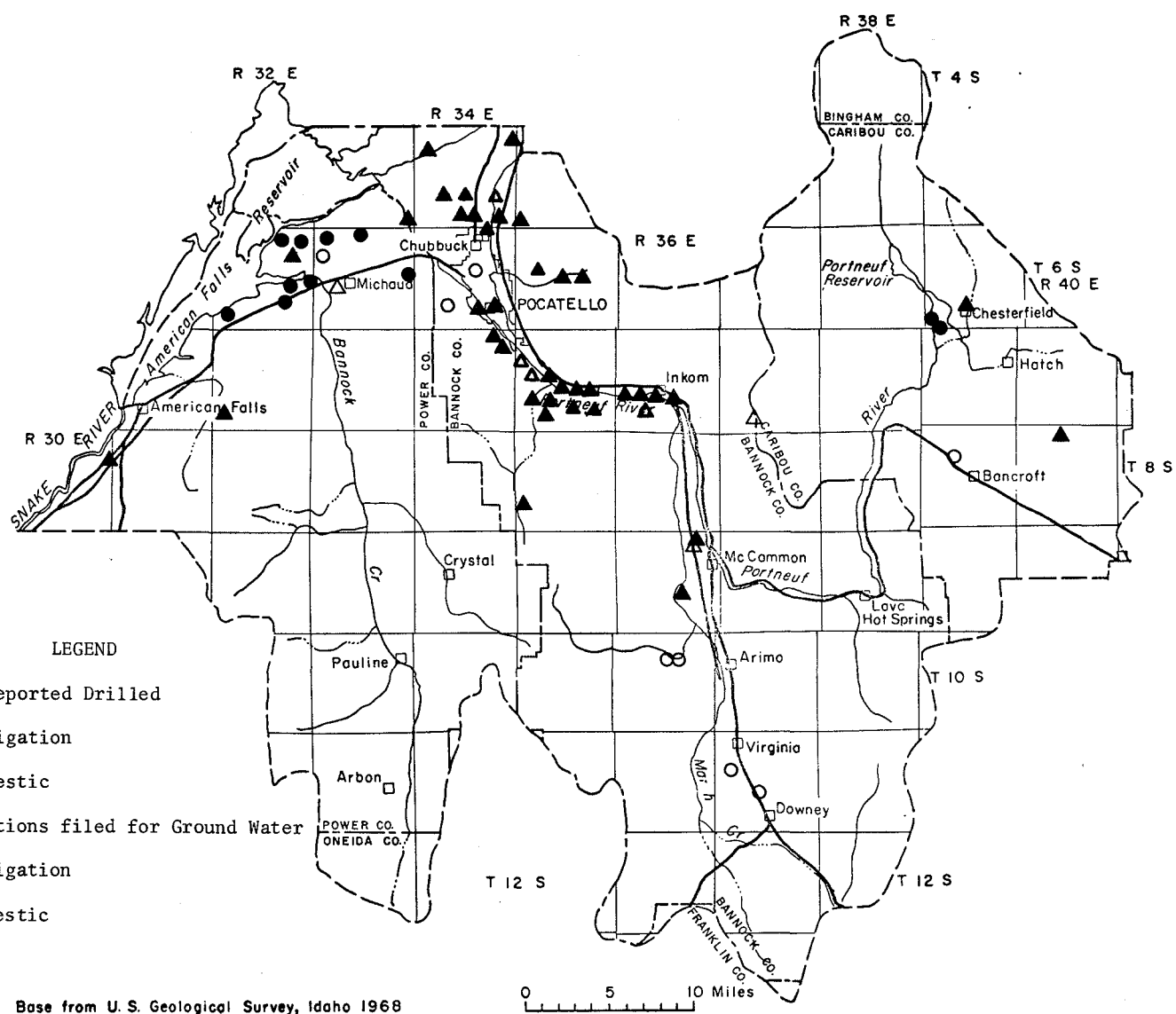


FIGURE 9. Locations of wells reported drilled and applications to appropriate ground water received in the Willow Creek and Blackfoot River Basins (Areas 25 - 27)

FIGURE 10. Location of wells reported drilled and applications to appropriate ground water received in the Portneuf River Basin (Area 29)



throughout the drainage basin.

The ground-water development in the Snake River Tributaries above American Falls in 1969 was below the rate in 1968 and approximately that of 1967 (fig. 11). The average

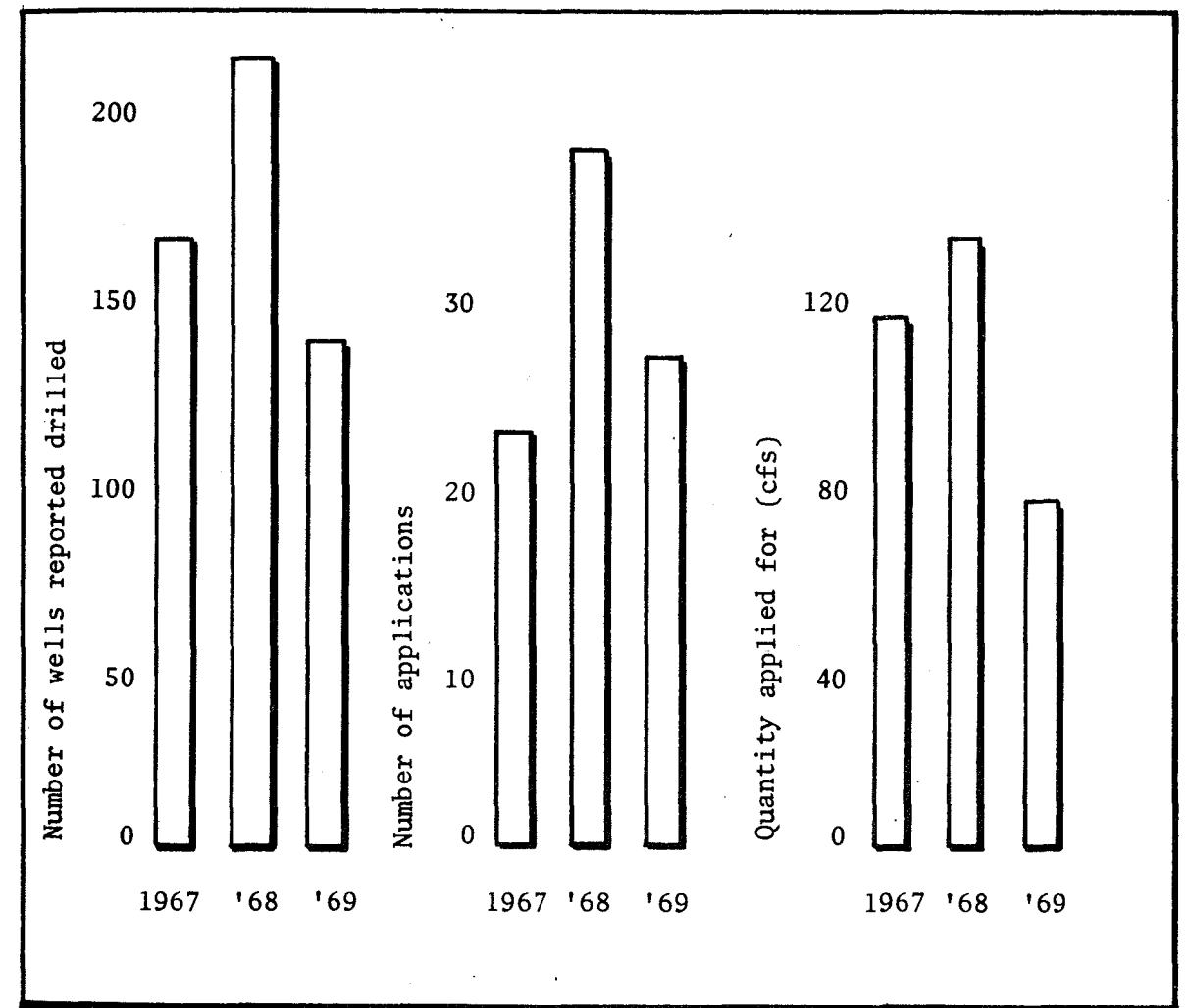


FIGURE 11. Graph of hydrologic data for the Snake River Tributaries above American Falls (Areas 21-29)

diameter and depth of wells in the area increased from the two previous years, probably as a result of the more intensive development on the Michaud Flat area. The decrease in number of applications submitted for the appropriation of ground water in the Snake River Tributaries area was further highlighted by a large decrease in the total quantity filed on, from 113 cfs in 1967 and 130 cfs in 1968 to only 74 cfs in 1969. The average quantity filed

on has thus decreased almost 50 per cent from 1968.

The development of ground water in the upper Snake River Basin will continue approximately the same level in 1970 as in 1969. Domestic well development will probably be centered in the Pocatello, Blackfoot and Idaho Falls areas as well as areas of recreation home development. The main centers for irrigation well development will be the Michaud Flat area and the Teton Valley.

### Snake Plain and Tributaries

(Areas 31-37)

The Snake Plain and Tributaries area (31-37) has the greatest potential for irrigation development of the ground-water resource in the state (fig. 1). The interest in the development of this resource is shown by the total quantity filed on for 1968, 358 cfs, which is greater than any other basin in the state. The location of the wells reported drilled and the applications received to appropriate ground water for Areas 31 to 34, the northern portion of the Snake Plain, are included in figure 12. The center for well development in this portion of the plain was the Mud Lake area. Irrigation wells were drilled in 1969 to the north and east of Mud Lake. A number of irrigation wells were also drilled in Area 33 near Howe. Most of the new filings for ground water in the northern Snake Plain area were near Mud Lake. Of particular interest is a filing by the Beaver-Creek ranches for a number of wells and a discharge of 80 cfs not included in table 2. This represents a significant appropriation of the ground water in the state.

The location of wells reported drilled and applications received for appropriation of ground water in Area 35, the Aberdeen-Springfield area, is shown in figure 13. Wells were drilled on the north side of the river in Area 35 in a belt along the river stretching from Springfield to the Roberts area. About 40 per cent of the wells reported drilled in the area were for irrigation purposes with the remainder utilized for domestic uses. In addition, a large number of ground water filings were also received for this area, particularly northwest of Moreland in Bingham County. A number of applications were also received in the Aberdeen area for those lands either not served by surface-water distribution systems, or being changed from surface-water to ground-water irrigation.

The well development and applications received in Area 36, the Minidoka-Jerome area, are presented in figure 14. The wells reported drilled in the area in 1969 were divided into



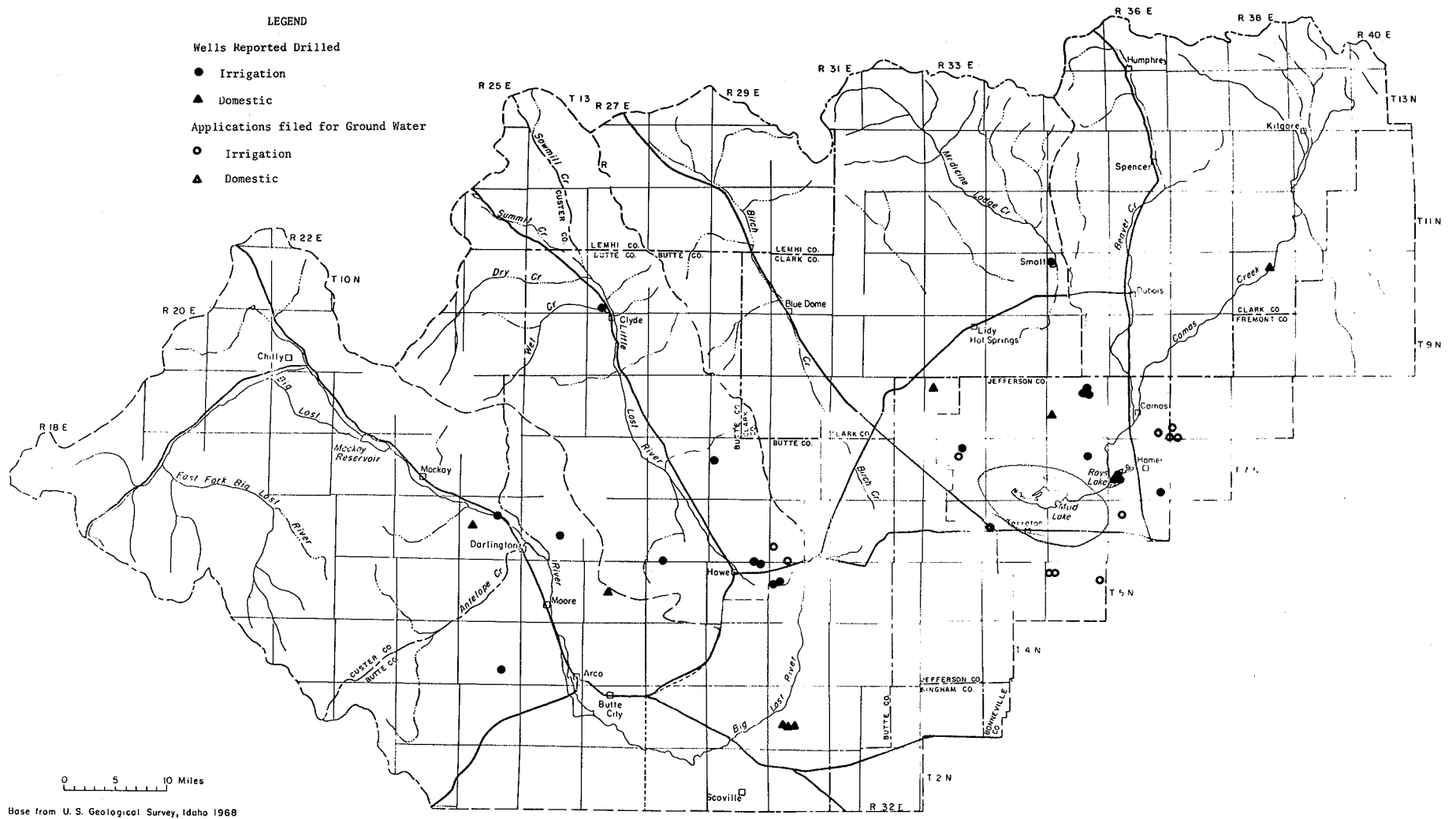


FIGURE 12. Location of wells reported drilled and applications to appropriate ground water received in the northern portion of the Snake Plain and Tributaries (Areas 31 - 34)

