

# Magnitude and Frequency of Floods in the United States

## Part 14. Pacific Slope Basins in Oregon and Lower Columbia River Basin

By HARRY HULSING *and* N. A. KALLIO

---

GEOLOGICAL SURVEY WATER-SUPPLY PAPER 1689



UNITED STATES DEPARTMENT OF THE INTERIOR

STEWART L. UDALL, *Secretary*

GEOLOGICAL SURVEY

Thomas B. Nolan, *Director*

The U.S. Geological Survey Library has cataloged this publication as follows:

**U.S. Geological Survey**

Magnitude and frequency of floods in the United States.  
Pt. 14. Pacific slope basins in Oregon and lower Columbia  
River basin. Washington, U.S. Govt. Print. Off., 1963—

v. maps (part fold., part col.) diagrs., tables. 24 cm. (*Its Water-*  
*supply paper 1689*)

1. Floods—Oregon. 2. Floods—Columbia River basin. 3. Floods—  
U.S. 4. Stream measurements—Oregon. 5. Stream measurements—  
Columbia River basin. I. Title. II. Title: Pacific slope basins in  
Oregon and lower Columbia River basin. (Series)

## CONTENTS

---

	Page
Abstract.....	1
Introduction.....	1
Purpose and scope.....	1
Acknowledgments.....	2
Description of the area.....	2
Drainage basins.....	4
Walla Walla River basin.....	4
Umatilla River basin.....	4
Willow Creek basin.....	4
John Day River basin.....	4
Deschutes River basin.....	5
Klickitat River basin.....	5
White Salmon, Wind, and Washougal River basins.....	5
Sandy River basin.....	5
Willamette River basin.....	6
Lewis River basin.....	6
Cowlitz River basin.....	6
Lower Columbia tributary basins.....	6
Umpqua River basin.....	7
Rogue River basin.....	7
Smaller coastal basins.....	7
Characteristics of flood runoff.....	7
Methods of analysis.....	8
Flood frequency.....	8
Flood frequency at a gaging station.....	8
Time base.....	9
Flood-frequency graph.....	9
Regional flood frequency.....	11
Combining records.....	11
Flood regions.....	12
Composite frequency curves.....	12
Derivation of mean annual flood.....	15
Drainage-basin characteristics.....	15
Basin characteristics used in correlations.....	16
Geographic factor.....	17
Average annual runoff.....	18
Formulas for mean annual flood.....	18
Limitations of the flood formula.....	19
Application of flood formulas and composite frequency curve.....	19
Method of determining basin characteristics.....	19
Use of formula and nomograph.....	20
Use of composite frequency curve.....	20
Summary.....	21

	Page
Gaging-station records .....	21
Maximum known floods .....	24
Walla Walla River basin .....	46
South Fork Walla Walla River near Milton, Oreg. ....	46
South Fork Walla Walla River below Pacific Power & Light Co. plant, near Milton, Oreg. ....	47
North Fork Walla Walla River near Milton, Oreg. ....	47
Walla Walla River near Milton, Oreg. ....	48
Walla Walla River below Freewater, Oreg. ....	49
Mill Creek near Walla Walla, Wash. ....	49
Blue Creek near Walla Walla, Wash. ....	50
Dry Creek near Walla Walla, Wash. ....	51
East Fork Touchet River near Dayton, Wash. ....	51
Touchet River at Bolles, Wash. ....	52
Touchet River near Touchet, Wash. ....	52
Walla Walla River near Touchet, Wash. ....	53
Columbia River main stem .....	54
Columbia River below McNary Dam, near Umatilla, Oreg. ....	54
Umatilla River basin .....	55
Umatilla River above Meacham Creek, near Gibbon, Oreg. ....	55
Umatilla River at Gibbon, Oreg. ....	55
Umatilla River at Pendleton, Oreg. ....	56
Umatilla River above McKay Creek, near Pendleton, Oreg. ....	57
McKay Creek near Pilot Rock, Oreg. ....	57
McKay Creek near Pendleton, Oreg. ....	58
Birch Creek near Pilot Rock, Oreg. ....	59
Birch Creek at Rieth, Oreg. ....	60
Umatilla River at Yoakum, Oreg. ....	61
Butter Creek near Pine City, Oreg. ....	62
Umatilla River near Umatilla, Oreg. ....	63
Willow Creek basin .....	64
Willow Creek at Heppner, Oreg. ....	64
John Day River basin .....	65
Strawberry Creek above Slide Creek, near Prairie City, Oreg. ....	65
Strawberry Creek near Prairie City, Oreg. ....	65
John Day River at Prairie City, Oreg. ....	66
John Day River near Dayville, Oreg. ....	67
South Fork John Day River near Dayville, Oreg. ....	67
South Fork John Day River at Dayville, Oreg. ....	68
John Day River at Picture Gorge, near Dayville, Oreg. ....	68
Desolation Creek near Dale, Oreg. ....	69
North Fork John Day River near Dale, Oreg. ....	70
Camas Creek near Lehman, Oreg. ....	71
Camas Creek near Ukiah, Oreg. ....	72
Cable Creek near Ukiah, Oreg. ....	73
Middle Fork John Day River at Ritter, Oreg. ....	73
Fox Creek at gorge, near Fox, Oreg. ....	74
Cottonwood Creek near Monument, Oreg. ....	76
North Fork John Day River at Monument, Oreg. ....	76
John Day River at Service Creek, Oreg. ....	77
John Day River at McDonald Ferry, Oreg. ....	79

Gaging-station records—Continued

	Page
Deschutes River basin .....	80
Deschutes River below Snow Creek, near Lapine, Oreg.....	80
Cultus River above Cultus Creek, near Lapine, Oreg.....	81
Cultus Creek above Crane Prairie Reservoir, near Lapine, Oreg..	81
Deer Creek above Crane Prairie Reservoir, near Lapine, Oreg...	82
Quinn River near Lapine, Oreg.....	82
Charlton Creek above Crane Prairie Reservoir, near Lapine, Oreg.....	83
Deschutes River below Crane Prairie Reservoir, near Lapine, Oreg.....	83
Brown Creek near Lapine, Oreg.....	84
Deschutes River above Davis Creek, near Lapine, Oreg.....	84
Odell Creek near Crescent, Oreg.....	85
Deschutes River below Wickiup Reservoir, near Lapine, Oreg...	85
Deschutes River at Pringle Falls, near Lapine, Oreg.....	86
Fall River near Lapine, Oreg.....	87
Deschutes River near Lapine, Oreg.....	87
Little Deschutes River at Crescent, Oreg.....	88
Crescent Creek at Crescent Lake, near Crescent, Oreg.....	88
Crescent Creek below Cold Creek, near Crescent, Oreg.....	89
Big Marsh Creek at Hoey Ranch, near Crescent, Oreg.....	89
Little Deschutes River above Walker Basin intake, near Lapine, Oreg.....	90
Little Deschutes River near Lapine, Oreg.....	90
Little Deschutes River at Allens ranch, near Lapine, Oreg.....	91
Deschutes River at Benham Falls, near Bend, Oreg.....	91
Deschutes River above Lava Island, near Bend, Oreg.....	92
Deschutes River below Lava Island, near Bend, Oreg.....	93
Deschutes River below Bend, Oreg.....	93
Tumalo Creek near Tumalo, Oreg.....	94
Tumalo Creek near Bend, Oreg.....	95
Deschutes River at Cline Falls, near Redmond, Oreg.....	95
Squaw Creek near Sisters, Oreg.....	96
Deschutes River near Culver, Oreg.....	97
South Fork Beaver Creek near Paulina, Oreg.....	97
North Fork Beaver Creek near Paulina, Oreg.....	98
Beaver Creek near Paulina, Oreg.....	98
North Fork Crooked River above Deep Creek, Oreg.....	99
North Fork Crooked River below Deep Creek, Oreg.....	100
Crooked River near Post, Oreg.....	100
Crooked River above Hoffman Dam, near Prineville, Oreg.....	101
Ochoco Creek above Mill Creek, near Prineville, Oreg.....	102
Mill Creek near Prineville, Oreg.....	103
Ochoco Creek at Elliott Ranch, near Prineville, Oreg.....	103
McKay Creek near Prineville, Oreg.....	104
Crooked River near Culver, Oreg.....	104
Lake Creek near Sisters, Oreg.....	105
First Creek near Sisters, Oreg.....	106
Metolius River near Grandview, Oreg.....	106
Deschutes River near Madras, Oreg.....	107
Shitike Creek at Warm Springs, Oreg.....	107

## Gaging-station records—Continued

	Page
Deschutes River basin—Continued	
Deschutes River at Mecca, Oreg.....	108
Warm Springs River near Warm Springs, Oreg.....	108
Clear Creek near Government Camp, Oreg.....	109
White River near Wapinitia, Oreg.....	109
White River near Tygh Valley, Oreg.....	110
White River below Tygh Valley, Oreg.....	110
Deschutes River at Sherars Bridge, Oreg.....	112
Deschutes River at Moody, near Biggs, Oreg.....	112
Fifteenmile Creek basin.....	113
Fifteenmile Creek near Wrentham, Oreg.....	113
Eightmile Creek near Boyd, Oreg.....	113
Fivemile Creek near The Dalles, Oreg.....	114
Columbia River main stem.....	115
Columbia River at The Dalles, Oreg.....	115
Klickitat River basin.....	116
Klickitat River above West Fork, near Glenwood, Wash.....	116
West Fork Klickitat River near Glenwood, Wash.....	116
Klickitat River near Glenwood, Wash.....	117
Little Klickitat River near Goldendale, Wash.....	118
Little Klickitat River near Wahkiacus, Wash.....	119
Klickitat River near Pitt, Wash.....	120
Hood River basin.....	121
Green Point Creek below North Fork, near Dee, Oreg.....	121
West Fork Hood River near Dee, Oreg.....	121
Hood River at Tucker Bridge, near Hood River, Oreg.....	122
Hood River near Hood River, Oreg.....	123
White Salmon River basin.....	124
White Salmon River at Husum, Wash.....	124
White Salmon River near Underwood, Wash.....	125
Little White Salmon River basin.....	126
Little White Salmon River near Willard, Wash.....	126
Little White Salmon River at Willard, Wash.....	126
Little White Salmon River below Lapham Creek, near Willard, Wash.....	127
Rock Creek near Willard, Wash.....	128
Unnamed basin.....	128
Columbia River tributary at Home Valley, Wash.....	128
Wind River basin.....	128
Wind River above Trout Creek, near Carson, Wash.....	128
Panther Creek near Carson, Wash.....	129
Wind River near Carson, Wash.....	130
Dry Creek basin.....	131
Dry Creek at Cascade Locks, Oreg.....	131
Sandy River basin.....	131
Lost Creek near Brightwood, Oreg.....	131
Little Zigzag River at Twin Bridges, near Rhododendron, Oreg.....	131
Lady Creek near Rhododendron, Oreg.....	132
Still Creek near Government Camp, Oreg.....	132
Still Creek at Rhododendron, Oreg.....	133
Sandy River above Salmon River, at Brightwood, Oreg.....	133

Gaging-station records—Continued

Sandy River basin—Continued

	Page
Salmon River near Government Camp, Oreg.....	134
Salmon River below Linney Creek, Oreg.....	135
Salmon River at Welches, Oreg.....	136
Salmon River above Boulder Creek, near Brightwood, Oreg.....	136
Sandy River near Marmot, Oreg.....	137
Bull Run River below Lake Ben Morrow, Oreg.....	138
Bull Run River near Bull Run, Oreg.....	139
Little Sandy River near Marmot, Oreg.....	141
Little Sandy River near Bull Run, Oreg.....	141
Bull Run River at Bull Run, Oreg.....	142
Sandy River below Bull Run River, near Bull Run, Oreg.....	143
Washougal River basin.....	144
Canyon Creek near Washougal, Wash.....	144
Washougal River near Washougal, Wash.....	144
Little Washougal River near Washougal, Wash.....	145
Shanghai Creek near Hockinson, Wash.....	145
Columbia River main stem.....	146
Columbia River at Vancouver, Wash.....	146
Willamette River basin.....	146
Hills Creek near Oakridge, Oreg.....	146
Middle Fork Willamette River above Salt Creek, near Oakridge, Oreg.....	147
Salt Creek near Oakridge, Oreg.....	148
Salmon Creek near Oakridge, Oreg.....	149
Waldo Lake Outlet near Oakridge, Oreg.....	150
North Fork of Middle Fork Willamette River near Oakridge, Oreg.....	150
Middle Fork Willamette River below North Fork, near Oakridge, Oreg.....	151
Middle Fork Willamette River near Dexter, Oreg.....	153
Fall Creek above Winberry Creek, near Lowell, Oreg.....	153
Fall Creek below Winberry Creek, near Fall Creek, Oreg.....	154
Little Fall Creek near Fall Creek, Oreg.....	154
Middle Fork Willamette River at Jasper, Oreg.....	155
Coast Fork Willamette River at London, Oreg.....	155
Coast Fork Willamette River below Cottage Grove Dam, Oreg..	156
Prather Creek near Disston, Oreg.....	157
Row River above Pitcher Creek, near Dorena, Oreg.....	157
Row River near Cottage Grove, Oreg.....	158
Mosby Creek near Cottage Grove, Oreg.....	158
Mosby Creek at mouth, near Cottage Grove, Oreg.....	159
Coast Fork Willamette River at Saginaw, Oreg.....	159
Coast Fork Willamette River near Goshen, Oreg.....	160
Willamette River at Springfield, Oreg.....	161
Hackelman Creek near Upper Soda, Oreg.....	162
McKenzie River at outlet of Clear Lake, Oreg.....	162
McKenzie River at McKenzie Bridge, Oreg.....	163
South Fork McKenzie River near Rainbow, Oreg.....	164
Blue River above Quentin Creek, Oreg.....	165
Lookout Creek tributary No. 3 near Blue River, Oreg.....	165

## Gaging-station records—Continued

## Willamette River basin—Continued

	Page
Lookout Creek near Blue River, Oreg.....	166
Blue River near Blue River, Oreg.....	166
McKenzie River near Vida, Oreg.....	167
Gate Creek at Vida, Oreg.....	168
McKenzie River near Springfield, Oreg.....	169
Mohawk River near Springfield, Oreg.....	169
McKenzie River near Coburg, Oreg.....	170
Willamette River at Harrisburg, Oreg.....	171
Long Tom River near Noti, Oreg.....	171
Coyote Creek near Crow, Oreg.....	172
Long Tom River below Fern Ridge Dam, near Smithfield, Oreg.....	173
Long Tom River at Monroe, Oreg.....	174
Rock Creek near Philomath, Oreg.....	174
Marys River near Philomath, Oreg.....	175
Muddy Creek near Corvallis, Oreg.....	176
Calapooya River at Holley, Oreg.....	176
Calapooya River at Albany, Oreg.....	177
Willamette River at Albany, Oreg.....	178
Cox Creek at Albany, Oreg.....	179
North Santiam River below Boulder Creek, near Detroit, Oreg.....	179
Breitenbush River above Canyon Creek, near Detroit, Oreg.....	180
North Santiam River at Niagara, Oreg.....	181
North Santiam River tributary near Gates, Oreg.....	182
Little North Santiam River near Mehama, Oreg.....	182
North Santiam River at Mehama, Oreg.....	183
Sheek Creek near Cascadia, Oreg.....	184
South Santiam River below Cascadia, Oreg.....	184
Middle Santiam River near Foster, Oreg.....	185
Middle Santiam River at mouth, near Foster, Oreg.....	186
Wiley Creek near Foster, Oreg.....	186
South Santiam River at Waterloo, Oreg.....	187
Santiam River at Jefferson, Oreg.....	188
Luckiamute River near Hoskins, Oreg.....	189
Luckiamute River at Pedee, Oreg.....	190
Luckiamute River near Suver, Oreg.....	190
Soap Creek tributary near Suver, Oreg.....	191
Willamette River at Salem, Oreg.....	192
Mill Creek at penitentiary annex, near Salem, Oreg.....	193
Mill Creek at Salem, Oreg.....	193
Glenn Creek near Salem, Oreg.....	194
Gibson Creek near Salem, Oreg.....	194
South Yamhill River near Willamina, Oreg.....	194
Willamina Creek near Willamina, Oreg.....	195
South Yamhill River near Whiteson, Oreg.....	196
Haskins Creek near McMinnville, Oreg.....	197
Haskins Creek below reservoir, near McMinnville, Oreg.....	198
North Yamhill River near Pike, Oreg.....	198
North Yamhill River at Pike, Oreg.....	199
Panther Creek near Carlton, Oreg.....	199
Willamette River at Wilsonville, Oreg.....	200

## Gaging-station records—Continued

## Willamette River basin—Continued

	Page
Molalla River above Pine Creek, near Wilhoit, Oreg.....	200
Molalla River near Molalla, Oreg.....	201
Molalla River near Canby, Oreg.....	202
Pudding River near Mount Angel, Oreg.....	203
Butte Creek at Monitor, Oreg.....	203
Pudding River at Aurora, Oreg.....	204
Tualatin River at Gaston, Oreg.....	204
Scoggin Creek near Gaston, Oreg.....	205
Tualatin River near Dilley, Oreg.....	206
Beaver Creek near Glenwood, Oreg.....	206
Gales Creek near Gales Creek, Oreg.....	207
Bateman Creek near Glenwood, Oreg.....	207
Gales Creek near Forest Grove, Oreg.....	208
East Fork Dairy Creek at Mountaindale, Oreg.....	209
McKay Creek near North Plains, Oreg.....	209
Tualatin River at Farmington, Oreg.....	210
Tualatin River near Willamette, Oreg.....	211
Clackamas River at Big Bottom, Oreg.....	211
Oak Grove Fork at Timothy Meadows, Oreg.....	213
Oak Grove Fork above powerplant intake, Oreg.....	214
Clackamas River above Three Lynx Creek, Oreg.....	215
Clackamas River near Cazadero, Oreg.....	217
Johnson Creek at Sycamore, Oreg.....	218
Willamette River at Portland, Oreg.....	219
Saltzman Creek at Portland, Oreg.....	220
Lake River basin.....	221
Burntbridge Creek at Vancouver, Wash.....	221
Salmon Creek near Battle Ground, Wash.....	221
Lewis River basin.....	222
Big Creek below Skookum Meadow, near Trout Lake, Wash.....	222
Meadow Creek below Lone Butte Meadow, near Trout Lake, Wash.....	222
Rush Creek above Falls, near Cougar, Wash.....	222
Lewis River above Muddy River, near Cougar, Wash.....	223
Muddy River below Clear Creek, near Cougar, Wash.....	223
Swift Creek near Cougar, Wash.....	224
Lewis River near Cougar, Wash.....	225
Canyon Creek near Amboy, Wash.....	226
Lewis River near Amboy, Wash.....	226
Lewis River at Ariel, Wash.....	227
East Fork Lewis River near Heisson, Wash.....	228
East Fork Lewis River tributary near Woodland, Wash.....	229
Kalama River basin.....	229
Kalama River near Kalama, Wash.....	229
Kalama River below Italian Creek, near Kalama, Wash.....	230
Unnamed basin.....	231
Columbia River tributary at Carrols, Wash.....	231
Cowlitz River basin.....	231
Ohanapecosh River near Lewis, Wash.....	231
Clear Fork Cowlitz River near Packwood, Wash.....	232

## Gaging-station records—Continued

## Cowlitz River basin—Continued

	Page
Lake Creek near Packwood, Wash.....	233
Lake Creek at mouth, near Lewis, Wash.....	234
Cowlitz River at Packwood, Wash.....	234
Johnson Creek near Packwood, Wash.....	235
Mill Creek at Randle, Wash.....	236
Niggerhead Creek near Randle, Wash.....	236
Cispus River near Randle, Wash.....	236
Cowlitz River near Kosmos, Wash.....	237
Cowlitz River at Mossyrock, Wash.....	238
Tilton River near Mineral, Wash.....	239
West Fork Tilton River near Morton, Wash.....	239
Tilton River near Cinebar, Wash.....	240
Klickitat Creek at Mossyrock, Wash.....	241
Winston Creek near Mayfield, Wash.....	241
Cowlitz River near Mayfield, Wash.....	242
North Fork Laçamas Creek near Ethel, Wash.....	243
Olequa Creek tributary near Winlock, Wash.....	243
South Fork Toutle River at Toutle, Wash.....	243
Toutle River near Silver Lake, Wash.....	244
Toutle River tributary near Castle Rock, Wash.....	246
Cowlitz River at Castle Rock, Wash.....	246
Arkansas Creek near Castle Rock, Wash.....	247
Coweman River near Kelso, Wash.....	248
Cowlitz River at Kelso, Wash.....	248
Abernathy Creek basin.....	249
Abernathy Creek near Longview, Wash.....	249
Mill Creek basin.....	249
Mill Creek near Cathlamet, Wash.....	249
Clatskanie River basin.....	250
Clatskanie River near Clatskanie, Oreg.....	250
Elokomin River basin.....	250
Elokomin River near Cathlamet, Wash.....	250
Skamokawa Creek basin.....	251
Risk Creek near Skamokawa, Wash.....	251
Big Creek basin.....	251
Big Creek near Knappa, Oreg.....	251
Grays River basin.....	252
West Branch Grays River near Grays River, Wash.....	252
Youngs River basin.....	253
Youngs River near Astoria, Oreg.....	253
North Fork Klaskanine River near Olney, Oreg.....	254
Necanicum River basin.....	254
South Fork Necanicum River near Seaside, Oreg.....	254
Asbury Creek basin.....	255
Asbury Creek near Cannon Beach, Oreg.....	255
Nehalem River basin.....	255
Nehalem River near Foss, Oreg.....	255
Patterson Creek basin.....	256
Patterson Creek at Bay City, Oreg.....	256
Wilson River basin.....	256
Wilson River near Tillamook, Oreg.....	256

Gaging-station records—Continued

	Page
Trask River basin.....	257
Trask River near Tillamook, Oreg.....	257
Nestucca River basin.....	258
Nestucca River near McMinnville, Oreg.....	258
Siletz River basin.....	258
Siletz River at Siletz, Oreg.....	258
Alsea River basin.....	259
Alsea River near Tidewater, Oreg.....	259
South Fork Weiss Creek near Waldport, Oreg.....	260
Siuslaw River basin.....	261
Siuslaw River above Wildcat Creek, at Austa, Oreg.....	261
Lake Creek at Triangle Lake, Oreg.....	261
Umpqua River basin.....	262
South Umpqua River at Tiller, Oreg.....	262
Canyon Creek at Canyonville, Oreg.....	263
Cow Creek near Azalea, Oreg.....	263
Cow Creek near Riddle, Oreg.....	264
South Umpqua River near Brockway, Oreg.....	264
Parrott Creek at Roseburg, Oreg.....	265
Marks Creek near Roseburg, Oreg.....	266
Lake Creek at Diamond Lake, near Fort Klamath, Oreg.....	266
North Umpqua River below Lemolo Reservoir, near Toketee Falls, Oreg.....	267
North Umpqua River above Clearwater River, near Toketee Falls, Oreg.....	267
Clearwater River above Trap Creek, near Toketee Falls, Oreg.....	268
Clearwater River at mouth, near Toketee Falls, Oreg.....	268
North Umpqua River at Toketee Falls, Oreg.....	269
Fish Creek at Big Camas ranger station, near Toketee Falls, Oreg.....	270
North Umpqua River above Copeland Creek, near Toketee Falls, Oreg.....	270
North Umpqua River above Rock Creek, near Glide, Oreg.....	271
North Umpqua River near Glide, Oreg.....	272
North Umpqua River near Oakcreek, Oreg.....	272
North Umpqua River at Winchester, Oreg.....	273
Umpqua River near Elkton, Oreg.....	274
Bear Creek near Drain, Oreg.....	275
Mill Creek near Ash, Oreg.....	275
Coquille River basin.....	275
South Fork Coquille River at Powers, Oreg.....	275
Middle Fork Coquille River near Myrtle Point, Oreg.....	276
Gettys Creek near Myrtle Point, Oreg.....	277
North Fork Coquille River near Myrtle Point, Oreg.....	278
Geiger Creek near Bandon, Oreg.....	279
Rogue River basin.....	279
Rogue River above Bybee Creek, Oreg.....	279
Rogue River above Prospect, Oreg.....	280
Rogue River below Prospect powerplant No. 1, Oreg.....	281
South Fork Rogue River above Imnaha Creek, near Prospect, Oreg.....	281

## Gaging-station records—Continued

## Rogue River basin—Continued

	Page
Imnaha Creek near Prospect, Ore.....	282
South Fork Rogue River near Prospect, Ore.....	282
Middle Fork Rogue River near Prospect, Ore.....	283
Red Blanket Creek near Prospect, Ore.....	284
Rogue River below South Fork Rogue River, near Prospect, Oreg.....	285
Fourbit Creek near Butte Falls, Ore.....	286
South Fork Big Butte Creek above Willow Creek, near Butte Falls, Ore.....	286
Willow Creek near Butte Falls, Ore.....	287
South Fork Big Butte Creek near Butte Falls, Ore.....	287
Big Butte Creek near McLeod, Ore.....	288
Elk Creek near Trail, Ore.....	289
Rogue River at Dodge Bridge, near Eagle Point, Ore.....	289
South Fork Little Butte Creek at Big Elk ranger station, Ore..	290
Dead Indian Creek near Lilyglen, Ore.....	291
South Fork Little Butte Creek near Lakecreek, Ore.....	291
North Fork Little Butte Creek at Fish Lake, near Lakecreek, Oreg.....	292
North Fork Little Butte Creek near Lakecreek, Ore.....	293
North Fork Little Butte Creek above intake of Rogue River Valley Canal, near Lakecreek, Ore.....	294
Little Butte Creek above Eagle Point, Ore.....	294
Little Butte Creek below Eagle Point, Ore.....	295
Emigrant Creek near Ashland, Ore.....	295
Emigrant Creek below Walker Creek, near Ashland, Ore.....	296
West Fork Ashland Creek near Ashland, Ore.....	296
East Fork Ashland Creek near Ashland, Ore.....	297
Bear Creek below Phoenix Canal, near Talent, Ore.....	297
Bear Creek at Medford, Ore.....	298
Rogue River at Raygold, near Central Point, Ore.....	299
Evans Creek near Bybee Springs, near Rogue River, Ore.....	300
Jones Creek near Grants Pass, Ore.....	301
Rogue River at Grants Pass, Ore.....	301
Applegate River near Copper, Ore.....	303
Applegate River near Ruch, Ore.....	304
Applegate River near Applegate, Ore.....	305
Powell Creek near Williams, Ore.....	306
Applegate River near Wilderville, Ore.....	307
Butcherknife Creek near Wonder, Ore.....	307
Slate Creek at Wonder, Ore.....	308
Round Prairie Creek near Wilderville, Ore.....	308
Grave Creek at Pease Bridge, near Placer, Ore.....	309
Grave Creek near Placer, Ore.....	309
East Fork Illinois River near Takilma, Ore.....	310
Althouse Creek near Holland, Ore.....	311
Grayback Creek near Holland, Ore.....	311
Sucker Creek near Holland, Ore.....	312
West Fork Illinois River below Rock Creek, near O'Brien, Ore..	312
Illinois River at Kerby, Ore.....	313
Deer Creek near Dryden, Ore.....	314

Gaging-station records—Continued	Page
Ransom Creek basin.....	315
Ransom Creek near Brookings, Oreg.....	315
Selected references.....	316
Index.....	317

---

## ILLUSTRATIONS

---

[Plates are in pocket]

PLATES 1-3. Maps of Pacific slope basins in Oregon and lower Columbia River basin, showing—	
1. Flood regions.	
2. Geographic factors.	
3. Average annual runoff, in inches, 1930-57.	
4. Nomographs for computing mean annual floods in Pacific slope basins and lower Columbia River basin.	
5. Map of Pacific slope basins in Oregon and lower Columbia River basin, showing location of gaging stations with 5 or more years of annual flood record.	
	Page
FIGURE 1. Map of conterminous United States showing report area...	3
2. Flood-frequency curve for Columbia River at The Dalles, Oregon, 1858-1957.....	10
3, 4. Composite frequency curves—	
3. Regions 1, 2, 3, 4, and 7.....	13
4. Regions 5, 6, and 8.....	13
5, 6. Variation of mean annual, 10- and 50-year floods with channel distance upstream from mouth—	
5. John Day River.....	14
6. Crooked and Deschutes Rivers.....	14

---

## TABLES

---

TABLE 1. Factors used in the multiple correlation of mean annual flood to drainage basin characteristic.....	24
2. Inventory of data for gaging stations used to define regional flood-frequency relations.....	32
3. Peak discharge at miscellaneous sites and unusual floods at short-term gaging stations.....	44



# MAGNITUDE AND FREQUENCY OF FLOODS IN THE UNITED STATES

---

## PART 14. PACIFIC SLOPE BASINS IN OREGON AND LOWER COLUMBIA RIVER BASIN

---

By HARRY HULSING and N. A. KALLIO

---

### ABSTRACT

This report presents a method for determining the probable magnitude of floods of any frequency between 1.1 and 50 years on any stream, gaged or ungaged, draining more than 0.5 square mile in the western part of the region or more than 10 square miles in the eastern part of the region. Following the presentation of methods used to determine flood frequency is a section containing a compilation of flood discharge records for all stream-gaging stations having 5 or more years of annual peak record, and peak stages for selected long-term stage stations. The list for most stations contains all floods above a selected base discharge; for some, only annual peaks are shown. The region covered by this report comprises the Pacific slope basins in Oregon and the Columbia River basin below the Snake River.

Using individual frequency curves for all gaging stations having 5 or more years of unregulated annual flood record, areas of similar flood-frequency characteristics are outlined into nine homogeneous flood regions. Composite frequency curves developed for each region express the relation between frequency and the ratio of the flood of that frequency to the mean annual flood.

Basin characteristics are correlated with mean annual floods, and two equations are derived: one for the area east of the Cascade Range, and one for the area west of the range. The equations can be used to compute the mean annual flood for any natural, unregulated stream within the report area, with limitations and probable accuracy as discussed in the report.

### INTRODUCTION

#### PURPOSE AND SCOPE

The purpose of this report is to describe methods by which the flood frequency and magnitude at any site on any stream in the report area can be estimated. Flood expectancy information is a basic requirement in the proper design and location of structures placed in, across, or adjacent to flood plains.

Ideally, a long-term record of flood events would be available at the site of each proposed structure; but unfortunately, this ideal situation seldom exists because it is impractical to maintain stream-gaging

stations at all points where flood data might be desired. Even where the importance of the proposed structure would warrant the installation of a gaging station at the site, it is rarely possible to anticipate the need far enough in advance to obtain records of sufficient length. There is a need not only for a method of relating flood magnitudes and frequencies at points where flood data are available but also for a method of transferring those data and relations to ungaged points.

The area covered by this report includes the Pacific slope basins in Oregon and the Columbia River basin below the Snake River, an area of approximately 64,000 square miles (fig. 1). This area is designated "Part 14" in the annual reports entitled "Surface Water Supply of the United States" published by the Geological Survey.

The present report, based on a comprehensive study of available flood data, presents a method for determining the most probable flood magnitude for any recurrence interval between 1.1 and 50 years for any stream, gaged or ungaged, in Part 14. The equations and curves presented apply to all natural, unregulated streams within the designated areas, subject to the limitations and probable accuracy as discussed in the report.

#### ACKNOWLEDGMENTS

This report was prepared in the Surface Water district office of the U.S. Geological Survey, Portland, Oreg., under the direction of K. N. Phillips, district engineer. Technical guidance on analytical procedure and format was provided by G. L. Bodhaine, flood specialist, Tacoma, Wash., with the general procedure followed by the Geological Survey in flood-frequency studies.

Streamflow records used in this report are from gaging stations operated by the Geological Survey, many of which are maintained in cooperation with the States of Oregon and Washington or their political subdivisions. Others are financially supported by U.S. Army Corps of Engineers, Bureau of Reclamation, U.S. Forest Service, and Federal Power Commission licensees. The records were assembled and reviewed by Survey personnel in the Portland, Oreg., and Tacoma, Wash., district offices under the supervision of district engineers K. N. Phillips and F. M. Veatch, respectively.

#### DESCRIPTION OF THE AREA

Mountain ranges are the dominant topographical features of the area covered by this report. Through their influence on the climatic elements, they profoundly affect the hydrology of the area.

