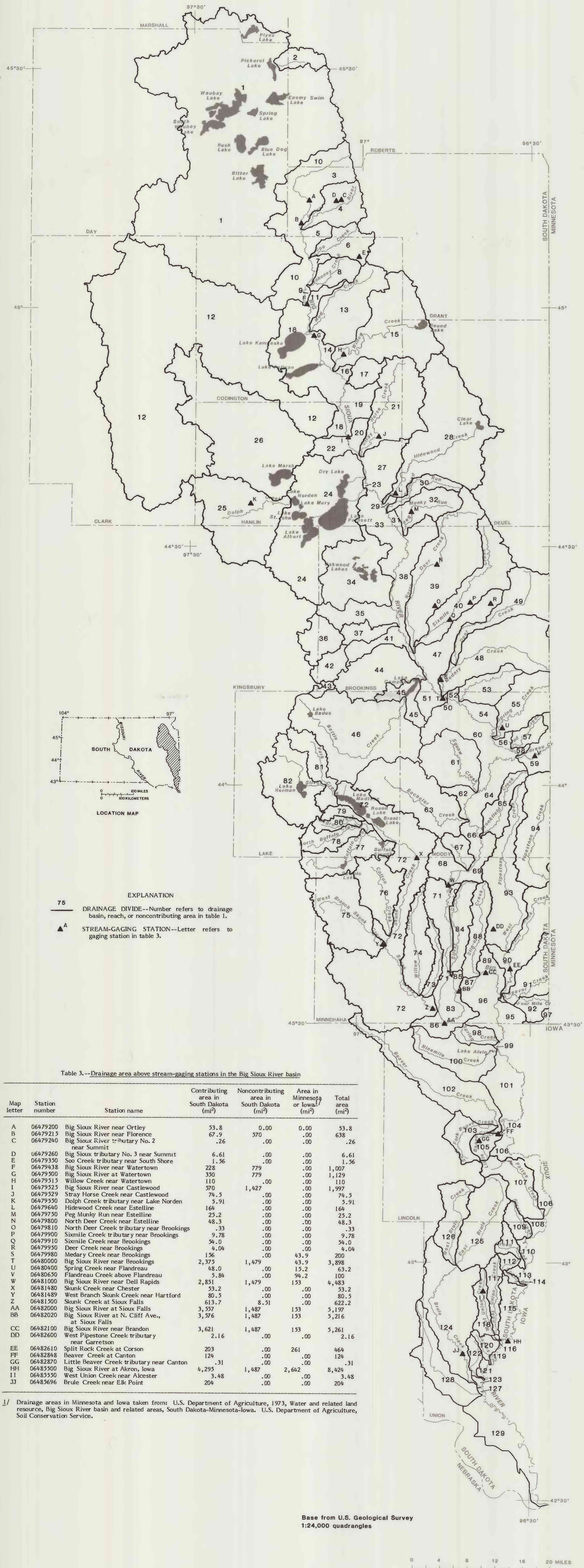
DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

U.S. GEOLOGICAL SURVEY
OPEN-FILE REPORT 85-348



Base from U.S. Geological Survey
1:24,000 quadrangles

INTRODUCTION

The Big Sioux River basin of eastern South Dakota contains an important surface-water supply and a sizeable aquifer system of major importance to the economy of South Dakota. The aquifers are complex, consisting of many small aquifers that are hydrologically associated with several large aquifers and the Big Sioux River. The complexity and interrelation of the surface water-ground water systems has already created management problems. As development continues and increases, the problems will increase in number and complexity. To aid in planning for future development, an accurate determination of drainage areas for all basins, subbasins, and noncontributing areas in the Big Sioux River basin is needed. Delineation of drainage basins is useful in land and water resource management. Knowledge of the size of drainage areas is used in determining runoff, flood peaks, volumes, and hydrographs of streams. Previous delineation of the drainage of parts of the Big Sioux River basin was done without the availability of U.S. Geological Survey 7½ minute topographic maps and was found to be in error.