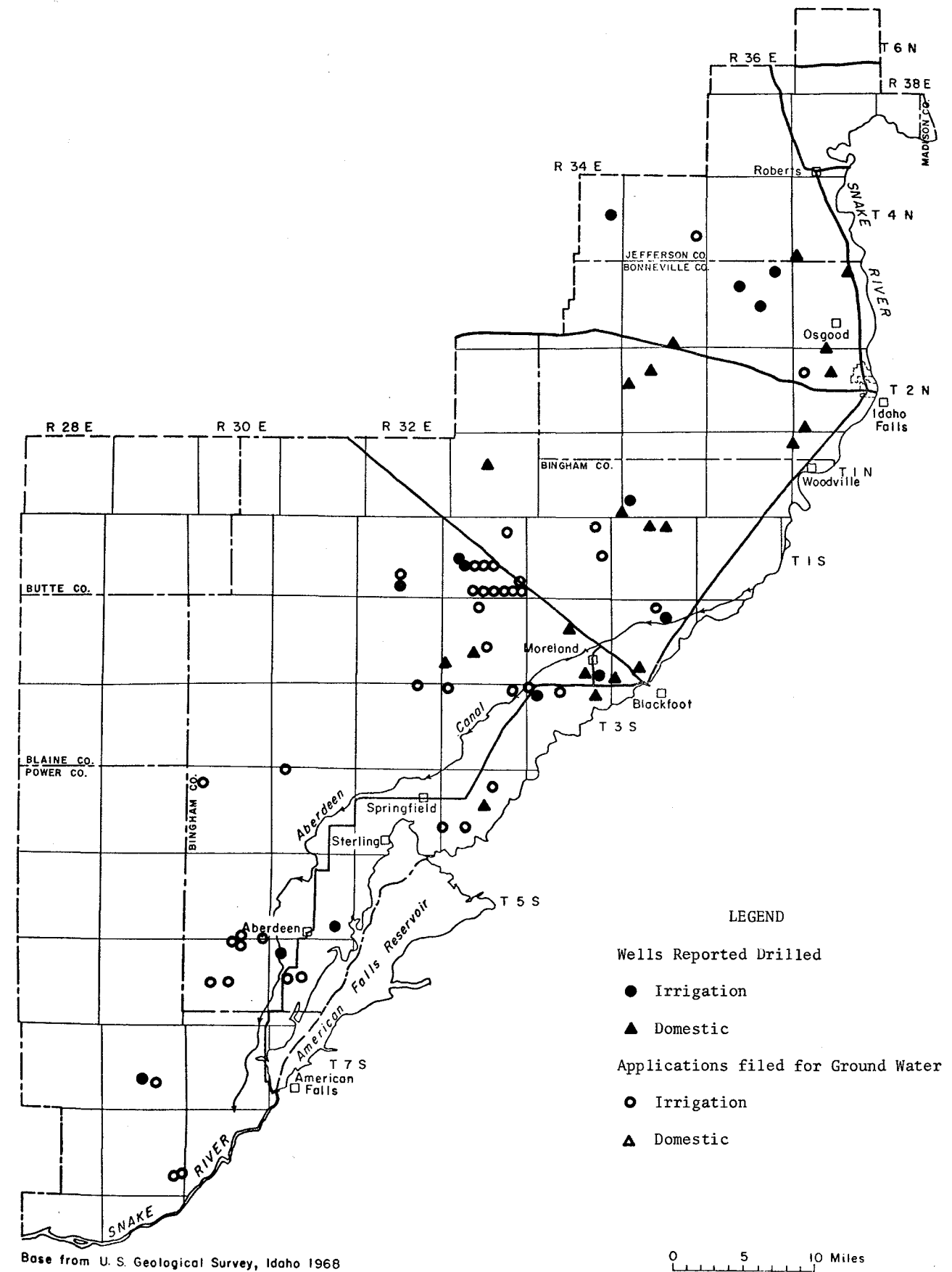
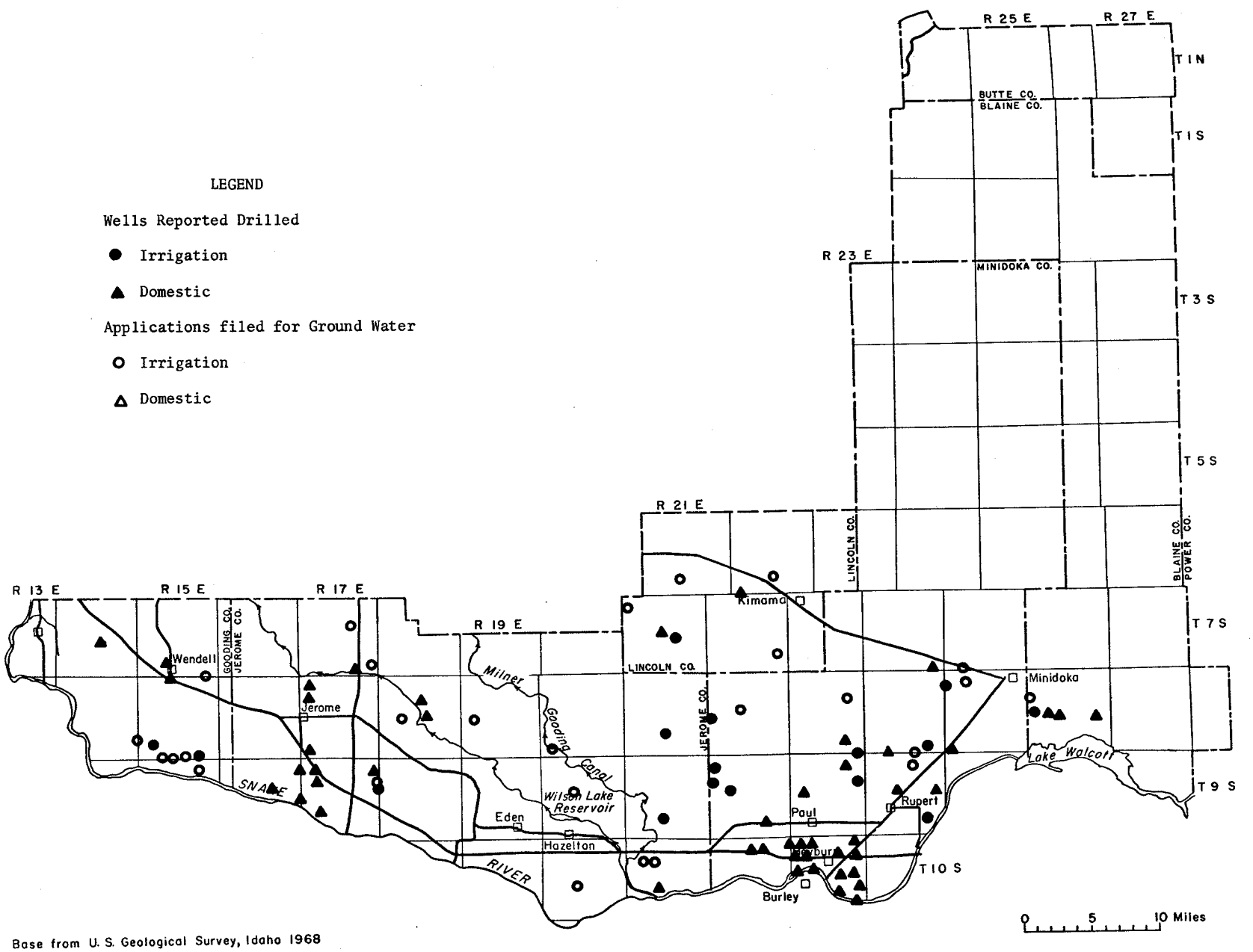


FIGURE 13. Location of wells reported drilled and applications to appropriate ground water received in the Aberdeen-Springfield Area (Area 35)

FIGURE 14. Location of wells reported drilled and applications to appropriate ground water received in the Minidoka-Jerome Area (Area 36)



two general areas. A number of wells were drilled in the Jerome area, primarily for domestic purposes. Many wells were drilled in the area from Hazelton to Minidoka with a large percentage of these wells being utilized for irrigation purposes. A center of domestic well development associated with urban development was located in the Heyburn-Rupert area. Applications to appropriate ground water in Area 36 during 1969 were for areas primarily north of the present surface water distribution system. In particular, the area south of the railroad from Minidoka westward was a center for new development. A number of filings were also received for irrigation development near the Snake River, south of Wendell.

The area noted as the Wood River, which includes the westernmost portion of the Snake Plain, underwent a large development of ground water in 1969. The pattern of wells reported drilled and applications received (fig. 15) indicates the predominant interest was in the area along the Big Wood River from Ketchum to Bellevue. Most of the wells were drilled for domestic purposes associated with the recreation home development in that area. Several irrigation wells were drilled in the Silver Creek area and in the southern portion of Area 37 near Gooding. The applications received to appropriate ground water during the year indicated a similar pattern; applications for domestic purposes were located near Ketchum, while irrigation applications were located in the southern portion of the area.

The rate of ground-water development in the Snake Plain and Tributaries area has decreased from the 1968 level but is slightly above that noted for 1967 (fig. 16). The average depth of wells reported drilled in the area has decreased slightly from the 1967 and 1968 values, possibly as a result of the increased development for recreation home interests in the upper Big Wood River area. Although the number of applications received to appropriate ground water in the Snake Plain area is approximately the same as that noted for 1967 and below that noted for 1968, a significant decrease in total quantity appropriated and average quantity appropriated is noted for the area. The applications received in 1969 totalled an appropriation of 358 cfs compared to 603 cfs in 1968 and 524 cfs in 1967. This decrease is believed to be the result of recreation home development in the northern portion of the Snake Plain and the urban development elsewhere.

#### **Snake River Tributaries – South Side**

**(Areas 41-47)**

The area included in the Snake River Tributaries – South Side (Areas 41-47) underwent a decrease in both applications received to divert ground water and wells

FIGURE 15. Location of wells reported drilled and applications to appropriate ground water received in the Wood River Basin Area (Area 37)

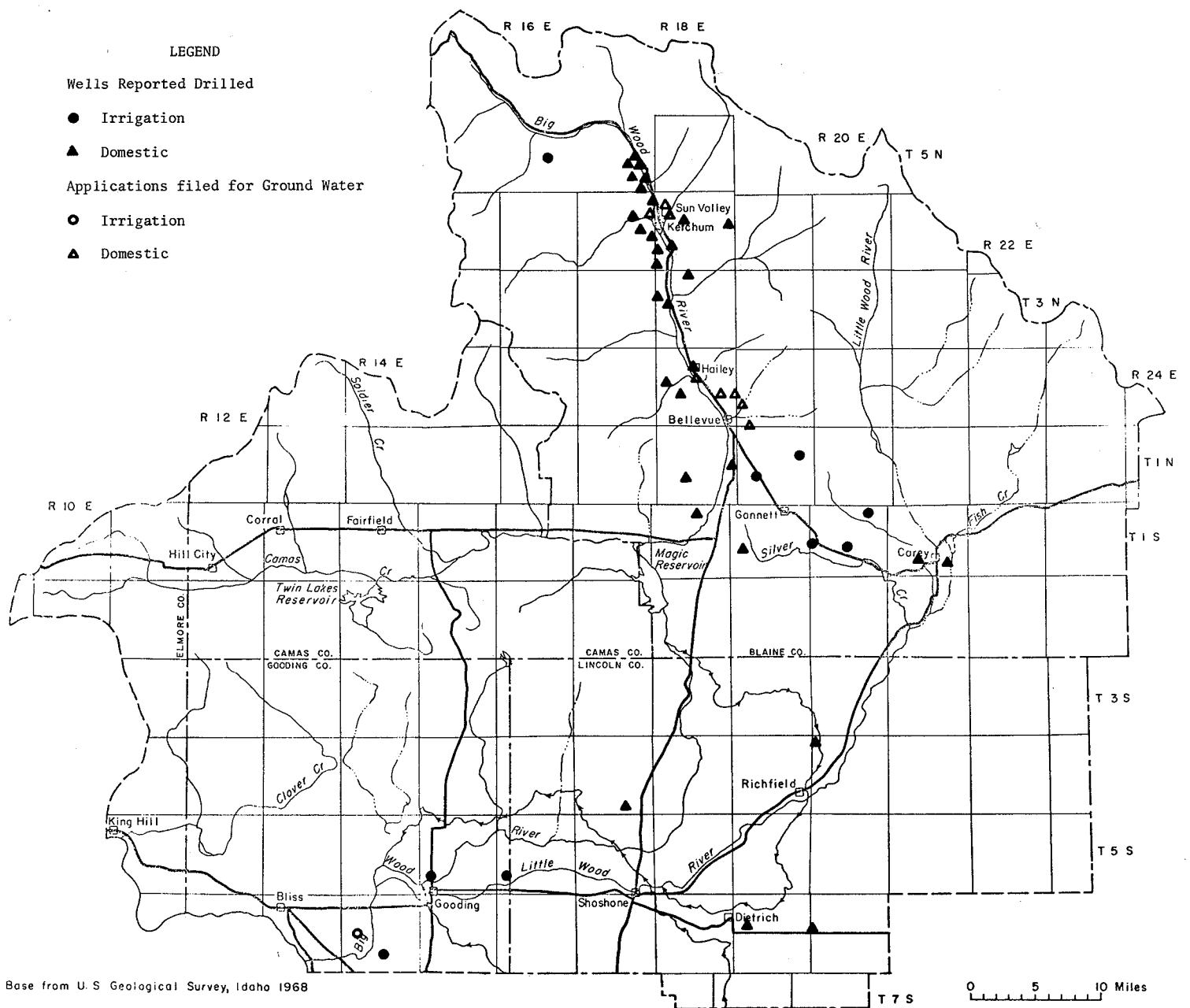
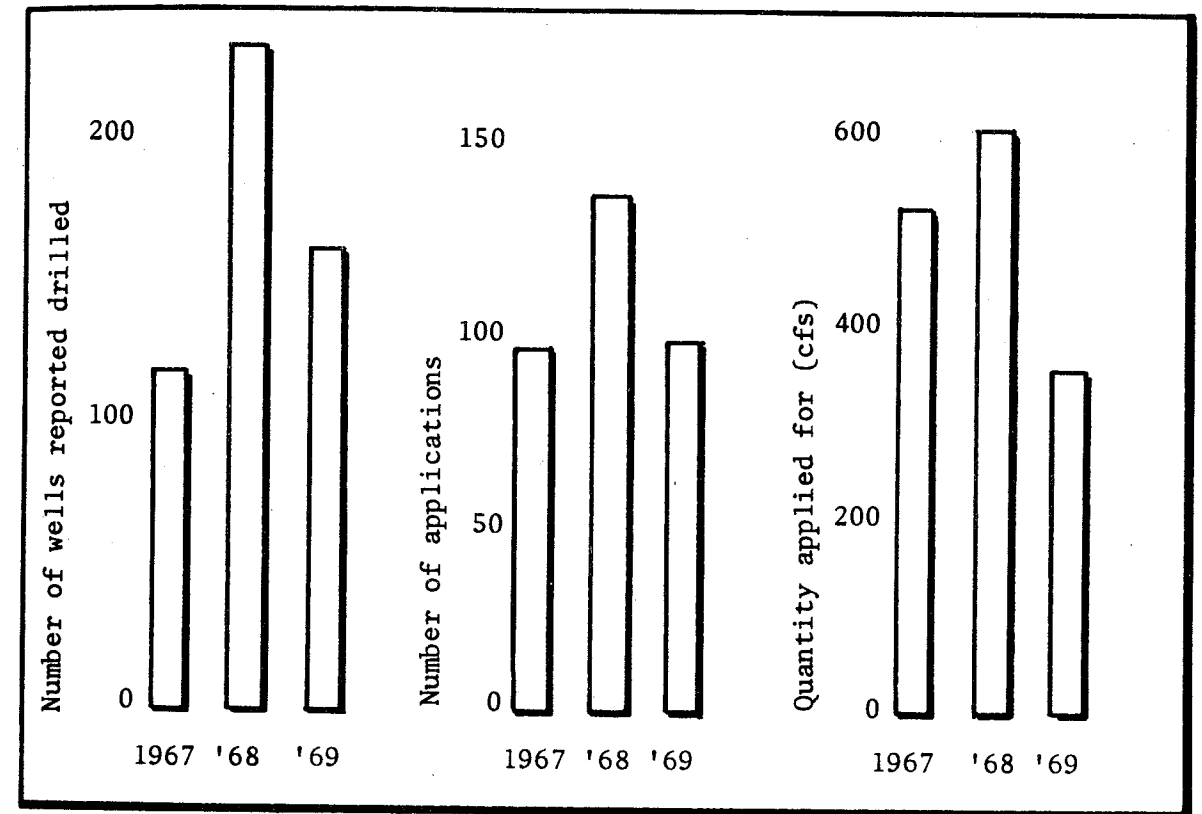


FIGURE 16. Graph of hydrologic data for Snake Plain and Tributaries (Areas 31-37)



reported drilled from 1968 to 1969. The location of wells reported drilled and applications received in 1969 to appropriate ground water are presented in figure 17 for Areas 41 and 43, the Rock Creek and Raft River valleys. Well development in the Raft River Valley was centered around Malta with all the wells being utilized for domestic purposes. Most of the Raft River Valley is included in a critical ground water area thus preventing any new development for other than domestic purposes. The only irrigation wells reported drilled in this valley were out of the designated area in the northern portion of the valley.