The Cascade Range, extending north and south across the area, is a formidable barrier to the prevailing westerly winds. It divides the area into a western humid region and an eastern arid region. Its

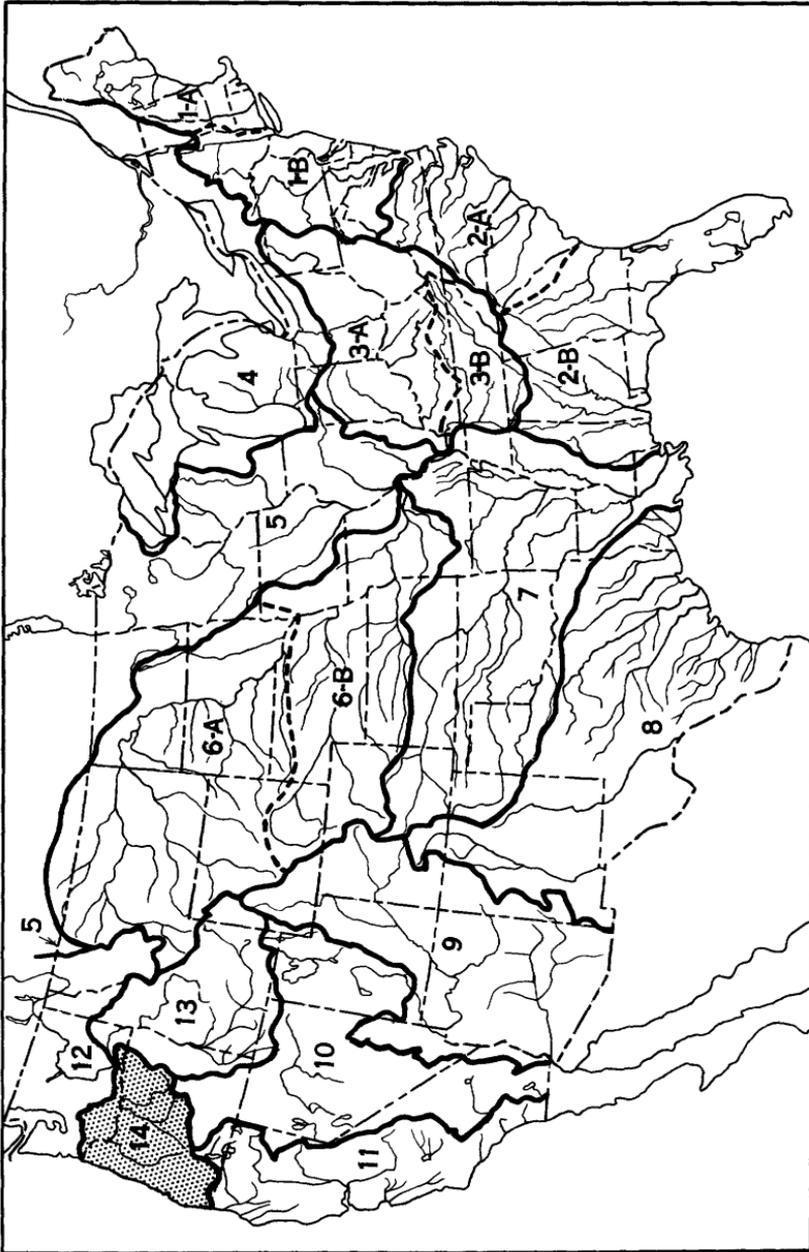


FIGURE 1.—Map of conterminous United States. The area of this report is shaded.

altitude ranges in general from 4,000 feet to more than 6,000 feet; some isolated volcanic peaks reach above 10,000 feet.

Between the Cascade Range and the Pacific Ocean is the Coast Range. This range was formed by uplift and distortion of the coastal plain and has been deeply dissected by erosion. The heavily forested slopes extend to an altitude of 4,000 feet and receive copious rainfall that feeds numerous short torrential streams.

The Blue Mountains, generally about 6,000 feet in altitude, form the extreme eastern boundary of the area.

#### **DRAINAGE BASINS**

##### **WALLA WALLA RIVER BASIN**

The Walla Walla River rises in the forested Blue Mountains in Oregon and flows northwestward to the Columbia River. Headwater areas receive over 40 inches of precipitation per year. Percolation into the permeable alluvium at lower altitudes tends to reduce the magnitude of flood peaks in the main stem.

##### **UMATILLA RIVER BASIN**

The Umatilla River also rises on the slopes of the Blue Mountains and flows northwestward into the Columbia River over volcanic bedrock that is warped into broad folds. Surface and ground-water interchange occurs in places where the folded strata have been exposed by erosion, and the outflow of ground water tends to stabilize the runoff in the main stem. Flood peaks are usually caused by winter rains, although severe floods have been caused by summer cloudbursts.

##### **WILLOW CREEK BASIN**

Willow Creek drains wheat fields and partly forested plateaus in the western part of the Blue Mountains. Serious localized floods have been caused by cloudbursts.

##### **JOHN DAY RIVER BASIN**

The John Day River rises in the Blue Mountains and drains moderately to densely forested areas that range from 3,000 to 9,000 feet in altitude. From 4,000 feet down to 160 feet in altitude, at its mouth, the basin is largely used for grazing and wheat farming. About 95 percent of the total runoff is derived from the higher half of the basin; the runoff from areas below 3,000 feet in altitude are almost negligible. The soil and bedrock are generally permeable except in the deeper canyons where the channel has cut through the lava beds into crystalline formations and in lake beds near Mitchell which are relatively impermeable. The tributary streams are generally "flashy," rising suddenly as a result of thunderstorms but quickly

receding to a low flow. Severe flash floods have occurred, the damage being most severe on the smaller and intermittent streams. The most notable cloudburst-type flood of record in the John Day basin occurred July 13, 1956, in Meyers Canyon near Mitchell, Oregon, where a peak flow from a drainage area of 12.7 square miles was computed as 54,500 cfs.

Streamflow data in the lower John Day River basin are insufficient for adequate flood-frequency analysis.

#### **DESCHUTES RIVER BASIN**

The Deschutes River rises in lakes and springs on the forested slopes of the Cascade Range and flows generally northward, skirting the eastern slopes of the range on its way to the Columbia River. In its middle and lower courses the river has carved a canyon through a series of permeable lava flows interspersed with lake-bed deposits of volcanic ash and associated sedimentary materials. From the headwaters to the mouth, the geologic conditions are conducive to stable flow; in fact, the Deschutes River is believed to have a more nearly uniform flow than any other river of its size in the United States.

#### **KLICKITAT RIVER BASIN**

The Klickitat River drains the eastern slopes of the Cascade Range near Mount Adams and flows southward through a narrow canyon into the Columbia River. The drainage area is mostly forested, and the porous volcanic bedrock is overlain by a shallow soil. The basin receives moderate precipitation, mostly in the form of snow in the higher altitudes. Flood peaks usually occur in late spring as a result of snowmelt.

#### **WHITE SALMON, WIND, AND WASHOUGAL RIVER BASINS**

The White Salmon, Wind, and Washougal Rivers drain the south and west sides of Mount Adams and lower mountains in Washington. The area is mostly forested. Stream channels, cut deeply in permeable volcanic rock, are steep and in places confined in box canyons. Great quantities of surface water drain directly into aquifers and reenter surface streams at lower altitudes.

#### **SANDY RIVER BASIN**

The Sandy River drains the heavily wooded south and west slopes of Mount Hood in the Cascade Range. The altitude of the basin ranges from above 11,000 feet on Mount Hood to near sea level at its mouth at the Columbia River.

**WILLAMETTE RIVER BASIN**

The Willamette River drains the east slopes of the Coast Range, the west slopes of the Cascade Range, and the wide intervening valley for 160 miles south of the Columbia River. The Willamette is the largest river wholly in Oregon and drains 11.5 percent of the State area.

The mountain slopes are wooded, but the valley lands are used mostly for agriculture. The soil and bedrock are relatively impermeable except for areas within the Cascade Range where surface water infiltrates through fragmental volcanic rocks and some lowland areas which are underlain by permeable glacial deposits of sand and gravel.

Mean annual flood runoff in the Willamette basin ranges from less than 3 cfs per sq mi (cubic feet per second per square mile) in the Waldo Lake area to more than 100 cfs per sq mi in the Santiam River basin. The large range is caused by many factors, such as distribution of rainfall, differences in topography and soil types, and storage in lakes and ponds.

**LEWIS RIVER BASIN**

The Lewis River drains the west slope of the Cascade Range, including the west slope of Mount Adams and the south slope of Mount St. Helens, and flows southwest through forested highlands and farmlands at lower altitudes. The river and its tributaries have cut deeply into the basaltic bedrock as they drop more than 10,000 feet in 110 miles to the Columbia River. The bedrock, especially older volcanic flows, is relatively permeable.

**COWLITZ RIVER BASIN**

The Cowlitz River rises on the southeast slope of Mount Rainer, drains the west slope of the Cascade Range from Mount Rainer to Mount Adams, and flows southwest through dense forests and agricultural land to the Columbia River. Its drainage area receives abundant precipitation, chiefly in the form of snow at the upper altitudes. The river and its tributaries have cut deep canyons in the basaltic bedrock in their descent of about 14,000 feet from Mount Rainer to the Columbia River. The soil and bedrock are relatively permeable in some areas, especially in the glacial deposits and older lava flows.

**LOWER COLUMBIA TRIBUTARY BASINS**

Many smaller streams enter the lower Columbia River, notably Fifteenmile Creek and the Hood, Little White Salmon, Kalama, and Youngs Rivers. In general, those tributaries entering the Columbia River east of the Hood River drain sparsely forested relatively permeable areas that have low annual rainfall. The streams are subject

to occasional floods. West of the Hood River the annual rainfall is greater, and the soils are generally less permeable. Most outstanding flood peaks occur during the wet winter seasons, except at high altitudes.

#### UMPQUA RIVER BASIN

The two major forks of the Umpqua River drain areas of contrasting geologic character. The North Umpqua River drains a permeable geologic formation and has a relatively uniform flow, whereas the South Umpqua drains a relatively impervious area and shows abrupt fluctuations and quick response to rainfall. Both drainage basins are mountainous, densely forested, and receive abundant rainfall.

#### ROGUE RIVER BASIN

The Rogue River rises on the slopes of Mount Mazama, the volcanic mountain whose crater contains Crater Lake, and flows westward through rugged forest-covered mountains to the Pacific Ocean. The soils and bedrock are permeable east of the Applegate River, and less permeable farther west. Annual rainfall ranges from 70 inches at the headwaters to 20 inches near Medford and to more than 100 inches near the coast.

#### SMALLER COASTAL BASINS

The smaller coastal basins on the heavily forested western slope of the Coast Range are in a humid zone. From sea level to the general 3,000-foot crest of the range, the annual precipitation ranges from 50 to 150 inches per year. The soil and bedrock are relatively impermeable. At times torrential flood flows of more than 200 cfs per square mile of drainage area occur as a result of heavy rainfall, generally between November and March.

#### CHARACTERISTICS OF FLOOD RUNOFF

Streams rising in the higher mountains areas commonly have two high-water periods each year. Those in the first period, October through March, are caused by the winter rains; those in the second, April through June, by the melting of snow.

Winter floods occur during the period when precipitation is heavy. The bulk of the floodwater is made up of rainfall from warm southwest storms, but it sometimes is augmented by snowmelt. Almost without exception, the destructive floods west of the Cascade Range are the result of warm rain falling at relatively high altitudes on previously accumulated snow. Flood hydrographs are usually flashy, with peaks of short duration.

Spring floods occur when the warmer temperatures begin to melt the accumulated snowpack at the higher altitudes. Floodwaters in

spring are largely derived from snowmelt, sometimes augmented by rain. The streamflow hydrographs for this period are characterized by rounded peaks of relatively long duration.

West of the Cascade Range, streams rising at lower altitudes have only one high-water period, November through March. The peaks on these streams are similar in cause and characteristics to the winter peaks described previously.

East of the Cascade Range, some very destructive floods have been caused by summer rains of the "cloudburst" type. The storms are localized and usually of very short duration, causing floods only in small drainage basins.

## METHOD OF ANALYSIS

### FLOOD FREQUENCY

The methods of computing flood frequency discussed in this report represent current techniques that are being developed in a continuing study by engineers of the Water Resources Division of Geological Survey and by others. These methods define flood-frequency relations for individual streams at specific points of observation and flood regions within which flood-frequency characteristics are similar. The flood-frequency relationship defined for a homogeneous region is then assumed to be applicable to all points on all streams, gaged and un-gaged, within that region.

### FLOOD FREQUENCY AT A GAGING STATION

Flood data for a gaging station may be analyzed in two ways, as an annual-flood series or as a partial-duration series.

An annual flood is defined as the highest peak discharge in a water year. Only the highest peak discharge in each year is used in the annual-flood-series analysis. An objection to the use of annual floods is that only one flood for each year is considered, although the second highest flood in a given year may outrank many annual floods of other years. This objection can be overcome by listing and analyzing all floods above a selected base discharge without regard to the number within any given time period. Peaks tabulated in this manner are referred to as a partial-duration series. An objection to the partial-duration series is that not all of the floods considered may be fully independent events; that is, one flood may set the stage for another.

There is an important distinction in meaning between recurrence intervals determined by the annual-flood series and those based on the partial-duration series. In the annual-flood series the recurrence interval is the average interval of time within which a flood equal to or

greater than a given magnitude will occur once as an annual maximum, whereas in the partial-duration series the recurrence interval is the average interval between floods of a given magnitude regardless of their relationship to the year or any other period of time. This distinction remains, even though for larger floods the recurrence intervals are practically the same on both scales.

By statistical principles, there is a definite relationship between the values in the two series. The following table (Langbein, 1949) shows some comparative values of recurrence intervals, in years, by the two methods:

*Recurrence intervals, in years*

<i>Annual-flood series</i>	<i>Partial-duration series</i>
1.16-----	0.5
2.00-----	1.45
5.52-----	5.00
10.5-----	10
20.5-----	20
50.5-----	50

The two methods of analysis give essentially the same results for recurrence intervals greater than 10 years. Because most designs are for intervals greater than 10 years, the annual-flood series was used in this report, not only because of its relative simplicity but also because it has firmer support technically.

A flood having a recurrence interval of 25 years, for instance, is sometimes called a 25-year flood. It has a 4-percent chance of occurring in any given year. No regularity of occurrence is implied, and two 25-year floods may occur in consecutive years or at intervals much longer than 25 years.

**TIME BASE**

Many of the gaging-station records studied for this report were relatively short time samples, but it was necessary to use them to obtain adequate areal coverage. Depending on the length of record, flood peaks were listed for 1, 2, or all 3 base periods, 1912-57, 1929-57, and 1946-57. Frequency graphs and recurrence intervals were computed for all stations, and, by ratios of values for the short base period to those for the long base period, all regional frequency curves were adjusted to the 1912-57 base.

**FLOOD-FREQUENCY GRAPH**

For each station, the annual floods within each applicable base period were listed in chronological order and numbered in descending order of magnitude, beginning with the greatest as "1". Recurrence intervals were computed at  $(n+1)/m$ , where  $n$  is the number of years of record and  $m$  is the relative order of magnitude of each floor.

Annual floods were plotted with discharges as ordinates and recurrence intervals as abscissas on a special coordinate paper (Powell, 1943) designed so that the plotted points approximate a straight line for many stations. Several methods of fitting curves analytically to the annual-flood recurrence-interval plots have been proposed; but curves so fitted, even by the most elaborate and painstaking methods, do not seem to offer any advantages over curves fitted by eye. For this report, the frequency curves were drawn as the line of best fit, determined visually, with consideration for the limitations and peculiarities inherent in the data. In general, the plotting positions of the extreme values were given little weight in drawing the curves because there was little opportunity for determining the true recurrence interval of those values. An example of a typical frequency graph, that of the Columbia River at The Dalles, Oreg., is shown on figure 2.

The flood-frequency graph for an individual gaging station represents the relation of past observed flood discharges to the frequencies at which they occurred. Past flood events are samples recorded in but a limited period of flood history, therefore, it would be presumptuous to expect exactly the same relation to hold true in the future. For example, a flood record of 50 years cannot be expected to include exactly one 50-year flood, two 25-year floods, four 12.5-year floods, and so on. If the 50-year period is divided into two 25-year periods, one period might include several 25-year floods; the other, none. Thus, the record of annual floods for an individual gaging station is a sample that may yield a frequency graph somewhat different from one derived from a record of greater length.

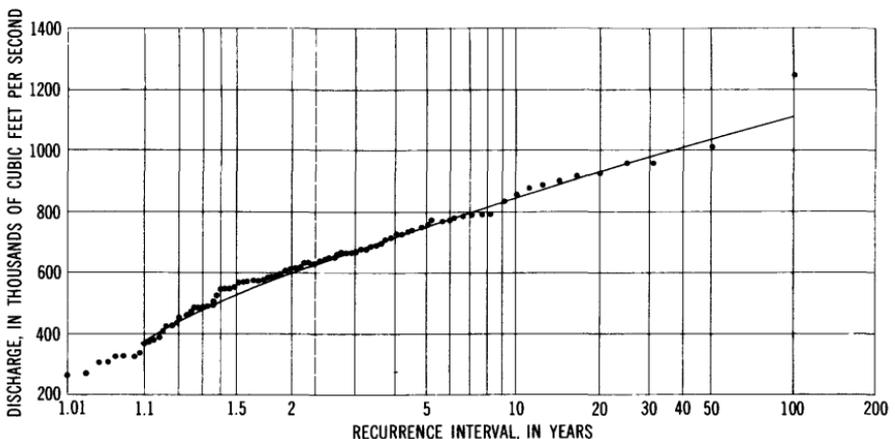


FIGURE 2.—Flood-frequency curve for the Columbia River at The Dalles, Oreg., 1858-1957.

The difference to be expected between flood magnitudes or frequencies computed from relatively short records and their long-term values increases with recurrence interval and decreases with the length of the record. The variation due to chance alone between the flood magnitudes computed from records of varying length and the long-term values has been studied by Benson (1960), who analyzed an array of 1,000 hypothetical annual floods distributed according to the theory of extreme values (Gumbel, 1945). The following table based on Benson's study shows the length of record necessary to define floods of selected frequency within 10 percent and 25 percent of the long-term (1,000-year) value.

*Length of record, in years, required to define given flood within indicated percentage of long-term value 19 times out of 20*

<i>Magnitude of flood</i>	<i>25 percent</i>	<i>10 percent</i>
10-year -----	18	90
25-year -----	31	105
50-year -----	39	110

#### REGIONAL FLOOD FREQUENCY

A frequency graph based on the combined flood experience at several stations within a homogeneous region has much firmer support than one based on a single station. If all gaged streams within a region show frequency graphs of the same general shape and slope, it may be concluded that the region is homogeneous with respect to flood-frequency characteristics and that the shape of the frequency graph as defined by gaged streams will also apply to ungaged streams in that region.

#### COMBINING RECORDS

In order to compare flood-frequency characteristics of all streams within a study area it is necessary to compare the geometric shape of the individual frequency graphs. Direct comparison of frequency graphs is made possible by converting the ordinates of all the graphs to dimensionless scales that show only the increase in magnitude with respect to time as measured on the abscissa. The dimensionless scales used in this analysis were the ratios of the 10-year flood to the mean annual flood (2.33-year recurrence interval) and of the 50-year flood to the 10-year flood. The ratios provided a convenient index of the slope and approximate shape of each frequency graph; and, plotted on a base map, they furnished a graphic means for outlining areas with similar-shaped frequency curves. In addition, a statistical homogeneity test was applied to the ratio of 10-year flood to mean annual flood.

### FLOOD REGIONS

Eight dissimilar flood regions were outlined on basis of the above plotted ratios, each reasonably homogenous within itself (pl. 1). The flood-frequency characteristics of the arid region of the lower John Day basin and adjacent area could not be evaluated because of insufficient flood data. This area is designated "region 9" on plate 1. Topography and rainfall data indicate that it probably has flood characteristics which are a composite of those in adjoining regions. Frequency curves for regions 1, 2, 3, 4, and 7 are shown on figure 3; and those for regions 5, 6, and 8 are shown on figure 4.

The Willamette, Rogue, Cowlitz, Lewis, John Day, Deschutes, and Crooked River basins are each divided into two flood regions. The main stems of these rivers downstream from the regional boundaries have flood characteristics of both the upstream and downstream regions. Hence, for the Willamette, Cowlitz, Lewis, and Rogue Rivers a weighted frequency curve should be used. Weighting is to be done on a drainage area basis. The mean annual, 10-year, and 50-year floods for the main stem of the lower John Day, Deschutes, and Crooked Rivers should be obtained directly from figures 5 and 6.

The flood-frequency characteristics of the main stem Rogue River, which lies in region 2, are uncertain because it is ungaged below the Applegate River.

### COMPOSITE FREQUENCY CURVES

The eight flood-frequency regions each contain a group of stations having individual frequency graphs computed for three different base periods. (See "Time base.") In the final analysis, one composite frequency curve adjusted to the base period 1912-57 was constructed for each region.

The ratios of 1.1-, 1.5-, 5-, 10-, 30-, and 50-year floods to the mean annual flood were listed for each station in each base period, and the median ratios were used to construct composite curves. This gave a set of three composite frequency curves for each region; one based on 1946-57 records, one based on 1929-57 records, and one based on 1912-57 records. The final composite curve for each region was then constructed by adjusting each set of three base-period curves to the longest (1912-57) period. These final composite curves show flood discharge in ratio to mean annual flood plotted against recurrence interval. They represent the most probable flood-frequency values for all parts of each region, gaged and ungaged, as determined by time and areal sampling. The conversion from the shorter time bases to one long-term base (1912-57) resulted in some sizable adjustments to all three curves in some regions. The geometric similarity between the

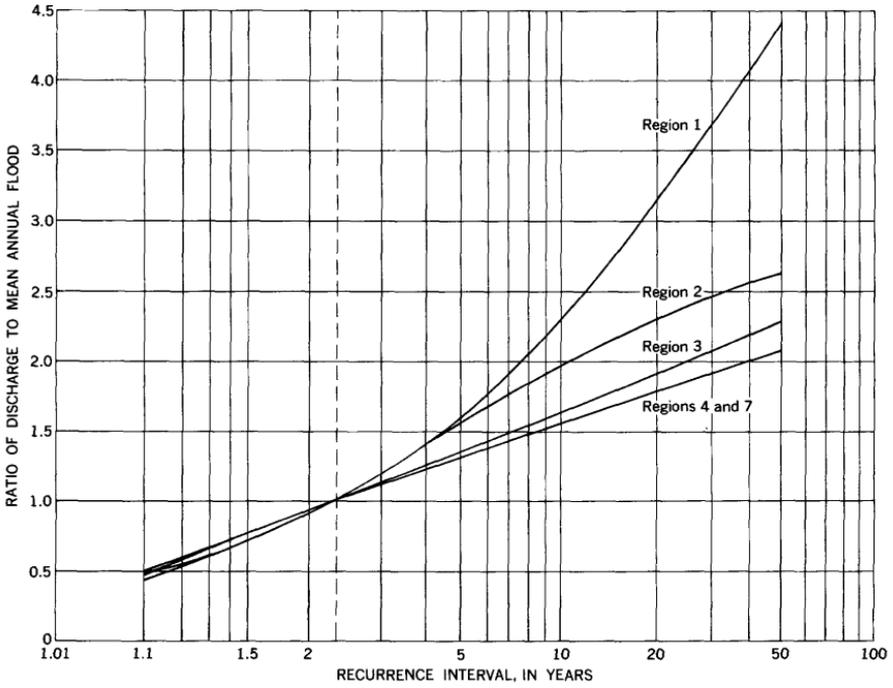


FIGURE 3.—Composite frequency curves, regions 1, 2, 3, 4, and 7.

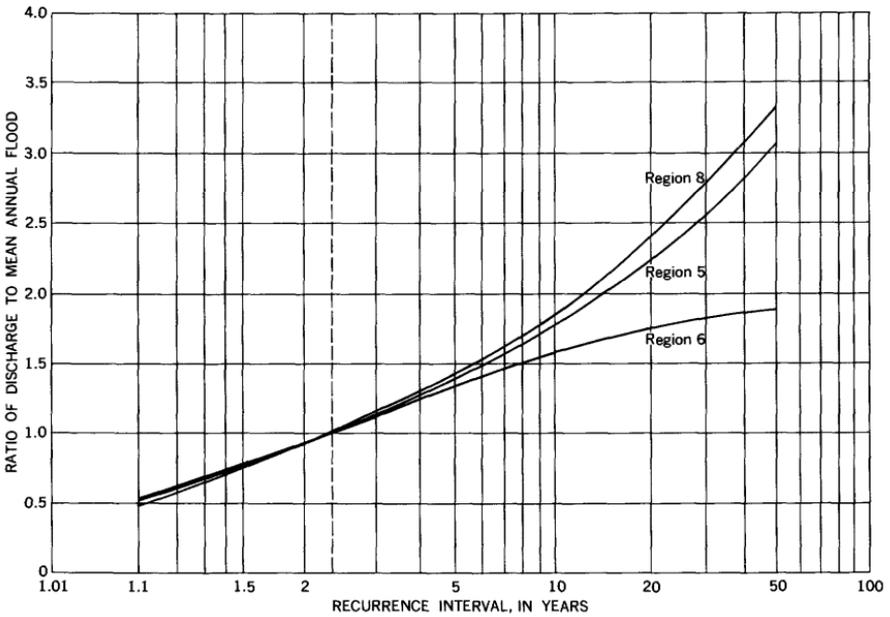


FIGURE 4.—Composite frequency curves, regions 5, 6, and 8.

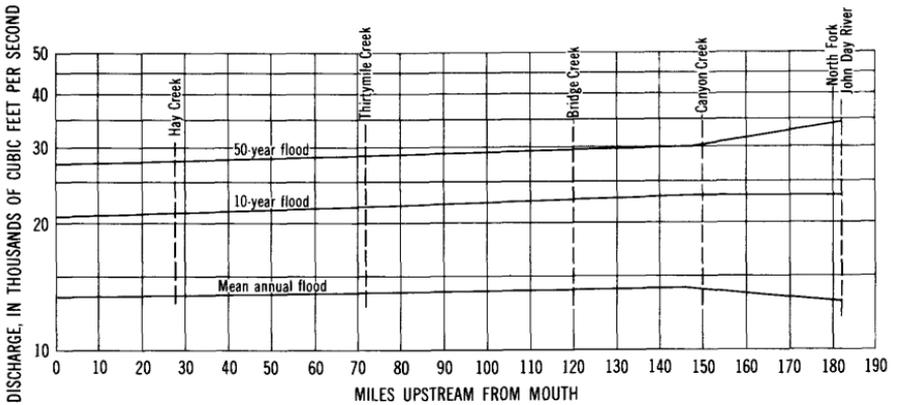


FIGURE 5.—Variation of the mean annual, 10-, and 50-year floods with channel distance upstream from mouth, John Day River.

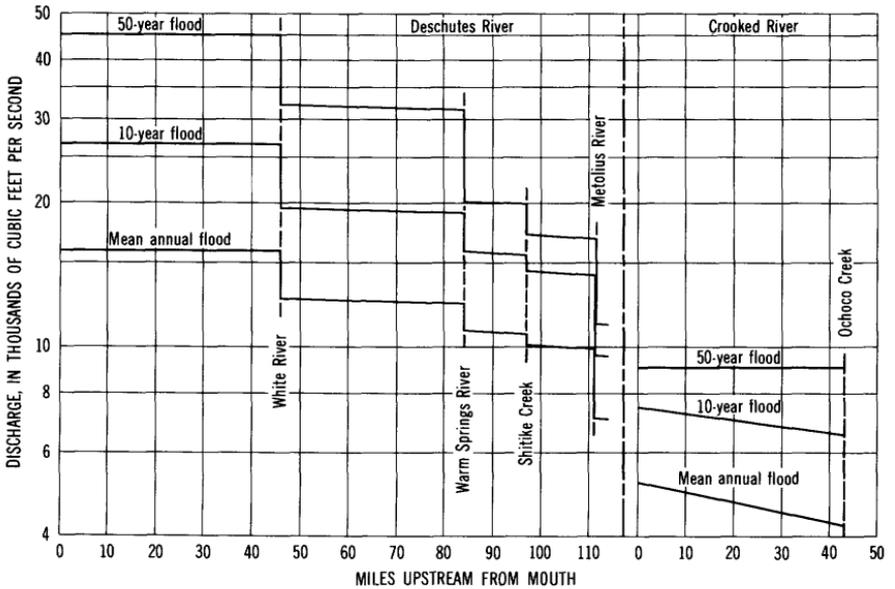


FIGURE 6.—Variation of the mean annual, 10-, and 50-year floods with channel distances upstream from mouth, Crooked and Deschutes Rivers. The data are adjusted to natural-flow conditions.

sets of curves for regions 4 and 7 was not apparent until after adjusting them to long-term composite form. They were then combined because they are almost identical.

No composite curve was constructed for region 9 because of insufficient flood data, as explained in the preceding section. The composite curve for the nearest adjoining region should be used.

**DERIVATION OF MEAN ANNUAL FLOOD**

To use a composite frequency curve to determine the flood magnitude for a desired recurrence interval, it is first necessary to compute the mean annual flood for the site.

The mean of the annual floods is commonly referred to as the "mean annual flood", and, by virtue of convention, this term has been retained in this report. The mean annual flood is not to be confused with the flood having a recurrence interval of 1 year. According to the theory of extreme values as applied to floods by Gumbel, the mean of all the annual peak floods in a long-term record would have the magnitude of the flood of 2.33-year recurrence interval. In this report the mean annual flood was determined graphically from the individual station data as the intersection of the visually best-fitting frequency graph with the line corresponding to the 2.33-year recurrence interval.

**DRAINAGE-BASIN CHARACTERISTICS**

Experience has shown that the mean annual flood is generally indicative of the flood characteristics of a drainage basin and is therefore a good index on which to base comparisons. For this report a study was made of the relationship between mean annual floods at gaging stations and various measurable basin characteristics. Two formulas were derived from this study by which it is possible to compute the mean annual flood for any drainage basin, using certain basin characteristics as described below. One formula applies to the area east, and the other to the area west, of the Cascade Range (pl. 1).

Drainage-basin characteristics are numerous and complex. Some are difficult if not impossible to determine, and others are difficult to express in mathematical units. Some of the more obvious basin characteristics that affect flood discharge are drainage area, precipitation, vegetation, geology, physical shape, slope, altitude, storage capacity, annual runoff, and orientation with respect to prevailing winds. Of these characteristics the drainage area is the most easily determined and undoubtedly the most significant. The physical size of the catchment area is a positive factor that is readily computable in most instances. However, there are other factors concerning the drainage area that complicate its relation to the flood discharge, such as the relation of area to basinwide rainfall intensities or to time of concentration of floodwaters.

Precipitation, at first hand, might be considered a good parameter because its significance can not be questioned. Rainfall data, however, are inadequate for defining the sharp changes in concentration due to topography. Furthermore, if the rainfall were adequately meas-

ured, it would still become an unpredictable variable by the time it entered streams unless all the other variable characteristics encountered by it were measured.

The amount and type of vegetal cover affect the magnitude of a flood. A forest will retain large volumes of water, whereas a steep sparsely covered escarpment will shed practically all of the rainfall. On the other hand, snow held in the crowns of trees may be melted by warm rains more rapidly than if it were a part of the snowpack on the ground. Because it would be very difficult, if not impossible, to measure these conditions in any but the smallest drainage basins, vegetal cover is not a practical variable to use.

The geology of a basin affects the size of floods. A thorough and intensive study of surface permeability of the entire area would be necessary in order to evaluate this factor. Such a study was not considered feasible.

The shape and orientation of a basin may be significant elements: the shape because it determines the coincidence of floods on major and minor tributaries, and the orientation because it affects the concentration of rainfall from prevailing storm patterns.

The slope of the basin affects the flood peak in the same way as shape and orientation. The lag time, or time of concentration, depends on the slope of the basin; and it may serve as an index to the relation between mean annual runoff and mean annual flood (Benson, 1959).

Under conditions of climatic similarity, the mean altitude of a basin is one of the principal factors influencing precipitation. The nature of the precipitation, whether rain or snow, or a combination, affects the magnitude and frequency of floods.

The area of lakes and ponds has a definite effect on the magnitude of a flood peak. It tends to reduce the sharpness of the peak because of temporary storage of flood runoff. Channel storage may also be a factor to be considered, but it cannot be measured satisfactorily.

Annual basin runoff is a factor which indicates the amount of water actually reaching the surface streams. It is an integrated end product of precipitation and all the variables affecting precipitation before appearing as streamflow.