PURPOSE AND SCOPE

The purpose of this map and table 1 is to show all named stream basins, and all unnamed basins larger than 10 square miles within the Big Sioux River basin in South Dakota and to list by stream name the area of the basin. Stream drainage basins in South Dakota were delineated by visual interpretation of contour information shown on U.S. Geological Survey 7½ minute topographic maps. The area of the basin was determined by tracing the drainage basin boundary on the topographic maps with an electronic digitizer. At the same time the boundary-line location was stored on magnetic disk which was then processed through a plotter to produce the map. The original topographic maps on which the basins were delineated are on file in the U.S. Geological Survey office, Federal Building, Huron, South Dakota. Table 2 lists the drainage areas of major drainage basins in the Big Sioux River basin that do not have a total drainage-area value given in table 1. Table 3 shows the drainage area above stream-gaging stations in the Big Sioux River basin. In South Dakota the Big Sioux River basin is 6,154 square miles in area. The area of the Big Sioux River basin including those parts in Minnesota and Iowa is 9,006 square miles. The drainage areas in Minnesota and Iowa that are above stream-gaging stations (table 3) were taken from the U.S. Department of Agriculture, 1973, Water and related land resource, Big Sioux basin and related areas, South Dakota-Minnesota-Iowa.

CONVERSION FACTORS

The following factors can be used to convert inch-pound units in this report to the International System of units (SI):

Multiply inch-pound unit	By	To obtain SI unit
mile	1.609	kilometer
square mile (mi²)	2.590	square kilometer

Table 1.--Areas of drainage basins, reaches, and noncontributing areas in the Big Sioux River basin in South Dakota

(In downstream order)