Location of wells reported drilled and applications received for ground water in 1969 for Areas 45 and 47 are presented in figure 18. Most of the wells reported drilled were for domestic uses. In particular, domestic wells were drilled in the areas of Burley and Twin Falls, indicating an interest in the urban development. Development of ground water for irrigation purposes is limited in Area 45 since a large portion of this area is included within three critical ground-water areas. Those irrigation wells drilled in 1969 within the critical

LEGEND

Wells Reported Drilled

- Irrigation
- ▲ Domestic

Applications filed for Ground Water

- Irrigation
- △ Domestic

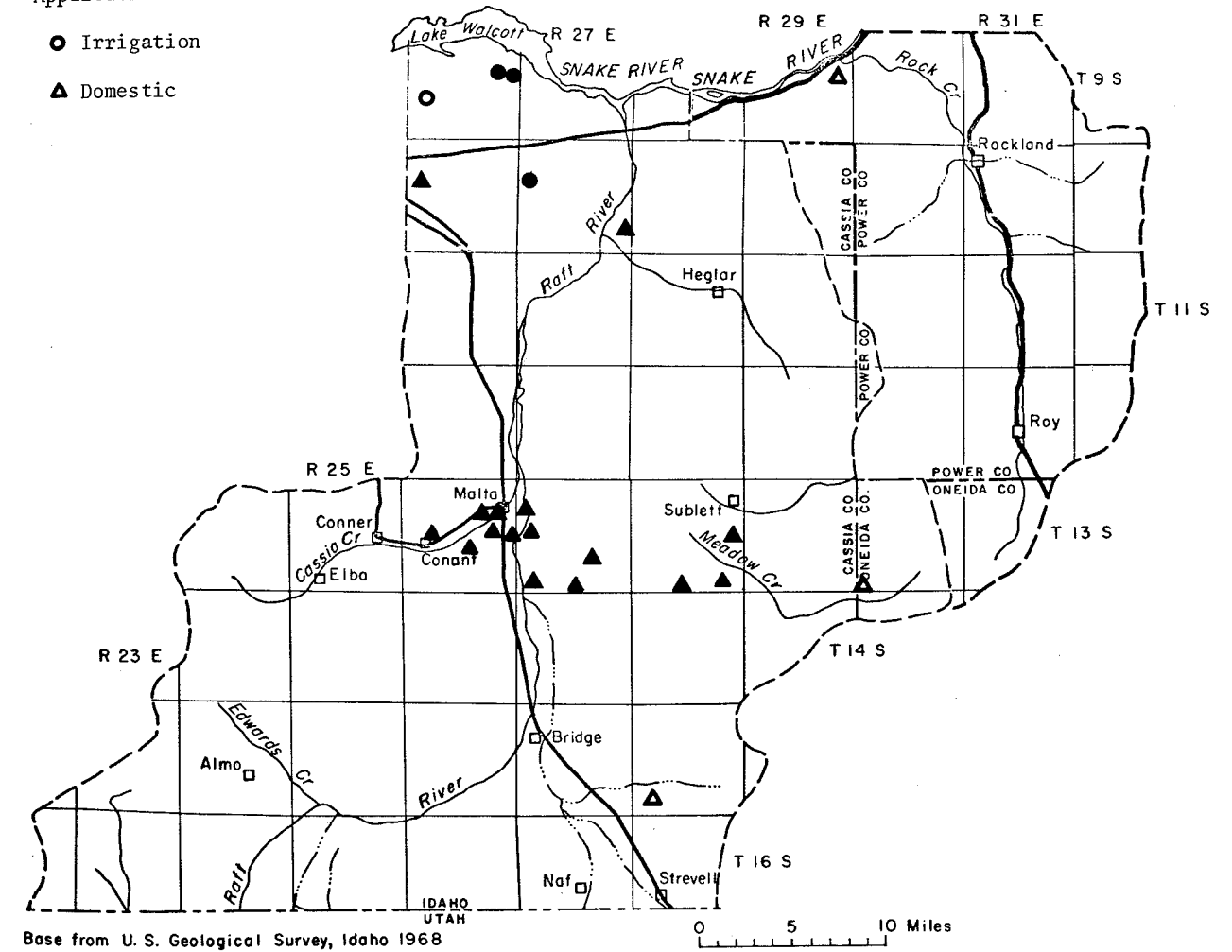


FIGURE 17. Location of wells reported drilled and applications to appropriate ground water received in Rock Creek and Raft River Basins in Idaho (Areas 41 - 43)

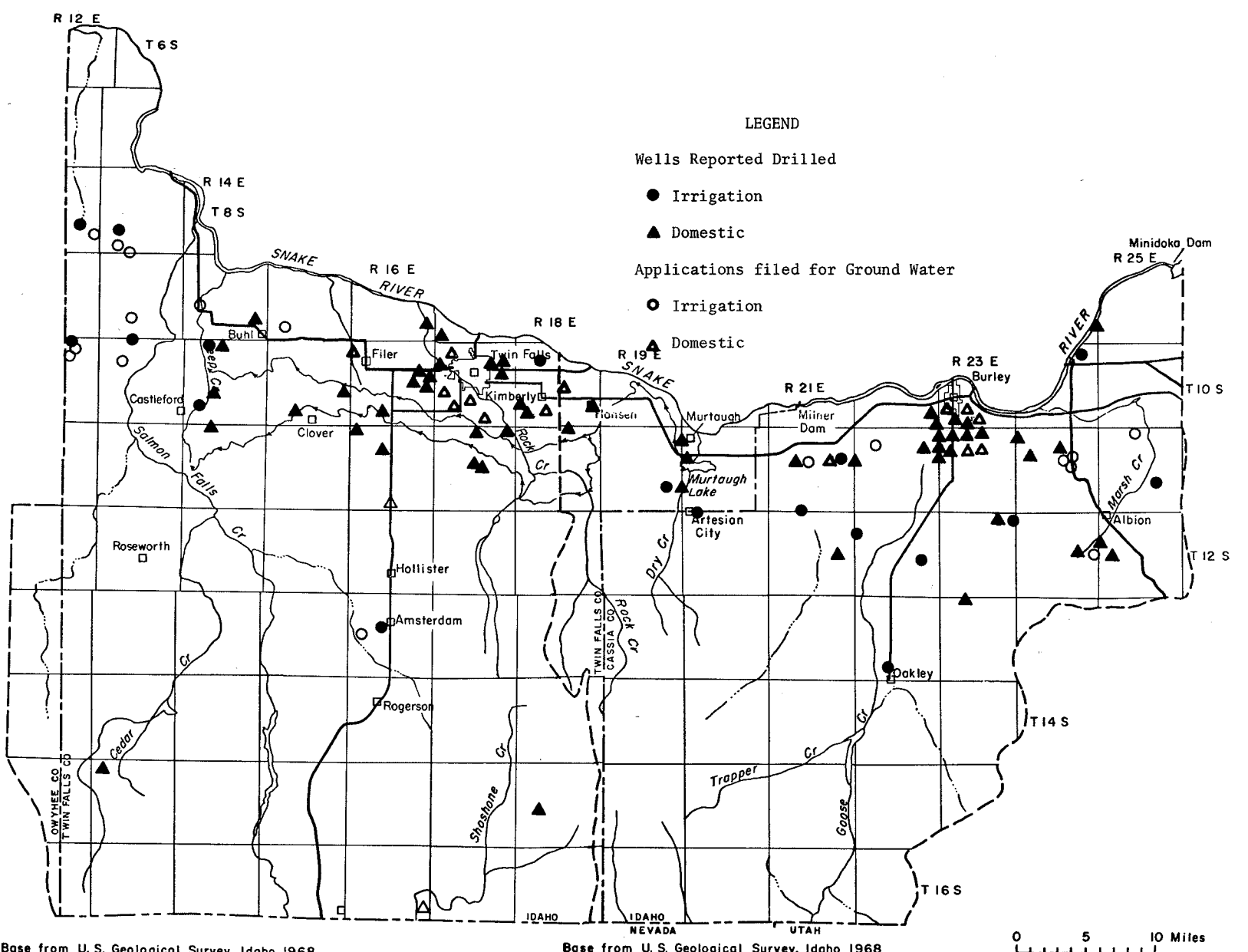


FIGURE 18. Location of wells reported drilled and applications to appropriate ground water received in the Goose Creek - Rock Creek and Salmon Falls Creek Basins in Idaho (Areas 45 - 47)

Base from U. S. Geological Survey, Idaho 1968

Base from U. S. Geological Survey, Idaho 1968

0 5 10 Miles



areas were for replacement purposes. Several irrigation wells were drilled in the western portion of Area 47, in an area west of Salmon Falls Creek. The applications received during 1969 for the appropriation of ground water were located in the northern portions of Areas 45 and 47 along the Snake River. A particular center of development was the area in the western portion of Area 47, west of Salmon Falls Creek. Several new irrigation filings were also located north of the critical designated area in Area 45.

Both the number of wells reported drilled and the number of applications received in 1969 to appropriate ground water decreased sharply from the 1968 values (fig. 19). The number of wells reported drilled, however, was above the 1967 total. The total quantity appropriated in the south side tributaries area has steadily decreased in the period 1967-69. The average quantity filed on has decreased from 6.2 cfs per filing in 1967 to 4.1 cfs per filing in 1969.

Ground-water development in the Snake River Tributaries - South Side area (Areas 41-47) is expected to continue at approximately the same rate through 1970. It is expected that domestic wells will continue to be drilled throughout the area, particularly in urban centers. The number of irrigation wells drilled in the near future in this area will depend primarily on any change in status of the critical ground-water areas.

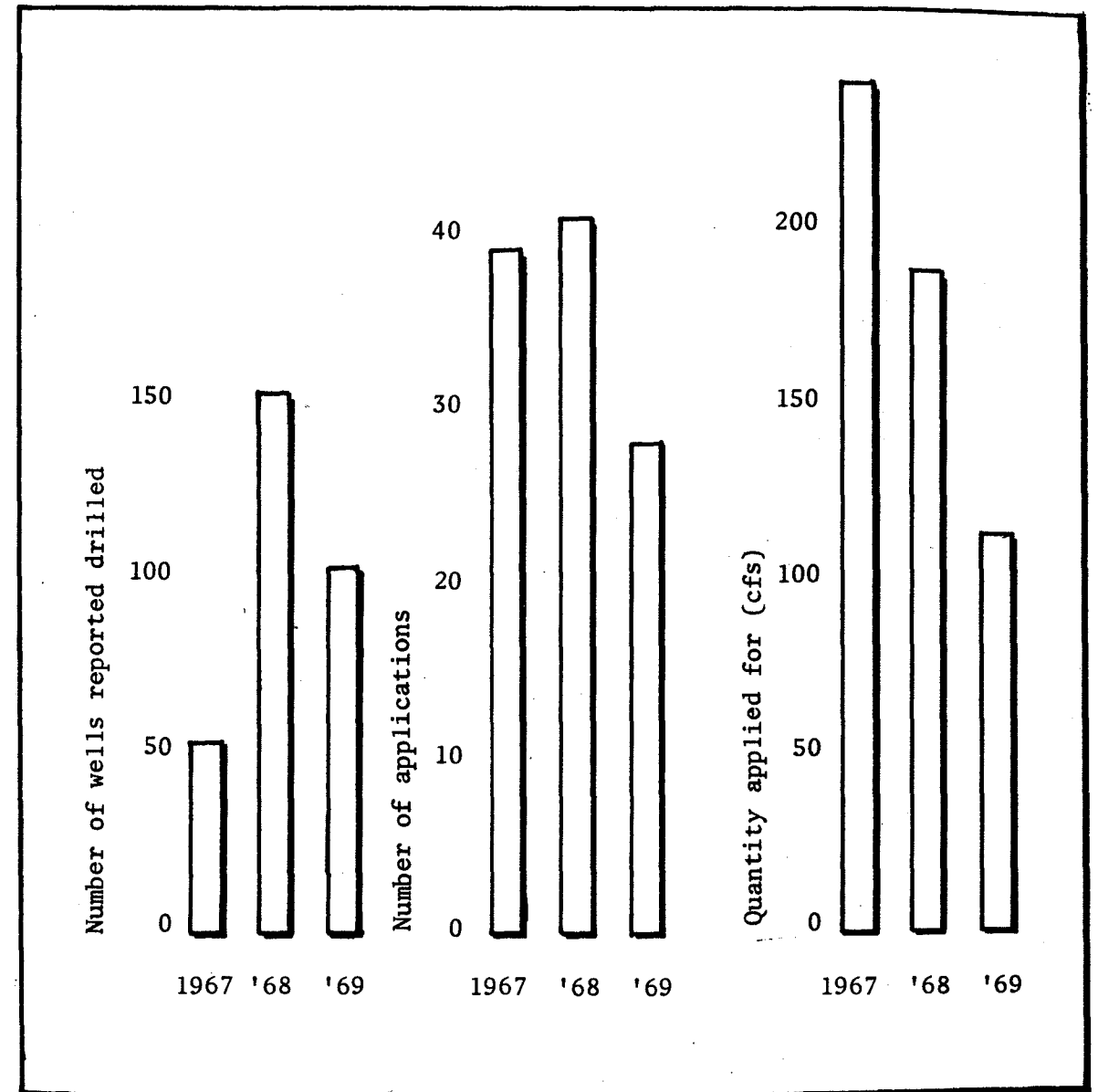
### Owyhee County

#### Areas (51-57)

Development of the ground water resources in Owyhee County decreased sharply in 1969. The location of the wells reported drilled and applications received to appropriate ground water are shown in figure 20. Most of the activity was in the northern portion of the county along the Snake River in three general areas. The development occurred in the Bruneau Valley-Little Valley area primarily for irrigation wells, in the Grand View-Oreana area for irrigation and domestic wells, and in the Marsing-Homedale area for domestic and some irrigation wells. A few wells were reported drilled in the Pasadena Valley area and Blue Gulch area in the far eastern portion of Area 51. The applications received to appropriate ground water in Owyhee County are centered primarily in the Little Valley region southwest of Bruneau. Some applications were also received in the area near Grand View.