#### **BASIN CHARACTERISTICS USED IN CORRELATIONS**

The effect of basin characteristics on floods may vary with flood magnitude, with the season, and with antecedent conditions. The magnitude of the mean annual flood is determined by the average conditions of flood flow; therefore the average effect of basin characteristics was considered for correlation with mean annual flood.

The mean annual flood for each gaging station was correlated graphically with the following basin characteristics to determine which factors were statistically significant and should be used in the final multiple correlation:

1. Drainage area, in square miles.
2. Mean altitude, in feet above mean sea level.
3. Slope, in feet per mile (highest main-stream altitude minus altitude of gage, divided by length of basin measured along the main stream).
4. Area of lakes, in percent of total drainage area.
5. Average annual runoff, in inches.

Drainage area, area of lakes and ponds, and average annual runoff were the factors that were found to correlate most significantly with the mean annual flood. These factors were used in a linear mathematical multiple correlation with mean annual flood as the independent variable. The areas west and east of the Cascade Range were correlated separately owing to the marked differences in runoff and other characteristics.

Frequency distributions of hydrologic data lack symmetry in a statistical series. To normalize the distribution, all the data were converted to common logarithms before correlating.

After drainage area, mean annual runoff, and area of lakes had been correlated with mean annual flood, some rather large residuals remained. The probable causes of those residuals are: inadequate sampling, errors in basic data, and factors not considered. Of the factors not considered, it is probable that geology and vegetal cover are the most significant. The mean annual runoff tends to integrate the effect of all causative factors, but geology and vegetal cover have a more profound effect on flood flow than on mean annual runoff.

#### GEOGRAPHIC FACTOR

Residuals of equal magnitude from the previous correlation, when plotted on a base map, tended to group together. This indicated that the geographic location was a significant factor to be considered in the correlations. The entire study area was divided into 14 geographic zones, as shown on plate 2, based on the grouping indicated by the residuals. A geographic factor was assigned to each zone, determined on the basis of the median of all residuals in each zone. That factor is directly applicable to the flood formulas. Boundaries between geographic factors are not clearly or sharply defined. In general, the very low geographic factors ranging from 0.20 to 0.65 are in the very permeable lava areas in or near the Cascade Range. The geographic factors of 0.80 to 1.00 are found in areas of either low runoff, flat slopes, permeable soils, medium to low altitudes, or combinations of

these elements. Geographic factors ranging from 1.10 to 2.05 are associated with impermeability, steep slope, medium to high altitudes, high runoff, or combinations of these.

#### AVERAGE ANNUAL RUNOFF

Average annual runoff, expressed in inches, was found to be a highly significant factor. Plate 3, showing lines of equal annual runoff (isopleths), has been prepared for the purpose of using this factor. All available runoff records adjusted to a common time base of 1930-57 were used in the preparation of this map.

Although a great many records were available, there are many small areas and some large areas for which the average annual runoff is poorly defined. The user should wherever possible use actual runoff records adjusted to the 1930-57 base. The limitations of the runoff map are poor definition for small drainage basins and insufficient data to accurately define the runoff pattern in other areas, notably the lower Deschutes, John Day, Willow, Umatilla, and Walla Walla basins, and the small coastal streams draining from the Coast Range. Plate 3 gives a generalized picture of runoff. Runoff can vary considerably in a short distance owing to the orographic effect on precipitation.

Table 1 lists all the gaging stations and the factors used in the multiple correlation.

#### FORMULAS FOR MEAN ANNUAL FLOOD

The following formulas were derived from the multiple correlation:

Area west of the Cascade Range (pl. 1),  
 mean annual flood =  $0.63 A^{0.95} R^{1.01} L^{-0.13} G$

Area east of the Cascade Range (pl. 1),  
 mean annual flood =  $2.36 A^{0.80} R^{0.62} L^{-0.17} G$

Where  $A$  = area of drainage basin, in square miles.

$R$  = average annual runoff, in inches.

$L$  = area of lakes and ponds, in percent of drainage area.

$G$  = geographic factor.

The coefficient of determination for each area was 0.92, meaning that 92 percent of the variation of the mean annual flood was accounted for by the formulas.

The two formulas have been presented in nomograph form on plate 4. For areas greater than those covered by the nomograph, the formula should be used.

**LIMITATIONS OF THE FLOOD FORMULAS**

The flood formulas as here derived are applicable to all natural streams in Part 14 that are not regulated by man, but limited to the range of area and conditions sampled by the defining data. The lower limits of the size of drainage areas adequately sampled are 0.5 square mile for the western part and 10 square miles for the eastern part.

Further studies on small-area streams are being made. Some areas of less than 0.5 square mile were available for this study, but the records are generally too short for adequate definition of flood characteristics.

The flood formula does not apply to the main stems of the John Day, Deschutes, and Crooked Rivers. Flood magnitudes for the mean annual, 10-, and 50-year floods can be determined from figures 5 and 6 for the following reaches of those rivers: the John Day River downstream from North Fork, the Crooked River downstream from Ochoco Creek, and the Deschutes River downstream from the Crooked River.

**APPLICATION OF FLOOD FORMULAS AND COMPOSITE FREQUENCY CURVE**

The application of the flood formula to a given area is accomplished by obtaining values for the various basin characteristics and then employing those values in the formula to compute the mean annual flood. The magnitude of a flood at the desired recurrence interval is then determined from the composite frequency curve by the given ratio to mean annual flood.

**METHOD OF DETERMINING BASIN CHARACTERISTICS**

Outline on topographic maps the entire drainage boundary of the area under consideration. Measure that area, in square miles, by using a planimeter or a transparent grid that has been made to the map scale.

On the same maps, measure the area of any lakes and ponds that lie within the drainage boundary and contribute to the flow therein. Divide the area of the lakes and ponds by the total area of the basin and multiply the quotient by 100 to obtain percentage. Because all streams have a small amount of storage in their channels, a value of 0.01 percent (0.0001) is used as a minimum.

Determine the average annual runoff from plate 3. The runoff for any point on a stream is the weighted areal average of the isopleths within the drainage boundary. The runoff can be determined by locating the desired drainage area on the runoff map and inte-

grating the isopleths within the area visually for small areas, or with a transparent grid.

The geographic factor is obtained by locating the drainage area under consideration on plate 2. If the area falls in more than one of the geographic zones, the approximate weighted average on an areal basis is used. For a precise weighted average the logarithms of the factors should be averaged and the antilog of the average used. Generally, however, logarithmic averaging is not necessary unless the zones involved represent an abrupt change in value and contain nearly equal parts of the drainage area.

#### USE OF FORMULA AND NOMOGRAPH

The mean annual flood may be ascertained by the use of logarithms to solve the formulas or by use of the nomographs, plate 4.

Apply nomograph in the following manner:

1. Select the nomograph applicable to the site under consideration (pl. 1).
2. Plot the drainage area on the  $A$  scale and the geographic factor on the  $G$  scale.
3. Place a straightedge connecting those two points and mark the point where this line intersects pivot line 1.
4. Plot the mean annual runoff on the  $R$  scale.
5. Place a straightedge connecting the marked point on pivot line 1 with the runoff and mark the point where this line intersects pivot line 2.
6. Plot the percent of lakes on the  $L$  scale, keeping in mind that the minimum value of this factor is 0.01 percent.
7. Place a straightedge connecting the marked point on pivot line 2 with the percent of lakes and mark the point where this line intersects the  $Q$  scale. Read the value of the mean annual flood directly, in cubic feet per second.

#### USE OF COMPOSITE FREQUENCY CURVE

After the mean annual flood has been computed, the magnitude of the flood for a selected recurrence interval is calculated as follows:

From plate 1, determine the flood-frequency region in which the site is located. From the composite frequency curve applicable to the region (fig. 3 or 4) select the flood ratio that corresponds to the desired recurrence interval. Multiply this ratio by the mean annual flood. The result is the magnitude of the flood that can be expected to be equaled or exceeded as an annual flood on the average of once in the number of years of the selected recurrence interval.

A complete frequency curve may be defined for any selected site

by plotting on any type of graph paper flood discharges determined for several recurrence intervals. Frequency curves cannot be extended with confidence beyond the limits of definition by streamflow records.

### SUMMARY

This report is not the final answer. As more gaging stations are installed in different areas where varying basin characteristics will be sampled, and as the period of record at existing gaging stations grows longer, more information will be available that will make future studies desirable and more comprehensive. Lack of flood data on small streams is one of the most serious problems facing the flood analyst. The State Highway Departments of both Oregon and Washington are cooperating with the Geological Survey in small-stream (crest-gage stations) investigations. As time goes on, the addition of these data will undoubtedly warrant reanalyzing the flood-frequency relation.

The Geological Survey is carrying on continuing research on the methods applicable to flood-frequency analysis. New concepts or new theories may result from this research. Flood-frequency analysis is not a clear-cut science; much remains to be learned, and for that purpose much more basic streamflow data needs to be collected.

### GAGING-STATION RECORDS

The basic data for this report were obtained from records of gage height and discharge collected by the Geological Survey and other agencies.

Table 2 contains an inventory of gaging-station data used in the analysis. The number preceding each station name is an identification number assigned permanently to the station by the Geological Survey. The prefix "14" to indicate the "Part" has been omitted, as all stations listed are in Part 14. The years shown under "Period of known floods" are water years which begin on October 1 of the preceding calendar year and end on September 30. The gaging stations are listed in downstream order in each river basin. River basins are named for the main streams that terminate at the Columbia River or the Pacific Ocean, and are listed in order, beginning with the Walla Walla River basin, proceeding downstream on the Columbia River to the Pacific Ocean, and then south along the coast to the Oregon-California State line.

Records from recently established stations or those for short periods during earlier years were not sufficiently long to use in the analysis and are not shown. Records of lakes, reservoirs, and canals are not included. In general, flood peaks are listed for all stations operated

5 or more years. Because of the importance of stage records at some sites, a number of such records obtained from publications of the Weather Bureau have been included. Unless otherwise noted, all flood stages and discharges are momentary maximums. Where two or more gaging stations have been operated on a stream and the drainage area of one is not more than 25 percent greater than that of another, the records were combined for analysis purposes by adjusting the records of one to those of the other by drainage-area ratio.

The approximate location of the gaging stations is shown in plate 5. Stations used in the analysis are shown as black dots, and those not used are indicated by open circles. The records not used, in general, are those obtained at gaging stations on streams where the peak discharges are affected by the works of man, such as waterpower or flood-control dams. The identification numbers plotted on plate 5 correspond to those listed in table 2.

Peaks above a base magnitude are shown for all stations where flood flow is not substantially affected by unnatural conditions such as regulation or diversion. In most cases the base magnitude is that which has approximately a 1.15-year recurrence interval in an annual-flood series. For stations where the flood flow is affected by regulation or diversion, or where records are inadequate to define secondary peaks such as those obtained at some nonrecording gage stations, only the annual maximum flood data are presented. Occasionally a high stage will occur at a station because of backwater from ice or debris. The discharge however may be relatively low. In these instances the high stage and date of occurrence are shown but no discharge is given.

Underlines in the tabular data have the following significance:

1. Line in the "Water year" column means a break in the record.
2. Line beginning at the "Date" column and extending through the "Discharge" column means change in site and datum with no break in record.
3. Line in only the "Gage height" column means change in datum only.

No underlines are used if gage heights have been adjusted to same datum or present datum.

Accompanying each list of flood data are descriptive and historical data pertaining to the gaging site. These data show the most recent gage location; the type and history of the gage; the drainage area above the gage; a description of how the stage-discharge relation was defined; and, when available, the area of lakes and ponds above the gage, the mean altitude of the drainage basin, the bank-full stage, historical flood data, and other miscellaneous information that could

be of use to persons involved in the determination of flood probabilities.

Unless otherwise noted, the streamflow data in this report were collected by the Geological Survey in cooperation with the States of Oregon and Washington and their political subdivisions, the U.S. Army Corps of Engineers, the U.S. Bureau of Reclamation, the U.S. Forest Service, and the Federal Power Commission. Where records collected independently by these or other agencies are used, credit is given under the heading "Remarks."

MAXIMUM KNOWN FLOODS

Table 1.--Factors used in the multiple correlation of mean annual flood to drainage basin characteristics

No.	Gaging station	Flood region	Station mean annual flood (cfs)	Drainage area (sq mi)	Average annual runoff (inches)	Area of lakes (percent)	Geographic factor
Walla Walla River basin							
100	South Fork Walla Walla River near Milton, Oreg.	8	950	63	37.7	0.01	0.80
110	North Fork Walla Walla River near Milton, Oreg.	8	640	42	15.5	.01	1.25
125	Walla Walla River below Freewater, Oreg.	8	1,010	160	7.8	.01	1.85
130	Mill Creek near Walla Walla, Wash.	8	990	60	19.1	.01	1.25
135	Blue Creek near Walla Walla, Wash.	8	390	17	19.9	.01	1.25
160	Dry Creek near Walla Walla, Wash.	8	600	48.4	5.4	.01	1.25
165	East Fork Touchet River near Dayton, Wash.	8	1,150	102	17.8	.01	1.90
170	Touchet River at Bories, Wash.	8	2,210	572	7.2	.01	1.10
175	Touchet River near Touchet, Wash.	8	5,540	733	3.9	.01	1.20
185	Walla Walla River near Touchet, Wash.	8	7,170	1,660	4.1	.01	1.10
Umatilla River basin							
200	Umatilla River above Meacham Creek, near Gibbon, Oreg.	8	2,010	128	23.1	0.01	1.25
210	Umatilla River at Pendleton, Oreg.	8	5,700	637	10.3	.01	1.25
225	McKay Creek near Pilot Rock, Oreg.	8	1,680	178	7.4	.01	1.75
250	Birch Creek at Rieth, Oreg.	8	6,000	291	2.2	.01	1.80
260	Umatilla River at Yoakum, Oreg.	8	6,000	1,280	6.8	.01	1.10
315	Butter Creek near Pine City, Oreg.	8	320	291	1.1	.01	1.80
335	Umatilla River near Umatilla, Oreg.	8	5,000	2,230	2.6	.01	1.00
Willow Creek basin							
345	Willow Creek at Heppner, Oreg.	8	180	87	3.5	0.01	0.80
John Day River basin							
375	Strawberry Creek above Slide Creek near Prairie City, Oreg.	7	82	7.2	23.0	11.7	1.25
385	John Day River at Prairie City, Oreg.	7	680	251	6.7	.36	1.20
395	South Fork John Day River near Dayville, Oreg.	7	1,640	590	3.8	.01	1.80
405	John Day River at Picture Gorge, near Dayville, Oreg.	7	2,820	1,680	3.7	.06	.85
410	Desolation Creek near Dale, Oreg.	7	740	108	10.5	.02	1.20
415	North Fork John Day River near Dale, Oreg.	7	3,450	525	10.2	.06	1.20
420	Canas Creek near Lehman, Oreg.	7	885	61	9.6	.01	1.25
425	Canas Creek near Ukiah, Oreg.	7	1,130	121	9.4	.01	1.25
440	Middle Fork John Day River at Ritter, Oreg.	7	1,750	151	6.3	.01	1.85
445	Fox Creek at Gorge, near Fox, Oreg.	7	440	91.5	3.8	11	1.25
460	North Fork John Day River at Monument, Oreg.	7	10,000	2,520	6.5	.02	1.20
465	John Day River at Service Creek, Oreg.	-	14,000	5,090	4.8	.03	-
480	John Day River at McDonald Ferry, Oreg.	-	13,500	7,580	3.4	.01	-
Deschutes River basin							
500	Deschutes River below Snow Creek, near Lapine, Oreg.	6	290	132	15.4	2.04	0.65
505	Cultus River above Cultus Creek, near Lapine, Oreg.	6	100	16.5	51.9	.61	.65

510	Cultus Creek above Crane Prairie Reservoir, near Lapine, Oreg.....	6	112	33.2	9.3	7.24	0.65
520	Deer Creek above Crane Prairie Reservoir, near Lapine, Oreg.....	6	57	21.5	4.8	2.79	.65
530	Chariton Creek above Crane Prairie Reservoir, near Lapine, Oreg.....	6	26	15.6	1.2	1.60	.65
545	Brown Creek near Lapine, Oreg.....	6	57	19.7	27.5	.46	.65
555	Ocell Creek near Crescent, Oreg.....	6	250	39.0	27.2	12.8	1.00
610	Big Marsh Creek at Hooey Ranch, near Crescent, Oreg.....	6	320	51.5	18.2	.39	1.00
730	Tumalo Creek near Bend, Oreg.....	6	480	47.3	24.6	1.1	1.25
750	Squaw Creek near Sisters, Oreg.....	6	580	54.8	25.8	2.74	.80
770	South Fork Beaver Creek near Paulina, Oreg.....	7	280	95	2.7	.01	.80
775	North Fork Beaver Creek near Paulina, Oreg.....	7	600	64.4	5.2	.01	1.25
780	Beaver Creek near Paulina, Oreg.....	7	1,730	450	2.7	.01	1.20
785	North Fork Crooked River above Deep Creek, Oreg.....	7	1,280	159	11.4	.01	1.25
790	North Fork Crooked River below Deep Creek, Oreg.....	7	2,320	264	8.2	.01	1.25
795	Crooked River near Post, Oreg.....	7	4,530	2,160	2.0	.01	1.25
805	Crooked River above Hoffman Dam, Oreg.....	7	4,070	2,760	1.7	.01	1.20
875	Crooked River near Culver, Oreg.....	7	5,150	4,330	4.9	.02	-
880	Lake Creek near Sisters, Oreg.....	6	160	22.2	30.3	4.96	.90
915	Metolius River near Grandview, Oreg.....	6	2,720	324	58.6	.43	.90
925	Deschutes River near Madras, Oreg.....	10,000	7,800	7.7	30	16.9	1.80
975	Clear Creek near Government Camp, Oreg.....	5	93	8.9	28.1	.30	1.80
990	White River near Wapinitia, Oreg.....	5	1,640	115	32.6	1.48	1.80
1015	White River below Tych Valley, Oreg.....	5	3,200	368	15.7	.01	1.00
1030	Deschutes River at Moody, near Briggs, Oreg.....	-	15,800	10,500	7.2	.25	-

Fifteenmile Creek basin

1050	Eightmile Creek near Boyd, Oreg.....	5	210	56	4.9	0.01	0.65
1055	Fivemile Creek near The Dalles, Oreg.....	5	170	32.4	3.3	.01	.65

Klickitat River basin

1070	Klickitat River above West Fork, near Glenwood, Wash.....	5	1,790	151	28.8	0.07	1.10
1080	West Fork Klickitat River, near Glenwood, Wash.....	5	1,020	87.0	47.5	.92	1.10
1100	Klickitat River near Glenwood, Wash.....	5	3,200	360	30.8	.28	1.10
1120	Little Klickitat River near Goldendale, Wash.....	5	1,060	78	11.2	.01	1.80
1125	Little Klickitat River near Wanikiacus, Wash.....	5	4,160	280	8.5	.04	1.80
1130	Klickitat River near Pitt, Wash.....	5	9,680	1,290	16.7	.09	1.60

Hood River basin

1165	Green Point Creek below North Fork near Dee, Oreg.....	5	1,220	20.0	63.3	0.50	1.65
1185	West Fork Hood River near Dee, Oreg.....	5	7,110	96	76.0	.82	1.65
1210	Hood River near Hood River, Oreg.....	5	11,000	329	44.8	.21	1.65

White Salmon River basin

1230	White Salmon River at Husum, Wash.....	5	3,350	293	46.3	0.02	0.40
1235	White Salmon River near Underwood, Wash.....	5	4,900	390	39.6	.26	.40

Little White Salmon River basin

1240	Little White Salmon River near Willard, Wash.....	4	2,050	40.6	47.5	0.01	0.90
1245	Little White Salmon River at Willard, Wash.....	4	2,660	117	53.8	.01	.90
1252	Rock Creek near Willard, Wash.....	4	240	4.04	(45)	.01	.90

Table 1.--Factors used in the multiple correlation of mean annual flood to drainage basin characteristics--Continued

No.	Gaging station	Flood region	Station mean annual runoff (cfs)	Drainage area (sq mi)	Average annual runoff (inches)	Area of lakes (percent)	Geographic factor
Unnamed basin							
1263	Columbia River tributary at Home Valley, Wash.	4	45	1.08	(40)	0.01	0.90
Wind River basin							
1270	Wind River above Trout Creek, near Carson, Wash.	4	4,960	108	65.5	0.03	0.90
1280	Panther Creek near Carson, Wash.	4	1,750	30.1	73.5	.01	.90
1285	Wind River near Carson, Wash.	4	14,200	225	69.2	.03	.90
Dry Creek basin							
1287	Dry Creek at Cascade Locks, Oreg.	5	80	3.18	(60)	0.01	0.40
Sandy River basin							
1312	Lady Creek near Rhododendron, Oreg.	5	220	5.82	(80)	0.01	0.55
1340	Salmon River near Government Camp, Oreg.	5	310	8.7	71.1	.01	.55
1345	Salmon River below Linney Creek, Oreg.	5	1,590	54	54.3	.01	.55
1355	Salmon River above Boulder Creek, near Brightwood, Oreg.	5	6,080	106	58.5	.01	.90
1370	Sandy River near Marmot, Oreg.	4	13,700	262	69.4	.04	.90
1400	Ball Run River near Bull Run, Oreg.	4	10,600	102	96.6	.88	1.65
1415	Little Sandy River near Bull Run, Oreg.	4	2,220	22.3	83.0	.65	1.65
1425	Sandy River below Bull Run River, near Bull Run, Oreg.	4	29,200	440	71.7	.26	1.25
Washougal River basin							
1432	Canyon Creek near Washougal, Wash.	4	140	2.74	(70)	0.01	0.90
1435	Washougal River near Washougal, Wash.	4	12,400	108	100	.01	.90
1440	Little Washougal River near Washougal, Wash.	4	1,120	23.8	(53)	.01	.90
1443	Shanghai Creek near Hockinson, Wash.	4	78	2.14	(35)	.01	.90
Willamette River basin							
1455	Middle Fork Willamette River above Salt Creek, near Oakridge, Oreg.	2	12,400	392	39.2	0.08	0.90
1460	Salt Creek near Oakridge, Oreg.	2	1,990	113	36.0	.27	.90
1465	Salmon Creek near Oakridge, Oreg.	2	3,450	117	47.5	.17	.65
1470	Waldo Lake Outlet near Oakridge, Oreg.	6	81	30	14.4	28.3	.65
1475	North Fork of Middle Fork Willamette River near Oakridge, Oreg.	2	7,200	246	42.9	3.82	1.60
1480	Middle Fork Willamette River below North Fork, near Oakridge, Oreg.	2	28,000	924	40.0	1.14	1.00
1510	Fall Creek below Winberry Creek, near Fall Creek, Oreg.	2	9,460	186	41.7	.01	1.50
1515	Little Fall Creek near Fall Creek, Oreg.	2	2,820	52.5	50.3	.01	1.50
1525	Coast Fork Willamette River at London, Oreg.	2	1,550	69	40.7	.01	1.50
1539	Prather Creek near Disston, Oreg.	2	130	5.69	(35)	.01	1.50
1545	Row River above Pitcher Creek, near Dorena, Oreg.	2	12,500	211	38.2	.01	1.50
1565	Mosby Creek at mouth, near Cottage Grove, Oreg.	2	4,280	96	32.2	.01	1.50
1570	Coast Fork Willamette River at Saginaw, Oreg.	2	21,000	529	32.6	.01	1.50
1580	Willamette River at Springfield, Oreg.	2	62,000	2,030	36.6	.50	1.25
1582.5	Hackleman Creek near Upper Soda, Oreg.	3	36	.21	(70)	.01	1.35

MAXIMUM KNOWN FLOODS

1585	McKenzie River at outlet of Clear Lake, Oreg.....	1,550	101	57.1	.60
1590	McKenzie River at McKenzie Bridge, Oreg.....	7,300	345	65.0	.46
1595	South Fork McKenzie River near Rainbow, Oreg.....	10,700	211	52.9	.28
1610	Blue River above Quentin Creek, Oreg.....	1,110	11.5	71.4	.01
1612	Lookout Creek tributary No. 3 near Blue River, Oreg.....	28	34	(70)	.01
1615	Blue River near Blue River, Oreg.....	1,960	24.1	68.8	.01
1620	Blue River near Blue River, Oreg.....	6,250	75	59.3	.01
1625	McKenzie River near Vida, Oreg.....	23,700	930	58.4	.04
1630	Gate Creek at Vida, Oreg.....	3,310	47.6	59.7	.01
1650	Mohawk River near Springfield, Oreg.....	6,500	180	41.8	.01
1655	McKenzie River near Coburg, Oreg.....	45,800	1,310	56.6	.17
1665	Long Tom River near Noti, Oreg.....	2,680	98	57.2	.01
1670	Coyote Creek near Crow, Oreg.....	4,000	94	24.5	.01
1705	Rock Creek near Philomath, Oreg.....	860	14.6	46.7	.01
1710	Marys River near Philomath, Oreg.....	5,900	159	38.1	.01
1720	Calapooya River at Holley, Oreg.....	6,300	105	56.9	.01
1735	Calapooya River at Albany, Oreg.....	11,000	372	32.1	.01
1740	Willamette River at Albany, Oreg.....	113,000	4,840	43.7	.26
1741	Cox Creek at Albany, Oreg.....	400	15.2	(40)	.01
1780	North Santiam River below Boulder Creek, near Detroit, Oreg.....	9,200	216	61.8	.46
1790	Breitenbach River above Canyon Creek, near Detroit, Oreg.....	6,400	108	70.2	1.00
1815	North Santiam River at Niagara, Oreg.....	24,000	453	61.4	.26
1817	North Santiam River tributary near Gates, Oreg.....	63	1.97	(80)	.01
1825	Little North Santiam River near Mehama, Oreg.....	15,000	110	92.6	.01
1830	North Santiam River at Mehama, Oreg.....	41,000	665	66.9	.18
1849	Sheek Creek near Cascadia, Oreg.....	35	.94	(60)	.01
1850	South Santiam River below Cascadia, Oreg.....	12,000	174	62.2	.01
1860	Middle Santiam River near Foster, Oreg.....	26,200	271	77.2	.01
1870	Wiley Creek near Foster, Oreg.....	3,700	52	53.0	.01
1875	South Santiam River at Waterloo, Oreg.....	44,500	640	57.7	.01
1890	Santiam River at Jefferson, Oreg.....	82,000	1,790	55.9	.07
1895	Luckiamute River near Hoskins, Oreg.....	5,200	34	81.8	.01
1900	Luckiamute River at Fedee, Oreg.....	5,850	115	52.9	.01
1905	Luckiamute River near Suver, Oreg.....	10,300	240	49.2	.01
1906	Soap Creek tributary near Suver, Oreg.....	44	.57	(40)	.01
1910	Willamette River at Salem, Oreg.....	172,000	7,280	43.9	.20
1915	Mill Creek at penitentiary annex, near Salem, Oreg.....	3,160	104	75	.01
1922	Gibson Creek near Salem, Oreg.....	110	4.83	(38)	.01
1925	South Yamhill River near Willamina, Oreg.....	9,700	133	51.4	.08
1930	Willamina Creek near Willamina, Oreg.....	3,750	83	52.0	.15
1940	South Yamhill River near Whiteson, Oreg.....	16,900	502	44.4	.01
1950	Haskins Creek near McMinnville, Oreg.....	320	6.7	57.5	.01
1965	North Yamhill River near Pike, Oreg.....	2,350	48.8	47.7	.01
1970	North Yamhill River at Pike, Oreg.....	3,190	66.8	45.0	.01
1973	Panther Creek near Carlton, Oreg.....	180	3.19	(40)	.01
1985	Mollalla River above Pine Creek, near Willhoit, Oreg.....	7,400	96	73.9	.10
2000	Mollalla River near Canby, Oreg.....	14,700	323	47.9	.06
2010	Pudding River near Mount Angel, Oreg.....	6,080	204	45.0	.01
2015	Batte Creek at Monitor, Oreg.....	2,720	57.4	52.3	.18
2020	Pudding River at Aurora, Oreg.....	8,300	479	34.6	.06
2025	Tualatin River at Gaston, Oreg.....	3,070	51	50.0	.04
2030	Seoggin Creek near Gaston, Oreg.....	1,630	44.0	40.7	.01

Table 1.--Factors used in the multiple correlation of mean annual flood to drainage basin characteristics--Continued

No.	Gaging station	Flood region	Station mean annual flood (cfs)	Drainage area (sq mi.)	Average annual runoff (inches)	Area of lakes (percent)	Geographic factor
Willamette River basin--Continued							
2035	Tualatin River near Dilley, Oreg.....	3	4,600	133	38.8	0.02	1.20
2038	Beaver Creek near Glenwood, Oreg.....	3	130	4.70	(50)	.01	.75
2041	Batsman Creek near Glenwood, Oreg.....	3	62	1.34	(50)	.01	.75
2045	Gales Creek near Forest Grove, Oreg.....	3	2,900	66	44.2	.01	.75
2055	East Fork Dairy Creek at Mountaineale, Oreg.....	3	710	43.0	35.5	.01	.75
2060	McKay Creek near North Plains, Oreg.....	3	31.0	27.6	31.0	.01	.80
2075	Tualatin River near Willamette, Oreg.....	3	10,600	710	28.8	.01	.80
2080	Clackamas River at Big Bottom, Oreg.....	3	5,400	136	45.7	.15	1.00
2090	Oak Grove Fork above powerplant intake, Oreg.....	3	1,790	126	52.0	.17	.65
2095	Clackamas River above Three Lynx Creek, Oreg.....	3	19,000	479	55.3	.33	1.25
2100	Clackamas River near Cazadero, Oreg.....	3	27,000	657	55.6	.30	1.30
2115	Johnson Creek at Sycamore, Oreg.....	3	1,980	24.9	24.9	.01	1.35
2118	Saltzman Creek at Portland, Oreg.....	3	140	28.2	(20)	.01	1.35
Lake River basin							
2119	Burntbridge Creek at Vancouver, Wash.....	4	78	22.2	(25)	0.01	0.75
2120	Salmon Creek near Battle Ground, Wash.....	4	860	18.3	43.3	.01	.75
Lewis River basin							
2160	Lewis River above Muddy River, near Cougar, Wash.....	5	9,990	227	73.5	0.13	0.90
2165	Muddy River below Clear Creek, near Cougar, Wash.....	5	6,900	136	85.6	.15	.90
2175	Swift Creek near Cougar, Wash.....	4	1,490	26	104	.04	.90
2180	Lewis River near Cougar, Wash.....	4	22,100	481	82.5	.02	.90
2190	Canyon Creek near Amboy, Wash.....	4	7,700	63.8	94.4	.01	1.25
2195	Lewis River near Amboy, Wash.....	4	38,500	665	85.6	.02	1.00
2225	East Fork Lewis River near Heilsson, Wash.....	4	81.0	125	81.0	.01	1.25
2227	East Fork Lewis River tributary near Woodland, Wash.....	4	37	.55	(35)	.01	1.25
Kalama River basin							
2230	Kalama River near Kalama, Wash.....	4	9,400	179	86.6	0.28	1.25
Unnamed basin							
2236	Columbia River tributary at Carrols, Wash.....	4	59	1.06	(35)	0.01	1.25
Cowlitz River basin							
2245	Clear Fork Cowlitz River near Packwood, Wash.....	5	1,960	55.7	60.4	0.01	0.70
2255	Lake Creek near Packwood, Wash.....	5	440	18.8	70.6	4.2	.70
2265	Cowlitz River at Packwood, Wash.....	5	14,000	287	77.3	.45	.70
2300	Johnson Creek near Packwood, Wash.....	5	1,190	49.6	54.8	.01	.70
2311	Mill Creek at Handle, Wash.....	5	80	2.95	(60)	.01	.70
2320	Niggerhead Creek near Handle, Wash.....	5	2,740	66.3	59.7	.01	.70