Map number	Basin or reach name	Drainage area (mi²)
1	Watertown noncontributing	762
2	Chelpa noncontributing	17.4
3	East Boundary/Indian reach	33.4
4	Indian River	38.8
5	Indian/Soo reach	12.2
6	Soo Creek	31.2
7	Soo/Mahoney reach	4.71
8	Mahoney Creek	23.2
9	Mahoney/Watertown gage reach	1.48
10	Above Watertown gage reach	82.5
11	Watertown gage/Mud reach	9.2
12	Castlewood noncontributing	648
13	Mud Creek (Gravel Creek on county map)	70.0
14	Mud/Willow reach	7.97
15	Willow Creek	117
16	Willow/Unnamed Castlewood reach	3.62
17	Unnamed Castlewood	16.3
18	Watertown gage/Castlewood gage reach	95.2
19	Unnamed Castlewood/Castlewood gage reach	23.9
20	Castlewood gage/Stray Horse reach	9.77
21	Stray Horse Creek	82.6
22	Castlewood gage/Boswell Diversion Ditch reach	13.8
23	Boswell Diversion Ditch/Lake Poinsett reach	.69
24	Lake Poinsett	191
25	Dolph Creek	120
26	Lake Marsh	220
27	Stray Horse/Hidewood reach	37.2
28	Hidewood Creek	166
29	Hidewood/Bullhead reach	1.92
30	Bullhead Run	17.7
31	Bullhead/Peg Munky reach	3.53
32	Peg Munky Run	35.1
33	Lake Poinsett/Oakwood reach	41.8
34	Oakwood Lakes	86.2
35	Oakwood Lakes/Unnamed Volga reach	32.6
36	West boundary noncontributing	28.8
37	Unnamed Volga	15.5
38	Peg Munky/North Deer reach	41.8
39	North Deer Creek	125
40	Sixmile Creek	73.5
41	Unnamed Volga/Lake Campbell outlet reach	20.0
42	Lake Sinai noncontributing	18.0
43	Battle Creek noncontributing	4.78
44	Lake Campbell outlet	64.4
45	Lake Campbell	20.9
46	Battle Creek	160
47	North Deer/Medary reach	48.0
48	Medary Creek	102
49	Deer Creek	57.5
50	Medary/Brookings gage reach	.53
51	Lake Campbell outlet/Brookings gage reach	13.8
52	Brookings gage/Unnamed (I) Flandreau reach	2.63
53	Unnamed (I) Flandreau	31.1
54	Unnamed (I) Flandreau/Spring reach	12.8
55	Spring Creek	50.9
56	Spring/Mud reach	4.68
57	Mud Creek	14.3
58	Mud/Flandreau reach	2.27
59	Flandreau Creek	20.2
60	Brookings gage/Squaw reach	34.0
61	Squaw Creek	57.2
62	Squaw/Bachelor reach	9.45
63	Bachelor Creek	99.0
64	Flandreau/Brookfield reach	30.8
65	Brookfield Creek	27.0
66	Bachelor Creek/Unnamed (II) Dell Rapids reach	9.50
67	Unnamed (II) Dell Rapids	14.0
68	Unnamed (II) Dell Rapids/Dell Rapids gage reach	18.9
69	Brookfield/Dell Rapids gage reach	17.0
70	Dell Rapids gage/Silver reach	8.46
71	Dell Rapids gage/Skunk reach	32.0
72	Skunk Creek	227
73	Unnamed Skunk Creek	15.3
74	Willow Creek	47.1
75	West Branch Skunk Creek	80.7
76	Colton Creek	49.8
77	Buffalo Creek	48.5
78	North Buffalo Creek	25.2
79	North Buffalo noncontributing	8.51
80	Negro Creek	10.5
81	Park Creek	34.5
82	Lake Herman	75.1
83	Big Sioux Loop	14.7
84	Silver Creek	32.0
85	Silver/Cliff Avenue gage reach	3.44
86	Skunk/Cliff Avenue gage reach	20.6
87	Cliff Avenue gage/Slip-up reach	3.24
88	Slip-up Creek	32.5
89	Slip-up/Split Rock reach	12.2
90	Split Rock Creek	54.3
91	Beaver Creek	32.5
92	Fourmile Creek	13.3
93	West Pipestone Creek	86.8
94	Pipestone Creek	68.7
95	Split Rock/South Dakota State line reach	11.0
96	Cliff Avenue gage/Spring Creek reach	32.5
97	Blood Run Creek	2.72
98	Spring Creek	14.4
99	Spring Creek/Ninemile reach	.33
100	Ninemile Creek	53.4
101	Ninemile/Beaver reach	37.2
102	Beaver Creek	99.1
103	South Fork Beaver Creek	26.0
104	Beaver/Little Beaver reach	.21
105	Little Beaver Creek	11.7
106	Little Beaver/Pattee reach	21.1
107	Pattee Creek	40.4
108	Pattee/Finnie reach	5.3
109	Finnie Creek	13.0
110	Finnie/Green reach	4.41
111	Green Creek	11.3
112	South Branch Green Creek	5.82
113	Green/Scott reach	4.33
114	Scott Creek	2.34
115	Scott/Union reach	21.3
116	Union Creek	.76
117	East Union Creek	18.5
118	West Union Creek	17.0
119	Union/Sayles reach	1.81
120	Sayles Creek	8.67
121	Sayles/Richland reach	2.73
122	Richland Creek	8.63
123	Richland/Brule reach	1.74
124	Brule Creek	106
125	East Brule Creek	69.6
126	West Brule Creek	38.7
127	Brule/Big Ditch reach	.66
128	Big Ditch	47.5
129	West boundary Big Ditch/Big Sioux reach	46.1

Table 2.--Areas of major drainage basins in the Big Sioux River basin in South Dakota, Minnesota, and Iowa

Basin name	Map numbers	Area in South Dakota (mi²)	Area in Minnesota or Iowa (mi²)	Total area (mi²)
Lake Poinsett	24-26	531	0.00	531
North Deer Creek	39, 40	198	.00	198
Lake Campbell Outlet	44-46	245	.00	245
Medary Creek	48, 49	160	43.9	204
Spring Creek	55	50.9	15.2	66.1
Flandreau Creek	59	20.2	94.2	114
Buffalo Creek	77-80	92.7	.00	92.7
Skunk Creek	72-82	622	.00	622
Split Rock Creek	90-94	256	261	517
Beaver Creek	102, 103	125	.00	125
Brule Creek	124-126	214	.00	214