The general decline in ground-water development in Owyhee County is evidenced both in the number of wells reported drilled and the number of applications received to

**FIGURE 19. Graph of hydrologic data for Snake River Tributaries - South Side (Areas 41-47)**



appropriate ground water (fig. 21). The number of wells reported drilled in Owyhee County in 1969 decreased from 1968 to a level slightly greater than the 1967 total. The average diameter and depth of these wells remained approximately the same. The number of applications received to appropriate ground water, however, decreased sharply from either of the previous years. The total quantity appropriated also decreased from 143 cfs in 1967

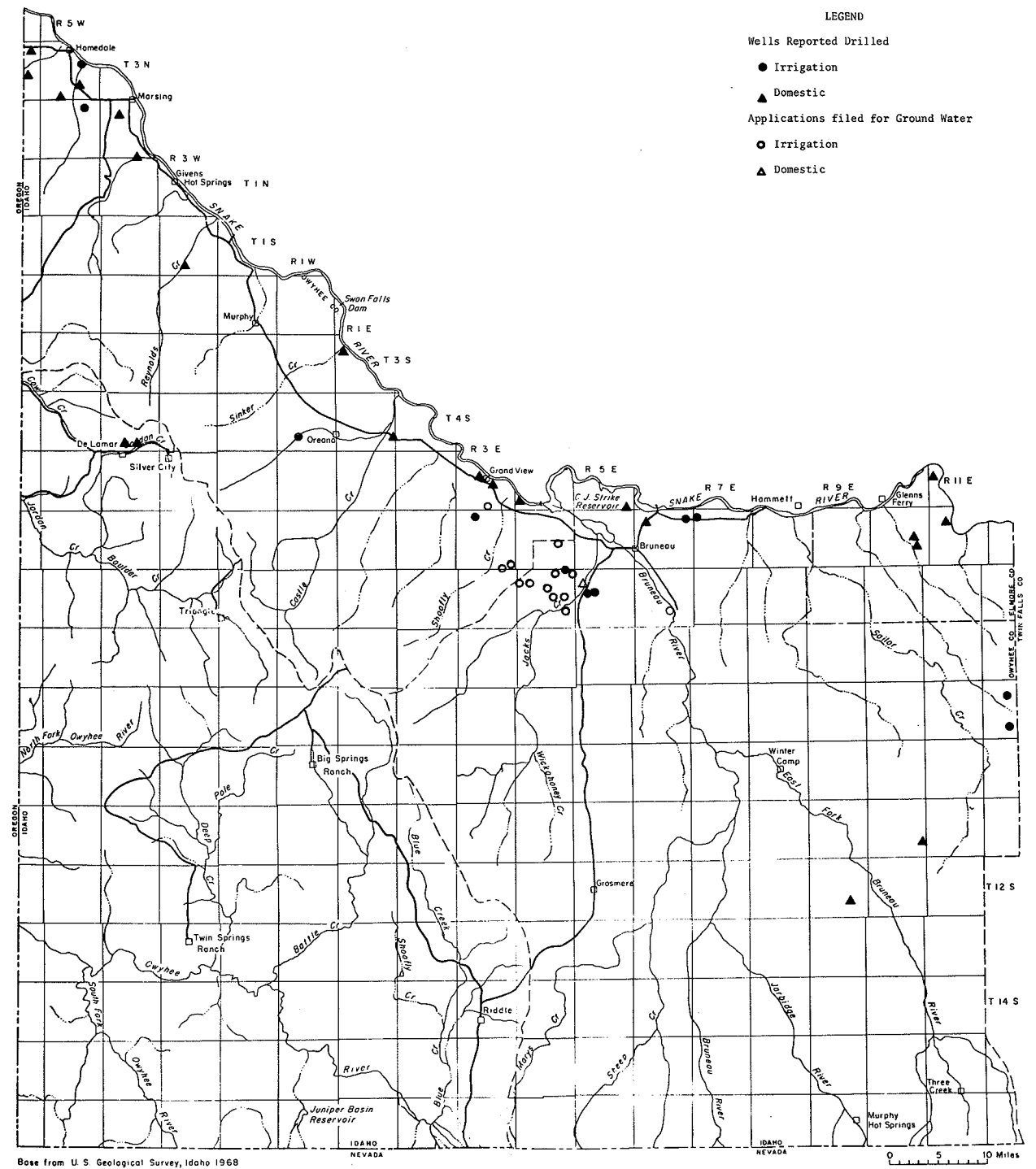
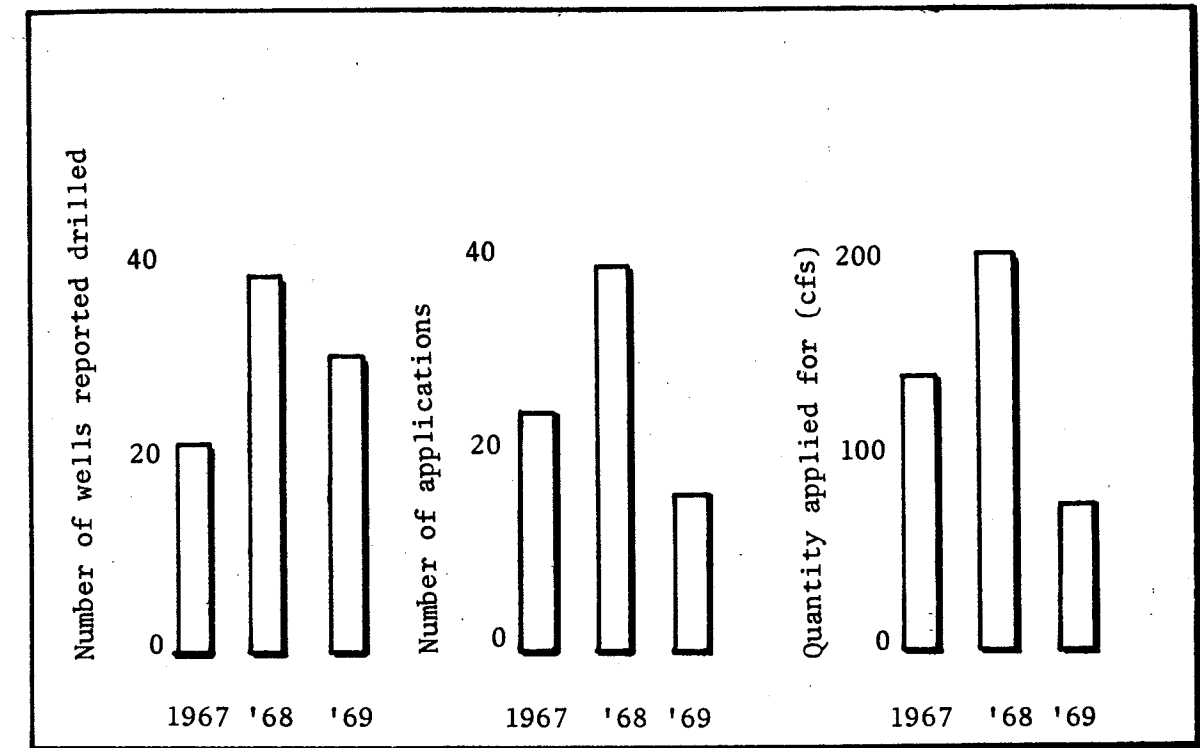


FIGURE 20. Location of wells reported drilled and applications to appropriate ground water received in the Owyhee County (Areas 51 - 57)

FIGURE 21. Graph of hydrologic data for Owyhee County (Areas 51-57)



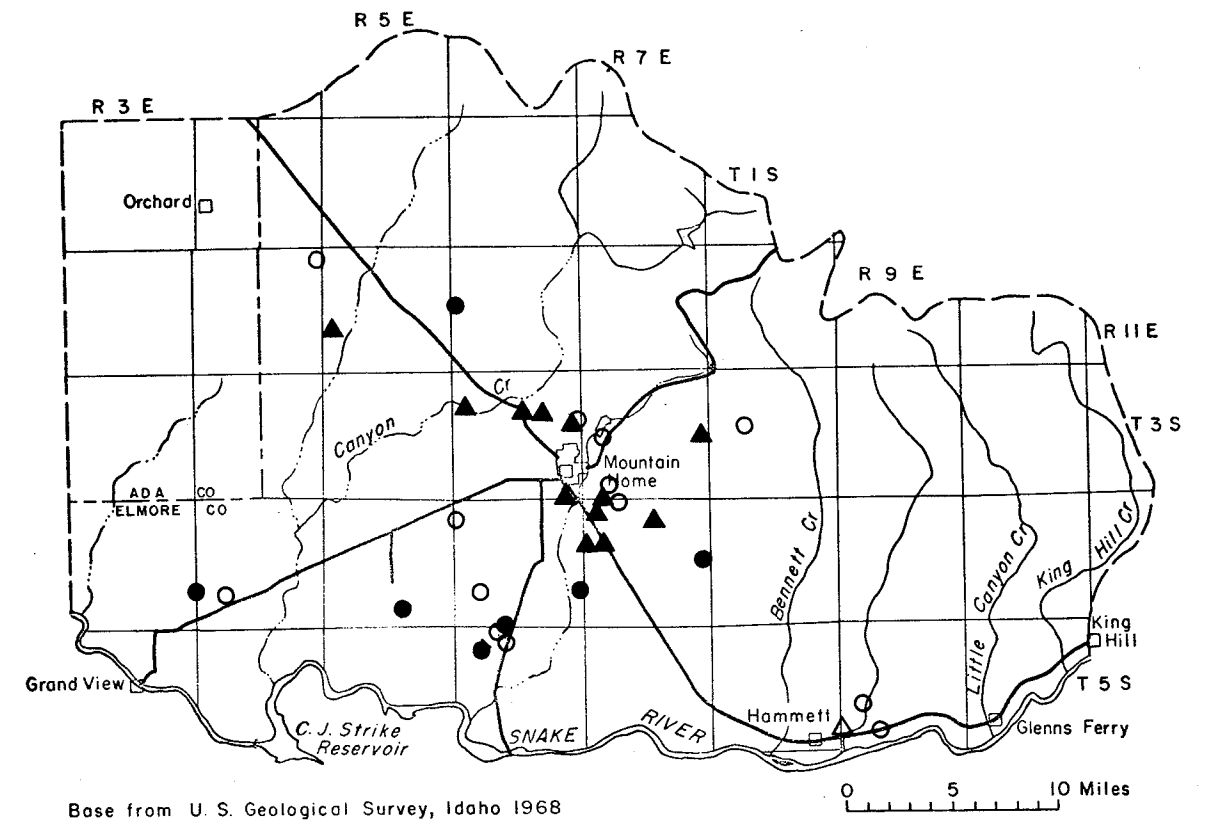
and 208 cfs in 1968 to only 72 cfs in 1969.

The development of the ground-water resource in Owyhee County is expected to remain at or near the same level noted in 1969. Domestic wells will continue to be drilled throughout the length of northern Owyhee County with irrigation wells located primarily in the Little Valley-Grand View area.

#### Southwest Idaho

(Areas 61-69)

Southwest Idaho again was the most active area of ground-water development, leading the state in both number of wells reported drilled and applications received to appropriate ground water. The location of the wells reported drilled and applications received in the



Base from U. S. Geological Survey, Idaho 1968

LEGEND

- Wells Reported Drilled
- Irrigation
  - ▲ Domestic
- Applications filed for Ground Water
- Irrigation
  - △ Domestic

FIGURE 22. Location of wells reported drilled and applications to appropriate ground water received in the Mountain Home Area (Area 61).

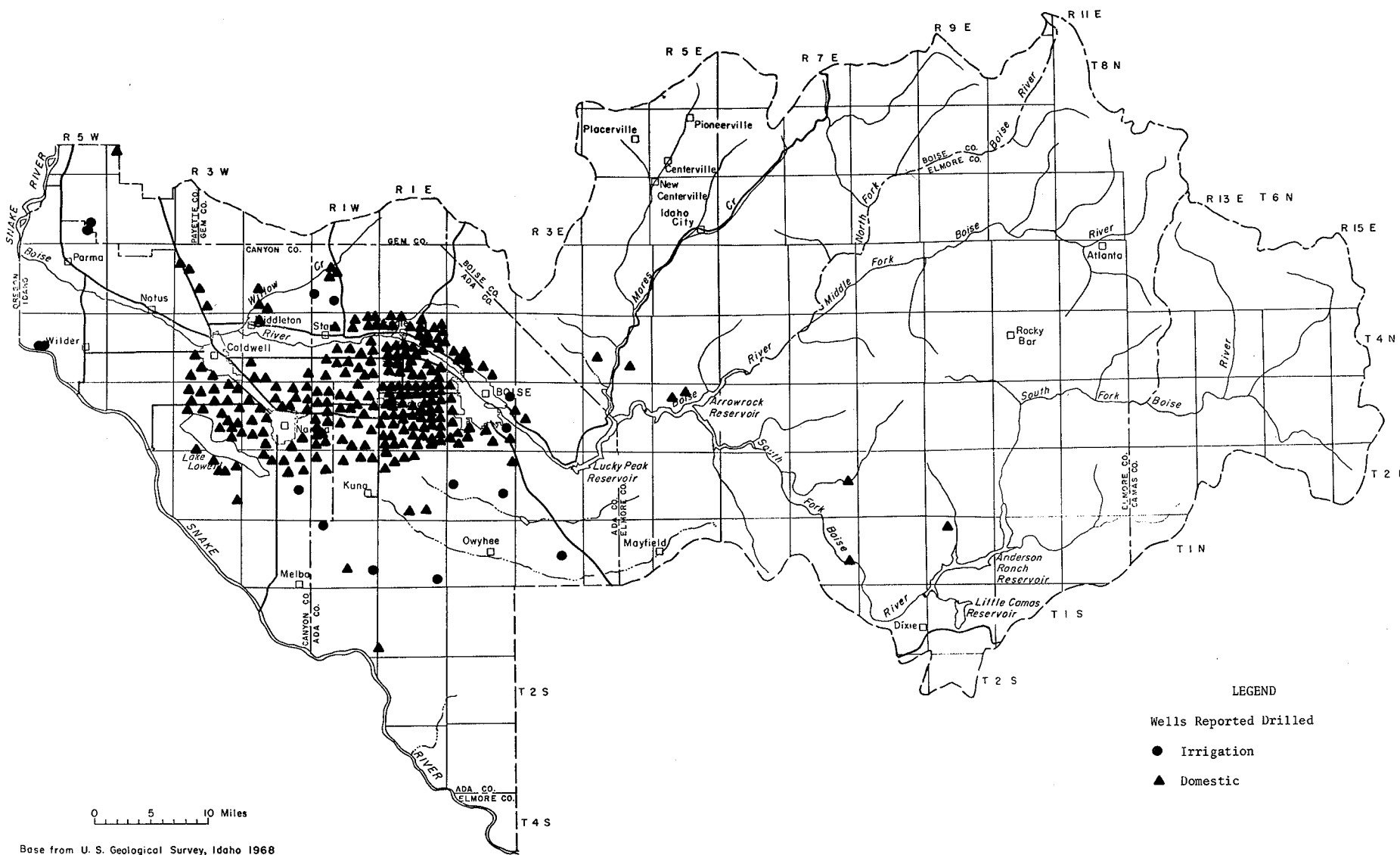


FIGURE 23. Location of wells reported drilled in the Boise River Area (Area 63)