2325	Cispus River near Randle, Wash.....	5	7,420	321	56.0	.15	.70
2350	Cowlitz River at Mossyrock, Wash.....	4	30,300	1,170	60.0	.18	.70
2353	Tilton River near Mineral, Wash.....	5	81	.79	(100)	.12	1.25
2355	West Fork Tilton River near Morton, Wash.....	5	2,120	16.4	93.8	.12	1.25
2365	Tilton River near Clinebar, Wash.....	5	11,800	158	74.1	.01	1.25
2370	Klickitat Creek at Mossyrock, Wash.....	5	82	3.45	34.1	.01	.70
2375	Winston Creek near Wayfield, Wash.....	5	970	40.0	36.3	.01	.70
2380	Cowlitz River near Wayfield, Wash.....	4	36,000	1,400	59.2	.15	.70
2391	North Fork Lacamas Creek near Ethel, Wash.....	4	19	.36	(30)	.01	1.25
2397	Olequa Creek tributary near Winlock, Wash.....	4	20	.38	(40)	.01	1.25
2415	South Fork Toutle River at Toutle, Wash.....	4	6,800	118	70.2	.17	1.25
2425	Toutle River near Silver Lake, Wash.....	4	16,900	474	57.4	.95	1.25
2426	Toutle River tributary near Castle Rock, Wash.....	4	46	.64	(50)	.01	1.25
2430	Cowlitz River at Castle Rock, Wash.....	4	56,700	2,238	55.0	.26	1.25
2435	Arkansas Creek near Castle Rock, Wash.....	4	1,240	19.4	59.2	.01	1.25
2450	Coweman River near Kelso, Wash.....	4	4,340	119	45.6	.08	1.25
Abernathy Creek basin							
2460	Abernathy Creek near Longview, Wash.....	4	1,450	20.3	64.6	0.01	1.25
Mill Creek basin							
2465	Mill Creek near Cathlamet, Wash.....	4	1,680	27.6	50.8	0.01	1.25
Clatskanie River basin							
2470	Clatskanie River near Clatskanie, Oreg.....	4	1,360	53.0	29.5	0.01	0.75
Elokomin River basin							
2475	Elokomin River near Cathlamet, Wash.....	4	5,670	65.8	75.0	0.01	1.25
Brooks Slough basin							
2479	Risk Creek near Skamokawa, Wash.....	4	86	1.13	(50)	0.01	1.25
Big Creek basin							
2485	Big Creek near Knappa, Oreg.....	4	1,420	31.9	65.8	0.01	0.75
Grays River basin							
2505	West Branch Grays River near Grays River, Wash.....	4	2,040	16.3	96.7	0.01	1.25
Youngs River basin							
2515	Youngs River near Astoria, Oreg.....	4	3,090	40.1	61.0	0.01	1.20
2520	North Fork Klaskanine River near Olney, Oreg.....	4	630	14.0	57.9	.01	.75
Necanicum River basin							
2990	South Fork Necanicum River near Seaside, Oreg.....	4	1,550	7.99	(80)	0.01	1.20
Asbury Creek basin							
2995	Asbury Creek near Cannon Beach, Oreg.....	4	190	1.97	(80)	0.01	1.20

Table 1.--Factors used in the multiple correlation of mean annual flood to drainage basin characteristics--Continued

No.	Gaging station	Flood region	Station mean annual flood (cfs)	Drainage area (sq mi)	Average annual runoff (inches)	Area of lakes (percent)	Geographic factor
Nehalem River basin							
3010	Nehalem River near Foss, Oreg.	4	31,400	667	54.5	0.01	1.20
Patterson Creek basin							
3014	Patterson Creek at Bay City, Oreg.	4	117	1.87	(75)	0.01	1.20
Wilson River basin							
3015	Wilson River near Tillamook, Oreg.	4	18,000	159	104	0.01	1.20
Trask River basin							
3025	Trask River near Tillamook, Oreg.	4	12,500	143	93.2	0.01	1.20
Nestucca River basin							
3030	Nestucca River near McMinville, Oreg.	4	830	12	54.7	2.5	1.20
Siletz River basin							
3055	Siletz River at Siletz, Oreg.	4	22,700	202	102	0.01	1.20
Alsea River basin							
3085	Alsea River near Tldewater, Oreg.	4	20,800	334	62.9	0.01	1.20
3088.5	South Fork Welles Creek near Waldport, Oreg.	4	16	.53	(65)	.01	1.20
Sinuslaw River basin							
3075	Lake Creek at Triangle Lake, Oreg.	2	2,110	50	56.5	1.2	1.20
Umpqua River basin							
3080	South Umpqua River at Tiller, Oreg.	2	16,900	449	30.9	0.09	1.70
3089	Canyon Creek at Canyonville, Oreg.	2	1,370	36.9	(20)	.01	2.05
3090	Cow Creek near Azules, Oreg.	2	2,550	78.0	18.4	.01	2.05
3100	Cow Creek near Riddle, Oreg.	2	17,300	456	24.2	.01	2.05
3120	South Umpqua River near Brockway, Oreg.	2	35,000	1,670	20.5	.02	1.50
3121	Parrott Creek at Roseburg, Oreg.	2	31	2.42	(20)	.01	1.50
3122	Lake Creek near Roseburg, Oreg.	2	186	1.26	(20)	.01	1.50
3123	Marks Creek at Diamond Lake, near Fort Kiamath, Oreg.	2	136	54.9	13.7	7.28	.35
3125	North Umpqua River below Lemolo Reservoir, near Tokete Falls, Oreg.	6	840	165	33.9	3.61	.35
3140	North Umpqua River above Clearwater River, near Tokete Falls, Oreg.	2	1,420	258	35.8	2.67	.35
3145	Clearwater River above Trap Creek, near Tokete Falls, Oreg.	6	340	41.6	53.8	0.02	.35
3150	Clearwater River at mouth, near Tokete Falls, Oreg.	2	540	76.6	50.6	1.27	.35
3155	North Umpqua River at Tokete Falls, Oreg.	2	3,180	339	39.9	0.01	.35
3160	Fish Creek at Big Camas ranger station, near Tokete Falls, Oreg.	2	1,710	68.8	41.6	1.710	.90
3165	North Umpqua River above Copeland Creek, near Tokete Falls, Oreg.	2	7,520	475	38.2	7.520	.45
3175	North Umpqua River above Rock Creek, near Glide, Oreg.	2	22,900	886	42.2	22,900	1.00
3185	North Umpqua River near Glide, Oreg.	2	36,400	1,210	36.4	36,400	1.10
3210	Umpqua River near Elkton, Oreg.	2	93,000	3,680	27.2	93,000	1.60
3227	Bear Creek near Drain, Oreg.	2	200	5.13	(30)	.01	1.50

MAXIMUM KNOWN FLOODS

Coquille River basin

3250	South Fork Coquille River at Powers, Oreg.....	2	14,300	169	63.0	0.01	1.50
3265	Middle Fork Coquille River near Myrtle Point, Oreg.....	2	13,600	305	36.8		0.03
3266	Gettys Creek near Myrtle Point, Oreg.....	2	77	1.45	(45)		.90
3270	North Fork Coquille River near Myrtle Point, Oreg.....	2	10,200	276	51.5		1.10
3271	Geiger Creek near Bandon, Oreg.....	2	59	1.36	(55)		.90

Rogue River basin

3275	Rogue River above Rybee Creek, Oreg.....	1	2,180	155	43.6	0.06	0.60
3280	Rogue River above Prospect, Oreg.....	1	4,800	332	33.3		.60
3320	South Fork Rogue River near Prospect, Oreg.....	1	1,230	79	29.6	1.3	.60
3330	Middle Fork Rogue River near Prospect, Oreg.....	1	860	57	45.5		.70
3335	Red Blanket Creek near Prospect, Oreg.....	1	600	40	39.2		.60
3350	Rogue River below South Fork Rogue River, near Prospect, Oreg.....	1	600	643	37.7		.60
3351	Fourbit Creek near Butte Falls, Oreg.....	1	110	31.7	(30)		.20
3352	South Fork Big Butte Creek above Willow Creek, near Butte Falls, Oreg.....	1	970	135	16.1		.35
3355	South Fork Big Butte Creek near Butte Falls, Oreg.....	1	2,110	249	15.8		.50
3375	Big Butte Creek near McLeod, Oreg.....	1	4,450	133	21.4		.80
3380	Elk Creek near Trail, Oreg.....	1	16,700	1,210	27.8		.80
3390	Rogue River at Dodge Bridge, near Eagle Point, Oreg.....	1	98	17	15.7		.60
3395	South Fork Little Butte Creek at Big Elk ranger station, near Lakecreek, Oreg.....	1					
3415	South Fork Little Butte Creek near Lakecreek, Oreg.....	1	1,150	138	11.0	.04	.60
3430	North Fork Little Butte Creek near Lakecreek, Oreg.....	1	230	38	26.4	2.6	.60
3480	Little Butte Creek below Eagle Point, Oreg.....	1	4,220	293	8.8		.65
3530	West Fork Ashland Creek near Ashland, Oreg.....	1	57	10.5	12.7		.60
3535	East Fork Ashland Creek near Ashland, Oreg.....	1	57	8.14	15.5		.60
3590	Rogue River at Raygold, near Central Point, Oreg.....	1	24,300	2,020	19.3	.13	.90
3595	Evans Creek near Rybee Springs, near Rogue River, Oreg.....	1	2,850	116	15.7		.60
3613	Jonas Creek near Grants Pass, Oreg.....	1	1,150	297	(20)		1.70
3620	Applegate River near Ruch, Oreg.....	1	5,800	480	18.9		1.70
3650	Applegate River near Applegate, Oreg.....	1	7,460	480	8.6		1.70
3655	Rowell Creek near Williams, Oreg.....	1	850	20.3	20.3		1.70
3685	Applegate River near Wilderville, Oreg.....	1	11,500	694	15.6	.06	1.70
3698	Bathernknie Creek near Wonder, Oreg.....	1	1,190	30.9	(25)		2.05
3700	Slate Creek at Wonder, Oreg.....	1	310	3.07	31.0		2.05
3702	Round Prairie Creek near Wilderville, Oreg.....	1	140	3.16	(25)		2.05
3715	Grave Creek at Pease Bridge, near Placer, Oreg.....	1	1,420	25	33.6	.01	2.05
3720	Grave Creek near Placer, Oreg.....	1	2,280	44.6	28.6		2.05
3725	East Fork Illinois River near Takilma, Oreg.....	2	3,550	23.8	52.0	.23	2.05
3735	Althouse Creek near Holland, Oreg.....	2	960	23.8	35.2		1.70
3745	Grayback Creek near Holland, Oreg.....	2	1,170	24.1	31.6		1.70
3750	Sucker Creek near Holland, Oreg.....	2	2,480	76	32.8		1.70
3755	West Fork Illinois River below Rock Creek, near O'Brien, Oreg.....	2	5,360	48.6	58.2	.10	2.05
3770	Illinois River at Kerby, Oreg.....	2	25,000	369	43.7	.18	1.90
3775	Deer Creek near Dryden, Oreg.....	2	1,400	23	38.1	.01	1.70

Ransom Creek basin

3789	Ransom Creek near Brookings, Oreg.....	2	130	0.74	(80)	1.2	2.05
------	--	---	-----	------	------	-----	------

Note.--Runoff figures in parentheses are determined from runoff map (pl. 3).

Table 2.--Inventory of data for gaging stations used to define regional flood-frequency relations

No.	Gaging station	Drainage area (sq mi)	Period of known floods (water years)	Area of Q <sub>2.33</sub> (cfs)	Date	Maximum stage and discharge			Ratio to areal Q <sub>2.33</sub>
						Gage height (feet)	Discharge		
							Cfs	Cfs per sq mi	
Walla Walla River basin									
100	South Fork Walla Walla River near Milton, Oreg.....	63	1903,1907, 1909-17, 1931-60	1,000	Mar. 31, 1931 Dec. 12, 1946	6	2,430	38.6	2.43
110	North Fork Walla Walla River near Milton, Oreg.....	42	1930,1933-60	700	Dec. 12, 1946	6.97	1,980	47.1	2.83
125	Walla Walla River below Freewater, Oreg.....	160	1941-47	910	Dec. 12, 1946	-	2,400	15.0	2.64
130	Mill Creek near Walla Walla, Wash.....	60	1914-17, 1940-60	1,100	Dec. 28, 1945	17.85	2,610	43.5	2.87
135	Blue Creek near Walla Walla, Wash.....	17	1940-42, 1944-60	270	Dec. 28, 1945	43.35	725	42.6	2.69
160	Dry Creek near Walla Walla, Wash.....	48.4	1949-53, 1955-60	390	Feb. 22, 1949	11.6	3,340	69.0	8.56
165	East Fork Touchet River near Dayton, Wash.....	102	1944-51, 1956-60	1,100	Jan. 7, 1948	5.28	1,530	15.0	1.39
170	Touchet River at Bollies, Wash.....	372	1924-29, 1952-60	2,200	Jan. 13, 1928	7.04	4,470	12.0	2.03
175	Touchet River near Touchet, Wash.....	733	1942,1944, 1946-53,1955	2,800	Feb. 10, 1949	14.7	13,300	18.1	4.75
185	Walla Walla River near Touchet, Wash.....	1,660	1949-60	5,200	February 1949	13.81	23,800	14.3	4.58
Umatilla River basin									
200	Umatilla River above Meacham Creek, near Gibbon, Oreg.	125	1933-60	2,200	Dec. 12, 1946	8.84	6,660	53.3	3.03
210	Umatilla River at Fendleton, Oreg.....	637	1906-60	4,800	May 30, 1906 Dec. 14, 1882	11.0	-	-	-
225	McKay Creek near Pilot Rock, Oreg.....	178	1927-60	1,400	Apr. 1, 1931	10.4	6,000	33.7	4.29
250	Birch Creek at Rieth, Oreg.....	291	1920-22, 1924-26, 1928-60	600	June 17, 1950	7.2	1,860	6.4	3.10
260	Umatilla River at Yocum, Oreg.....	1,280	1905-60	5,800	May 30, 1906	15.0	20,000	15.6	3.45
320	Butter Creek near Pine City, Oreg.....	291	1929-60	390	Feb. 21, 1949	12.4	3,800	13.1	9.74
335	Umatilla River near Umatilla, Oreg.....	2,290	1904-60	4,600	May 31, 1906	11.0	19,600	8.6	4.26
Willow Creek basin									
345	Willow Creek at Heppner, Oreg.....	87	1903-60	310	June 14, 1903	-	36,000	414	11.61
John Day River basin									
375	Strawberry Creek above Slide Creek near Prairie City, Oreg.	7.00	1931-60	66	May 24, 1956 June 8, 1948	3.23	-	-	-
385	John Day River at Prairie City, Oreg.....	231	1926-60	830	Mar. 25, 1952	6.27	2,100	9.1	2.55
395	South Fork John Day River near Dayville, Oreg.....	590	1949,1952-56	1,600	Dec. 22, 1955	7.89	3,630	6.2	2.27

MAXIMUM KNOWN FLOODS

405	John Day River at Picture Gorge, near Dayville, Oreg.	1,680	1927-60	2,800	Mar. 19, 1932	14.0	6,800	4.0	2.43
410	Desolation Creek near Dale, Oreg.	108	1950-58	670	May 20, 1958	5.43	1,240	11.5	1.85
415	North Fork John Day River near Dale, Oreg.	525	1930-58	2,800	May 26, 1948	10.48	8,170	15.6	2.92
420	Canas Creek near Lehman, Oreg.	61	1951-60	700	Dec. 21, 1955	4.56	1,880	30.8	1.69
425	Canas Creek near Ukiah, Oreg.	121	1915-17, 1920-23, 1932-60, 1930-60	1,200	Mar. 18, 1932	5.20	2,600	21.5	2.17
440	Middle Fork John Day River at Ritter, Oreg.	515	1931-58	1,900	Jan. 4, 1947	8.97	-	-	-
445	Fox Creek at gorge, near Fox, Oreg.	81.5	1925-60	360	Mar. 25, 1952	5.85	4,000	7.8	2.11
460	North Fork John Day River at Monument, Oreg.	2,520	1926, 1930-60	9,300	Mar. 18, 1932	14.9	17,860	20.3	5.17
465	John Day River at Service Creek, Oreg.	5,080	1924, 1930-60	14,000	Mar. 19, 1932	16.75	22,600	9.7	2.37
480	John Day River at McDonald Ferry, Oreg.	7,580	1894-60	14,000	Feb. 8, 1950	13.2	28,900	5.7	2.06
					1894	-	39,100	5.2	2.79
Deschutes River basin									
500	Deschutes River below Snow Creek, near Lapine, Oreg.	132	1938-60	360	Jan. 21, 1943, July 13, 1956	4.12	-	-	-
505	Cultus River above Cultus Creek, near Lapine, Oreg.	16.5	1923-25, 1938-60	180	Oct. 30, 1952, May 31, 1956	1.23	444	3.4	1.23
510	Cultus Creek above Crane Prairie Reservoir, near Lapine, Oreg.	33.2	1924-25, 1938-60	72	June 15, 1950, May 26, 1958	2.76	178	10.8	.99
520	Deer Creek above Crane Prairie Reservoir, near Lapine, Oreg.	21.5	1924, 1938-60	39	1956	3.14	219	6.6	3.04
530	Charlton Creek above Crane Prairie Reservoir, near Lapine, Oreg.	15.6	1938-60	15	Nov. 30, 1942, Mar. 9, 1957	2.39	97	4.5	2.49
545	Brown Creek near Lapine, Oreg.	19.7	1923, 1925, 1938-60	150	June 12, 1950, Aug. 4, 1956	1.64	54	3.5	3.60
555	Odell Creek near Crescent, Oreg.	39.0	1934-60	220	Jan. 5, 1947	2.03	104	5.5	.69
610	Big Marsh Creek at Hoesy Ranch, near Crescent, Oreg.	51.5	1912-14, 1928-60	380	Nov. 24, 1953, May 30, 1956	5.54	416	10.7	1.89
730	Tumalo Creek near Bend, Oreg.	47.3	1914-60	430	Dec. 23, 1914	6.40	602	11.7	1.58
750	Squaw Creek near Sisters, Oreg.	54.8	1906-60	460	Jan. 6, 1923	8.75	1,000	21.1	2.33
770	South Fork Beaver Creek near Paulina, Oreg.	95	1910-60	280	Dec. 2, 1941	3.33	1,130	20.6	2.46
775	North Fork Beaver Creek near Paulina, Oreg.	64.4	1946-54	500	Mar. 25, 1952	7.70	720	7.6	2.57
780	Beaver Creek near Paulina, Oreg.	450	1943-60	1,500	Dec. 28, 1945, Mar. 25, 1952	5.90	955	14.8	1.91
785	North Fork Crooked River above Deep Creek, Oreg.	159	1942-54	1,600	Mar. 26, 1952	10.38	3,620	8.0	2.41
790	North Fork Crooked River below Deep Creek, Oreg.	264	1947-53	2,200	Jan. 1, 1943	8.01	2,500	15.7	1.56
795	Crooked River near Post, Oreg.	2,160	1909-10, 1940-60	4,600	Apr. 27, 1953	8.01	5,000	18.9	2.27
805	Crooked River above Hoffman Dam, Oreg.	2,760	1909-14, 1941-60	4,900	Mar. 26, 1952	7.31	7,550	3.5	1.64
875	Crooked River near Culver, Oreg.	4,330	1918-60	5,200	Mar. 26, 1952	8.2	8,410	3.0	1.72
880	Lake Creek near Sisters, Oreg.	22.2	1915-60	170	Mar. 30, 1943, Dec. 24, 1955	6.70	8,260	1.9	1.59
						3.65	380	17.1	2.24

Table 2.--Inventory of data for gaging stations used to define regional flood-frequency relations--Continued

No.	Gaging station	Drainage area (sq mi.)	Period of known floods (water years)	Areal Q <sub>2.33</sub> (cfs)	Maximum stage and discharge			Ratio to areal Q <sub>2.33</sub>
					Date	Gage height (feet)	Discharge	
		Cfs	Cfs	Cfs	per sq mi.			
Deschutes River basin--Continued								
915	Metolius River near Grandview, Oreg.....	324	1913, 1922-60	3,000	Jan. 7, 1923	3.32	5,780	17.8
925	Deschutes River near Madras, Oreg.....	7,800	1924-60	10,000	Jan. 1, 1943	6.89	13,300	1.7
975	Clear Creek near Government Camp, Oreg.....	8.9	1947-53	120	Dec. 15, 1946	3.00	150	16.9
990	White River near Wapinitia, Oreg.....	115	1946-50	1,600	Dec. 15, 1946	6.43	3,620	31.5
1015	White River below Tygh Valley, Oreg.....	368	1918-60	3,100	Jan. 6, 1923	12.9	13,300	36.1
1030	Deschutes River at Moody, near Biggs, Oreg.....	10,500	1898-99, 1907-60	16,000	Jan. 7, 1923	10.2	43,600	4.2
Fifteenmile Creek basin								
1050	Eightmile Creek near Boyd, Oreg.....	56	1947-53	210	Feb. 10, 1949	7.11	385	6.9
1055	Fivemile Creek near The Dalles, Oreg.....	32.4	1949-53	120	Feb. 10, 1949	3.66	315	9.7
Klickitat River basin								
1070	Klickitat River above West Fork near Glenwood, Wash.....	151	1945-60	1,800	May 27, 1949	4.28	3,280	21.7
1080	West Fork Klickitat River near Glenwood, Wash.....	87.0	1945-49, 1954	1,000	May 26, 1949	4.23	1,560	17.9
1100	Klickitat River near Glenwood, Wash.....	360	1910-60	3,000	Dec. 22, 1933	7.9	9,870	27.4
1120	Little Klickitat River near Goldendale, Wash.....	78	1911-12, 1947-50, 1958-61	1,300	Feb. 9, 1961	8.46	2,850	36.3
1125	Little Klickitat River near Wahkiacus, Wash.....	280	1945-49, 1951-61	2,400	Jan. 7, 1948	9.4	7,000	25.0
1130	Klickitat River near Pitt, Wash.....	1,290	1910-12, 1923-60	10,000	Dec. 22, 1933	12.50	25,500	19.8
Hood River basin								
1180	Green Point Creek below North Fork near Dee, Oreg.....	20.0	1950-54	1,300	Jan. 9, 1953	5.00	1,670	83.5
1185	West Fork Hood River near Dee, Oreg.....	96	1914-15, 1933-60	6,700	Dec. 22, 1933	12.40	12,900	134
1210	Hood River near Hood River, Oreg.....	329	1914-60	14,000	Jan. 6, 1923	11.1	34,000	103
White Salmon River basin								
1250	White Salmon River at Husum, Wash.....	293	1910-18, 1930-41, 1958-60	4,400	Dec. 22, 1933	11.0	10,800	36.9
1235	White Salmon River near Underwood, Wash.....	390	1916-30, 1936-60	3,500	Dec. 29, 1917	9.5	9,700	24.9
Little White Salmon River basin								
1240	Little White Salmon River near Willard, Wash.....	40.6	1945-49	1,700	Dec. 15, 1946	8.00	2,900	71.4

1245	Little White Salmon River at Willard, Wash.	117	1945-60	5,400	Dec. 15, 1946	9.50	4,140	35.4	0.77
1252	Rock Creek near Willard, Wash.	41.0	1949-60	180	Feb. 17, 1949	13.16	428	104	2.56
Unnamed basin									
1263	Columbia River tributary at Home Valley, Wash.	0.54	1950-60	44	Dec. 21, 1955	22.58	75	140	1.71
Wind River basin									
1270	Wind River above Trout Creek, near Carson, Wash.	108	1945-61	5,100	Feb. 8, 1945	15.5	8,880	92.2	1.74
1280	Panther Creek near Carson, Wash.	30.1	1945-53	2,000	Jan. 9, 1953	5.18	2,400	79.7	1.50
1285	Wind River near Carson, Wash.	225	1935-61	11,000	Nov. 24, 1950	18.86	26,700	119	2.43
Dry Creek basin									
1287.4	Dry Creek at Cascade Locks, Oreg.	3.18	1952-60	86	Dec. 21, 1955	10.18	186	58.5	2.16
Sandy River basin									
1312	Lady Creek near Rhododendron, Oreg.	3.82	1953-60	190	Dec. 11, 1956	13.23	439	115	2.31
1340	Salmon River near Government Camp, Oreg.	8.7	1911-12, 1927-60	360	Dec. 11, 1956	3.95	682	78.4	1.89
1345	Salmon River below Linney Creek, Oreg.	54	1928-50	1,600	Mar. 31, 1931	5.81	3,670	68.0	2.29
1355	Salmon River above Boulder Creek, near Brightwood, Oreg.	106	1937-52	5,100	Dec. 14, 1946	7.08	11,700	110	2.29
1370	Sandy River near Marmot, Oreg.	262	1912-60	12,000	Jan. 6, 1923	17.5	29,200	111	2.43
1400	Bull Run River near Bull Run, Oreg.	102	1908-60	8,600	Nov. 20, 1921	14.13	20,600	202	2.40
1415	Little Sandy River near Bull Run, Oreg.	22.3	1913-60	1,800	Mar. 31, 1931	9.18	5,320	239	2.96
1425	Sandy River below Bull Run River, near Bull Run, Oreg.	440	1911-44, 1950-60	23,000	Mar. 31, 1931	20.6	58,000	132	2.52
Washougal River basin									
1432	Canyon Creek near Washougal, Wash.	2.74	1949-60	200	Feb. 17, 1949	9.51	281	103	1.40
1435	Washougal River near Washougal, Wash.	108	1945-60	9,200	Dec. 9, 1953	15.56	17,700	164	1.92
1440	Little Washougal River near Washougal, Wash.	23.8	1952-61	1,100	Nov. 24, 1960	8.22	1,940	81.5	1.76
1445.5	Shanghai Creek near Hockinson, Wash.	2.14	1950-60	77	Jan. 5, 1956	20.24	124	57.9	1.61
Willamette River basin									
1455	Middle Fork Willamette River above Salt Creek, near Oakridge, Oreg.	392	1914, 1936-60	9,000	Dec. 22, 1955	12.71	-	-	-
1460	Salt Creek near Oakridge, Oreg.	113	1914, 1934-51	2,200	Dec. 28, 1945	8.00	34,000	86.7	3.78
1465	Salmon Creek near Oakridge, Oreg.	117	1913-19, 1934-60	3,200	Oct. 29, 1950	11.18	4,500	39.8	2.05
1470	Waldo Lake Outlet near Oakridge, Oreg.	30	1937-53	98	Jan. 2, 1943	2.98	144	4.8	1.45
1475	North Fork of Middle Fork Willamette River, near Oakridge, Oreg.	246	1909-16, 1936-60	7,000	Dec. 26, 1945	16.6	17,000	69.1	2.43
1480	Middle Fork Willamette River below North Fork, near Oakridge, Oreg.	924	1861-1960	17,000	Dec. 28, 1945	18.8	81,800	88.5	4.81
1510	Fall Creek below Winberry Creek, near Fall Creek, Oreg.	186	1936-60	11,000	Dec. 11, 1956	18.80	24,700	133	2.25
1515	Little Fall Creek near Fall Creek, Oreg.	52.5	1936-48	3,900	Dec. 28, 1945	8.20	6,110	116	1.57

Table 2.--Inventory of data for gaging stations used to define regional flood-frequency relations--Continued

No.	Gaging station	Drainage area (sq mi)	Period of known floods (water years)	Areal Q <sub>2.33</sub> (cfs)	Maximum stage and discharge		Ratio to areal Q <sub>2.33</sub>		
					Date	Gage height (feet)		Cfs	Cfs per sq mi
Willamette River basin--Continued									
1525	Coast Fork Willamette River at London, Oreg.....	72.1	1936-60	4,100	Dec. 28, 1945	13.25	8,800	122	2.15
1539	Fraser Creek near Daston, Oreg.....	5.89	1953-61	1,320	Feb. 10, 1961	5.66	5,326	57.3	1.92
1545	Row River above Pitcher Creek, near Dorena, Oreg....	21.1	1936-60	11,000	Dec. 28, 1945	14.83	19,600	92.9	1.78
1585	Mosby Fork at mouth, near Cottage Grove, Oreg.....	95.3	1947-61	4,400	Jan. 10, 1961	11.04	7,270	76.3	1.65
1570	Coast Fork Willamette River at Saginaw, Oreg.....	529	1924-51	22,400	Jan. 2, 1953	12.64	-	-	-
1580	Willamette River at Springfield, Oreg.....	2,050	1861-1960 1912-13, 1920-60	45,000	Dec. 28, 1945	22.0	32,900	62.2	1.47
1582.5	Hackleman Creek near Upper Soda, Oreg.....	.21	1953-60	26	Dec. 29, 1945	20.9	140,000	69.0	3.11
1585	McKenzie River at outlet of Clear Lake, Oreg.....	101	1913-15, 1948-60	1,750	Dec. 11, 1956	5.38	102	486	3.92
1590	McKenzie River at McKenzie Bridge, Oreg.....	348	1911-60	7,900	Dec. 22, 1955	7.66	2,970	294	1.70
1595	South Fork McKenzie River near Rainbow, Oreg.....	208	1945-60	11,000	Jan. 6, 1923	8.3	16,500	47.4	2.09
1610	Blue River above Quentin Creek, Oreg.....	11.5	1948-60	1,200	Dec. 28, 1945	9.5	24,500	118	2.23
1612	Lookout Creek tributary No. 3 near Blue River, Oreg.	.34	1953-60	41	Dec. 21, 1955	4.63	2,110	183	1.76
1615	Lookout Creek near Blue River, Oreg.....	24.1	1936-60	2,300	Dec. 20, 1957	2.90	52	153	1.27
1620	Blue River near Blue River, Oreg.....	75.0	1936-60	6,800	Jan. 18, 1953	7.18	3,620	150	1.57
1625	McKenzie River near Vida, Oreg.....	930	1911, 1923-60	30,000	Dec. 28, 1945	9.80	13,300	177	1.98
1630	Gate Creek at Vida, Oreg.....	47.6	1952-60	3,100	Dec. 11, 1956	9.83	6,070	128	2.15
1650	Mohawk River near Springfield, Oreg.....	177	1936-52	7,200	Dec. 28, 1945	22.1	8,600	48.6	1.19
1655	McKenzie River near Coburg, Oreg.....	1,337	1945-60	43,000	Dec. 29, 1945	17.36	88,200	66.0	2.05
1665	Long Tom River near Noti, Oreg.....	89.3	1936-60	3,400	Dec. 22, 1955	20.17	6,990	78.3	2.06
1670	Covote Creek near Crow, Oreg.....	95.1	1941-60	3,200	Dec. 21, 1955	14.32	10,100	106	3.16
1705	Rock Creek near Philomath, Oreg.....	14.6	1946-60	800	Dec. 21, 1955	6.82	2,190	150	2.74
1710	Ways River near Philomath, Oreg.....	169	1941-60	6,700	Dec. 21, 1955	10.83	8,660	54.5	1.23
1720	Calapooya River at Holley, Oreg.....	105	1936-60	8,200	Dec. 28, 1945	14.33	12,200	116	1.97
1735	Calapooya River at Albany, Oreg.....	372	1941-60	12,000	Jan. 2, 1953	25.5	-	-	-
1740	Willamette River at Albany, Oreg.....	4,840	1861-60	113,000	Dec. 22, 1945	32.700	32,700	88.0	2.72
1741	Cox Creek at Albany, Oreg.....	13.2	1953-61	470	Dec. 4, 1861	36.0	340,000	70.2	3.01
1780	North Santiam River below Boulder Creek, near Detroit, Oreg.	216	1907-9, 1929-60	9,500	Nov. 24, 1960	12.81	985	64.8	2.10
1790	Breitenbush River above Canyon Creek, near Detroit, Oreg.	108	1932-60	6,200	Dec. 28, 1945	11.84	20,500	94.0	2.18
1815	North Santiam River at Niagara, Oreg.....	453	1909-22, 1939-60	22,000	Dec. 28, 1945	11.85	11,600	107	1.87
1817	North Santiam River tributary near Gates, Oreg.....	1.87	1952-61	245	Nov. 22, 1909	16.4	63,200	139	2.87
1825	Little North Santiam River near Mehama, Oreg.....	110	1932-60	13,000	Nov. 24, 1960	18.00	103	52.5	.42
1830	North Santiam River at Mehama, Oreg.....	665	1906-7, 1911-14, 1922-60	36,000	Dec. 28, 1945	17.5	19,900	181	1.53
					Dec. 28, 1945	-	76,600	115	2.13