Table 3.--Drainage area above stream-gaging stations in the Big Sioux River basin

Map letter	Station number	Station name	Contributing area in South Dakota (mi²)	Noncontributing area in South Dakota (mi²)	Area in Minnesota or Iowa[1] (mi²)	Total area (mi²)
A	06479200	Big Sioux River near Ortley	53.8	0.00	0.00	53.8
B	06479215	Big Sioux River near Florence	67.9	570	.00	638
C	06479240	Big Sioux River tributary No. 2 near Summit	.26	.00	.00	.26
D	06479260	Big Sioux tributary No. 3 near Summit	6.61	.00	.00	6.61
E	06479350	Soo Creek tributary near South Shore	1.36	.00	.00	1.36
F	06479438	Big Sioux River near Watertown	228	779	.00	1,007
G	06479500	Big Sioux River at Watertown	350	779	.00	1,129
H	06479515	Willow Creek near Watertown	110	.00	.00	110
I	06479523	Big Sioux River near Castlewood	570	1,427	.00	1,997
J	06479529	Stray Horse Creek near Castlewood	74.5	.00	.00	74.5
K	06479550	Dolph Creek tributary near Lake Norden	5.91	.00	.00	5.91
L	06479640	Hidewood Creek near Estelline	164	.00	.00	164
M	06479750	Peg Munky Run near Estelline	25.2	.00	.00	25.2
N	06479800	North Deer Creek near Estelline	48.3	.00	.00	48.3
O	06479810	North Deer Creek tributary near Brookings	.33	.00	.00	.33
P	06479900	Sixmile Creek tributary near Brookings	9.78	.00	.00	9.78
Q	06479910	Sixmile Creek near Brookings	54.0	.00	.00	54.0
R	06479950	Deer Creek near Brookings	4.04	.00	.00	4.04
S	06479980	Medary Creek near Brookings	156	.00	43.9	200
T	06480000	Big Sioux River near Brookings	2,375	1,479	43.9	3,898
U	06480400	Spring Creek near Flandreau	48.0	.00	15.2	63.2
V	06480650	Flandreau Creek above Flandreau	5.84	.00	94.2	100
W	06481000	Big Sioux River near Dell Rapids	2,851	1,479	153	4,483
X	06481480	Skunk Creek near Chester	53.2	.00	.00	53.2
Y	06481689	West Branch Skunk Creek near Hartford	80.5	.00	.00	80.5
Z	06481500	Skunk Creek at Sioux Falls	613.7	8.51	.00	622.2
AA	06482000	Big Sioux River at Sioux Falls	3,557	1,487	153	5,197
BB	06482020	Big Sioux River at N. Cliff Ave., at Sioux Falls	3,576	1,487	153	5,216
CC	06482100	Big Sioux River near Brandon	3,621	1,487	153	5,261
DD	06482600	West Pipestone Creek tributary near Garretson	2.16	.00	.00	2.16
EE	06482610	Split Rock Creek at Corson	203	.00	261	464
FF	06482848	Beaver Creek at Canton	124	.00	.00	124
GG	06482870	Little Beaver Creek tributary near Canton	.31	.00	.00	.31
HH	06485500	Big Sioux River at Akron, Iowa	4,295	1,487	2,642	8,424
II	06485550	West Union Creek near Alcester	3.48	.00	.00	3.48
JJ	06483696	Brule Creek near Elk Point	204	.00	.00	204

1/ Drainage areas in Minnesota and Iowa taken from: U.S. Department of Agriculture, 1973, Water and related land resources, Big Sioux River basin and related areas, South Dakota-Minnesota-Iowa. U.S. Department of Agriculture, Soil Conservation Service.

DRAINAGE AREAS IN THE BIG SIOUX RIVER BASIN IN EASTERN SOUTH DAKOTA

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1985

Huron, South Dakota