73

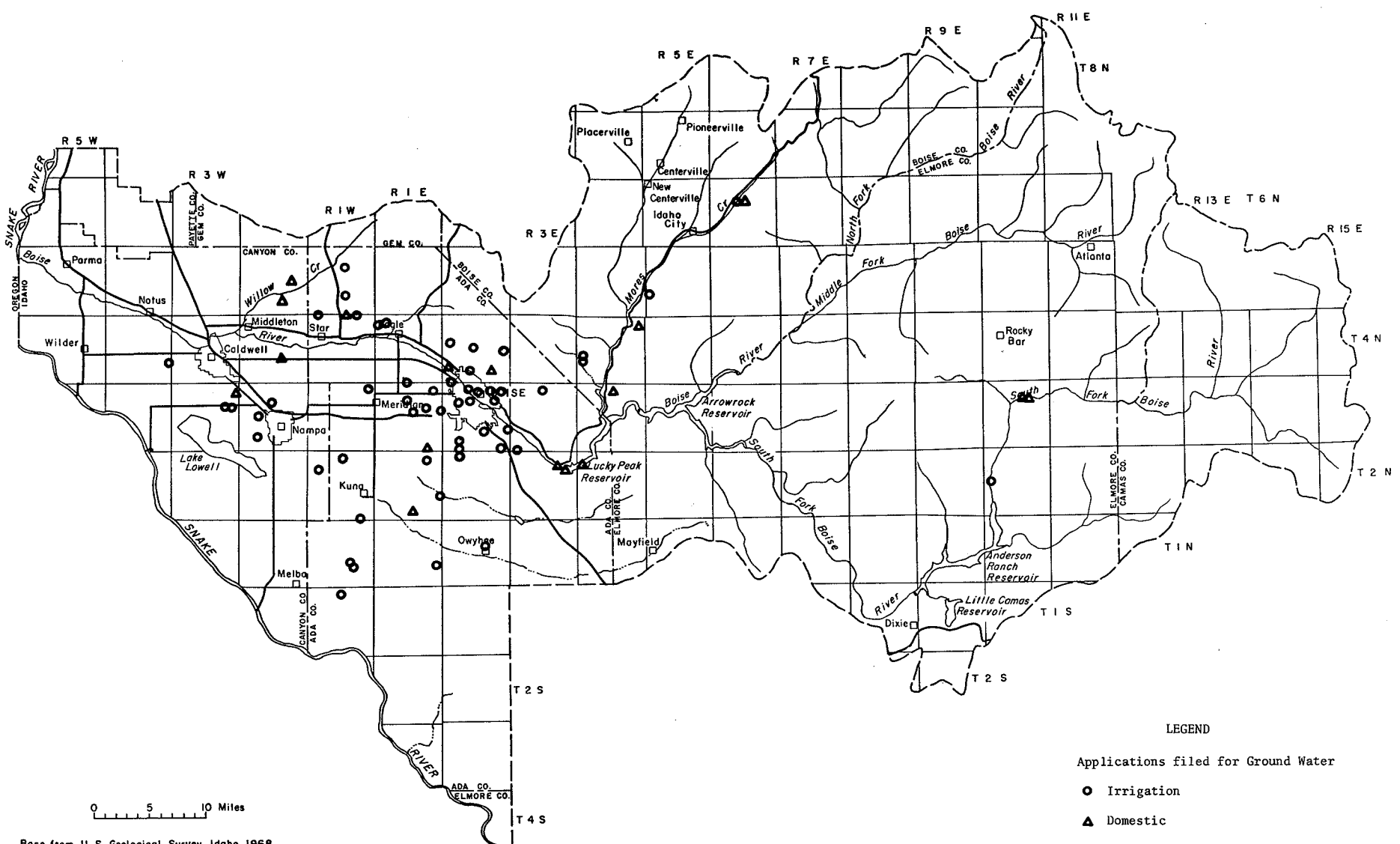


FIGURE 24. Location of applications to appropriate ground water in the Boise River Area (Area 63)

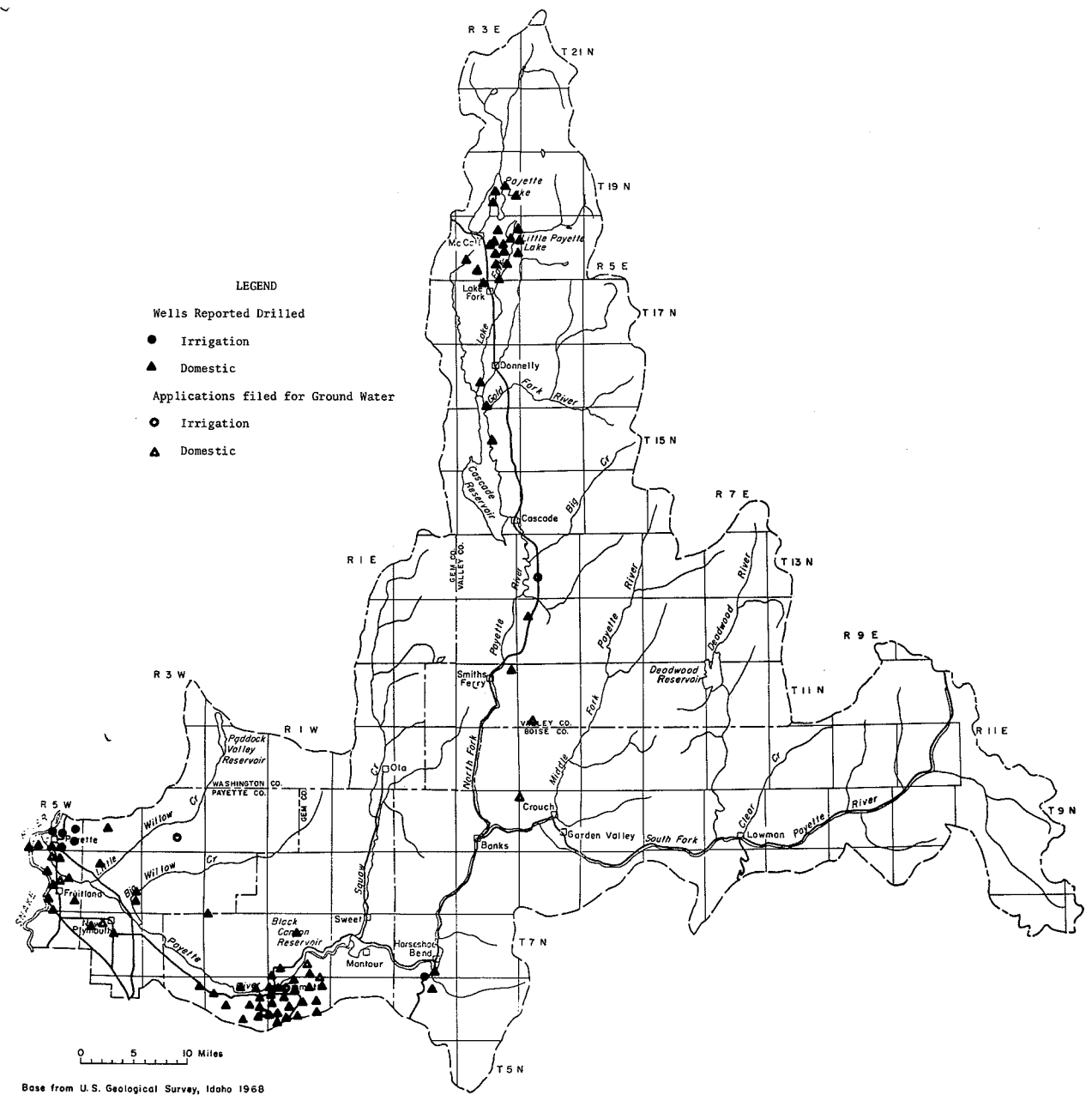


FIGURE 25. Location of wells reported drilled and applications to appropriate ground water received in the Payette River Basin (Area 65)



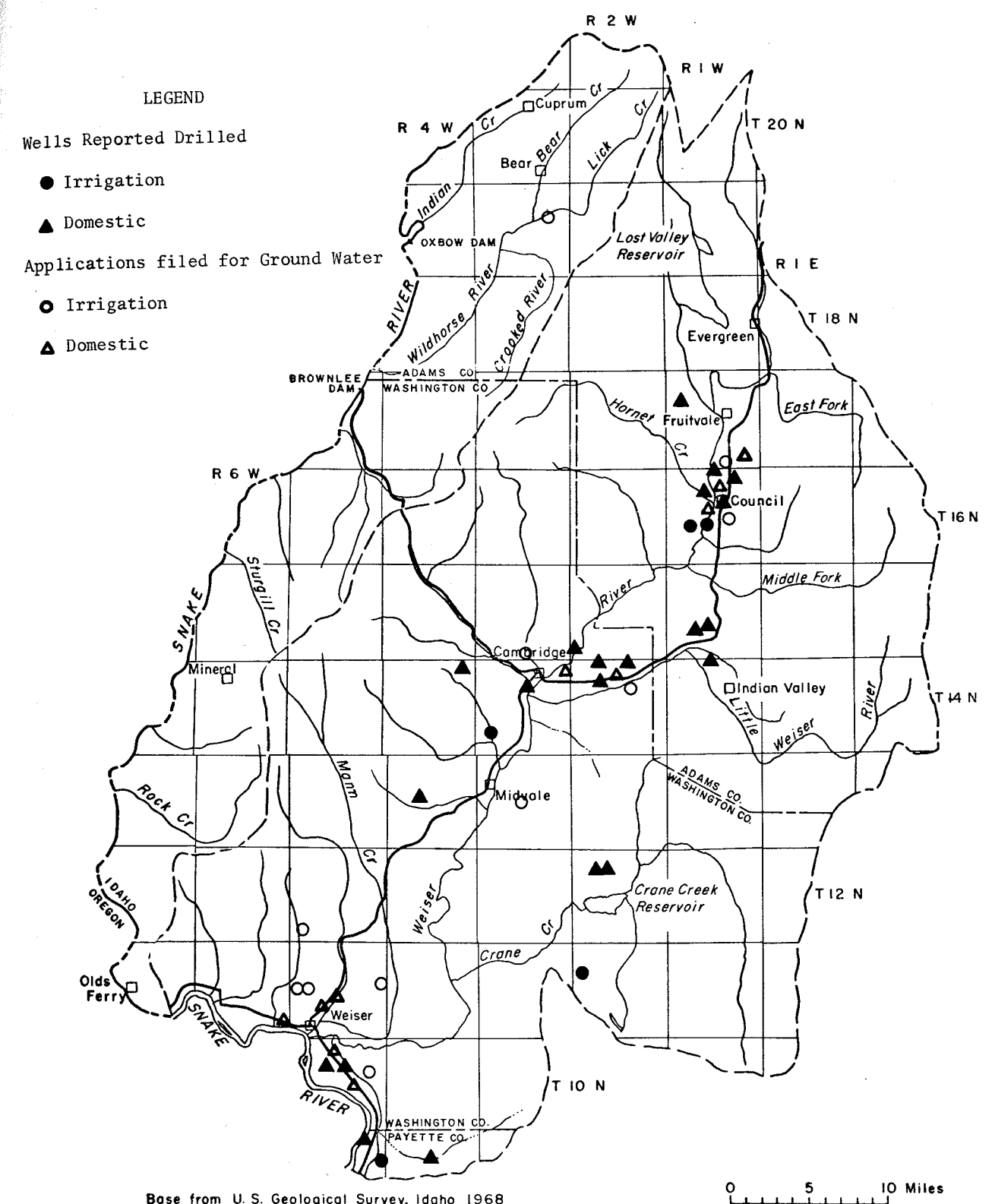


FIGURE 26. Location of wells reported drilled and applications to appropriate ground water received in the Weiser River Basin and area of direct drainage to the Snake River (Areas 67 - 69)

Mountain Home Area (Area 61) are presented in figure 22. The city of Mountain Home was the center of both well development and applications received in 1969. The wells reported drilled in the area of Mountain Home were primarily for domestic uses with irrigation wells located in an east-west band south of the city. The applications received to appropriate ground water were in the same general areas with the addition of several filings near Hammett.

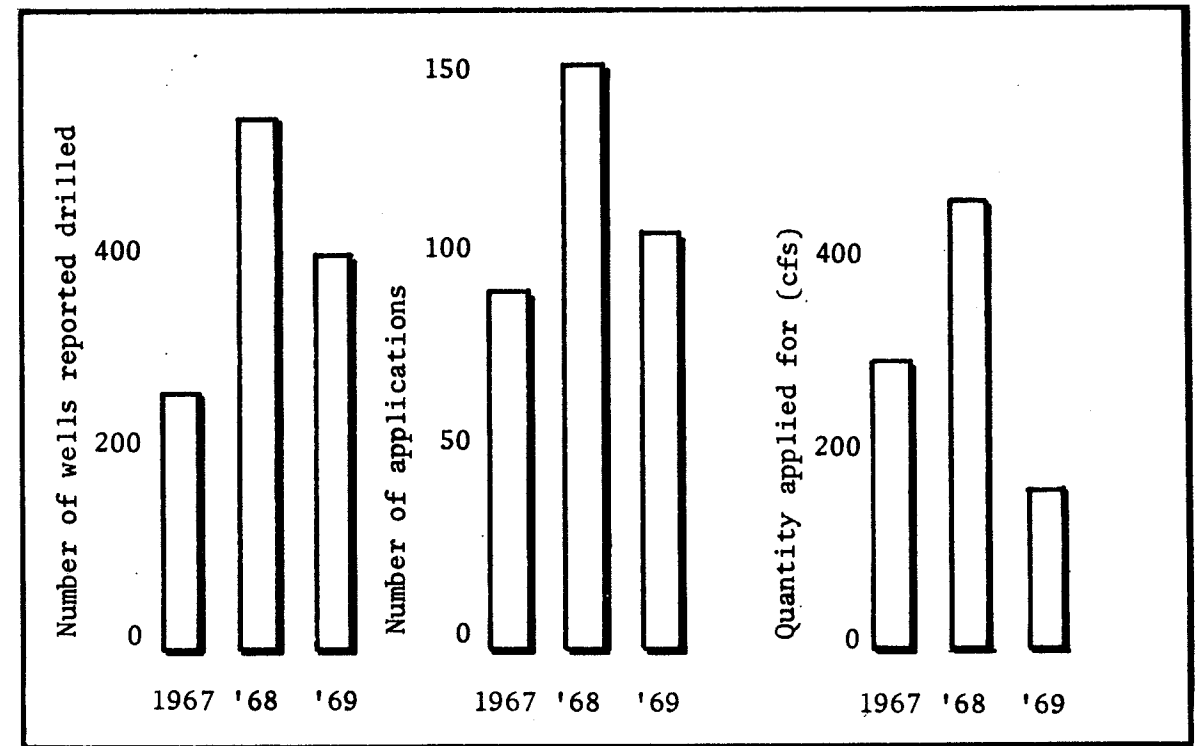
The most active area for ground-water development in the state in 1969 was the Boise Valley. A large number of domestic wells were drilled in the Boise Valley in 1969 as a result of urbanization (fig. 23). Much of the land between Boise, Meridian, Nampa and Caldwell is being developed for one- to five-acre tracts, each of which is supplied water from an individual well. Irrigation wells have also been drilled in the Boise Valley area, generally south of the surface water irrigation system from the Boise River. A total of 305 wells were reported drilled in the Boise River (Area 63) in 1969 compared with 363 in 1968 and 202 in 1967. Interest in developing the ground water is continuing in the area as evidenced by the number of new applications to appropriate ground water received in 1969 (fig. 24). Again, the Boise, Nampa, Caldwell area was the center of development with irrigation filings located south of these areas. Some recreation home development may be noted from filings for locations in the Boise Mountains.