MAXIMUM KNOWN FLOODS

1849	Sheek Creek near Cascadia, Ore.	0.94	1953-60	90	Dec. 20, 1957	17.08	105	112	1.17
1850	South Santiam River below Cascadia, Ore.	174	1936-60	14,000	Dec. 11, 1956	19.35	26,800	154	1.91
1860	Middle Santiam River near Foster, Ore.	271	1932-47	26,000	Dec. 28, 1945	21.6	41,800	154	1.61
1870	Wiley Creek near Foster, Ore.	52.3	1948-60	3,600	Dec. 21, 1955	8.42	6,230	120	1.75
1875	South Santiam River at Waterloo, Ore.	640	1908-7	43,000	Dec. 28, 1945	22.85	74,200	116	1.73
1890	Santiam River at Jefferson, Ore.	1,790	1908-16, 1922, 1940-60	82,000	Nov. 21, 1921	a24.4	202,000	113	2.46
1895	Lacklamate River near Hoskins, Ore.	34.3	1935-60	3,400	Dec. 14, 1946	13.22	5,560	162	1.64
1900	Lacklamate River at Fedee, Ore.	115	1941-60	6,900	Feb. 17, 1948	18.78	15,500	117	1.96
1902	Waymire Creek near Falls City, Ore.	3.46	1954-60	190	Dec. 21, 1955	16.53	522	131	2.75
1905	Lacklamate River near Suver, Ore.	240	1908-11, 1957-60	13,000	Dec. 29, 1957	33.5	25,000	104	1.92
1906	Soap Creek tributary near Suver, Ore.	57	1953-60	35	Dec. 21, 1955	4.53	80	140	2.29
1910	Willamette River at Salem, Ore.	7,280	1861-60	174,000	Dec. 4, 1861	39	500,000	68.7	2.87
1915	Mill Creek at penitentiary annex, near Salem, Ore.	104	1938-56	3,300	Dec. 29, 1937	-	8,320	80.0	2.52
1922	Gibson Creek near Salem, Ore.	4.83	1952-60	112	Jan. 20, 1953	16.53	238	49.3	2.12
1925	South Yamhill River near Willamina, Ore.	133	1931, 1934-60	7,000	Feb. 10, 1949	14.80	15,200	114	2.17
1930	Willamina Creek near Willamina, Ore.	64.7	1931, 1935-60	2,800	Mar. 31, 1931	12	8,200	127	2.93
1940	South Yamhill River near Whiteson, Ore.	502	1941-60	17,000	Dec. 22, 1955	45.25	36,800	73.3	2.16
1950	Haskins Creek near McMinnville, Ore.	6.48	1929-51	470	Mar. 31, 1931	4.00	610	94.1	1.50
1965	North Yamhill River near Pike, Ore.	48.8	1941-51	2,700	Feb. 10, 1949	9.28	4,780	98.0	1.77
1970	North Yamhill River at Pike, Ore.	66.8	1949-60	3,300	Dec. 21, 1955	12.42	9,530	143	2.89
1973	Panther Creek near Carlton, Ore.	3.19	1953-60	170	Dec. 21, 1955	14.72	482	154	2.89
1985	Molalla River above Pine Creek, near Willhoit, Ore.	97.0	1956-61	6,800	Dec. 21, 1955	16.04	-	-	-
2000	Molalla River near Canby, Ore.	323	1929-59	14,000	Nov. 24, 1960	-	14,000	144	2.06
2010	Molalla River near Mount Angel, Ore.	204	1940-60	7,200	Jan. 7, 1948	14.9	25,100	77.7	1.79
2015	Butte Creek at Monitor, Ore.	57.4	1941-52	2,700	Feb. 18, 1949	30.38	-	-	2.08
2020	Pudding River at Aurora, Ore.	479	1923, 1929-60	10,000	Feb. 17, 1949	13.5	5,600	97.6	2.07
2025	Tualatin River at Gaston, Ore.	51	1941-56	2,600	Jan. 7, 1923	25.0	27,900	58.2	2.79
2030	Scoggin Creek near Gaston, Ore.	44.0	1941-60	5,100	Dec. 21, 1955	13.18	8,170	160	3.14
2035	Tualatin River near Dillay, Ore.	133	1940-60	2,000	Dec. 21, 1955	15.94	5,320	121	2.66
2038	Beaver Creek near Glenwood, Ore.	4.70	1952-60	170	Dec. 22, 1955	14.78	13,200	99.2	2.59
2041	Bateman Creek near Glenwood, Ore.	1.34	1952-60	59	Dec. 24, 1955	20.52	265	56.4	1.56
2045	Gales Creek near Forest Grove, Ore.	66	1941-56	2,100	Jan. 21, 1955	16.0	145	108.4	2.06
2055	East Fork Dairy Creek at Mountaineer, Ore.	43.0	1941-51	1,100	Feb. 17, 1949	10.90	6,410	97.1	3.05
2060	Mohay Creek near North Plains, Ore.	27.6	1941-45, 1943-56	620	Feb. 17, 1949	12.54	1,420	33.0	1.28
2075	Tualatin River near Willamette, Ore.	710	1929-60	13,000	Dec. 21, 1955	11.55	-	-	3.39
2080	Clackamas River at Big Bottom, Ore.	136	1921-60	4,000	Dec. 25, 1933	17.72	29,300	41.3	2.85
2090	Oak Grove Fork above powerplant intake, Ore.	126	1910-11, 1913-17, 1921-60	2,200	Dec. 18, 1946	-	6,750	49.5	1.69
2095	Clackamas River above three Lynx Creek, Ore.	479	1910-13, 1922-60	18,000	Dec. 21, 1955	8.96	-	-	2.27
					Dec. 15, 1923	5.91	5,000	39.7	-
					Mar. 31, 1931	15.5	34,800	72.7	1.93

a Adjusted to present site by curve of relation.

Table 2.--Inventory of data for gaging stations used to define regional flood-frequency relations--Continued

No.	Gaging station	Drainage area (sq mi.)	Record of known floods (water years)	Areal Q <sub>2.33</sub> (cfs)	Maximum stage and discharge				Ratio to areal Q <sub>2.33</sub>
					Date	Stage height (feet)	Discharge		
							Cfs	Cfs per sq mi.	
Willamette River basin--Continued									
2100	Clackamas River near Cazadero, Oreg.....	657	1909-60	26,000	Mar. 31, 1931	24.5	60,800	92.6	2.34
2115	Johnson Creek at Sycamore, Oreg.....	28.2	1941-61	900	Nov. 24, 1960	13.78	2,180	77.3	2.42
2118	Saltzman Creek at Portland, Oreg.....	1.46	1952-60	45	Dec. 21, 1955	13.33	306	210	6.80
Lake River basin									
2119	Burntbridge Creek at Vancouver, Wash.....	22.2	1949-60	400	Dec. 11, 1955	9.38	176	7.9	0.44
2120	Salmon Creek near Battle Ground, Wash.....	18.3	1944-61	600	Jan. 22, 1954, Nov. 24, 1960	4.02	1,500	82.0	2.50
Lewis River basin									
2160	Lewis River above Muddy River, near Cougar, Wash.....	227	1928-34, 1955-60	9,600	Dec. 21, 1933	10.6	27,000	119	2.81
2165	Muddy River below Clear Creek, near Cougar, Wash.....	131	1928-34, 1955-60	6,900	Dec. 21, 1933	14.0	17,500	134	2.54
2175	Swift Creek near Cougar, Wash.....	26	1923-53, 1955-56	2,000	Nov. 24, 1927	3.7	1,900	73.0	.95
2180	Lewis River near Cougar, Wash.....	481	1917-60	27,000	Dec. 21, 1933	15.7	54,400	113	2.01
2190	Canyon Creek near Amboy, Wash.....	63.8	1923-34	7,500	Dec. 21, 1933	12.6	11,700	185	1.56
2195	Lewis River near Amboy, Wash.....	665	1912-31	43,000	Dec. 18, 1917	16.4	79,300	119	1.84
2225	East Fork Lewis River near Heilsson, Wash.....	125	1930-60	12,000	Dec. 22, 1933	12.3	15,600	125	1.30
2227	East Fork Lewis River tributary near Woodland, Wash.....	.53	1950-60	29	Dec. 11, 1955	12.12	192	362	6.62
Kalama River basin									
2230	Kalama River near Kalama, Wash.....	179	1913, 1917-60	12,000	December 1933	21	42,000	235	3.50
Unnamed basin									
2238	Columbia River tributary at Carrols, Wash.....	1.06	1950-60	50	Dec. 11, 1955	19.09	112	106	2.24
Cowlitz River basin									
2245	Clear Fork Cowlitz River near Packwood, Wash.....	55.7	1906-11, 1931-41, 1943	2,300	Dec. 22, 1933	11.7	8,030	144	3.49
2255	Lake Creek near Packwood, Wash.....	18.8	1912-24, 1931-42, 1950-54	400	Dec. 22, 1933	5.9	1,400	74.5	3.50
2265	Cowlitz River at Packwood, Wash.....	287	1912-18, 1930-60	6,500	Dec. 21, 1933	13.0	36,600	128	4.31
2300	Johnson Creek near Packwood, Wash.....	49.6	1908-14, 1919-24, 1947-48	1,800	Dec. 11, 1946	-	2,990	60.3	1.66
2311	Mill Creek at Randle, Wash.....	2.95	1950-60	140	Nov. 20, 1959	15.39	133	45.1	.95

2320	Nigerhead Creek near Randle, Wash.....	66.3	1951-60	2,700	Jan. 12, 1955	6.00	4,150	62.6	1.54
2325	Cispus River near Randle, Wash.....	321	1911,1930-60	7,800	Dec. 22, 1955	12.7	20,000	62.5	2.56
2350	Cowlitz River at Mossyrock, Wash.....	1,170	1907,1913-17, 1927-60	26,000	Dec. 23, 1935	37.53	83,500	71.4	2.98
2353	Tilton River near Mineral, Wash.....	.79	1950-60	120	Dec. 9, 1953	-	145	184	1.21
2355	West Fork Tilton River near Morton, Wash.....	16.4	1951-60	1,500	Dec. 11, 1955	23.34	-	-	-
2365	Tilton River near Clinebar, Wash.....	158	1942-58	14,000	Dec. 11, 1955	7.55	6,620	404	4.41
2370	Klickitat Creek at Mossyrock, Wash.....	3.45	1949-60	87	Feb. 17, 1949	15.13	23,200	147	1.66
2375	Winston Creek near Mayfield, Wash.....	40.0	1950-60	980	Dec. 9, 1953	3.62	165	47.8	3.58
2380	Cowlitz River near Mayfield, Wash.....	1,400	1954-60	35,000	Dec. 13, 1946	8.58	3,510	87.8	1.90
2391	North Fork Lacamas Creek near Ethel, Wash.....	.36	1950-60	17	Dec. 11, 1955	24.75	b67,000	47.8	2.03
2397	Olequa Creek tributary near Winlock, Wash.....	.38	1950-60	24	Nov. 26, 1949	22.82	34	94.4	2.00
2415	South Fork Toutle River at Toutle, Wash.....	118	1940-57	6,700	Jan. 5, 1956	-	37	97.4	1.54
2425	Toutle River near Silver Lake, Wash.....	474	1910-12, 1921-23, 1930-60	16,000	Dec. 9, 1953	458.91	14,300	121.4	2.13
2426	Toutle River tributary near Castle Rock, Wash.....	.64	1950-60	28	Dec. 9, 1956	20.14	68	106	2.43
2430	Cowlitz River at Castle Rock, Wash.....	2,238	1928-60	80,000	Dec. 23, 1953	31.6	159,000	62.1	1.74
2435	Arkansas Creek near Castle Rock, Wash.....	19.4	1950-60	1,600	Dec. 3, 1953	6.26	2,270	117	1.42
2450	Coweman River near Kelso, Wash.....	119	1950-60	4,800	Feb. 24, 1950	12.8	7,750	65.0	1.61
Abernathy Creek basin									
2460	Abernathy Creek near Longview, Wash.....	20.3	1950-57	1,800	Dec. 9, 1956	7.30	2,530	125	1.41
Mill Creek basin									
2465	Mill Creek near Cathlamet, Wash.....	27.6	1950-56	1,800	Feb. 24, 1950	6.23	4,460	162	2.48
Clatskanie River basin									
2470	Clatskanie River near Clatskanie, Oreg.....	53.0	1950-54	1,300	Feb. 24, 1950	5.29	2,000	37.7	1.54
Elokomin River basin									
2475	Elokomin River near Cathlamet, Wash.....	65.8	1934-60 1941-60	6,900	December 1953 Feb. 17, 1949	17.2 12.66	7,300	111	-
Brooks Slough basin									
2481	Risk Creek near Skamokawa, Wash.....	1.13	1949-60	80	Nov. 22, 1959	9.51	151	134	1.89
Big Creek basin									
2485	Big Creek near Knappa, Oreg.....	31.9	1949-55	1,600	Feb. 24, 1950	4.01	2,130	66.8	1.33
Grays River basin									
2505	West Branch Grays River near Grays River, Wash.....	16.3	1949-60	2,000	Feb. 22, 1949	6.89	3,700	227	1.85

b Exceeded by the flood of December 1935.

Table 2.--Inventory of data for gaging stations used to define regional flood-frequency relations--Continued

No.	Gaging station	Drainage area (sq mi)	Period of known floods (water years)	Areal Q <sub>2.33</sub> (cfs)	Maximum stage and discharge		Ratio to areal Q <sub>2.33</sub>	
					Date	Stage height (feet)		Discharge Cfs
Youngs River basin								
2515	Youngs River near Astoria, Oreg.....	40.1	1928-58	2,900	Feb. 10, 1949	13.66	4,750 118	1.64
2520	North Fork Klaskanine River near Olney, Oreg.....	14.0	1950-55	820	Dec. 9, 1953	4.84	829 59.2	1.34
Necanicum River basin								
2990	South Fork Necanicum River near Seaside, Oreg.....	7.99	1953-60	800	Dec. 21, 1955	8.85	3,020 378	3.78
Ashbury Creek basin								
2995	Asbury Creek near Cannon Beach, Oreg.....	1.97	1952-61	200	Feb. 10, 1961	9.66	314 159	1.57
Nehalem River basin								
3010	Nehalem River near Foss, Oreg.....	667	1940-60	37,000	Dec. 21, 1955	19.67	39,300 58.9	1.06
Patterson Creek basin								
3014	Patterson Creek at Bay City, Oreg.....	1.87	1952-60	190	Nov. 26, 1955	13.08	207 111	1.09
Wilson River basin								
3015	Wilson River near Tillamook, Oreg.....	161	1916-60 1915, 1932-60	16,000	February 1916 Dec. 21, 1933	20.8 20.21	30,000 186	1.67
Trask River basin								
3025	Trask River near Tillamook, Oreg.....	143	1921, 1931-55	14,000	Nov. 20, 1921	17	30,000 210	2.14
Nestucca River basin								
3030	Nestucca River near McMinnville, Oreg.....	8.82	1929-44	400	Dec. 22, 1933, Dec. 27, 1937	5.10	1,480 168	3.70
Siletz River basin								
3055	Siletz River at Siletz, Oreg.....	202	1906-12, 1922, 1925-60	22,000	Nov. 20, 1921	31.6	40,600 202	1.85
Alsea River basin								
3065	Alsea River near Tidewater, Oreg.....	334	1890-60 1940-61	22,000	Feb. 3, 1890 Nov. 24, 1960	29.5 24.05	32,800 98.2	1.49
3068.5	South Fork Weiss Creek near Waldport, Oreg.....	.33	1953-60	32	Jan. 17, 1953	6.32	30 90.9	.94
Siuslaw River basin								
3075	Lake Creek at Triangle Lake, Oreg.....	52.5	1932-65	1,800	Feb. 18, 1949	8.68	4,180 79.6	2.32

MAXIMUM KNOWN FLOODS

Umpqua River basin									
3080	South Umpqua River at Tillier, Oreg.....	449	1911, 1940-60	15,000	Dec. 11, 1956	22.7	46,400	103	3.09
3089	Canyon Creek at Canyonville, Oreg.....	36.9	1948, 1951, 1953-60	1,500	Dec. 21, 1955	26.66	3,810	103	2.54
3090	Cow Creek near Azales, Oreg.....	76.0	1927-60	2,800	Oct. 29, 1950	14.37	5,920	77.9	2.11
3100	Cow Creek near Riddle, Oreg.....	456	1912, 1930-32, 1951, 1953-60	18,000	Oct. 29, 1950	28.5	41,100	90.1	2.28
3120	South Umpqua River near Brockway, Oreg.....	1,670	1890-60	40,000	February 1890	33.1	130,000	77.8	3.25
3121	Parrott Creek at Roseburg, Oreg.....	2.42	1952-60	80	Dec. 21, 1955	15.24	280	120	5.82
3123	Marks Creek near Roseburg, Oreg.....	1.26	1952-60	42	Feb. 10, 1961	16.10	286	235	7.05
3125	Lake Creek at Diamond Lake, near Fork Klamath, Oreg.	54.9	1927-29, 1931-53	110	Jan. 1, 1943	2.8	336	6.1	3.05
3135	North Umpqua River below Lemolo Reservoir, near Tokete Falls, Oreg.	180	1928-60	860	June 3, 1956	-	1,400	8.2	1.83
3140	North Umpqua River above Clearwater River, near Tokete Falls, Oreg.	258	1949-54	1,400	Jan. 18, 1953	5.62	3,680	14.3	2.83
3145	Clearwater River above Trap Creek, near Tokete Falls, Oreg.	41.6	1928-60	650	Dec. 22, 1955	-	598	14.4	.92
3150	Clearwater River at mouth, near Tokete Falls, Oreg.	76.6	1948-54	1,200	Jan. 18, 1953	5.33	1,380	18.0	1.15
3155	North Umpqua River at Tokete Falls, Oreg.....	339	1925-48	2,200	Dec. 31, 1942	5.90	5,080	15.0	2.31
3160	Fish Creek at Big Camas ranger station, near Tokete Falls, Oreg.	68.8	1948-60	1,800	Dec. 22, 1955	12.82	9,880	14.4	5.49
3165	North Umpqua River above Copeland Creek, near Tokete Falls, Oreg.	475	1950-1960	5,200	Dec. 22, 1955	14.84	25,000	52.6	4.81
3175	North Umpqua River above Rock Creek, near Glide, Oreg.	886	1925-45, 1951, 1956	18,000	Dec. 22, 1955	23.1	68,000	76.7	3.78
3185	North Umpqua River near Glide, Oreg.....	1,210	1910, 1916-20, 1922, 1928-38, 1951, 1956	28,000	Nov. 9, 1909	22.6	94,000	77.7	3.36
3210	Umpqua River near Elkton, Oreg.....	3,683	1861-1960	85,000	December 1861	-	218,000	-	-
3227	Bear Creek near Drain, Oreg.....	5.13	1952-61	220	Dec. 22, 1955	45.6	218,000	59.2	2.56
Coquille River basin									
3250	South Fork Coquille River at Powers, Oreg.....	169	1917-26, 1929-60	15,000	Dec. 28, 1945	20.57	30,500	180	2.03
3265	Middle Fork Coquille River near Myrtle Point, Oreg.	305	1925, 1931-46	13,000	Oct. 31, 1924	25.8	31,800	104	2.45
3266	Gettys Creek near Myrtle Point, Oreg.....	1.45	1953-61	70	Nov. 10, 1961	18.29	246	170	3.51
3270	North Fork Coquille River near Myrtle Point, Oreg.	276	1910, 1929-46, 1956	14,000	Nov. 23, 1909	41.2	34,000	123	2.43
3271	Geiger Creek near Bandon, Oreg.....	1.36	1953-61	75	Feb. 10, 1961	30.74	206	151	2.75
Rogue River basin									
3275	Rogue River above Eybee Creek, Oreg.....	155	1931-52	2,900	Nov. 29, 1942,	7.84	4,430	28.6	1.53
3280	Rogue River above Prospect, Oreg.....	332	1909, 1911, 1924-60	5,600	Dec. 22, 1955	10.01	16,600	50.0	2.96
3320	South Fork Rogue River near Prospect, Oreg.....	83.8	1925-1931, 1950-60	700	Dec. 22, 1955	8.3	3,180	37.9	4.54

c Result of failure of power canal diversion dam 2 miles upstream.

Table 2.--Inventory of data for gaging stations used to define regional flood-frequency relations--Continued

No.	Gaging station	Drainage area (sq mi)	Period of known floods (water years)	Areal Q <sub>2.33</sub> (cfs)	Maximum stage and discharge			Ratio to areal Q <sub>2.33</sub>
					Date	Gage height (feet)	Discharge Cfs	
Rogue River basin--Continued								
3530	Middle Fork Rogue River near Prospect, Oreg.....	57	1927-56	1,000	Dec. 22, 1955	5.65	3,250	56.7
3535	Red Blanket Creek near Prospect, Oreg.....	45.2	1927-60	900	Dec. 22, 1955	7.50	1,840	40.7
3550	Rogue River below South Fork Rogue River, near Prospect, Oreg.	643	1953-60	8,500	Dec. 22, 1955	17.5	34,000	52.9
3551	Fourbit Creek near Butte Falls, Oreg.....	31.7	1950,1952-60	140	Dec. 22, 1955	4.47	485	15.3
3552	South Fork Big Butte Creek above Willow Creek, near Butte Falls, Oreg.	71.2	1956-1947	320	Dec. 22, 1955	5.47	1,020	14.5
3555	South Fork Big Butte Creek near Butte Falls, Oreg....	138	1950,1953-60	750	Dec. 22, 1955	4.50	2,770	20.0
3575	Big Butte Creek near McLeod, Oreg.....	246	1916,1919-60	1,800	Dec. 22, 1955	12.75	8,950	36.4
3580	Elk Creek near Trail, Oreg.....	133	1946-57	4,600	Dec. 22, 1955	14.54	13,700	103
3590	Rogue River at Dodge Bridge, near Eagle Point, Oreg.	1,210	1939-60	16,000	Dec. 22, 1955	12.90	75,000	62.0
3595	South Fork Little Butte Creek at Big Elk ranger station, Oreg.	17	1927-29,1931, 1933-34,1936-39, 1941-46,1949-51, 1954-56	170	May 25, 1942	2.80	145	8.5
3415	South Fork Little Butte Creek near Lakecreek, Oreg..	138	1911-13, 1922-60	700	Jan. 7, 1948	-	3,920	28.4
3430	North Fork Little Butte Creek near Lakecreek, Oreg..	38	1912,1925-26, 1929-60	280	Dec. 22, 1955 Dec. 11, 1956	6.84 3.56	1,430	37.6
3480	Little Butte Creek below Eagle Point, Oreg.....	293	1908-16, 1946-51	940	Jan. 7, 1948	11.4	10,000	34.1
3530	West Fork Ashland Creek near Ashland, Oreg.....	10.5	1928-32, 1954-60	85	Feb. 20, 1927	3.15	281	26.8
3535	East Fork Ashland Creek near Ashland, Oreg.....	8.14	1928-32, 1954-60	80	Feb. 20, 1927	-	282	-
3590	Rogue River at Raygold, near Central Point, Oreg.....	2,020	1862,1890, 1906-60	20,000	Dec. 21, 1955 December 1861 Feb. 21, 1927, Dec. 22, 1955 Feb. 20, 1927	5.22 32.0 -	110,000	54.5
3595	Evans Creek near Eybee Springs, near Rogue River, Oreg.	116	1926-27, 1943-45,1946, 1949-53,1956	2,800	Feb. 20, 1927	12.5	11,100	95.7
3613	Jones Creek near Grants Pass, Oreg.....	7.41	1952-60	250	Feb. 22, 1956	16.50	1,350	182
3650	Applegate River near Ruch, Oreg.....	297	1912-14, 1926-53	5,900	Feb. 20, 1927	16.0	20,000	67.4
3660	Applegate River near Applegate, Oreg.....	480	1927,1939-60	7,500	Feb. 20, 1927	18.7	-	-
3685	Powell Creek near Williams, Oreg.....	8.6	1939-60, 1946-58	300	Dec. 21, 1955 Dec. 28, 1945	18.00 7.0	47,600	99.2
3695	Applegate River near Wilderville, Oreg.....	694	1908-10, 1939-56	11,000	Jan. 18, 1953 Dec. 22, 1955	5.56 20.5	1,110 66,500	129 95.8

3698	Butcherknife Creek near Wonder, Oreg.....	3.07	1953-60	170	Dec. 21, 1955,	16.84	369	120	2.17	
3700	Slate Creek at Wonder, Oreg.....	31.4	1944-60	1,900	Jan. 11, 1959	9.72	4,020	128	2.12	
3702	Round Prairie Creek near Wilderville, Oreg.....	3.16	1953-60	180	Oct. 29, 1950	6.73	305	98.5	1.69	
3715	Grave Creek at Pease Bridge, near Placer, Oreg.....	22	1941-45, 1947-60	1,600	Jan. 27, 1954 Dec. 21, 1955	9.66	4,610	210	2.88	
3720	Grave Creek near Placer, Oreg.....	45.6	1942-54	2,300	Jan. 7, 1948	8.0	6,690	147	2.91	
3725	East Fork Illinois River near Takilma, Oreg.....	42.6	1928-32, 1941-60	2,900	Dec. 22, 1955	10.05	8,230	193	2.84	
3735	Althouse Creek near Holland, Oreg.....	23.8	1946-53,1956	1,400	Jan. 18, 1953, Dec. 22, 1955	6.50	2,680	113	1.91	
3745	Grayback Creek near Holland, Oreg.....	24.1	1947-51	1,300	Oct. 29, 1950	6.80	2,080	86.3	1.60	
3750	Sucker Creek near Holland, Oreg.....	76	1942-60	2,400	Jan. 12, 1959	8.00	7,300	96.1	3.04	
3755	West Fork Illinois River below Rock Creek, near O'Brien, Oreg.	48.6	1944-60	4,100	Oct. 28, 1950	12.96	14,200	292	3.46	
3770	Illinois River at Kerby, Oreg.....	364	1927-60	18,000	Dec. 22, 1955	14.4	56,800	156	3.16	
3775	Deer Creek near Dryden, Oreg.....	23	1942-56	1,600	Jan. 18, 1953	7.61	5,000	217	3.12	
Ransom Creek basin										
3789	Ransom Creek near Brookings, Oreg.....	0.74	1953-60	78	Jan. 17, 1953	24.8	300	405	3.85	

Table 3.--Peak discharge at miscellaneous sites and unusual floods at short-term gaging stations

Flood region	Stream and place of determination	Drainage area (sq mi)	Peak discharge		
			Date	Cfs	Cfs per sq mi
Walla Walla River basin					
8	Davis Hollow near Dayton, Wash.....	3.01	May 9, 1956	305	101
8	Mustard Hollow near Dayton, Wash.....	3.3	May 9, 1956	875	266
8	Whetstone Hollow near Dayton, Wash.....	12.6	Feb. 22, 1949	790	62.7
8	Badger Hollow near Clyde, Wash.....	4.16	Feb. 22, 1956	327	78.6
8	Walla Walla River near Reese, Wash...	1,670	Feb. 22, 1949	23,800	14.2
Umatilla River basin					
8	Wildhorse Creek near Pendleton, Oreg.	193	Feb. 22, 1949	8,600	44.6
8	Butter Creek tributary near Echo, Oreg.	1.4	June 9, 1948	5,220	3,730
8	Butter Creek tributary near Echo, Oreg.	.33	June 9, 1948	1,150	3,480
Willow Creek basin					
8	Balm Fork at Heppner, Oreg.....	28	June 17, 1950	2,700	96.4
9	Black Horse Creek at Lexington, Oreg.	23	Aug. 28, 1953	1,660	72.2
Rock Creek basin					
9	Rock Creek near Goldendale, Wash.....	65.3	Dec. 21, 1955	2,870	44.0
John Day River basin					
7	Warm Springs Creek near Mt. Vernon, Oreg.	2.73	July 10, 1956	393	144
7	Beech Creek near Mt. Vernon, Oreg....	a113	July 10, 1956	929	74.3
9	Bridge Creek above Gable Creek, near Mitchell, Oreg.	b58.5	July 13, 1956	14,400	960
9	Meyers Canyon near Mitchell, Oreg....	12.7	July 13, 1956	54,500	4,290
9	Bridge Creek below Bear Creek near Mitchell, Oreg.	c266	July 13, 1956	16,300	362
9	Gordon Hollow at DeMoss Springs, Oreg.	8.86	Feb. 10, 1961	720	81.3
9	Buck Canyon near Klondike, Oreg.....	3.42	Aug. 26, 1953	1,030	301
Deschutes River basin					
5	Butler Canyon tributary near Tygh Valley, Oreg.	1.0	Jan. 18, 1953	44	44
5	Butler Canyon near Tygh Valley, Oreg.	11.5	Jan. 18, 1953	294	25.6
Gorton Creek basin					
5	Gorton Creek at Wyeth, Oreg.....	2.54	Jan. 18, 1953	293	115
Tanner Creek basin					
5	Tanner Creek at Bonneville, Oreg....	14.0	Jan. 18, 1953	1,500	107
Steigerwald Lake basin					
4	Gibbons Creek tributary near Washougal, Wash.	0.40	May 8, 1956	82	205
Willamette River basin					
2	Amazon Creek near Eugene, Oreg.....	21.3	Feb. 10, 1961	3,070	144
3	Butte Creek near Plainview, Oreg.....	5.06	Nov. 24, 1960	647	128
3	Wind River near Detroit, Oreg.....	1.03	Dec. 11, 1956	127	123
3	Rickreall Creek below Dallas, Oreg...	43.4	Dec. 21, 1955	7,120	164
3	South Yamhill River tributary near Willamina, Oreg.	1.81	Dec. 21, 1955	420	232
3	Mill Creek near Willamina, Oreg.....	27.4	Nov. 24, 1960	4,120	150
3	Rock Creek near Boring, Oreg.....	2.25	Nov. 24, 1960	291	129
Lewis River basin					
4	Dog Creek near Cougar, Wash.....	2.31	Dec. 11, 1955	420	182
Cowlitz River basin					
5	Nineteen Creek near Morton, Wash....	2.67	Dec. 9, 1953	2,340	876
Salmon River basin					
4	Alder Brook near Rose Lodge, Oreg....	1.09	Dec. 30, 1954	101	92.7
Yaquina River basin					
4	Elk Creek near Elk City, Oreg.....	85	Dec. 22, 1955	13,200	155
Alsea River basin					
4	North Fork Alsea River at Alsea, Oreg.	63.0	Dec. 21, 1955	12,000	190
4	South Fork Alsea River near Alsea, Oreg.	49.5	Nov. 24, 1960	4,340	87.7

a Only 12.5 sq mi contributed to flood peak.

b Only 15 sq mi contributed to flood peak.

c Only 45 sq mi contributed to flood peak.

Table 3.--Peak discharge at miscellaneous sites and unusual floods at short-term gaging stations--Continued

Flood region	Stream and place of determination	Drainage area (sq mi)	Peak discharge		
			Date	Cfs	Cfs per sq mi
Alsea River basin--Continued					
4	Fall Creek near Alsea, Oreg.....	29.4	Nov. 24, 1960	2,970	101
4	Five Rivers near Fisher, Oreg.....	114	Nov. 24, 1960	16,000	140
4	Drift Creek near Salada, Oreg.....	20.6	Nov. 24, 1960	2,300	112
Siuslaw River basin					
2	Deadwood Creek tributary at Alpha, Oreg.	0.75	Nov. 24, 1960	86	115
Umpqua River basin					
2	Days Creek at Days Creek, Oreg.....	55.3	Dec. 21, 1955	2,500	45.2
2	Canyon Creek near Canyonville, Oreg..	10.4	Jan. 6, 1948	1,270	122
2	West Fork Cow Creek near Glendale, Oreg.	83.6	Dec. 22, 1955	10,600	127
2	West Fork Frozen Creek near Myrtle Creek, Oreg.	3.16	Dec. 26, 1955	304	96.2
2	Olalla Creek at Tenmile, near Myrtle Creek, Oreg.	116	Dec. 26, 1955	16,900	146
2	Lookingglass Creek at Brockway, Oreg.	158	Dec. 26, 1955	35,000	222
2	Deer Creek near Roseburg, Oreg.....	5.43	Dec. 26, 1955	6,800	125
2	Susan Creek near Idleld, Oreg.....	4.86	Dec. 11, 1956	707	145
2	Rock Creek near Glide, Oreg.....	97.4	Dec. 22, 1955	12,300	126
2	Cavitt Creek near Peel, Oreg.....	56.9	Dec. 26, 1955	4,950	86.1
2	North Umpqua River tributary near Glide, Oreg.	.75	Dec. 26, 1955	188	251
2	Sutherlin Creek at Sutherlin, Oreg...	16.4	Feb. 10, 1961	1,800	110
2	Sutherlin Creek at Wilbur, Oreg.....	40.0	Dec. 21, 1955	3,830	95.8
2	Calapooya Creek above Hinkle Creek, near Nonpariel, Oreg.	49.4	Dec. 21, 1955	4,980	101
2	Calapooya Creek near Oakland, Oreg...	210	Feb. 10, 1961	22,000	105
2	Elk Creek near Yoncalla, Oreg.....	37.6	Dec. 21, 1955	2,700	71.8
2	Yoncalla Creek near Yoncalla, Oreg...	26.0	Dec. 26, 1955	1,480	56.9
2	Elk Creek near Drain, Oreg.....	104	Feb. 10, 1961	15,000	144
2	Pass Creek near Drain, Oreg.....	61.9	Feb. 10, 1961	10,000	162
Coos River basin					
2	West Fork Millicoma River near Allegany, Oreg.	46.5	Dec. 30, 1954	7,990	172
Coquille River basin					
2	South Fork Coquille River above Panther Creek, near Illahe, Oreg.	29.8	Dec. 21, 1955	6,300	211
2	South Fork Coquille River near Illahe, Oreg.	40.6	Dec. 21, 1955	8,600	212
2	South Fork Coquille River near Myrtle Point, Oreg.	553	Dec. 21, 1955	124,000	224
Brush Creek basin					
2	Dry Run Creek near Port Oxford, Oreg.	0.86	Feb. 15, 1958	158	184
Rogue River basin					
1	Dry Creek near Eagle Point, Oreg....	13.4	May 18, 1956	2,430	181
1	Emigrant Creek near Ashland, Oreg....	51.6	Dec. 22, 1955	2,580	50.0
1	Jumpoff Joe Creek near Merlin, Oreg..	32	Oct. 29, 1950	3,520	110
1	Jumpoff Joe Creek at Merlin, Oreg....	76.7	Dec. 22, 1955	8,780	114
2	Snailback Creek near Selma, Oreg.....	1.62	Dec. 21, 1955	278	172
2	Illinois River below Rancherie Creek, near Selma, Oreg.	579	Dec. 22, 1955	85,000	147
2	Rogue River below Illinois River, near Agness, Oreg.	4,890	Dec. 22, 1955	414,000	84.7
2	Rogue River tributary near Wedderburn, Oreg.	1.53	Jan. 17, 1953	260	170
Harris Creek basin					
2	Harris Creek near Brookings, Oreg....	1.05	Dec. 20, 1954	439	418

100. South Fork Walla Walla River near Milton, Oreg.  
(Published as "12 miles above Milton" 1903, and as "above Pacific  
Power and Light Co.'s intake, near Milton" 1907-10)

Location.--Lat 45°50", long 118°10", in NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.15, T.4 N., R.37 E., on right bank 1 mile upstream from Pacific Power & Light Co.'s penstock intake, 1 mile downstream from Elbow Creek, and 13 miles southeast of Milton.

Drainage area.--63 sq mi, approximately. At site used 1906-17 and 1931-34, 64 sq mi, approximately. Mean altitude, 4,260 ft; channel slope, 114 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording at sites within 1 $\frac{1}{4}$  miles of present site at different datums prior to Oct. 18, 1931; recording thereafter. At site three-quarters of a mile downstream at different datum Oct. 18, 1931, to Mar. 16, 1934. Altitude of gage is 2,050 ft (from river-profile map).

Stage-discharge relation.--Defined by current-meter measurements below 1,000 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Historical data.--Maximum stage known, about 6.0 ft Mar. 31, 1931, present site and datum. Flood of May 30, 1906, was slightly lower, from information by local residents.

Remarks.--Only annual peaks are shown prior to Oct. 18, 1931. Base for partial-duration series, 600 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1903	Mar. 29, 1903	2.66	542	1944	Mar. 9, 1944	2.35	549
1907	Apr. 9, 1907	4.0	418	1945	Mar. 20, 1945	2.42	602
1909	Apr. 27, 1909	4.1	590		May 4, 1945	2.49	660
1910	Mar. 2, 1910	4.5	760	1946	Dec. 28, 1945	3.37	1,560
1911	May 18, 1911	3.6	390		Apr. 25, 1946	2.51	656
1912	Jan. 24, 1912	4.5	760	1947	Dec. 12, 1946	4.20	2,430
1913	Mar. 30, 1913	4.5	760		Dec. 15, 1946	2.84	806
1914	Apr. 15, 1914	3.6	390	1948	Jan. 7, 1948	3.12	1,090
1915	May 19, 1915	4.05	595		Feb. 26, 1948	2.92	880
1916	Mar. 10, 1916	4.1	615		May 9, 1948	2.90	860
1917	May 13, 1917	-	730		May 13, 1948	2.68	674
					May 22, 1948	3.20	1,180
1931	Mar. 31, 1931	6.0	-		May 27, 1948	3.15	1,060
1932	Mar. 6, 1932	3.13	668	1949	Mar. 19, 1949	2.70	630
	Mar. 18, 1932	4.00	1,400		May 11, 1949	2.80	670
	Apr. 14, 1932	2.76	610	1950	Feb. 25, 1950	3.03	870
	May 13, 1932	2.83	646		May 12, 1950	2.74	628
1933	Nov. 17, 1932	4.3	1,200		June 8, 1950	2.84	702
	Jan. 8, 1933	3.4	775	1951	Feb. 12, 1951	2.70	600
	Apr. 25, 1933	3.1	640		June 7, 1951	2.86	718
1934	Dec. 22, 1933	5.25	1,500	1952	Apr. 7, 1952	2.75	635
1935	Apr. 16, 1935	2.11	476		Apr. 19, 1952	2.76	642
1936	Apr. 12, 1936	2.84	1,180		Apr. 25, 1952	2.77	649
1937	Apr. 15, 1937	2.36	690	1953	Jan. 18, 1953	3.09	930
1938	Apr. 18, 1938	2.69	1,030		Jan. 23, 1953	2.83	694
1939	Mar. 21, 1939	2.38	681		Feb. 3, 1953	3.08	920
1940	Feb. 6, 1940	2.42	700		Mar. 24, 1953	2.89	742
	Feb. 28, 1940	2.49	790		Apr. 27, 1953	2.82	716
	Mar. 27, 1940	2.32	624	1954	Apr. 13, 1954	2.72	636
1941	Nov. 29, 1940	2.08	432	1956	Dec. 12, 1955	2.81	687
1942	June 26, 1942	2.32	624		Dec. 21, 1955	3.55	1,360
1943	Apr. 1, 1943	2.32	624	1957	Dec. 11, 1956	3.20	1,010
	Apr. 15, 1943	2.31	614		Feb. 26, 1957	2.68	736
					Apr. 5, 1957	3.26	1,070

105. South Fork Walla Walla River below Pacific Power & Light Co. plant, near Milton, Oreg.

Location.--Lat 45°53', long 118°17', in SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.26, T.5 N., R.36 E., 800 ft downstream from Pacific Power & Light Co. powerplant, 1 $\frac{1}{4}$  miles upstream from intake of Milton city powerplant, 2 miles upstream from confluence with North Fork, and 5.8 miles southeast of Milton.

Drainage area.--80 sq mi, approximately. At sites used 1903-6 and 1929-38, 81 sq mi, approximately.

Gage.--Nonrecording prior to Dec. 18, 1929; recording thereafter. At several sites within 1 $\frac{1}{4}$  miles of present site at different datums prior to May 27, 1938. Datum of gage is 1,490.30 ft above mean sea level, datum of 1929 (Pacific Power & Light Co. bench mark).

Historical data.--Maximum floods known occurred May 30, 1906, and Mar. 31, 1931 (discharge not determined; maximum daily discharge, 3,000 cfs, estimated).

Remarks.--Records for 1929-40 furnished by State engineer of Oregon. Only annual peaks are shown 1904-6. Base for partial-duration series, 600 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1904	Apr. 14, 1904	3.4	1,650	1936	Mar. 2, 1936	4.65	600
1905	Mar. 26, 1905	2.2	490		Apr. 11, 1936	5.08	1,130
1906	May 30, 1906	-	-	1937	Apr. 15, 1937	4.30	640
1930	Mar. 25, 1930	1.93	472	1938	Apr. 18, 1938	-	1,050
1931	Mar. 31, 1931	4.8	-	1939	Mar. 21, 1939	2.82	698
1933	Nov. 17, 1932	3.25	1,070	1940	Feb. 6, 1940	2.72	625
	Jan. 8, 1933	2.90	880		Feb. 28, 1940	3.23	862
	Apr. 25, 1933	2.29	605	1941	June 7, 1941	2.47	397
	Apr. 28, 1933	2.31	605	1942	June 26, 1942	2.89	566
	May 25, 1933	2.43	615	1943	Apr. 2, 1943	2.81	624
	June 9, 1933	2.40	600	1944	Mar. 9, 1944	3.13	764
1934	Dec. 22, 1933	4.15	1,610	1945	Mar. 20, 1945	3.45	824
	Mar. 2, 1934	4.76	620				
	Mar. 6, 1934	4.72	600				
1935	Apr. 16, 1935	4.55	530				

110. North Fork Walla Walla River near Milton, Oreg.

Location.--Lat 45°54', long 118°17', in NW $\frac{1}{4}$  sec.23, T.5 N., R.36 E., 1 $\frac{1}{4}$  miles upstream from confluence with South Fork and 5 miles southeast of Milton.

Drainage area.--42 sq mi, approximately. At site used prior to Oct. 23, 1948, 43 sq mi, approximately. Mean altitude, 3,590 ft; channel slope, 193 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. At sites 0.7 mile downstream at different datums prior to Oct. 23, 1948. Altitude of gage is 1,470 ft (from river-profile map).

Stage-discharge relation.--Defined by current-meter measurements below 220 cfs and extended by logarithmic plotting.

Remarks.--Records for 1920-40 furnished by State engineer of Oregon. Only annual peak discharges are shown prior to 1933. Base for partial-duration series, 300 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1930	May 31, 1930	2.92	198	1934	Dec. 22, 1933	2.94	842
1931	Mar. 31, 1931	-	-	1935	Dec. 20, 1934	2.35	419
1932	Mar. 18, 1932	-	-	1936	Apr. 12, 1936	2.39	293
1933	Nov. 17, 1932	2.52	692	1937	Apr. 16, 1937	2.29	247
	Jan. 8, 1933	2.37	589				

Peak stages and discharges of North Fork Walla Walla River near Milton, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938	Apr. 18, 1938	2.64	716	1948	Apr. 18, 1948	4.74	366
					May 22, 1948	5.92	570
1939	Mar. 21, 1939	2.30	360		June 21, 1948	5.51	384
1940	Feb. 6, 1940	2.43	354	1949	Feb. 22, 1949	4.48	375
	Feb. 28, 1940	4.00	970		May 2, 1949	4.10	355
	Apr. 1, 1940	3.22	407				
	Apr. 10, 1940	3.04	315	1950	Feb. 25, 1950	4.87	611
1941	June 7, 1941	4.16	500		Mar. 3, 1950	4.11	306
1942	June 26, 1942	4.80	630		June 8, 1950	5.60	620
1943	Dec. 13, 1942	3.76	361	1951	Feb. 12, 1951	4.10	307
	Jan. 1, 1943	4.08	482		June 7, 1951	4.90	455
	Apr. 1, 1943	3.97	368	1952	Apr. 14, 1952	3.63	268
	May 1, 1943	4.57	612	1953	Jan. 18, 1953	4.78	476
1944	Mar. 9, 1944	5.18	938		Jan. 23, 1953	5.05	542
	Apr. 23, 1944	4.09	306		Feb. 3, 1953	5.5	655
1945	Mar. 23, 1945	4.17	338		Mar. 25, 1953	4.85	485
					Apr. 27, 1953	5.12	566
1946	Dec. 29, 1945	5.17	724	1954	Apr. 13, 1954	4.89	387
	May 28, 1946	5.19	448		June 7, 1954	4.86	378
1947	Dec. 12, 1946	6.97	1,980	1955	May 21, 1955	4.08	236
	Jan. 24, 1947	5.88	965	1956	Dec. 22, 1955	5.06	544
	Apr. 19, 1947	4.83	360		Jan. 16, 1956	4.45	341
1948	Nov. 7, 1947	5.47	655		May 10, 1956	4.58	379
	Jan. 7, 1948	5.82	846	1957	Dec. 11, 1956	5.25	485
	Feb. 26, 1948	5.77	932		Apr. 5, 1957	5.60	598

115. Walla Walla River near Milton, Oreg.  
(Published as "above Milton" 1905-6)

Location.--Lat 45°54', long 118°20', in NW<sup>1</sup> sec.21, T.5 N., R.36 E., three-quarters of a mile downstream from confluence of North and South Forks and 4 miles southeast of Milton.

Drainage area.--130 sq mi, approximately.

Gage.--Nonrecording at site 2 miles downstream at different datum Aug. 12, 1905, to May 30, 1906; recording thereafter. Altitude of gage is 1,310 ft (from river-profile map).

Stage-discharge relation.--Defined by current-meter measurements below 1,700 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Many diversions above station for irrigation; peak discharges not affected. Since summer of 1928 Milton power conduit has diverted from 43 to 63 cfs around station. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1904	Mar. 8, 1904	-	a3,240	1922	May 17, 1922	2.38	c1,140
1905	Mar. 24, 1905	-	a720	1923	June 2, 1923	2.26	c900
				1924	May 2, 1924	1.44	c504
1906	May 30, 1906	-	b8,130	1925	Apr. 10, 1925	2.27	c789
1919	Apr. 4, 1919	2.0	940	1926	Apr. 19, 1926	1.68	c556
1920	Apr. 5, 1920	2.49	1,370	1927	Nov. 29, 1926	2.70	1,050
				1928	Mar. 11, 1928	3.19	1,490
1921	Mar. 18, 1921	3.30	1,940	1929	Mar. 21, 1929	2.88	970

a From records for station at Milton, drainage area 155 sq mi.

b Slope-area measurement.

c Maximum discharge observed for partial year.

## 125. Walla Walla River below Freewater, Oreg.

Location.--Lat 45°59', long 118°23', in NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.25, T.6 N., R.35 E., 80 ft upstream from McCow Bridge, 2 miles upstream from Birch Creek and Oregon-Washington State line, and 2.5 miles north of Freewater.

Drainage area.--160 sq mi, approximately. Mean altitude, 3,330 ft; channel slope, 137 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. Prior to Jan. 3, 1947, at datum 11.94 ft higher. Datum of gage is 833.34 ft above mean sea level, datum of 1929 (Pacific Power & Light Co. bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 700 cfs and extended by logarithmic plotting. Subject to frequent shifts.

Bankfull stage.--Not subject to overflow.

Remarks.--Little Walla Walla River, a natural tributary, diverts about 3 miles above station. Base for partial-duration series, 500 cfs.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1941	June 7, 1941	4.10	610	1945	Mar. 21, 1945	5.86	622
1942	Nov. 15, 1941	3.96	586	1946	Dec. 29, 1945	6.20	1,030
	Dec. 2, 1941	3.93	568		Apr. 26, 1946	5.06	529
	Dec. 16, 1941	3.90	600		May 28, 1946	5.28	605
	June 28, 1942	5.02	1,340	1947	Dec. 12, 1946	7.17	2,400
1943	Dec. 13, 1942	4.66	630		Jan. 24, 1947	16.39	1,390
	Dec. 25, 1942	4.41	510		Jan. 26, 1947	16.03	1,060
	Jan. 1, 1943	4.90	755		Apr. 19, 1947	15.88	650
	Feb. 12, 1943	4.85	728		1948	Nov. 7, 1947	16.83
	Feb. 22, 1943	4.40	505	Dec. 3, 1947		15.04	513
	Apr. 2, 1943	4.82	711	Jan. 7, 1948		16.57	1,320
	Apr. 16, 1943	4.80	700				
May 1, 1943	4.84	722					
1944	Mar. 9, 1944	5.55	575				

## 130. Mill Creek near Walla Walla, Wash.

Location.--Lat 46°00'30", long 118°07'00", in SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.12, T.6 N., R.37 E., on left bank 4 miles downstream from city of Walla Walla diversion dam, 4 $\frac{1}{2}$  miles upstream from Blue Creek, and 11 $\frac{1}{2}$  miles southeast of Walla Walla.

Drainage area.--60 sq mi, approximately. Area of lakes and ponds, 0 sq mi; mean elevation, 3,950 ft.

Gage.--Nonrecording prior to Oct. 1, 1938; recording thereafter. Prior to Oct. 1, 1938, at about same site at different datums. Datum of gage is 2,000 ft above mean sea level, unadjusted.

Stage-discharge relation.--Defined by current-meter measurements below 680 cfs.

Bankfull stage.--18 ft.

Remarks.--City of Walla Walla diverts about 22 cfs 4 miles upstream for municipal use. Flood peaks not affected. Peaks for period of nonrecording gage are from graphs based on gage readings. Base for partial-duration series, 700 cfs.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1914	Feb. 27, 1914	2.75	499	1917	Apr. 23, 1917	3.95	1,020
					Apr. 26, 1917	4.05	1,090
1915	May 19, 1915	2.65	460	1917	May 13, 1917	4.09	1,120
					1938a/	Apr. 18, 1938	2.68
1916	Dec. 22, 1915	3.3	732	1940			
	Mar. 10, 1916	3.5	824				
1917	Apr. 8, 1917	3.80	912				

a Peak for year not determined; partial year.

## WALLA WALLA RIVER BASIN

Peak stages and discharges of Mill Creek near Walla Walla, Wash.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1941	Nov. 29, 1940	15.80	542	1950	Feb. 24, 1950	17.10	1,680
1942	June 26, 1942	16.31	902	Mar. 5, 1950	16.18	774	
				Mar. 17, 1950	16.60	1,140	
1943	Jan. 1, 1943	16.00	628	1951	Feb. 11, 1951	16.72	1,330
1944	Mar. 9, 1944	16.12	721	1952	Oct. 24, 1951	16.06	606
1945	Feb. 8, 1945	16.05	659	1953	Jan. 18, 1953	17.12	1,310
1946	Dec. 28, 1945	17.85	2,610	Jan. 23, 1953	16.48	766	
1947	Dec. 12, 1946	16.90	1,440	Feb. 3, 1953	17.07	1,400	
	Jan. 26, 1947	16.22	795	Mar. 25, 1953	16.67	983	
1948	Jan. 7, 1948	16.83	1,350	1954	Dec. 20, 1953	16.31	678
	Feb. 26, 1948	17.15	1,680	1955	Apr. 10, 1955	15.90	410
	May 8, 1948	16.29	848	1956	Dec. 12, 1955	17.00	1,280
1949	Mar. 9, 1949	16.12	602	Dec. 22, 1955	17.02	1,300	
1950	Jan. 22, 1950	16.11	718	1957	Dec. 11, 1956	16.86	874
				Feb. 26, 1957	16.70	735	

## 135. Blue Creek near Walla Walla, Wash.

Location--Lat 46°03'30", long 118°08'10", in SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.25, T.7 N., R.37 E., on right bank 1 mile upstream from mouth and 10 miles east of Walla Walla.

Drainage area--17.0 sq mi. Area of lakes and ponds, 0 sq mi; mean elevation, 3,190 ft.

Gage--Recording and, since July 25, 1948, concrete control. Datum of gage is at mean sea level, unadjusted.

Stage-discharge relation--Defined by current-meter measurements below 310 cfs.

Bankfull stage--43.5 ft.

Remarks--Base for partial-duration series, 200 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1940	Feb. 28, 1940	42.2	226	1950	Feb. 6, 1950	c43.83	-
1941	June 7, 1941	42.30	235	Feb. 24, 1950	43.05	550	
				Mar. 17, 1950	42.05	212	
1942	June 26, 1942	43.65	600	1951	Feb. 11, 1951	42.70	450
1944	Mar. 9, 1944	a42.90	579	Mar. 15, 1951	41.98	213	
1945	Feb. 8, 1945	42.05	197	1952	Jan. 5, 1952	c42.37	-
				Feb. 2, 1952	42.09	253	
1946	Dec. 28, 1945	43.35	725	1953	Jan. 18, 1953	42.15	248
	Jan. 24, 1946	42.24	275	Feb. 3, 1953	42.13	253	
1947	Dec. 12, 1946	42.21	266	Mar. 25, 1953	42.12	248	
	Jan. 24, 1947	42.55	378	1954	Jan. 21, 1954	c42.47	-
1948	Jan. 7, 1948	43.01	670	Jan. 28, 1954	41.99	215	
	Feb. 22, 1948	42.17	230	1955	Apr. 22, 1955	41.28	64
	Feb. 26, 1948	b43.2	574	1956	Dec. 12, 1955	42.75	403
	May 22, 1948	42.65	415	1957	Dec. 11, 1956	42.26	240
1949	Feb. 17, 1949	42.05	212	Feb. 26, 1957	42.00	200	
	Feb. 22, 1949	42.98	522				
1950	Jan. 22, 1950	42.07	218				

a From high-water mark.

b Estimated.

c Backwater from ice.

## 160. Dry Creek near Walla Walla, Wash.

Location.--Lat 46°07'20", long 118°14'10", on south line of SW $\frac{1}{4}$  sec.31, T.8 N., R.37 E., on right bank 1 mile downstream from Spring Creek and 6 miles north-east of Walla Walla.

Drainage area.--48.4 sq mi. Area of lakes and ponds, 0 sq mi; mean elevation, 2,360 ft.

Gage.--Recording and, since July 25, 1949, concrete control. Altitude of gage is 1,200 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 570 cfs and extended on basis of slope-area measurements at 2,280 cfs and contracted-opening measurement at 3,340 cfs.

Bankfull stage.--12 ft.

Remarks.--Minor diversions for irrigation. Flood peaks not affected. Base for partial-duration series, 400 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	Feb. 10, 1949	9.02	2,280	1951	Mar. 15, 1951	5.77	822
	Feb. 17, 1949	5.23	560	1952	Feb. 2, 1952	6.94	1,070
	Feb. 22, 1949	all.6	3,340				
1950	Feb. 24, 1950	5.93	752	1953	Jan. 18, 1953	-	-
	Mar. 17, 1950	5.47	525		Jan. 31, 1953	5.93	552
1951	Dec. 7, 1950	5.47	642	1955	Apr. 22, 1955	4.42	127
	Dec. 22, 1950	5.51	666		1956	Dec. 12, 1955	5.36
	Dec. 30, 1950	5.11	455				
	Jan. 2, 1951	-	b700				
	Jan. 21, 1951	5.85	c870	1957			
	Feb. 12, 1951	-	-				

a From high-water mark.

b Estimated.

c Maximum recorded.

## 165. East Fork Touchet River near Dayton, Wash.

Location.--Lat 46°16'45", long 117°54'05", in NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.11, T.9 N., R.39 E., 50 ft upstream from Dayton water-supply headworks, three-quarters of a mile downstream from mouth of Wolf Creek, 3 miles upstream from confluence with South Fork, and 4 miles southeast of Dayton.

Drainage area.--102 sq mi. Area of lakes and ponds, 0 sq mi; mean elevation, 3,750 ft.

Gage.--Recording. Prior to October 1951, at site 200 ft upstream at same datum. Datum of gage is 1,868.3 ft above mean sea level (river-profile survey).

Stage-discharge relation.--Defined by current-meter measurements below 920 cfs.

Bankfull stage.--6 ft.

Remarks.--Base for partial-duration series, 700 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1944	Mar. 9, 1944	3.45	357	1949	Jan. 16, 1949	a4.76	-
1945	Feb. 8, 1945	3.48	376		Feb. 17, 1949	3.92	1,260
				1950	Jan. 22, 1950	3.61	738
Feb. 9, 1950	-	-					
Feb. 24, 1950	4.37	1,480					
Mar. 19, 1950	3.72	826					
1947	Dec. 12, 1946	4.34	885	1951	Feb. 12, 1951	5.03	1,370
	Dec. 15, 1946	5.08	1,280				
1948	Jan. 7, 1948	5.28	1,530	1956	Dec. 22, 1955	5.86	b1,320
	Feb. 26, 1948	5.05	1,380				
	May 13, 1958	4.07	815	1957	Feb. 26, 1957	2.75	965

a Backwater from ice.

b From computation of flow over dam.

## 170. Touchet River at Bolles, Wash.

Location.--Lat 46°16'30", long 118°13'15", on line between secs. 7 and 8, T.9 N., R.37 E., on right bank just downstream from bridge on State Highway 3 E, a quarter of a mile southeast of Bolles and 3 miles west of Waitsburg.

Drainage area.--372 sq mi. Area of lakes and ponds, 0 sq mi; mean elevation, 2,950 ft.

Gage.--Recording. Prior to Oct. 5, 1929, water-stage recorder at site half a mile upstream at different datum. Altitude of gage is 1,150 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,400 cfs and extended on basis of slope-area measurement at 3,410 cfs.

Bankfull stage.--10 ft.

Remarks.--Minor diversions for municipal and domestic use. Flood peaks not affected. Base for partial-duration series, 1,500 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1924a/	(b)	3.34	938	1952	Feb. 2, 1952	9.84	3,440
1925	Feb. 4, 1925	5.26	2,910	1953	Jan. 18, 1953	9.35	3,030
1926	Feb. 7, 1926	5.40	2,850	1953	Jan. 22, 1953	7.96	1,950
				1953	Jan. 31, 1953	7.32	1,500
1927	Nov. 29, 1926	4.36	1,680	1954	Feb. 3, 1953	8.15	2,080
	Feb. 2, 1927	4.21	1,540				
	Feb. 21, 1927	6.23	3,690				
1928	Nov. 25, 1927	6.48	3,820	1955	Apr. 10, 1955	6.47	925
	Jan. 13, 1928	7.04	4,470	1956	Dec. 12, 1955	9.81	3,410
	Mar. 11, 1928	6.00	3,120		Dec. 22, 1955	9.71	3,320
	Mar. 31, 1928	6.32	3,480		Jan. 16, 1956	7.98	2,000
1929	Mar. 10, 1929	3.67	879	1957	Feb. 26, 1957	8.36	2,390
1952	Jan. 30, 1952	8.14	2,080		Mar. 9, 1957	7.35	1,680

a Partial year.

b Between Jan. 28 and Feb. 2, 1924.

## 175. Touchet River near Touchet, Wash.

Location.--Lat 46°07'25", long 118°39'00", in SE<sup>1</sup>/<sub>4</sub> sec. 35, T.8 N., R.33 E., at Johnson Bridge, 6 miles north of Touchet and 7 miles upstream from mouth.

Drainage area.--733 sq mi; 736 sq mi prior to June 24, 1954. Area of lakes and ponds, 0 sq mi; mean elevation, 2,350 ft.

Gage.--Nonrecording prior to July 3, 1941; recording thereafter. At site  $\frac{5}{2}$  miles downstream at different datum prior to June 24, 1954. Altitude of gage is 530 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,900 cfs and extended on basis of contracted-opening measurement at 13,300 cfs, at Johnson Bridge.

Bankfull stage.--11.5 ft.

Remarks.--Many large diversions above station for irrigation. Flood peaks not affected. Base for partial-duration series, 2,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1942	Jan. 27, 1942	7.22	-	1946	Jan. 24, 1946	-	-
	May 23, 1942	7.92	2,830	1947	Jan. 26, 1947	6.70	2,000
1944	Mar. 10, 1944	6.80	1,910	1948	Jan. 7, 1948	9.03	3,650
1946	Dec. 29, 1945	8.44	3,070		Feb. 9, 1948	7.02	2,140

a Backwater from ice.

Peak stages and discharges of Touchet River near Touchet, Wash.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	Feb. 22, 1948	7.91	2,770	1950	Mar. 19, 1950	6.80	2,510
	Feb. 26, 1948	10.07	4,850				
	May 9, 1948	7.51	2,510	1951	Feb. 12, 1951	8.70	4,370
1949	Feb. 10, 1949	b14.7	13,300		Mar. 15, 1951	6.33	2,020
	Feb. 18, 1949	-	-	1952	Feb. 2, 1952	8.90	4,440
	Feb. 23, 1949	8.01	3,450				
	1950	Jan. 22, 1950	-	-	1953	Jan. 19, 1953	7.64
Feb. 16, 1950		6.75	2,050	Feb. 1, 1953		6.51	2,050
Feb. 24, 1950		b8.50	4,050	Feb. 4, 1953		7.21	2,650
Mar. 17, 1950		6.43	2,180	1955	Apr. 13, 1955	b4.07	952

b From high-water mark.

## 185. Walla Walla River near Touchet, Wash.

Location--Lat 46°01'45", long 118°43'40", in NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.6, T.6 N., R.33 E., on left bank 2 $\frac{3}{4}$  miles southwest of Touchet and 3 miles downstream from Touchet River.

Drainage area--1,660 sq mi, approximately. Area of lakes and ponds, 0.15 sq mi; mean elevation, 1,600 ft.

Gage--Recording. Altitude of gage is 405 ft (from topographic map).

Stage-discharge relation--Defined by current-meter measurements below 4,900 cfs and extended on basis of contracted-opening measurement at 23,800 cfs.

Bankfull stage--11.5 ft.

Historical data--Maximum stage known, 13.81 ft in February 1949, from flood-marks (discharge, 23,800 cfs).

Remarks--Minor diversions for irrigation. Flood peaks not affected. Base for partial-duration series, 3,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	February 1949	13.81	23,800	1956	Dec. 12, 1955	9.11	5,690
1952	Jan. 30, 1952	11.00	12,400		Dec. 22, 1955	9.72	6,680
	Feb. 2, 1952	12.10	16,300		Jan. 16, 1956	8.53	4,880
1953	Jan. 19, 1953	10.50	9,850		Feb. 22, 1956	10.54	8,240
	Jan. 23, 1953	-	a4,360		Mar. 26, 1956	7.38	3,520
	Feb. 4, 1953	-	a5,200		May 9, 1956	6.99	3,090
	Mar. 25, 1953	-	a3,700	1957	Dec. 12, 1956	7.66	3,770
1954	Jan. 30, 1954	7.53	3,680		Feb. 27, 1957	8.96	5,480
	1955	Apr. 10, 1955	6.24		2,390	Mar. 9, 1957	8.12
Apr. 1, 1957						7.34	3,500
					Apr. 6, 1957	8.00	4,280

a Estimated.

192. Columbia River below McNary Dam, near Umatilla, Oreg.  
(Published as "at Umatilla" in reports of U.S. Weather Bureau)

Location--Lat 45°56', long 119°20', in NW $\frac{1}{4}$  sec.9, T.5 N., R.28 E., 1.2 miles downstream from McNary Dam, 2 miles northeast of Umatilla, 2.3 miles upstream from Umatilla River, and at mile 290.8.

Drainage area--214,000 sq mi, approximately.

Gage--Nonrecording prior to Feb. 11, 1951; recording thereafter. Prior to Feb. 11, 1951, at several sites on left bank at Umatilla, at mile 289.3, at datum 7.28 ft higher. Datum of gage is 240.04 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation--Defined by current-meter measurements below 690,000 cfs and extended on basis of records for station at The Dalles.

Flood stage--32 ft, present datum, at site at Umatilla, by U.S. Weather Bureau.

Historical data--Flood of June 5, 1894, reached a stage of 44.2 ft at present site (from levels by Corps of Engineers), or 41.8 ft, present datum, at site at Umatilla (by U.S. Weather Bureau).