The Payette River drainage in southwestern Idaho was also a center of development for both wells reported drilled and applications received to appropriate ground water in 1969 (fig. 25). Most of the wells reported drilled in the area in 1969 for domestic purposes were centered near Emmett and Payette, and in the recreation home area near Payette Lake. Several irrigation wells were drilled in the Payette area. The applications received in 1969 for the appropriation of ground water indicated the same general pattern as the wells reported drilled. Most of the applications received were for domestic filings located in the Emmett and Payette areas.

The locations of the wells reported drilled and the applications received to appropriate ground water in the Weiser Basin and the area of direct drainage to the Snake River are presented in figure 26. Most of the wells reported drilled in the Weiser River Basin were for domestic use. Wells were drilled in the Cambridge-Council areas and along the Snake River near Weiser. Irrigation wells were also drilled at scattered locations. Applications to appropriate ground water indicated a similar pattern. The applications were centered near Weiser and Council.

Ground-water development in southwestern Idaho decreased in 1969 from the 1968 level (fig. 27). The number of wells reported drilled in the area in 1969, 468, was down

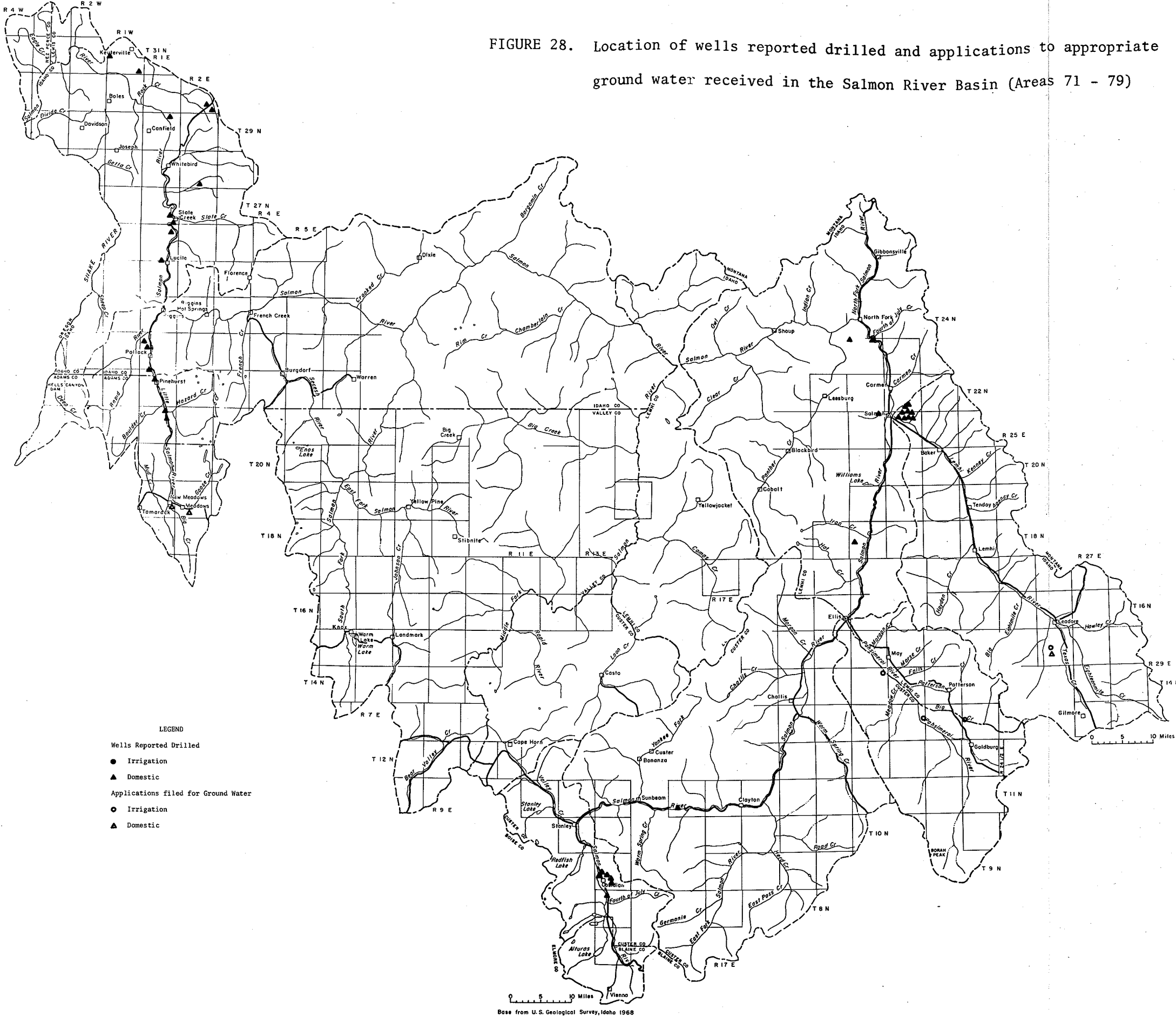
FIGURE 27. Graph of hydrologic data for Southwest Idaho (Areas 61-69)



from the 558 wells reported drilled in 1968, but above the level of 1967. The average diameter and depth decreased slightly from the two previous years. A sharp decrease is noted in both the number of applications received to appropriate ground water and the total quantity filed on. Particularly, the total quantity filed on decreased from 305 cfs in 1967 and 469 cfs in 1968 to only 168 cfs in 1969. This resulted in a decrease in the average quantity appropriated from approximately 3 cfs to 1.4 cfs per filing.

The southwestern portion of Idaho (Areas 61-69) is expected to continue to be the most active area for ground-water development in the state during the next few years. Primary interest will continue to be in domestic development in the urban areas near Boise, Nampa and Caldwell, with irrigation development centered in the area south of Mountain Home in Area 61 and southern Ada and Canyon counties in Area 63.

FIGURE 28. Location of wells reported drilled and applications to appropriate ground water received in the Salmon River Basin (Areas 71 - 79)



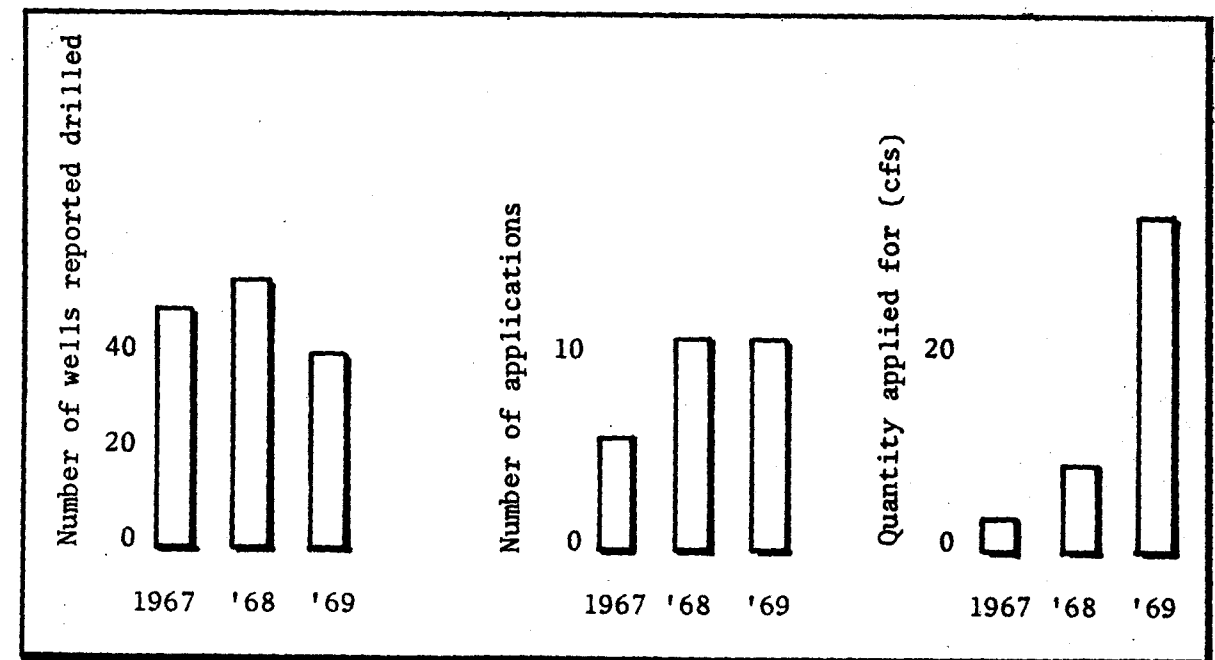
## Salmon River

(Areas 71-79)

The ground-water development in 1969 in the Salmon River Basin continued to be for small irrigation and domestic usages. The location of the wells reported drilled and applications received for ground-water permits in 1969 are presented in figure 28. Wells are noted near Obsidian, along the Little Salmon River, near Salmon, and in the reach of the river near Lucille. Only a few permits were received to appropriate ground water in the area at scattered locations.

The number of wells reported drilled in the area decreased in 1969 from the levels of 1967 and 1968 (fig. 29). The number of applications received remained at a low level as in

FIGURE 29. Graph of hydrologic data for Salmon River Basin (Areas 71-79)



previous years while the total quantity of water applied for in the area increased sharply. It is expected that the same general level of ground-water development that has occurred in the last three years will continue into the near future. Most of the wells drilled will be for domestic use at scattered locations particularly near population centers.

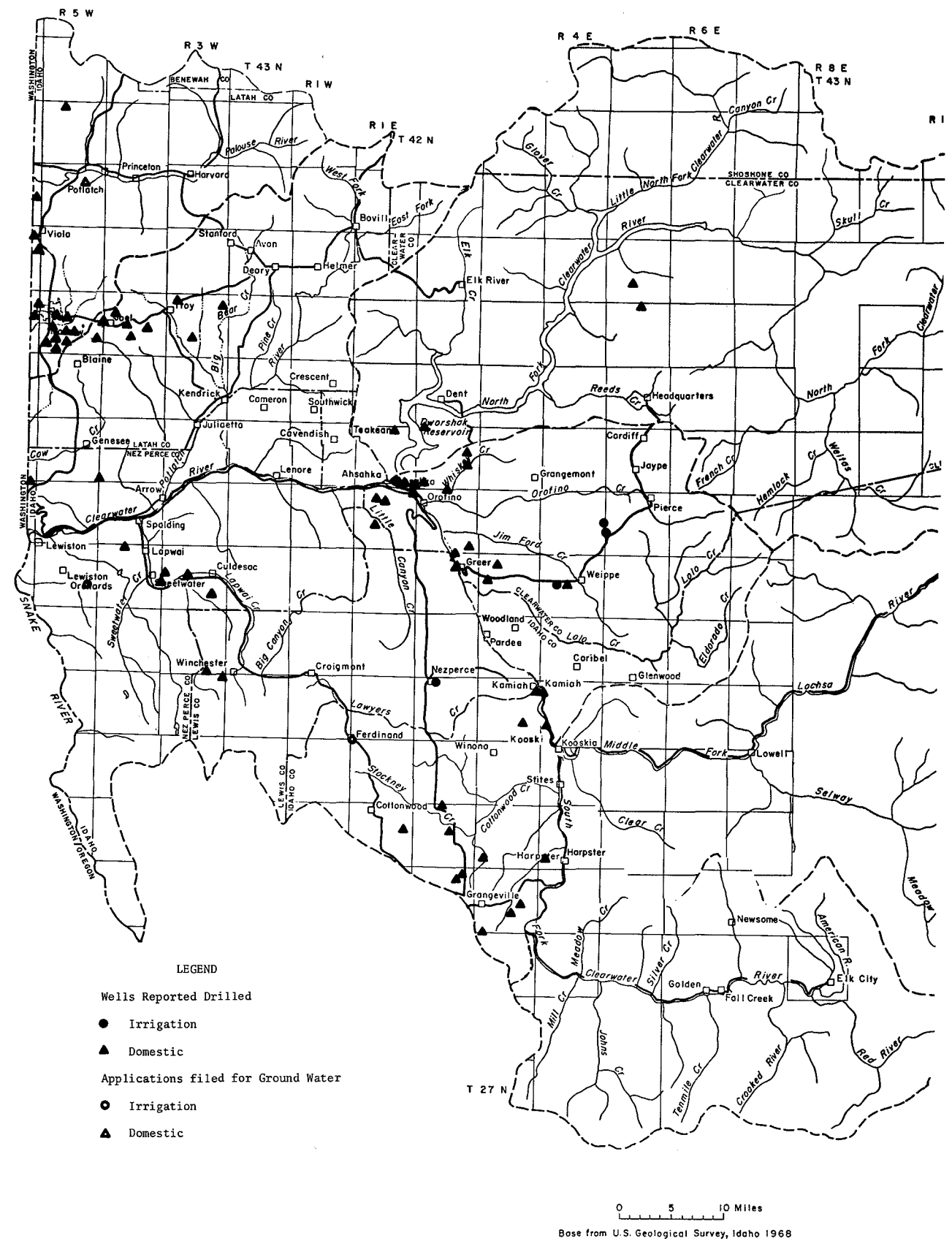


FIGURE 30. Location of wells reported drilled and applications to appropriate ground water received in the Clearwater River Basin (Areas 81 - 87)

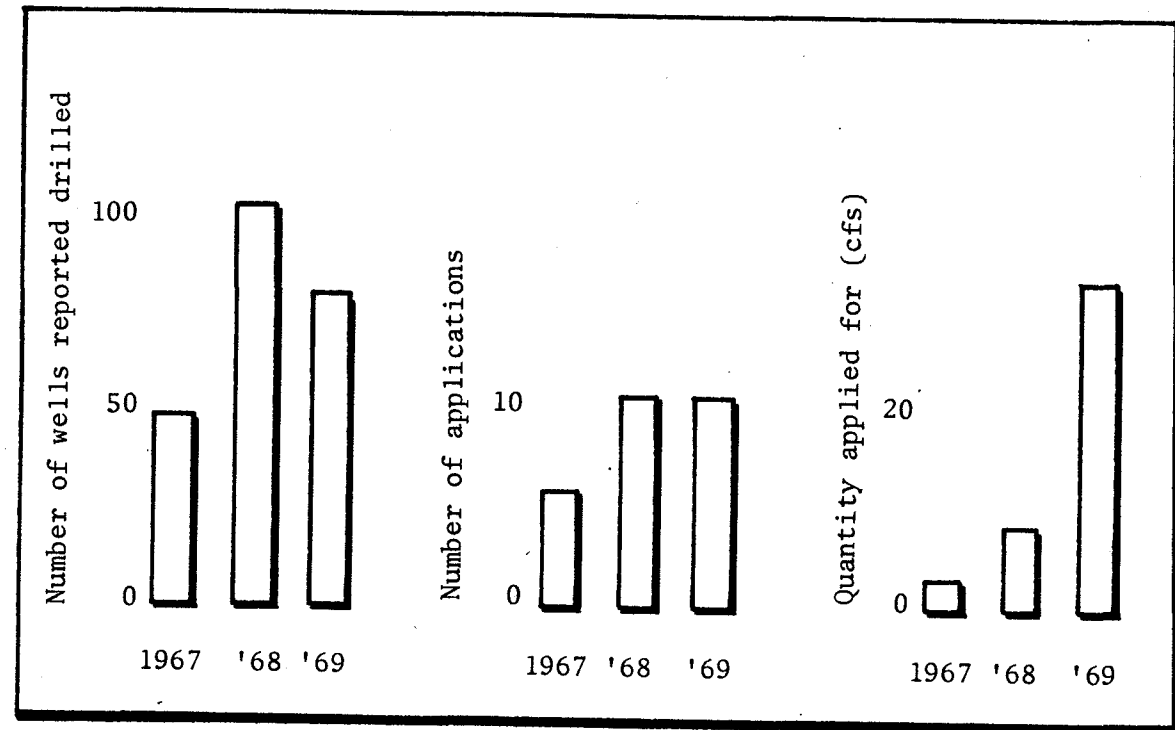
Clearwater River

(Areas 81-87)

Ground-water development in the Clearwater River Basin in 1969 has been very similar to that in the Salmon River Basin described previously. The location of wells reported drilled and applications received to appropriate ground water in the Clearwater River Basin are presented in figure 30. Most of the wells were drilled in the western portion of the drainage. Centers of development were Moscow, Orofino, Joel, Troy, Grangeville, Lapwai and Ahsahka. Very few applications were received for the appropriation of ground water in this area.