Remarks--Gage-height record and discharge measurements since Feb. 11, 1951, furnished by Corps of Engineers. Annual peak stages prior to 1951 furnished by U.S. Weather Bureau. Some regulation by Franklin D. Roosevelt Lake (usable capacity, 5,071,700 acre-ft) since April 1938, McNary Reservoir since April 1953, and other reservoirs in Kootenai, Flathead, Pend Oreille, Spokane, Chelan, Yakima, and Snake River basins. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1876	June 1876	30	-	1920	June 25, 1920	16.6	-
1878	June 12, 1878	18.0	-	1921	June 10, 1921	24.8	-
1879	June 17, 1879	22.2	-	1922	June 8, 1922	22.6	-
1880	July 2, 1880	28.1	-	1923	June 14, 1923	20.5	-
1881	June 16, 1881	20.8	-	1924	May 27, 1924	17.0	-
1882	July 1, 1882	22.0	-	1925	May 23, 1925	21.9	-
1883	May 24, 1883	20.0	-	1926	May 8, 1926	11.9	-
1884	June 12, 1884	23.6	-	1927	June 17, 1927	23.1	-
1886	June 7, 1886	22.0	-	1928	May 28, 1928	25.1	-
1892	June 22, 1892	21.0	-	1929	June 19, 1929	17.5	-
1893	June 13, 1893	22.5	-	1930	June 14, 1930	15.4	-
1894	June 5, 1894	34.5	-	1931	May 19, 1931	12.9	-
1895	May 30, 1895	17.7	-	1932	May 23, 1932	20.7	-
1896	June 21, 1896	25.1	-	1933	June 18, 1933	24.1	-
1897	May 23, 1897	25.0	-	1934	May 2, 1934	17.7	-
1898	June 17, 1898	21.8	-	1935	June 10, 1935	18.4	-
1899	June 21, 1899	25.2	-	1936	June 6, 1936	19.8	-
1900	May 15, 1900	20.0	-	1937	June 24, 1937	15.2	-
1901	May 31, 1901	22.1	-	1938	June 8, 1938	21.6	-
1902	May 31, 1902	21.7	-	1939	May 21, 1939	15.8	-
1903	June 18, 1903	25.1	-	1940	June 4, 1940	15.2	-
1904	May 25, 1904	21.1	-	1941	June 10, 1941	11.5	-
1905	June 14, 1905	15.9	-	1942	June 17, 1942	17.1	-
1906	May 31, 1906	14.7	-	1943	June 21, 1943	20.2	-
1907	June 4, 1907	20.5	-	1944	June 18, 1944	13.6	-
1908	June 17, 1908	21.9	-	1945	June 18, 1945	19.2	-
1909	June 18, 1909	22.6	-	1946	May 30, 1946	21.0	-
1910	May 14, 1910	19.9	-	1947	May 11, 1947	20.0	-
1911	June 17, 1911	20.8	-	1948	May 31, 1948	30.5	-
1912	May 31, 1912	20.0	-	1949	May 18, 1949	21.7	-
1913	June 11, 1913	24.5	-	1950	June 24, 1950	24.6	-
1914	May 26, 1914	18.3	-	1951	May 29, 1951	31.54	587,000
1915	May 31, 1915	13.6	-	1952	May 27, 1952	30.52	548,000
1916	June 30, 1916	23.9	-	1953	June 16, 1953	31.64	591,000
1917	June 19, 1917	23.7	-	1954	May 27, 1954	30.62	552,000
1918	June 25, 1918	20.4	-	1955	June 26, 1955	30.72	549,000
1919	May 31, 1919	19.6	-	1956	June 2, 1956	36.97	818,000
				1957	May 21, 1957	34.60	710,000

## 200. Umatilla River above Meacham Creek, near Gibbon, Oreg.

Location.--Lat 45°43', long 118°20', in SW $\frac{1}{4}$  sec.21, T.3 N., R.36 E., 0.8 mile downstream from Ryan Creek,  $2\frac{1}{4}$  miles upstream from Meacham Creek, and  $2\frac{1}{2}$  miles northeast of Gibbon.

Drainage area.--125 sq mi. At site used April 1933 to June 1939, 128 sq mi. Mean altitude, 3,890 ft; channel slope, 161 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. At site 1 mile downstream at datum 43.94 ft lower, prior to June 27, 1939. Datum of gage is 1,854.81 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 2,000 cfs and extended by logarithmic plotting.

Bankfull stage.--9 ft.

Remarks.--Base for partial-duration series, 1,400 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1933	Apr. 27, 1933	2.29	1,550	1948	Nov. 7, 1947	6.15	2,480
1934	Dec. 22, 1933	2.82	1,930	Jan. 7, 1948	6.08	2,400	
	Mar. 6, 1934	2.53	1,540	Feb. 22, 1948	5.33	1,620	
				Feb. 26, 1948	6.36	2,720	
1935	Apr. 16, 1935	2.24	1,300	May 9, 1948	5.85	2,140	
				May 13, 1948	5.26	1,550	
				May 22, 1948	6.88	3,380	
1936	Apr. 12, 1936	2.95	2,120	1949	Mar. 19, 1949	5.48	1,810
1937	Apr. 15, 1937	2.47	1,620				
1938	Apr. 18, 1938	2.47	1,620	1950	Jan. 22, 1950	5.50	1,830
					Feb. 25, 1950	5.75	2,080
1939	Mar. 22, 1939	2.80	2,010		Mar. 17, 1950	5.26	1,610
					June 8, 1950	6.1	2,460
1940	Feb. 28, 1940	5.14	1,390	1951	Feb. 12, 1951	5.41	1,750
	Mar. 27, 1940	5.23	1,450				
1941	Nov. 29, 1940	5.08	1,360	1952	Mar. 25, 1952	5.40	1,590
1942	June 26, 1942	5.36	1,530		Apr. 7, 1952	5.80	1,980
					Apr. 14, 1952	5.54	1,720
					Apr. 18, 1952	5.27	1,480
1943	Feb. 12, 1943	5.22	1,630	1953	Jan. 18, 1953	6.27	2,500
	Apr. 2, 1943	4.98	1,420		Feb. 3, 1953	6.23	2,490
	Apr. 15, 1943	4.97	1,420		Mar. 25, 1953	5.82	2,040
			Apr. 28, 1953		5.54	1,760	
1944	Mar. 9, 1944	5.65	2,020	1954	Dec. 20, 1953	5.10	1,380
1945	Feb. 8, 1945	5.23	1,570	1955	May 19, 1955	5.01	1,320
	Feb. 13, 1945	5.08	1,440				
1946	Nov. 27, 1945	5.14	1,500	1956	Dec. 12, 1955	5.52	1,740
	Dec. 28, 1945	7.86	5,040		Dec. 22, 1955	6.50	2,830
	Apr. 19, 1946	5.14	1,360		Jan. 16, 1956	5.58	2,000
	Apr. 25, 1946	5.36	1,550		May 10, 1956	5.28	1,730
	May 27, 1946	5.22	1,430				
1947	Dec. 12, 1946	8.84	6,660	1957	Dec. 11, 1956	6.73	3,220
	Dec. 15, 1946	5.86	2,160		Feb. 26, 1957	5.80	2,200
	Jan. 24, 1947	5.10	1,410		Apr. 5, 1957	6.06	2,460

## 205. Umatilla River at Gibbon, Oreg.

Location.--Lat 45°42', long 118°23', in NW $\frac{1}{4}$  sec.36, T.3 N., R.35 E., half a mile upstream from Squaw Creek, 1 mile west of Gibbon railway station, and  $1\frac{1}{2}$  miles downstream from Meacham Creek.

Drainage area.--310 sq mi, approximately.

Gage.--Nonrecording at sites within three-quarters of a mile upstream at different datums prior to May 29, 1906. Altitude of gage is 1,700 ft (from river-profile map).

Stage-discharge relation.--Defined by current-meter measurements below 5,700 cfs and extended by logarithmic plotting. Subject to shifts.

Remarks.--Only annual peaks are shown.

## UMATILLA RIVER BASIN

Peak stages and discharges of Umatilla River at Gibbon, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1897	Apr. 18, 1897	6.2	4,470	1907	Dec. 20, 1906	6.3	5,580
1898	Feb. 14, 1898	6.0	4,860	1908	Mar. 15, 1908	8.0	9,000
				1909	Jan. 20, 1909	3.10	2,580
1903	Jan. 24, 1903	5.2	3,260	1910	Mar. 20, 1910	5.0	4,300
1904	Apr. 14, 1904	5.70	6,770				
1905	Apr. 5, 6, 1905	2.80	1,240	1911	May 19, 1911	3.2	2,100
1906	May 30, 1906	9.1	9,500				

## 210. Umatilla River at Pendleton, Oreg.

Location.--Lat 45°40'20", long 118°47'40", in NE $\frac{1}{4}$  sec.10, T.2 N., R.32 E., a quarter of a mile upstream from Main Street Bridge at Pendleton and 2 $\frac{1}{2}$  miles upstream from McKay Creek.

Drainage area.--637 sq mi. Mean altitude, 3,120 ft; channel slope, 87 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording at site a quarter of a mile downstream at different datum February 1891 to July 1892 and May 22, 1903, to June 11, 1905; recording thereafter. Datum of gage is 1,062.39 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements; shifts in relation occur.

Historical data.--Maximum flood known, 17,000 cfs Dec. 14, 1882 (data furnished by Corps of Engineers). Flood of May 30, 31, 1906, reached a stage of 11.0 ft, present site and datum, but before channel was improved (discharge, 15,500 cfs, estimated by Corps of Engineers).

Remarks.--Only annual peaks are shown prior to 1935. Base for partial-duration series, 3,500 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1882	Dec. 14, 1881	-	17,000	1948	Jan. 7, 1948	4.72	4,270
					Feb. 26, 1948	5.79	7,510
1904	Apr. 13, 1904	7.30	6,300		May 9, 1948	4.79	4,800
1905	Mar. 27, 1905	5.45	1,710		May 22, 1948	5.70	6,970
1906	May 30, 1906	11.0	15,500	1949	Feb. 10, 1949	6.10	7,200
1935	Apr. 16, 1935	3.99	3,180		Feb. 22, 1949	9.01	15,400
1936	Mar. 1, 1936	4.90	5,400		Mar. 19, 1949	5.00	4,460
	Apr. 13, 1936	5.2	6,740	1950	Jan. 22, 1950	4.74	3,600
1937	Apr. 15, 1937	4.67	4,720		Feb. 13, 1950	5.03	4,350
1938	Apr. 19, 1938	4.39	3,980		Feb. 25, 1950	5.20	5,080
1939	Mar. 21, 1939	4.96	6,000		June 8, 1950	4.55	3,960
1940	Feb. 28, 1940	4.30	4,420	1951	Feb. 12, 1951	4.28	3,560
	Mar. 2, 1940	4.09	3,770	1952	Jan. 30, 1952	4.9	4,520
	Mar. 27, 1940	4.17	3,770		Mar. 26, 1952	4.52	3,930
1941	Nov. 29, 1940	3.82	3,230		Apr. 7, 1952	4.41	3,960
1942	June 27, 1942	4.44	4,570	1953	Jan. 19, 1953	5.41	6,030
1943	Dec. 14, 1942	4.50	3,730		Feb. 4, 1953	5.20	5,550
	Apr. 2, 1943	4.34	4,330		Mar. 25, 1953	5.16	5,460
1944	Mar. 10, 1944	5.16	5,880		Apr. 28, 1953	4.47	4,000
1945	Feb. 8, 1945	4.52	4,100	1954	Dec. 20, 1953	3.94	2,900
	Feb. 13, 1945	4.70	4,470	1955	May 6, 1955	3.89	3,130
1946	Nov. 28, 1945	4.82	4,130	1956	Dec. 22, 1955	5.19	6,700
	Dec. 29, 1945	7.92	12,400		Jan. 15, 1956	4.90	5,790
1947	Dec. 12, 1946	8.45	13,700		May 11, 1956	4.34	4,190
				1957	Dec. 12, 1956	5.00	6,100
					Feb. 26, 1957	5.05	6,260
					Mar. 9, 1957	4.10	3,600
					Apr. 6, 1957	5.01	6,130

220. Umatilla River above McKay Creek, near Pendleton, Oreg.

Location.--Lat 45°40'20", long 118°50'00", in NE $\frac{1}{4}$  sec.8, T.2 N., R.32 E., a quarter of a mile upstream from McKay Creek and 2 miles west of Pendleton.

Drainage area.--700 sq mi, approximately. Mean altitude, 3,000 ft; channel slope, 85 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. Prior to Mar. 3, 1923, at site 200 ft downstream at different datum; Mar. 6, 1923, to Sept. 30, 1930, about present datum; Oct. 1, 1930, to Mar. 31, 1931, at datum 2.00 ft higher. Datum of gage is 997.68 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 5,400 cfs and extended by logarithmic plotting.

Remarks.--Peak discharges slightly affected by diversions and regulation by mills above station. Records herein for 1921-34, adjusted on basis of drainage area ratio, are combined with those for station at Pendleton (see preceding station) for use in the analysis. Base for partial-duration series, 3,500 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1922	Dec. 1, 1921	6.23	4,690	1928	Apr. 1, 1928	6.98	3,650
	Apr. 5, 1922	6.18	4,590		1929	Mar. 21, 1929	7.56
	Apr. 8, 1922	6.40	5,010	1930		Mar. 25, 1930	6.63
	Apr. 22, 1922	6.60	5,400		1931	Apr. 1, 1931	-
1923	Jan. 7, 1923	-	3,400	1932		Dec. 18, 1931	7.75
	Jan. 31, 1924	7.17	3,990		Feb. 28, 1932	7.57	3,890
1924	Feb. 8, 1924	7.18	4,010	Mar. 6, 1932	9.00	6,200	
	Feb. 4, 1925	7.48	4,700	Mar. 19, 1932	11.1	12,000	
1925	Feb. 6, 1926	7.60	4,400	Mar. 25, 1932	7.31	3,500	
	Apr. 26, 1927	6.76	3,160	Apr. 14, 1932	8.68	4,300	
1926	Nov. 26, 1927	8.53	6,300	1933	Feb. 22, 1933	9.3	5,300
	Nov. 28, 1927	7.48	4,500		1934	Dec. 22, 1933	8.08
	Jan. 13, 1928	9.43	7,920	Mar. 6, 1934		8.08	3,790
	Mar. 11, 1928	7.98	5,400				

225. McKay Creek near Pilot Rock, Oreg.

Location.--Lat 45°33'10", long 118°46'20", in NE $\frac{1}{4}$  sec.23, T.1 N., R.32 E., on left bank 400 ft downstream from highway bridge, three-quarters of a mile upstream from maximum flow line (altitude, 1,322 ft) of McKay Reservoir, and 6 miles northeast of Pilot Rock.

Drainage area.--178 sq mi. Mean altitude, 3,210 ft; channel slope, 123 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. Prior to Sept. 15, 1932, and Sept. 16, 1932, to Apr. 8, 1941, at site 400 ft upstream at datums 1.4 and 4.4 ft higher, respectively. Datum of gage is 1,335.68 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 2,000 cfs and extended by logarithmic plotting.

Bankfull stage.--7 ft.

Remarks.--Base for partial-duration series, 840 cfs.

Peak stages and discharges of McKay Creek near Pilot Rock, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1927	Feb. 21, 1927	6.26	554	1945	Mar. 22, 1945	4.05	988
1928	Jan. 13, 1928	6.88	910	1946	Dec. 28, 1945	4.82	1,650
1929	Mar. 21, 1929	6.72	910	1947	Dec. 12, 1946	5.20	2,100
1930	Feb. 14, 1930	6.29	788		Jan. 24, 1947	4.26	1,070
1931	Apr. 1, 1931	10.4	6,000	1948	Dec. 3, 1947	4.08	926
1932	Feb. 26, 1932	7.09	1,090		Jan. 7, 1948	4.20	1,020
	Mar. 6, 1932	8.75	2,760		Feb. 26, 1948	5.20	2,020
	Mar. 18, 1932	9.55	4,210		May 13, 1948	4.35	1,140
1933	May 2, 1933	4.11	1,090	1949	Feb. 22, 1949	5.22	2,040
1934					Mar. 19, 1949	3.87	889
	Dec. 29, 1933	3.30	605	1950	Jan. 22, 1950	3.94	938
1935					Feb. 25, 1950	4.08	1,000
	Dec. 20, 1934	3.08	490		Mar. 5, 1950	3.93	896
1936					June 8, 1950	5.20	2,140
	Mar. 1, 1936	3.72	830	1951	Dec. 29, 1950	4.80	1,650
1937					Jan. 24, 1951	3.94	912
	Apr. 15, 1937	3.93	988		Feb. 12, 1951	4.20	1,120
1938					Mar. 15, 1951	4.78	1,670
	Apr. 7, 1938	3.82	890	1952	Mar. 25, 1952	4.24	1,160
1939				1953	Jan. 18, 1953	4.94	1,830
	Feb. 14, 1939	4.13	1,120		Feb. 3, 1953	5.02	1,910
	Mar. 21, 1939	4.28	1,230		Mar. 24, 1953	5.44	2,450
1940					Apr. 17, 1953	4.10	1,040
	Feb. 26, 1940	3.63	913		Apr. 28, 1953	4.55	1,440
	Mar. 2, 1940	4.35	1,780	1954	Apr. 13, 1954	3.53	628
1941	June 7, 1941	4.00	840	1955	May 16, 1955	4.45	1,340
1942				1956	Nov. 26, 1955	4.56	1,450
	Jan. 27, 1942	5.00	1,560		Dec. 12, 1955	3.95	920
	June 26, 1942	5.36	1,860		Dec. 22, 1955	4.02	876
1943					Jan. 15, 1956	5.16	2,070
	Dec. 10, 1942	4.31	1,120		Mar. 26, 1956	3.82	864
	Dec. 13, 1942	4.25	1,080		May 10, 1956	4.37	1,290
	Jan. 1, 1943	4.51	1,260	1957	Feb. 24, 1957	3.88	906
	Feb. 12, 1943	4.49	1,140		Mar. 7, 1957	4.17	1,130
	May 1, 1943	4.06	844		Mar. 31, 1957	4.21	1,160
1944					Apr. 5, 1957	5.95	3,080
	Mar. 9, 1944	5.18	1,860				
	Apr. 22, 1944	4.26	1,130				
1945							
	Feb. 8, 1945	4.11	1,030				
	Feb. 13, 1945	4.68	1,450				
	Mar. 13, 1945	4.10	1,020				

235. McKay Creek near Pendleton, Oreg.  
(Published as "at mouth, near Pendleton" 1903-4, 1923-24)

Location.--Lat 45°36'40", long 118°48'00", in SE<sup>1</sup>/<sub>4</sub> NW<sup>1</sup>/<sub>4</sub> sec.34, T.2 N., R.32 E., on right bank 35 ft upstream from irrigation diversion dam, a quarter of a mile downstream from McKay Dam, and 4 miles south of Pendleton.

Drainage area.--186 sq mi. At site used 1903-4 and 1923-24, 190 sq mi, approximately; October 1918 to April 1919, 180 sq mi, approximately.

Gage.--Nonrecording prior to Jan. 15, 1927; recording thereafter. At site 5 miles downstream at mouth at altitude 1,000 ft (from topographic map) June 1903 to June 1904 and October 1923 to September 1924. November 1918 to Apr. 15, 1919, at site 2 miles upstream at different datum. Apr. 16, 1919, to Sept. 30, 1923, at site a quarter of a mile upstream at different datum. Oct. 1, 1924, to Nov. 15, 1948, at several sites within 220 ft of present gage at different datums. Datum of gage is 1,163.71 ft above mean sea level (Bureau of Reclamation bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 1,200 cfs and extended by logarithmic plotting.

Remarks.--Peak discharges regulated by McKay Reservoir since 1927 (capacity, 73,830 acre-ft). Only annual peaks are shown.

Peak stages and discharges of McKay Creek near Pendleton, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1904	Mar. 30, 1904	-	1,500	1939	July 29, 1939	1.35	314
1919	Mar. 31, 1919	3.30	1,460	1940	June 26 to July 2, 1940	1.40	364
1920	Apr. 5, 1920	3.8	2,500	1941	Aug. 7 to 10, 1941	1.29	307
1921	Feb. 10, 1921	4.4	3,250	1942	May 1, 1942	1.62	543
1922	Apr. 7, 1922	3.35	2,000	1943	May 1, 1943	1.45	402
1923	Jan. 6, 7, 1923	2.2	910	1944	Apr. 27, 1944	1.83	662
1924	Jan. 31, 1924	-	1,000	1945	Apr. 17, 18, 1945	1.49	434
1925	Jan. 30, 1925	2.51	1,200	1946	Apr. 23, 1946	1.61	512
1926	Feb. 7, 1926	2.15	895	1947	Apr. 19, 1947	1.46	416
1927	Apr. 3, 1927	3.44	944	1948	May 13, 1948	2.68	1,270
1928	Apr. 1, 1928	2.16	842	1949	July 9, 1949	1.59	409
1929	Nov. 9, 1928	1.52	392	1950	June 9, 1950	2.80	1,590
1930	Oct. 19, 20, 1929	1.38	315	1951	Mar. 20, 1951	1.70	490
1931	May 26, 1931	1.59	449	1952	Apr. 14, 15, 1952	1.47	365
1932	Apr. 6, 1932	2.11	818	1953	Apr. 29, 1953	1.92	646
1933	July 7, 1933	2.20	850	1954	Aug. 13, 14, 1954	1.54	400
1934	June 21, 1934	1.33	314	1955	Aug. 16, 1955	1.58	420
1935	Aug. 16, 1935	1.25	275	1956	May 11, 1956	2.31	969
1936	Aug. 9, 1936	1.33	314	1957	Aug. 24, 1957	1.60	480
1937	July 31, 1937	1.32	323				
1938	Aug. 10, 1938	1.31	334				

245. Birch Creek near Pilot Rock, Oreg.

Location.--Lat 45°34'00", long 118°47'50", near center of sec.15, T.1 N., R.32 E., 50 ft downstream from highway bridge, 1 mile upstream from George Canyon, 6 miles north of Pilot Rock, and 8 miles south of Pendleton.

Drainage area.--240 sq mi, approximately.

Gage.--Nonrecording. At site 1 mile upstream at different datum prior to Feb. 13, 1922. Feb. 13, 1922, to Oct. 22, 1925, at site 100 ft upstream at different datum. Altitude of gage is 1,290 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 360 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Diversions for irrigation of about 2,300 acres above station. Records herein adjusted on basis of drainage-area ratio, are combined with those for station at Rieth (see following station) for use in the analysis. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1920	Apr. 13, 1920	3.80	1,270	1924	Feb. 2, 1924	2.20	460
1921	Feb. 10, 1921	3.50	1,120	1925	June 21, 1925	3.67	1,080
1922	Apr. 8, 1922	3.00	790	1926	Feb. 7, 1926	2.92	344
1923	Jan. 6-7, 1923	-	-				

## 250. Birch Creek at Rieth, Oreg.

Location.--Lat 45°39'10", long 118°52'40", in SE $\frac{1}{4}$  sec.13, T.2 N., R.31 E., on right bank 300 ft downstream from highway bridge, a quarter of a mile upstream from mouth, and half a mile southwest of Rieth.

Drainage area.--291 sq mi. Mean altitude, 3,030 ft; channel slope, 109 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording for period Apr. 4, 1927, to Jan. 29, 1928. Nonrecording from Feb. 3, 1928, to Dec. 16, 1931, at site 300 ft upstream at different datum; recording thereafter. Dec. 17, 1931, to Dec. 29, 1939, at datum 0.86 ft higher than present. Datum of gage is 951.82 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 700 cfs and extended by logarithmic plotting.

Remarks.--Many diversions for irrigation of about 4,000 acres above station probably do not materially affect flood peaks. Only annual peaks are shown 1929-31. Base for partial-duration series, 300 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1928	Jan. 6, 1928	3.86	800	1948	Dec. 3, 1947	3.67	501	
	Jan. 12, 1928	2.91	410		Jan. 8, 1948	3.27	395	
	Jan. 29, 1928	6.00	1,640		Apr. 17, 1948	4.06	618	
1929	Apr. 28, 1929	2.42	265	May 14, 1948	4.70	750		
	Feb. 1, 1930	2.90	475	May 20, 1948	4.60	720		
1931	Apr. 1, 1931	5.15	920	1949	Feb. 16, 1949	4.48	684	
	1932	Dec. 17, 1931	4.07		505	Feb. 21, 1949	6.88	1,500
Mar. 19, 1932		4.9	1,010		Mar. 20, 1949	2.92	365	
1933	Apr. 14, 1932	2.93	334	Apr. 19, 1949	2.81	358		
	May 5, 1933	2.78	294	1950	Jan. 22, 1950	3.17	428	
1934	June 8, 1934	2.44	201		Feb. 13, 1950	2.82	340	
	Apr. 16, 1935	2.85	268		Feb. 26, 1950	2.67	304	
1936	Apr. 13, 1936	3.30	395	May 14, 1950	2.68	306		
	Apr. 15, 1937	3.70	530	June 8, 1950	3.65	585		
1938	Apr. 18, 1938	3.76	548	June 17, 1950	7.2	1,860		
	June 22, 1938	5.91	1,320	1951	Feb. 7, 1951	3.21	428	
1939	Mar. 21, 1939	3.69	766		Feb. 11, 1951	3.36	468	
	1940	Feb. 26, 1940	3.68		405	Mar. 15, 1951	3.05	388
Feb. 28, 1940		3.61	388	Apr. 7, 1951	2.99	372		
Mar. 2, 1940		3.60	385	Apr. 14, 1951	2.98	370		
Apr. 9, 1940		3.83	442	1952	Mar. 26, 1952	2.90	350	
1941	June 8, 1941	3.60	446		Apr. 7, 1952	3.90	630	
	June 24, 1941	3.85	542		Apr. 14, 1952	2.70	300	
1942	Jan. 27, 1942	5.32	1,310	May 9, 1952	3.60	425		
	May 8, 1942	3.47	402	1953	Jan. 18, 1953	2.84	310	
	June 27, 1942	3.56	432		Mar. 25, 1953	4.34	756	
1943	Jan. 1, 1943	3.70	532		Apr. 23, 1953	3.82	600	
	Apr. 8, 1943	2.89	305		Apr. 28, 1953	4.13	693	
	May 1, 1943	3.26	405	1954	Apr. 14, 1954	2.51	262	
1944	Mar. 9, 1944	3.22	394		1955	May 8, 1955	3.33	395
	Apr. 24, 1944	3.54	485			May 16, 1955	5.00	990
1945	Apr. 21, 1945	3.10	340	May 20, 1955		4.57	840	
	Apr. 19, 1946	2.93	299	1956	Dec. 22, 1955	4.09	687	
1946	Dec. 12, 1946	2.98	309		Jan. 15, 1956	5.76	1,260	
	Apr. 19, 1946	2.93	299		Feb. 20, 1956	3.64	552	
1947	Dec. 12, 1946	2.98	309	Mar. 26, 1956	3.70	585		
	Apr. 19, 1946	2.93	299	Apr. 15, 1956	3.01	378		
1947	Dec. 12, 1946	2.98	309	May 9, 1956	7.15	1,840		
	Apr. 19, 1946	2.93	299	1957	Mar. 9, 1957	3.12	405	
Apr. 19, 1946	2.93	299	Apr. 6, 1957		3.37	471		

260. Umatilla River at Yoakum, Oreg.

(Published as "above Furnish Reservoir, near Yoakum" 1916-34)

Location.--Lat 45°40'40", long 119°02'00", in SW<sup>1</sup>/<sub>4</sub> sec.2, T.2 N., R.30 E., at left bank on downstream side of highway bridge, half a mile northeast of Yoakum, 2½ miles downstream from abandoned Furnish Reservoir, and 11 miles downstream from Birch Creek.

Drainage area.--1,280 sq mi, approximately. At site above Furnish Reservoir, used 1916-34, 1,260 sq mi, approximately. Mean altitude 2,920 ft; channel slope, 68.6 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording at site 500 ft upstream at different datum prior to Sept. 30, 1916; recording thereafter. At site above abandoned Furnish Reservoir 5 miles upstream at altitude 830 ft (from topographic map) Oct. 1, 1916, to Sept. 30, 1934. At datum 2.0 ft higher Oct. 1, 1934, to Oct. 20, 1948. Datum of gage is 768.21 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 6,600 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Many diversions for irrigation above station. Peak discharges slightly affected by storage in Furnish Reservoir 1910-34 (capacity, 3,900 acre-ft prior to filling with silt), and by McKay Reservoir since 1927 (capacity, 73,830 acre-ft). Only annual peaks are shown 1905-16. Base for partial-duration series, 3,600 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1905	Mar. 27, 1905	6.2	2,040	1922	Apr. 22, 1922	8.45	7,160
1906	May 30, 1906	15.0	20,000	May 5, 1922	6.95	4,490	
1907	Feb. 6, 1907	10.0	7,900	May 18, 1922	6.39	3,740	
1908	Mar. 16, 1908	14.3	18,100	1923	Jan. 7, 1923	7.10	4,820
1909	Jan. 19, 1909	8.2	4,700	Mar. 31, 1923	6.64	4,030	
1910	Mar. 2, 1910	9.6	7,020	1924	Feb. 2, 1924	7.43	5,330
1911	May 19, 1911	7.2	2,660	Feb. 8, 1924	7.45	5,420	
1912	May 3, 1912	9.2	5,790	1925	Nov. 22, 1924	6.50	3,880
1913	Mar. 30, 1913	12.3	11,700	Jan. 30, 1925	6.39	3,740	
1914	Mar. 1, 1914	7.62	3,820	Feb. 5, 1925	7.63	5,680	
1915	Apr. 2, 1915	7.90	4,240	1926	Feb. 7, 1926	7.84	5,710
1916	Feb. 10, 1916	10.05	8,200	1927	Jan. 21, 1927	ae.77	-
1917	Apr. 8, 1917	8.56	7,290	Feb. 21, 1927	6.31	3,600	
1917	Apr. 26, 1917	8.88	7,740	1928	Jan. 8, 1928	6.42	3,920
1917	May 13, 1917	9.03	7,940	Jan. 14, 1928	8.50	7,520	
1917	May 30, 1917	7.18	5,240	Mar. 12, 1928	7.28	5,360	
1918	Dec. 29, 1917	9.0	7,550	Apr. 1, 1928	7.44	5,530	
1918	Jan. 8, 1918	6.58	4,100	1929	Mar. 21, 1929	6.9	4,690
1918	Jan. 12, 1918	7.19	4,910	1930	Mar. 25, 1930	5.78	3,400
1918	Jan. 25, 1918	7.95	6,050	1931	Apr. 1, 1931	11.3	14,500
1918	Mar. 26, 1918	6.37	3,840	1932	Dec. 18, 1931	6.34	3,930
1919	Apr. 1, 1919	-	4,800	Feb. 28, 1932	6.60	4,320	
1919	Apr. 5, 1919	8.12	6,200	Mar. 6, 1932	8.0	6,520	
1919	Apr. 12, 1919	-	4,500	Mar. 19, 1932	12.2	15,200	
1920	Dec. 21, 1919	-	5,300	Apr. 3, 1932	6.66	4,450	
1920	Jan. 17, 1920	ae.60	4,070	Apr. 14, 1932	7.24	5,180	
1920	Apr. 6, 1920	ae.5	7,000	1933	Feb. 22, 1933	6.70	4,810
1920	Apr. 13, 1920	8.82	5,700	Apr. 25, 1933	5.89	3,720	
1921	Dec. 31, 1920	9.00	8,300	1934	Mar. 6, 1934	6.10	3,980
1921	Jan. 3, 1921	9.9	10,000	1935	Apr. 16, 1935	5.44	3,460
1921	Feb. 11, 1921	8.46	7,350	1936	Mar. 1, 1936	5.59	3,680
1921	Mar. 4, 1921	7.24	4,990	Apr. 13, 1936	7.4	6,600	
1921	Mar. 18, 1921	8.51	7,350	1937	Apr. 15, 1937	6.33	4,870
1921	Mar. 23, 1921	6.90	4,490				
1921	Apr. 29, 1921	6.62	4,030				
1922	Dec. 1, 1921	8.00	6,400				
1922	Feb. 8, 1922	7.04	4,650				
1922	Apr. 4, 1922	7.98	6,400				
1922	Apr. 8, 1922	8.42	7,160				

a Backwater from ice.