The number of wells reported drilled in the Clearwater River drainage decreased in 1968-69 from 1968, but increased over the level noted in 1967 (fig. 31). The average

FIGURE 31. Graph of hydrologic data for the Clearwater River Basin (Areas 81-87)



diameter and depth remained approximately the same. Applications to appropriate ground water are being submitted at a slow rate in this area. An increase in the average quantity for applications has been noted in the area from 1967 to 1969, however, indicating a possible

increase in interest in large irrigation development. It is expected that the ground-water development in the Clearwater Basin will remain on approximately the same scale as has been noted in the past several years. The emphasis will continue to be for domestic wells with a few irrigation wells being drilled on the Camas Prairie near Grangeville. An important factor of future well development will be the continued development of recreation home sites.

### **Columbia River Tributaries**

**(Areas 91-98)**

The rate of ground-water development in the Columbia River Tributaries Area (91-98) in the extreme northern portion of Idaho has increased in 1969 over 1968 in both number of wells reported drilled and number of applications received to appropriate ground water. Location of wells reported drilled and applications received for Areas 91-94 are noted in figure 32. These areas included the South Fork of the Coeur d'Alene River and the St. Maries and St. Joe river basins. The wells reported drilled in these areas are primarily for domestic uses. They are grouped in areas near Tensed and St. Maries, along the St. Maries River, and at scattered locations along the South Fork of the Coeur d'Alene River. Very few applications to appropriate ground-water were received in these areas. The most intensive area of well development in northern Idaho was in the Lake Coeur d'Alene-Rathdrum Prairie Area 95 (fig. 33). Most of the wells reported drilled in this area were for domestic use, primarily for recreational home developments. Several irrigation wells were reported drilled on the Rathdrum Prairie area east of Post Falls. Most of the applications received to appropriate ground-water in Area 95 were for domestic purposes. A large filing for 90 cfs by the Bureau of Reclamation in Area 95 was not included in table 2. This filing is for the East Greenacres Project. Several irrigation filings were located in the Rathdrum Prairie area near Post Falls. The greatest concentration of well drilling in the remainder of northern Idaho was in the area west of Pend Oreille Lake (fig. 34). Domestic wells were drilled in 1969 along the shores of Pend Oreille and along the Pend Oreille River as well as other places in the general area. Several irrigation wells were also drilled in this area. In Area 97, several wells were drilled near Priest Lake and near Priest River where it enters Pend Oreille River. Applications were received in the northern three areas of the Columbia River Tributaries only at scattered locations for domestic purposes.

Both the number of applications submitted to appropriate ground water in northern Idaho and the wells reported drilled increased significantly in 1969 over the levels of 1968





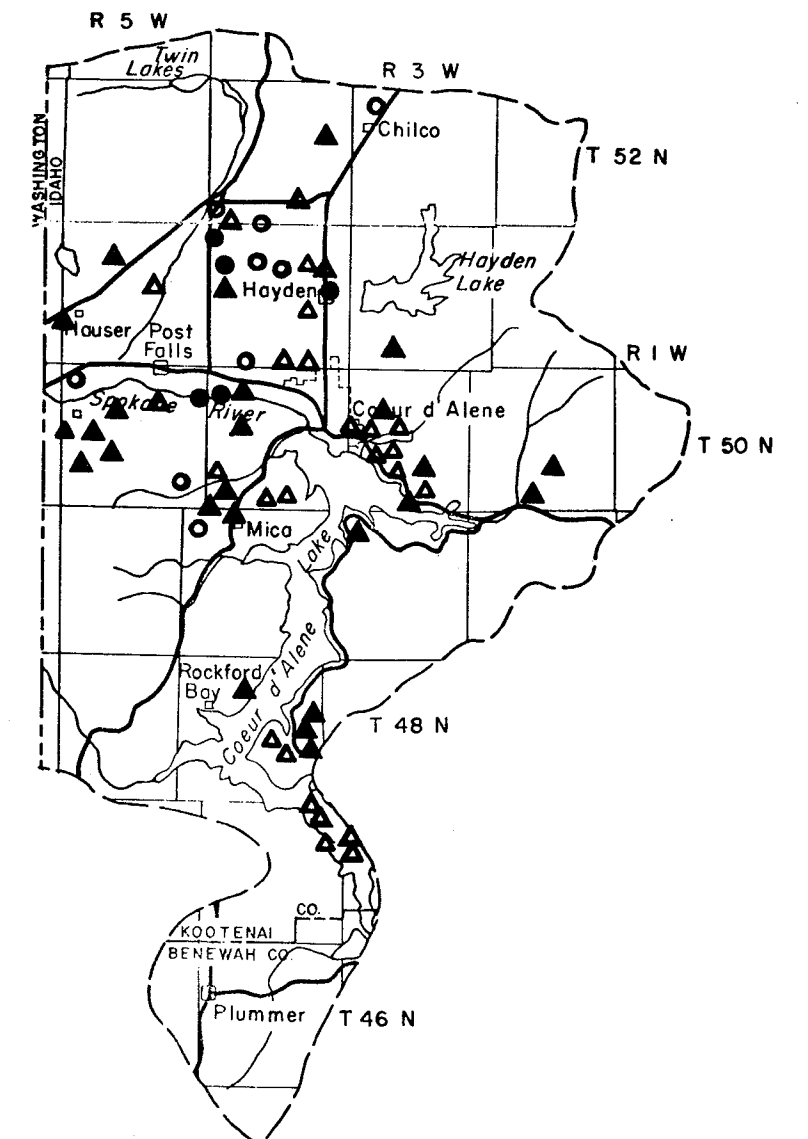
LEGEND

Wells Reported Drilled

- Irrigation
- ▲ Domestic

Applications filed for Ground Water

- Irrigation
- △ Domestic



Base from U. S. Geological Survey, Idaho 1968

0 5 10 Miles

FIGURE 33. Location of wells reported drilled and applications to appropriate ground water received in the Lake Coeur d'Alene - Rathdrum Prairie Area in Idaho (Area 95)

- LEGEND
- Wells Reported Drilled
- Irrigation
  - ▲ Domestic
- Applications filed for Ground Water
- Irrigation
  - △ Domestic

Base from U.S. Geological Survey, Idaho 1968

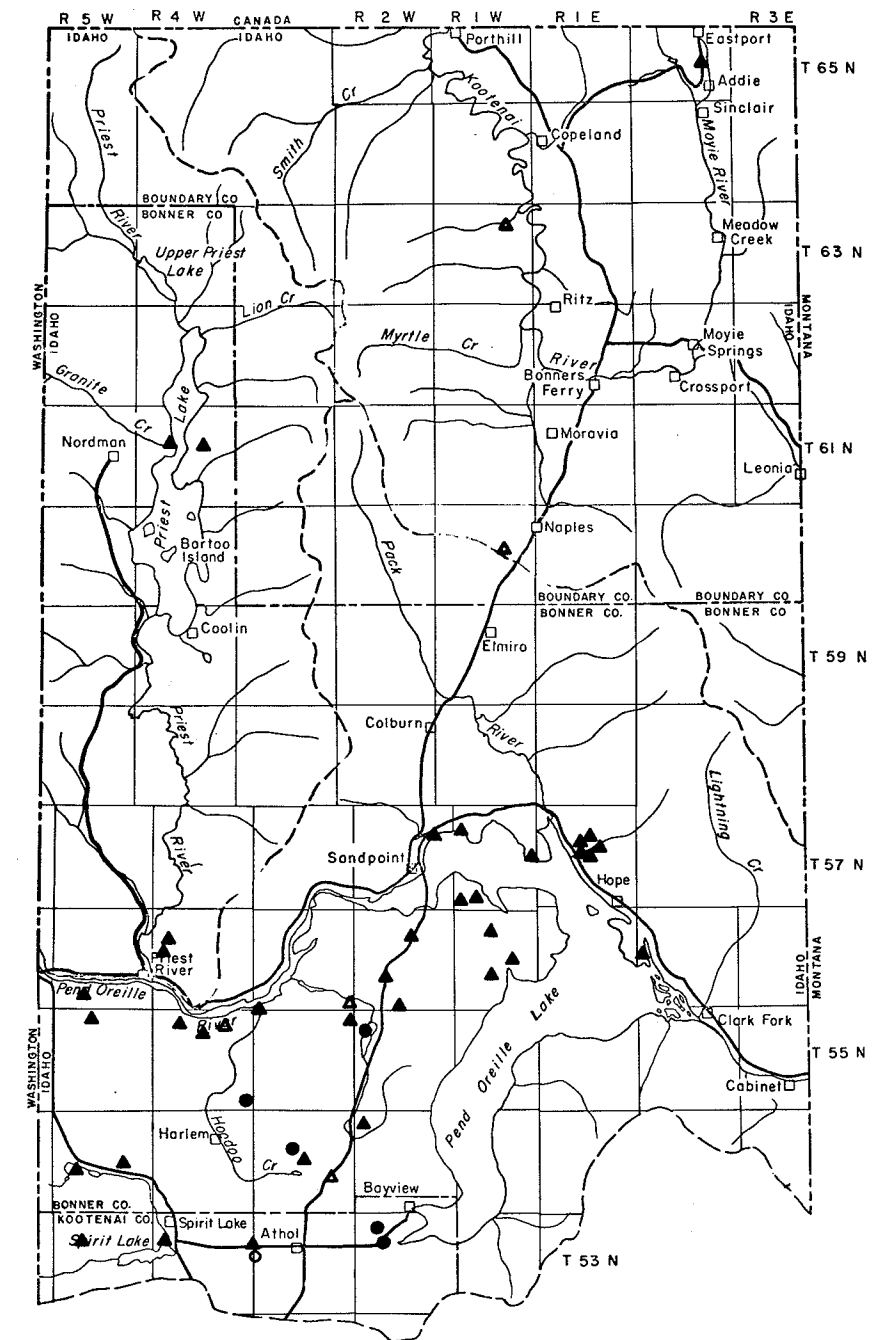
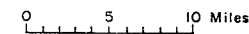
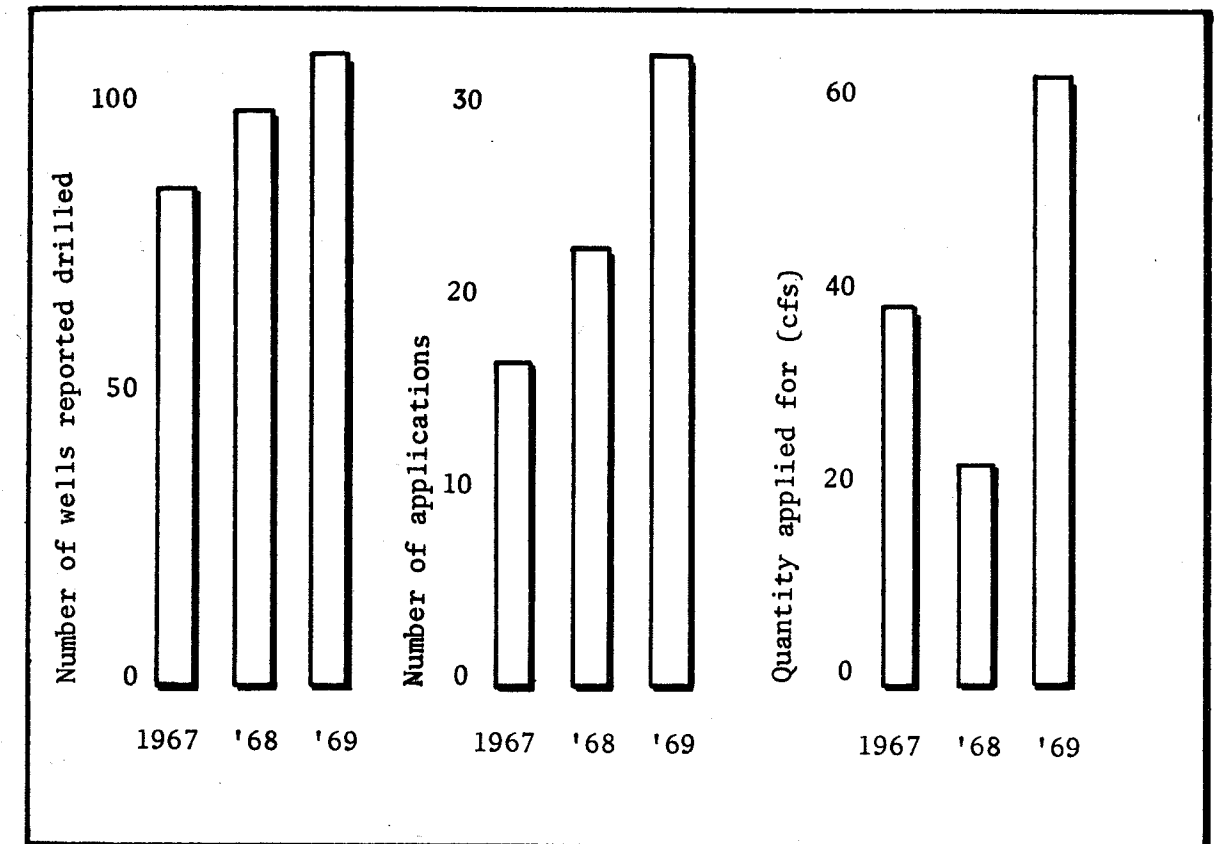


FIGURE 34. Location of wells reported drilled and applications to appropriate ground water received in the Pend Oreille, Priest River and Kootenai River Basins in Idaho (Areas 96 - 98)

and 1967 (fig. 35). One hundred and twenty-two wells were reported drilled in the area in 1969 compared to only 99 in 1968 and 77 in 1967. The total quantity filed on also

**FIGURE 35. Graph of hydrologic data for the Columbia River Tributaries in Idaho (Areas 91-98)**



increased sharply. Ground-water development in the Columbia River Tributaries (Areas 91-98) in northern Idaho will probably continue at approximately the same level as 1969. Increased interest in recreational home development will result in domestic well development throughout the area. Irrigation development will be centered primarily on the Rathdrum Prairie.

#### GENERAL DISCUSSION

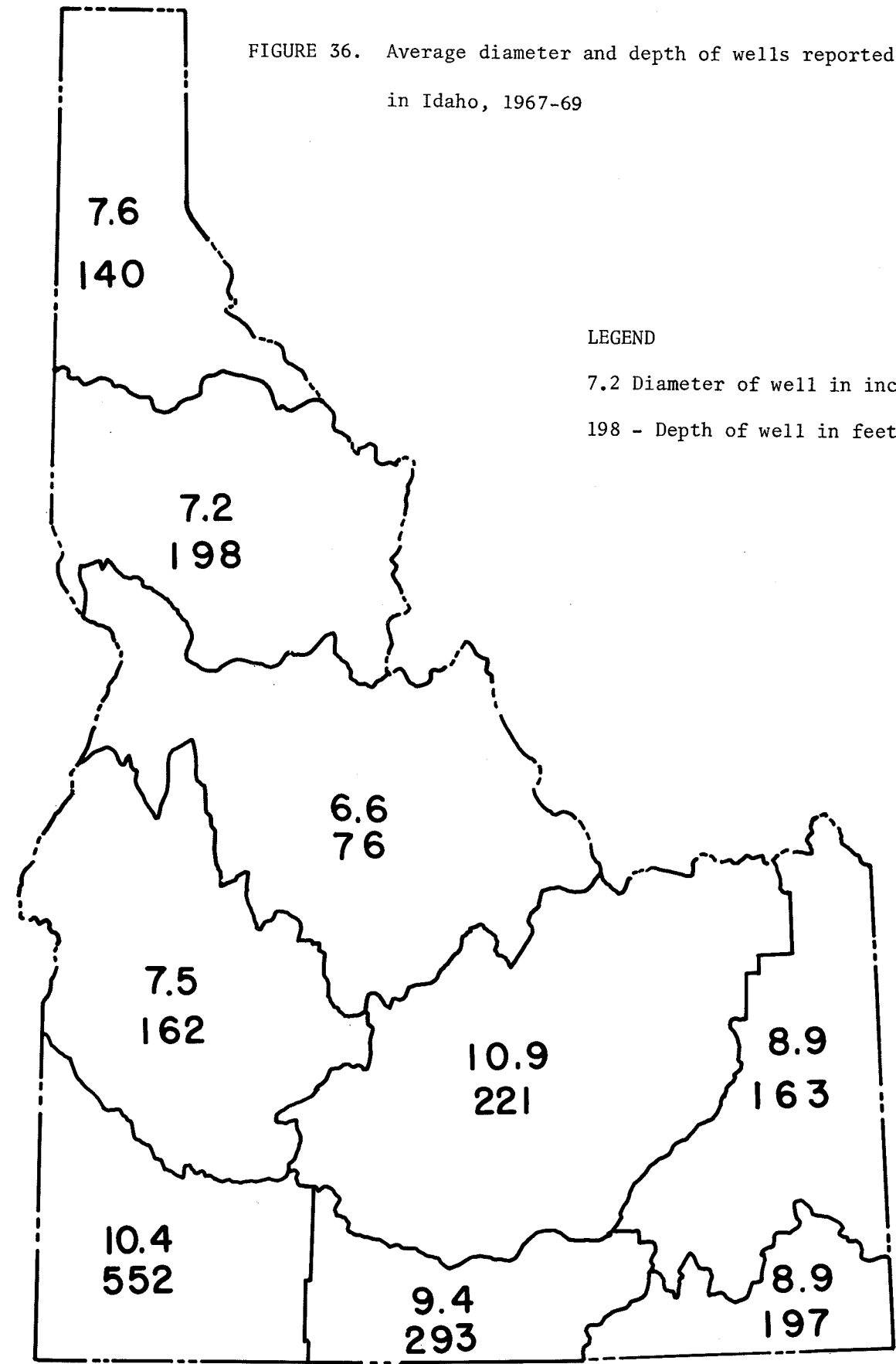
Several major changes may be noted in the pattern of ground-water development in the State of Idaho for the period 1967-69. The number of wells reported drilled in 1969

decreased approximately 17 per cent from 1968. The number of applications received to appropriate ground water in 1969 decreased approximately 26 per cent from the previous year. The largest change noted from 1968 to 1969 was in the total quantity represented by the applications received. This total quantity dropped 45 per cent in 1969.

Several reasons may be suggested for the trends noted above. The declining number of wells drilled and applications received is probably the result of at least two major factors. The first major factor was the difficulty in obtaining development financing and the high interest rate situation that has developed over the past several years. In many cases the loaning agencies, such as insurance companies and others, have not had the capital to make agricultural loans. Similarly, the agricultural community has not felt it can generally accept the present high rate of interest. The high interest rate has also affected the recreational home development and the rate of urban expansion. The second factor that may have had a major effect on the decrease in well development in 1969 was the large quantity of surface water available for irrigation during the 1969 season. The year 1969 was a good water year in most portions of the state with respect to surface water supplies. In many areas, even late priority water rights had good water supplies late into the summer. Since many irrigation wells are drilled to supply supplemental water to surface water supplies, fewer wells were drilled for this purpose in 1969. The decline in average quantity applied for in 1969 can be attributed primarily to the increasing urban development near the population centers of the state and to the increasing growth of recreation home developments. Both of these factors result in individual wells constructed for home sites or cabins to obtain a water supply.

Some statewide characteristics of ground-water development in Idaho can be noted for the three years of detailed record available, 1967-69. The average diameter and depth of wells in each of the nine hydrologic basins in the state are noted in figure 36. The largest diameter wells have been drilled in southern Idaho in areas of irrigation from ground water. The average diameter of wells reported drilled in the northern portion of the state is smaller as a result of the more intense development of domestic and small irrigation supplies. A wide range is noted in the average depth of wells drilled in the state. The area of deepest well penetration is in Owyhee County in the extreme southwestern portion of the state. Here the average depth of 91 wells drilled in the period 1967-69 was 552 feet. In one portion of Owyhee County, the Bruneau River, the average of 34 wells drilled in the period exceeds 820 feet. The area of shallowest average wells in the period is the Salmon River drainage in north central Idaho. The average depth of the wells in this area is 76 feet. Most of the wells in the remainder of the state are in the range of 140 to 290 feet in depth with the deeper wells being reported in southern Idaho. The average quantity filed on for ground-water in each hydrologic basin of the state for the period 1967-69 are noted in

FIGURE 36. Average diameter and depth of wells reported drilled in Idaho, 1967-69



LEGEND  
7.2 Diameter of well in inches.  
198 - Depth of well in feet.

TABLE 3  
 NUMBER OF WELLS REPORTED DRILLED, NUMBER OF APPLICATIONS RECEIVED TO APPROPRIATE  
 GROUND WATER AND THE TOTAL QUANTITY REQUESTED IN IDAHO IN 1967-69 BY HYDROLOGIC BASIN IN PER CENT OF STATE TOTAL

Area Number	Hydrologic Area	Number of Wells Reported Drilled in Per Cent of State Total				Number of Applications Submitted to Appropriate Ground Water in Per Cent of State Total				Total Quantity of Water Applied for (cfs) in Per Cent of State Total			
		1967	1968	1969	1967-69	1967	1968	1969	1967-69	1967	1968	1969	1967-69
11-17	Great Basin	2.8	1.2	1.6	1.7	4.2	2.0	1.2	2.4	4.3	1.4	1.6	2.4
21-29	Snake River Tributaries												
	above American Falls	19.3	14.5	13.3	15.2	7.2	8.2	7.8	7.9	7.9	7.9	8.2	8.0
31-37	Snake Plain and Tributaries	14.3	15.5	15.5	15.2	31.2	29.7	28.8	29.0	36.5	36.4	39.7	37.2
41-47	Snake River Tributaries -												
	South Side	6.3	11.3	8.6	8.9	12.8	9.1	8.4	10.0	17.0	11.5	12.8	13.6
51-57	Owyhee County	2.6	2.7	2.5	2.6	8.2	8.9	4.8	7.5	10.0	12.5	8.1	10.6
61-69	Southwest Idaho	33.4	38.0	38.3	37.0	28.8	34.9	35.8	33.7	21.3	28.1	18.7	23.6
71-79	Salmon River	6.1	3.7	3.3	4.1	1.3	.9	1.8	1.3	.3	.3	2.2	.7
81-87	Clearwater Basin	5.8	7.1	7.0	6.7	.7	1.6	1.5	1.3	.0	.3	1.7	.5
91-98	Columbia River Tributaries	9.4	6.7	10.0	8.5	5.7	5.1	9.9	6.8	2.7	1.4	7.0	3.2

figure 37. The average quantity filed on ranges from 1.41 cfs per filing in the Clearwater drainage to 5.24 cfs per filing in Owyhee County. This range is indicative of the type of development occurring in the area, specifically irrigation versus domestic well development. A greater interest is indicated in northern Idaho in filing for a domestic use of water. The average quantity appropriated in southwestern Idaho, 2.60, is a combination of the large irrigation filings and the great number of small individual filings for domestic and small irrigation uses associated with the urban development near the population centers.

The areal changes in the locations of wells reported drilled, applications received, and total quantity requested in 1967-69 are presented in table 3 in terms of per cent of the respective state totals. The two most active areas of the state, southwest Idaho (Areas 61-69) and Snake Plain and Tributaries (Areas 31-37) have the largest increases in wells reported drilled and in new applications received. The two areas account for over 50 per cent of the wells reported drilled and total quantity requested and over 60 per cent of the number of applications. Southwest Idaho leads in the number of wells reported drilled and applications received. The Snake Plain and Tributaries included almost 40 per cent of the total quantity of water requested. Most other portions of southern Idaho are decreasing in the number of wells reported drilled and applications received. In the extreme northern portion of Idaho, all three factors of development are increasing with respect to the state average. Most of these changes again reflect the two major factors of urbanization and continuing agricultural expansion.

#### AREAS FOR FUTURE DEVELOPMENT

Two types of development of the ground-water resource of the State of Idaho will occur in the future years: urban and recreational development for domestic and small irrigation usages, and large scale irrigation and industrial development. The former type of development will be more numerous but generally will utilize less water. The main centers for future urban and recreational level development include the portions of southern Idaho near Boise, Nampa and Caldwell, near Twin Falls, the Burley-Rupert area and near Pocatello. Recreational home development will continue to occur in the Hailey-Ketchum area, the Cascade Lake area and in northern Idaho. The primary area for agricultural development will continue to be the southern portion of the Snake Plain, portions of southwestern Idaho, portions of eastern Idaho such as the Teton River and the Rathdrum Prairie in northern Idaho.



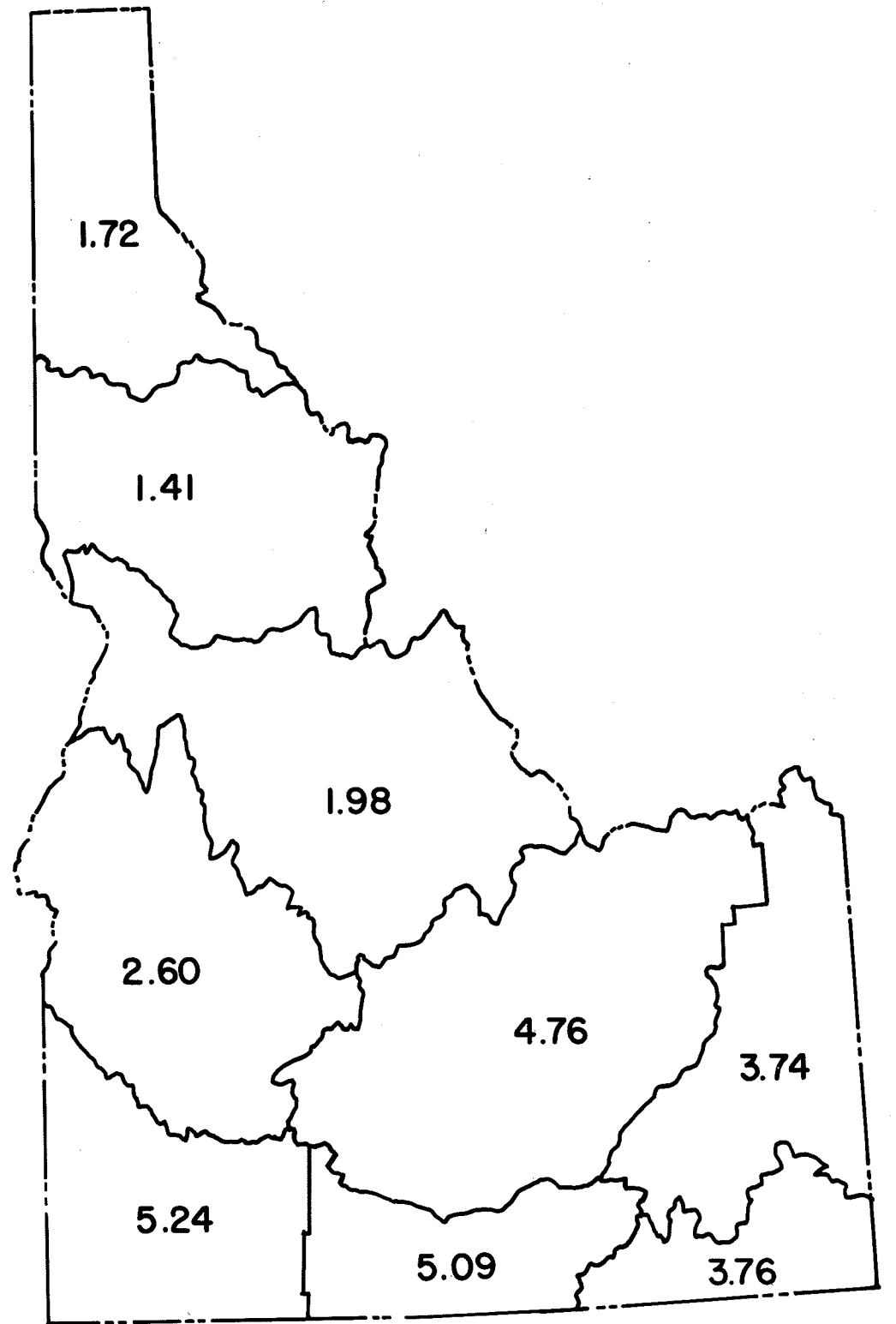


FIGURE 37. Average quantity of water requested per application to appropriate ground water received in Idaho, 1967-69