Peak stages and discharges of Umatilla River at Yoakum, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938	Apr. 19, 1938	5.91	4,310	1949	Feb. 22, 1949	12.74	13,600
1939	Mar. 21, 1939	7.00	6,180		Mar. 19, 1949	7.86	5,120
1940	Feb. 29, 1940	6.01	4,460		Apr. 12, 1949	6.91	3,780
	Mar. 2, 1940	5.90	4,310	1950	Apr. 19, 1949	6.77	3,600
	Mar. 27, 1940	5.88	4,280		Jan. 22, 1950	7.15	4,100
	Apr. 1, 1940	5.68	4,000		Feb. 14, 1950	7.56	4,670
1941	Nov. 30, 1940	4.94	3,060		Feb. 25, 1950	7.89	5,160
1942	June 27, 1942	6.42	4,830		Mar. 18, 1950	7.03	3,940
1943	Dec. 14, 1942	5.78	3,940		June 8, 1950	8.25	5,720
	Jan. 1, 1943	5.88	4,070	1951	Feb. 12, 1951	7.82	5,060
	Feb. 13, 1943	5.69	3,830	1952	Jan. 30, 1952	7.76	4,970
	Mar. 28, 1943	5.56	3,660		Feb. 2, 1952	6.74	3,610
	Apr. 2, 1943	6.02	4,270		Mar. 26, 1952	7.71	4,900
	May 2, 1943	5.55	3,640		Apr. 7, 1952	7.90	5,180
1944	Mar. 10, 1944	6.55	5,010		Apr. 15, 1952	7.00	3,850
1945	Feb. 9, 1945	5.65	3,780	1953	Jan. 19, 1953	9.25	7,460
	Feb. 14, 1945	5.60	3,970		Feb. 4, 1953	8.39	5,940
1946	Nov. 27, 1945	5.65	3,780		Mar. 25, 1953	8.84	6,710
	Dec. 29, 1945	9.50	12,000		Apr. 18, 1953	6.90	3,800
1947	Dec. 13, 1946	10.15	12,700		Apr. 28, 1953	7.94	5,240
	Jan. 26, 1947	5.19	3,650	1954	Apr. 14, 1954	6.45	3,260
1948	Jan. 8, 1948	6.25	5,170	1955	May 20, 1955	6.55	3,380
	Feb. 27, 1948	7.30	6,880	1956	Dec. 22, 1955	8.78	6,600
	Apr. 17, 1948	5.94	4,830		Jan. 18, 1956	8.36	6,090
	May 9, 1948	6.15	5,120		Mar. 26, 1956	7.10	4,230
	May 13, 1948	6.28	5,320		May 11, 1956	7.79	5,240
	May 22, 1948	7.02	6,430	1957	Dec. 12, 1956	7.84	5,310
1949	Feb. 10, 1949	8.70	5,950		Feb. 26, 1957	8.11	5,720
					Mar. 9, 1957	6.88	3,930
					Apr. 6, 1957	8.56	6,390

315. Butter Creek near Pine City, Oreg.  
(Called North Fork Butter Creek on some maps)

Location.--Lat 45°32'40", long 119°18'40", in SW $\frac{1}{4}$  sec.22, T.1 N., R.28 E., on right bank half a mile downstream from Mattlock Canyon, 6 miles southeast of settlement of Pine City, and 20 miles south of Hermiston.

Drainage area.--291 sq mi. Mean altitude, 3,150 ft; channel slope, 89.7 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. Prior to Oct. 1, 1944, at datum 1.1 ft higher. Oct. 1, 1944, to Sept. 6, 1949, at datum 1.0 ft higher. Altitude of gage is 1,400 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 400 cfs and extended to 1,600 cfs by logarithmic plotting. Rating not extended to peak of record on Feb. 21, 1949 (gage height, 12.4 ft, present datum).

Remarks.--Records prior to 1946 furnished by State engineer of Oregon. Water is diverted into headwaters of Butter Creek from Fivemile Creek, a tributary of Camas Creek in John Day River basin, for irrigation of 345 acres below station; at times almost 40 cfs is diverted. Base for partial-duration series, 200 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1929	Mar. 2, 1929	2.90	210	1932	Mar. 19, 1932	4.14	438
	Mar. 10, 1929	2.90	220	1933	Mar. 28, 1933	2.55	189
1930	Feb. 1, 1930	3.40	295	1934	June 8, 1934	2.41	165
1931	Apr. 1, 1931	3.28	276	1935	Apr. 11, 1935	1.81	97
1932	Feb. 27, 1932	4.24	454				

Peak stages and discharges of Butter Creek near Pine City, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1936	Feb. 22, 1936	4.35	473	1948	May 19, 1948	2.70	268
1937	Apr. 15, 1937	3.21	256	1949	Feb. 10, 1949	2.62	263
1938	Apr. 18, 1938	2.46	176		Feb. 16, 1949	3.90	520
1939	Mar. 21, 1939	3.73	367		Feb. 21, 1949	11.4	-
1940	Feb. 29, 1940	4.09	375		Mar. 19, 1949	2.47	250
1941	Mar. 1, 1941	1.93	111	1950	Feb. 16, 1950	3.90	358
1942	Jan. 27, 1942	7.81	1,600		June 17, 1950	3.24	218
	Mar. 10, 1942	4.05	422	1951	Feb. 8, 1951	3.33	248
	May 22, 1942	2.50	204		Feb. 11, 1951	-	275
1943	Jan. 1, 1943	3.54	328		Mar. 16, 1951	3.68	351
	May 1, 1943	2.72	245	1952	Mar. 26, 1952	3.48	301
1944	Mar. 10, 1944	2.94	287	1953	Jan. 19, 1953	3.25	254
1945	May 27, 1945	2.24	179		Mar. 25, 1953	5.32	802
1946	Dec. 29, 1945	3.86	399	1954	Dec. 20, 1953	2.61	138
1947	Jan. 26, 1947	2.30	201	1955	May 17, 1955	3.04	200
	Feb. 12, 1947	2.46	222	1956	Dec. 12, 1955	3.05	202
1948	Jan. 7, 1948	2.42	217		Dec. 22, 1955	4.90	640
	Feb. 26, 1948	2.31	202		Jan. 15, 1956	4.72	586
	Mar. 29, 1948	2.40	226		Mar. 24, 1956	3.60	351
	Apr. 16, 1948	2.34	218		May 6, 1956	3.54	309
					May 8, 1956	4.18	435
				1957	Feb. 24, 1957	3.21	231

## 335. Umatilla River near Umatilla, Oreg.

Location.--Lat 45°54'20", long 119°19'40", in NW¼ sec.21, T.5 N., R.28 E., on left bank 1½ miles downstream from West Division main canal of Umatilla project, 1¼ miles southeast of Umatilla, and 2 miles upstream from mouth.

Drainage area.--2,290 sq mi, approximately. Mean altitude, 2,470 ft; channel slope, 50 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording prior to Jan. 26, 1931; recording thereafter. Datum of gage is 330.47 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 11,000 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Many diversions above station for irrigation of lands above and below station; Brownell Canal diverts below station; since 1908 diversions made to Cold Springs Reservoir, an off-channel reservoir (capacity, 50,000 acre-ft). Peak discharges slightly affected by storage in McKay Reservoir since 1927 (capacity, 73,830 acre-ft), and Furnish Reservoir 1910-34 (capacity, 3,900 acre-ft prior to filling with silt). Only annual peaks are shown prior to 1932. Base for partial-duration series, 3,100 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1904	Apr. 15, 1904	7.65	8,030	1913	Mar. 31, 1913	7.7	9,300
1905	Mar. 23, 1905	4.3	1,890	1914	Mar. 2, 1914	5.1	3,140
1906	May 31, 1906	11.0	19,600	1915	Apr. 3, 1915	4.7	2,450
1907	Feb. 7, 1907	6.3	5,600	1916	Feb. 11, 1916	8.1	10,500
1908	Mar. 16, 1908	9.5	14,600	1917	Apr. 27, 1917	8.0	10,200
1909	Jan. 19, 1909	6.0	4,910		May 14, 1917	-	-
1910	Mar. 4, 1910	6.5	6,060	1918	Dec. 29, 1917	-	7,000
1911	May 19, 1911	4.5	2,130	1919	Apr. 5, 1919	-	5,050
1912	May 4, 1912	6.0	4,910	1920	Apr. 14, 1920	6.8	6,790

## UMATILLA RIVER BASIN

Peak stages and discharges of Umatilla River near Umatilla, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1921	Jan. 3, 1921	-	8,300	1946	Nov. 28, 1945	5.26	3,500
1922	Apr. 9, 1922	6.2	5,370		Dec. 29, 1945	7.18	8,140
1923	Jan. 7, 1923	5.10	3,130				
1924	Feb. 1, 1924	5.65	4,050	1947	Dec. 13, 1946	8.17	11,200
1925	Feb. 5, 6, 1925	5.75	4,460		Jan. 27, 1947	5.30	3,560
1926	Feb. 7, 1926	6.00	4,910	1948	Jan. 8, 1948	5.76	4,770
1927	Apr. 27, 28, 1927	5.32	3,490		Feb. 23, 1948	5.12	3,190
1928	Jan. 14, 1928	6.10	5,240		Feb. 27, 1948	6.11	5,680
1929	Mar. 22, 1929	5.30	3,600		Apr. 17, 1948	-	4,000
1930	Mar. 26, 1930	4.80	2,590		May 14, 1948	5.95	5,260
					May 23, 1948	6.26	6,080
1931	Apr. 2, 1931	9.60	15,000				
				1949	Feb. 11, 1949	6.27	5,760
1932	Dec. 18, 1931	5.20	3,180		Feb. 16, 1949	5.08	3,210
	Feb. 29, 1932	5.37	3,500		Feb. 23, 1949	8.40	11,600
	Mar. 7, 1932	6.03	5,020		Mar. 20, 1949	5.74	4,600
	Mar. 19, 1932	8.78	12,500				
	Mar. 26, 1932	5.62	4,020	1950	Jan. 22, 1950	5.60	4,290
	Mar. 29, 1932	5.52	3,810		Feb. 14, 1950	5.94	5,040
	Apr. 3, 1932	5.57	3,920		Feb. 26, 1950	5.56	4,200
	Apr. 15, 1932	5.90	4,680		Mar. 19, 1950	5.23	3,490
					June 9, 1950	5.53	4,140
1933	May 6, 1933	5.13	3,020	1951	Feb. 13, 1951	5.84	4,820
1934	Mar. 7, 1934	5.28	3,390		Mar. 16, 1951	5.18	3,390
1935	Apr. 17, 1935	4.93	2,740	1952	Jan. 31, 1952	5.71	4,530
					Feb. 2, 1952	5.15	3,320
1936	Apr. 14, 1936	5.77	4,350		Mar. 27, 1952	5.49	4,050
					Apr. 8, 1952	5.49	4,050
1937	Apr. 16, 1937	5.40	3,610		Apr. 15, 1952	5.06	3,140
1938	Apr. 19, 1938	5.08	3,020	1953	Jan. 19, 1953	6.14	5,480
					Feb. 4, 1953	6.15	5,500
1939	Mar. 23, 1939	5.88	4,640		Mar. 25, 1953	5.93	5,020
					Mar. 29, 1953	5.52	4,110
1940	Feb. 29, 1940	5.46	3,740				
	Mar. 2, 1940	5.43	3,670	1954	Dec. 20, 1953	4.83	2,660
	Mar. 28, 1940	5.19	3,190				
1941	Nov. 30, 1940	4.94	2,720	1955	May 21, 1955	5.01	2,900
1942	June 28, 1942	5.43	3,610	1956	Dec. 13, 1955	5.10	3,180
					Dec. 23, 1955	6.28	5,850
					Jan. 16, 1956	6.22	5,710
1943	Dec. 15, 1942	5.33	3,410		Mar. 26, 1956	5.71	4,520
	Jan. 1, 1943	5.40	3,550		May 11, 1956	5.79	4,710
	Feb. 14, 1943	5.43	3,610	1957	Dec. 12, 1956	5.66	4,410
	Apr. 3, 1943	5.46	3,680		Feb. 27, 1957	6.07	5,350
1944	Mar. 11, 1944	5.57	3,910		Mar. 10, 1957	5.41	3,860
					Apr. 6, 1957	6.25	5,780
1945	Feb. 14, 1945	5.37	3,520				

## WILLOW CREEK BASIN

## 345. Willow Creek at Heppner, Oreg.

Location.--Lat 45°21', long 119°32', in SE $\frac{1}{4}$  sec.35, T.2 S., R.26 E., on right bank at Heppner, 100 ft upstream from Court Street Bridge, 800 ft southeast of Morrow County courthouse, and a third of a mile downstream from Balm Fork.

Drainage area.--87 sq mi, approximately. Mean altitude, 3,520 ft; channel slope, 132 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording, with a concrete control. Datum of gage is 1,952.73 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 230 cfs and extended by logarithmic plotting.

Historical data.--Maximum flood known, about 36,000 cfs June 14, 1903, by slope-area measurement. Flood of Feb. 22, 1949, 1,700 cfs by slope-area measurement.

Remarks.--Part of flow of Ditch Creek (John Day River basin) is diverted to Willow Creek above station. Base for partial-duration series, 170 cfs.

## Peak stages and discharges of Willow Creek at Heppner, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1903	June 14, 1903	-	a36,000	1955	May 17, 1955	3.07	167
1949	Feb. 22, 1949	-	a1,700	1956	Dec. 22, 1955	3.65	248
1952	May 9, 1952	3.11	164		Jan. 15, 1956	3.86	280
					May 9, 1956	3.01	188
1953	Mar. 25, 1953	4.17	359	1957	Mar. 7, 1957	2.91	176
1954	June 9, 1954	3.04	163		Apr. 5, 1957	3.17	209
					May 10, 1957	6.15	812

a Annual peak only.

## JOHN DAY RIVER BASIN

375. Strawberry Creek above Slide Creek, near Prairie City, Oreg.  
(Published as Strawberry Creek above South Fork,  
near Prairie City 1931-44)

Location.--Lat 44°20', long 118°39', in SW $\frac{1}{4}$  sec.20, T.14 S., R.34 E., on left bank 100 ft upstream from Slide Creek and 8 $\frac{1}{2}$  miles south of Prairie City.

Drainage area.--7.2 sq mi, approximately. Mean altitude, 6,900 ft; channel slope, 710 ft per mile; area of lakes and ponds, 0.84 sq mi.

Gage.--Recording, with a log control. Datum of gage is 4,909.57 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 150 cfs and extended by logarithmic plotting.

Remarks.--Some natural regulation by Strawberry Lake. Only annual peaks are shown.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1931	May 14, 1931	2.03	51	1945	May 13, June 22, 1945	1.98	71
1932	May 20, 1932	2.33	96				
1933	June 9, 1933	2.44	150	1946	May 28, 1946	2.08	87
1934	Apr. 24, 1934	1.75	33				
1935	May 24, 1935	1.95	62				
1936	May 14, 1936	2.16	89	1947	May 8, 1947	2.04	78
1937	June 21, 1937	2.02	67	1948	June 8, 1948	2.23	172
1938	May 27, June 8, 1938	2.12	91	1949	May 16, 1949	2.16	108
				1950	June 22, 1950	2.04	84
1939	May 17, 1939	1.80	50	1951	May 28, 1951	2.04	84
1940	May 25, 1940	1.94	71	1952	June 8, 1952	2.12	104
				1953	July 8, 1953	2.08	96
				1954	May 19, 1954	2.11	102
1941	May 14, 1941	1.97	73	1955	June 12, 1955	2.27	138
1942	May 25, 1942	2.04	86	1956	May 24, 1956	3.23	170
1943	July 8, 1943	2.08	82				
1944	June 2, 1944	1.77	47				

380. Strawberry Creek near Prairie City, Oreg.

Location.--Lat 44°22', long 118°39', in S $\frac{1}{2}$  sec.8, T.14 S., R.34 E., 2 miles upstream from Squaw Creek and 7 miles southeast of Prairie City.

Drainage area.--15 sq mi, approximately.

Gage.--Nonrecording. Prior to Sept. 30, 1926, at datum 0.6 ft higher. Altitude of gage is 4,420 ft (by levels to approximate gage datum).

Stage-discharge relation.--Defined by current-meter measurements below 100 cfs and extended by logarithmic plotting.

Remarks.--Only annual peaks are shown.

Peak stages and discharges of Strawberry Creek near Prairie City, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1925	Mar. 21, 22, 1925	1.31	152	1928	May 23, 1928	1.39	154
				1929	May 25, 1929	1.40	154
1926	May 1, 5, 1926	1.18	53	1930	May 20, 27, 29, 1930	.88	44
1927	June 9, 1927	1.75	264				

## 385. John Day River at Prairie City, Oreg.

Location.--Lat 44°27', long 118°43', in NE $\frac{1}{4}$  sec.10, T.13 S., R.33 E., on right bank 600 ft upstream from outlet of Prairie power canal, a third of a mile downstream from Dixie Creek, and three-quarters of a mile southwest of Prairie City.

Drainage area.--231 sq mi. Mean altitude, 5,100 ft; channel slope, 105 ft per mile; area of lakes and ponds, 0.84 sq mi.

Gage.--Nonrecording at sites within 600 ft at different datums prior to Aug. 23, 1943; recording thereafter. Datum of gage is 3,496.66 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 1,100 cfs and extended by logarithmic plotting. Subject to high-water shifts.

Remarks.--Many diversions for irrigation above station. Prior to February 1952, Prairie power canal diverted an average of 48 cfs above station in SE $\frac{1}{4}$  sec.7, T.13 S., R.34 E., for power. Only annual peaks are shown prior to 1945. Base for partial-duration series, 240 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1926	Apr. 19, 1926	2.28	264	1948	Jan. 7, 1948	3.23	397
1927	June 9, 1927	-	-		Apr. 22, 1948	3.22	393
1928	Jan. 13, 1928	3.10	760		May 8, 1948	3.47	493
1929	Mar. 10, 1929	3.10	760		May 28, 1948	5.11	1,150
1930	Feb. 5, 1930	1.64	188		June 4, 1948	4.33	813
1931	Jan. 23, 1931	2.60	487	1949	Feb. 22, 1949	4.28	793
1932	Mar. 19, 1932	4.7	1,550		Apr. 12, 1949	2.67	245
1933	June 10, 1933	2.13	385		Apr. 19, 1949	2.82	287
1934	June 26, 1934	1.54	236		May 2, 1949	2.97	329
1935	Apr. 16, 1935	1.44	210		May 15, 1949	3.00	338
1936	Apr. 18, 1936	1.76	246	1950	Feb. 15, 1950	2.92	315
1937	Apr. 1, 1937	2.20	382		June 7, 1950	2.90	309
1938	Dec. 12, 1937	2.75	615		June 19, 1950	2.76	270
1939	Mar. 20, 1939	5.4	1,400		June 21, 1950	2.83	289
1940	Mar. 27, 1940	2.84	383	1951	Feb. 7, 1951	3.44	478
1941	June 7, 1941	2.84	370		Mar. 15, 1951	4.41	846
1942	Jan. 27, 1942	3.80	730		Apr. 15, 1951	2.72	296
1943	Jan. 1, 1943	3.30	790		May 12, 1951	2.86	338
1944	June 16, 1944	3.23	414	1952	Feb. 1, 1952	2.61	263
1945	May 4, 1945	2.97	323		Mar. 25, 1952	6.27	2,100
	May 14, 1945	3.01	336		Apr. 7, 1952	2.50	505
	May 24, 1945	2.79	265		Apr. 14, 1952	2.35	452
1946	Dec. 28, 1945	4.57	995		Apr. 19, 1952	2.28	428
	Feb. 27, 1946	3.91	690		Apr. 28, 1952	2.44	484
	Mar. 12, 1946	2.86	288		May 8, 1952	2.26	421
	Apr. 19, 1946	3.31	444	1953	Jan. 16, 1953	1.85	280
	Apr. 26, 1946	3.21	408		Mar. 23, 1953	2.01	334
	May 9, 1946	2.96	321		Apr. 28, 1953	2.38	463
	May 23, 1946	3.05	352		May 7, 1953	1.79	262
	May 27, 1946	3.40	480		May 19, 1953	2.56	526
1947	Jan. 26, 1947	2.89	297		June 13, 1953	2.71	574
	Feb. 2, 1947	2.70	240	1954	Dec. 20, 1953	3.10	730
	Feb. 12, 1947	3.45	500		Jan. 17, 1954	1.99	308
	Apr. 19, 1947	2.89	272		Jan. 29, 1954	2.06	331
	May 9, 1947	2.88	269		Apr. 18, 1954	1.94	292
	May 31, 1947	2.87	266		May 20, 1954	1.91	282
1948	Jan. 4, 1948	2.87	266		May 29, 1954	2.18	373
					June 12, 1954	2.22	387

## Peak stages and discharges of John Day River at Prairie City, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1955	Apr. 22, 1955	2.00	305	1956	Apr. 24, 1956	2.55	488	
	May 21, 1955	2.03	316		May 7, 1956	2.42	442	
	June 12, 1955	2.23	386		May 26, 1956	3.11	704	
1956	Dec. 12, 1955	1.84	249	1957	Feb. 24, 1957	4.46	1,270	
	Dec. 22, 1955	3.12	738		Mar. 6, 1957	3.12	788	
	Dec. 28, 1955	2.55	510		Mar. 31, 1957	1.98	343	
	Jan. 15, 1956	3.68	962		Apr. 5, 1957	2.71	624	
	Jan. 22, 1956	2.52	498		May 19, 1957	2.68	612	
	Feb. 21, 1956	2.29	406		June 3, 1957	2.22	428	
	Mar. 23, 1956	3.61	934					

## 390. John Day River near Dayville, Oreg.

Location.--Lat 44°27'50", long 119°28'50", in S $\frac{1}{2}$  sec.4, T.13 S., R.27 E., half a mile upstream from Schoolhouse Gulch and 2 $\frac{1}{2}$  miles east of Dayville.

Drainage area.--960 sq mi, approximately.

Gage.--Nonrecording. Prior to Sept. 30, 1914, at different datum. June 23, 1920, to Sept. 30, 1921, at datum 2 ft higher. Altitude of gage is 2,370 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 2,000 cfs and extended by logarithmic plotting. Subject to shifts.

Bankfull stage.--4 ft.

Remarks.--Records for 1925-26 furnished by State engineer of Oregon. Only annual peaks are shown.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1909	June 4, 1909	3.50	1,040	1914	Mar. 14, 1914	3.7	1,070
1910	Mar. 20, 1910	6.3	3,090		1921	Feb. 14, 1921	9.7
1911	Mar. 23, 1911	3.0	840	1925		Apr. 12, 1925	-
1912	May 30, 1912	5.6	2,430		1926	Feb. 5, 1926	-
1913	Apr. 19, 1913	4.9	1,780				

## 395. South Fork John Day River near Dayville, Oreg.

Location.--Lat 44°25'40", long 119°32'20", in NE $\frac{1}{4}$  sec.24, T.13 S., R.26 E., on left bank 0.7 mile downstream from Smoky Creek and 3 miles south of Dayville.

Drainage area.--590 sq mi, approximately. Mean altitude, 4,840 ft; channel slope, 59.7 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. Altitude of gage is 2,420 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurement below 1,900 cfs and extended on basis of slope-area measurement at 3,230 cfs.

Remarks.--Base for partial-duration series, 1,000 cfs.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	May 22, 1948	-	a3,250	1953	Apr. 28, 1953	4.17	1,050
1952	Feb. 1, 1952	4.85	1,670	1954	Dec. 19, 1953	4.17	1,050
	Mar. 25, 1952	6.98	3,230		1955	Apr. 8, 1955	3.50
	Apr. 5, 1952	6.46	2,960	1956		Dec. 22, 1955	7.89
	Apr. 14, 1952	5.01	1,820		Jan. 15, 1956	5.31	2,100
1953	Jan. 18, 1953	5.28	2,070		Jan. 22, 1956	4.18	1,130
	Feb. 3, 1953	4.17	1,050		Mar. 23, 1956	5.39	2,170
	Feb. 7, 1953	4.4	1,230	May 7, 1956	4.18	1,130	
	Mar. 24, 1953	4.22	1,090				

a Annual peak only.

## 400. South Fork John Day River at Dayville, Oreg.

Location.--Lat 44°27'40", long 119°31'40", in NW $\frac{1}{4}$  sec.7, T.13 S., R.27 E.,  $\frac{1}{2}$  miles upstream from mouth and half a mile southeast of highway bridge at Dayville.

Drainage area.--600 sq mi, approximately.

Gage.--Nonrecording. June 23, 1920, to Aug. 31, 1921, at datum 4.44 ft lower. Altitude of gage is 2,370 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,200 cfs and extended by logarithmic plotting.

Remarks.--Records for 1925-26 furnished by State engineer of Oregon. Many diversions for irrigation of about 3,200 acres above station. Records herein adjusted on basis of drainage-area ratio, are combined with those for station near Dayville (see preceding station) for use in the analysis. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1909	Feb. 17, 1909	2.30	680	1914	Mar. 9, 1914	3.20	1,110
1910	Mar. 2, 1910	5.1	2,390				
1911	Mar. 23, 1911	3.50	1,340	1921	Feb. 13, 1921	7.0	3,400
1912	May 1, 1912	4.10	1,710				
1913	Apr. 18, 1913	3.50	1,340	1925	June 21, 1925	-	1,860
				1926	Feb. 6, 1926	-	1,230

## 405. John Day River at Picture Gorge, near Dayville, Oreg.

Location.--Lat 44°31'15", long 119°37'30", in SW $\frac{1}{4}$  sec.17, T.12 S., R.26 E., on right bank 0.7 mile upstream from Rock Creek and  $\frac{5}{2}$  miles northwest of Dayville.

Drainage area.--1,680 sq mi, approximately. Mean altitude, 4,580 ft; channel slope, 45.8 ft per mile; area of lakes and ponds, 0.94 sq mi.

Gage.--Nonrecording prior to Oct. 11, 1926; recording thereafter. Oct. 11, 1926, to Sept. 30, 1930, at datum 0.5 ft higher. Concrete control since Sept. 1, 1934. Datum of gage is 2,231.84 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 5,500 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Base for partial-duration series, 1,300 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1927	Jan. 3, 1927	6.28	1,430	1932	Feb. 28, 1932	9.98	2,480	
	Feb. 2, 1927	6.93	1,720		Mar. 8, 1932	8.80	1,800	
	Feb. 21, 1927	7.53	2,050		Mar. 19, 1932	14.0	6,800	
	Apr. 3, 1927	6.14	1,340		Apr. 3, 1932	8.13	1,360	
	Apr. 27, 1927	9.16	2,990		Apr. 14, 1932	7.96	1,900	
	May 17, 1927	7.28	1,940		May 4, 1932	7.38	1,600	
	June 9, 1927	10.25	3,600					
1928	Jan. 7, 1928	6.76	1,670	1933	Apr. 4, 1933	7.02	1,440	
	Jan. 14, 1928	9.65	3,230		Apr. 29,30,1933	7.39	1,600	
	Mar. 11, 1928	8.12	2,370		June 3, 1933	6.67	1,320	
	Mar. 23, 1928	7.63	2,100	1934	May 29, 1934	4.93	685	
	Apr. 29, 1928	6.82	1,670					
	May 9, 1928	6.72	1,620		1935	Apr. 17, 1935	7.19	1,480
1929	Mar. 10, 1929	6.92	1,720	1936	Apr. 14, 1936	8.76	2,360	
	Mar. 22, 1929	7.15	1,880					
1930	Feb. 6, 1930	5.6	1,100	1937	Mar. 14, 1937	6.79	1,330	
					Apr. 2, 1937	7.84	1,800	
					Apr. 15, 1937	9.10	2,540	
					May 4, 1937	7.53	1,650	
1931	Apr. 1, 1931	7.50	1,780					

Peak stages and discharges of John Day River at Picture Gorge, near Dayville, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1938	Dec. 12, 1937	9.68	2,900	1948	May 8, 1948	9.55	2,940	
	Jan. 22, 1938	7.42	1,600		May 22, 1948	13.72	6,520	
	Mar. 2, 1938	7.51	1,640	1949	Feb. 18, 1949	7.37	1,640	
	Mar. 19, 1938	7.76	1,800		Feb. 22, 1949	8.63	2,330	
	Apr. 19, 1938	10.49	3,420		Mar. 5, 1949	7.16	1,530	
May 28, 1938	6.87	1,380	Mar. 20, 1949		7.87	1,880		
			Apr. 12, 1949		8.44	2,220		
1939	Mar. 23, 1939	10.5	3,160	Apr. 21, 1949	8.59	2,300		
1940	Feb. 28, 1940	8.19	1,990	May 3, 1949	8.19	2,060		
	Mar. 27, 1940	10.27	3,270	May 14, 1949	7.15	1,520		
1941	May 14, 1941	6.71	1,290	1950	Feb. 26, 1950	6.82	1,410	
1942	Dec. 19, 1941	7.91	1,850		Mar. 17, 1950	7.62	1,810	
	Jan. 27, 1942	8.26	2,030		Apr. 22, 1950	7.43	1,720	
	Feb. 4, 1942	7.52	1,630	1951	Jan. 25, 1951	7.12	1,560	
	Mar. 12, 1942	8.40	2,080		Feb. 11, 1951	9.42	2,840	
	Apr. 15, 1942	9.03	2,450		Mar. 16, 1951	8.30	2,230	
May 16, 1942	7.62	1,680	Apr. 6, 1951		8.72	2,500		
May 28, 1942	7.92	1,830	Apr. 29, 1951		7.04	1,570		
1943	Nov. 29, 1942	7.29	1,530	May 13, 1951	7.87	1,980		
	Dec. 28, 1942	7.44	1,590	1952	Feb. 2, 1952	8.34	2,250	
	Jan. 1, 1943	10.50	3,410		Mar. 26, 1952	13.42	6,570	
	Jan. 22, 1943	6.96	1,380		Apr. 7, 1952	11.70	5,000	
	Feb. 22, 1943	8.68	2,240	1953	Jan. 18, 1953	9.50	3,250	
	Mar. 9, 1943	7.60	1,670		Feb. 3, 1953	7.68	2,060	
	Mar. 14, 1943	7.53	1,640		Feb. 8, 1953	8.11	2,320	
	Mar. 30, 1943	10.28	3,260		Mar. 25, 1953	7.87	2,170	
	Apr. 9, 1943	10.05	3,100		Apr. 28, 1953	9.67	3,370	
	Apr. 16, 1943	10.15	3,160		May 20, 1953	9.39	3,170	
	May 1, 1943	9.04	2,450	June 13, 1953	8.05	2,280		
June 2, 1943	7.15	1,460	1954	Dec. 19, 1953	8.47	2,530		
1944	Mar. 10, 1944	6.09		1,030	Feb. 13, 1954	6.93	1,640	
					Mar. 10, 1954	6.94	1,650	
1945	Feb. 14, 1945	7.32		1,540	Apr. 18, 1954	7.07	1,720	
	Apr. 21, 1945	8.14	1,940	1955	May 8, 1955	6.44	1,410	
	May 3, 1945	8.32	2,040		May 21, 1955	6.92	1,640	
	May 17, 1945	7.31	1,530		1956	Dec. 22, 1955	11.85	5,120
	May 31, 1945	7.29	1,530			Jan. 16, 1956	11.04	4,430
1946	Dec. 29, 1945	12.48	4,890			Jan. 23, 1956	8.48	2,540
	Feb. 28, 1946	8.35	2,060	Feb. 22, 1956		6.32	1,360	
	Mar. 13, 1946	7.85	1,800	Mar. 28, 1956		11.06	4,450	
	Mar. 29, 1946	7.45	1,600	Apr. 16, 1956	8.79	2,770		
	Apr. 19, 1946	9.42	2,680	May 8, 1956	9.37	3,160		
1947	Apr. 26, 1946	8.38	2,070	May 27, 1956	7.75	2,150		
	May 28, 1946	7.33	1,540	June 1, 1956	8.72	2,730		
	Feb. 13, 1947	6.94	1,350	1957	Feb. 26, 1957	10.04	3,630	
Apr. 18, 1947	7.03	1,390	Mar. 7, 1957		8.86	2,820		
1948	Jan. 8, 1948	9.97	3,230		Mar. 31, 1957	8.72	2,730	
	Feb. 22, 1948	6.87	1,380		Apr. 6, 1957	8.64	2,680	
	Feb. 27, 1948	6.83	1,380		May 19, 1957	8.66	2,700	
	Apr. 22, 1948	9.21	2,700					

## 410. Desolation Creek near Dale, Oreg.

Location--Lat 44°59'20", long 118°55'10", in SW<sup>1</sup>/<sub>4</sub> sec.6, T.7 S., R.32 E., on right bank three-quarters of a mile upstream from mouth and 1½ miles east of Dale.

Drainage area--108 sq mi. Mean altitude, 5,200 ft; channel slope, 157 ft per mile; area of lakes and ponds, 0.02 sq mi.

Gage--Recording. Prior to Oct. 12, 1951, at site 80 ft downstream at datum 1.97 ft lower. Datum of gage is 2,906.99 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation--Defined by current-meter measurements below 650 cfs and extended by logarithmic plotting.

Bankfull stage--Not subject to overflow.

Remarks--A maximum of 25 cfs diverted into Olive Lake in North Fork John Day River basin. Base for partial-duration series, 300 cfs.

Peak stages and discharges of Desolation Creek near Dale, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Apr. 21, 1950	2.24	300	1954	May 18, 1954	3.80	470
	May 13, 1950	2.63	514		May 10, 1954	4.30	650
	May 22, 1950	2.76	602		June 30, 1954	3.40	345
	June 11, 1950	2.78	616				
1951	Apr. 17, 1951	2.67	516	1955	May 20, 1955	3.88	495
	Apr. 28, 1951	2.65	500		May 30, 1955	3.37	331
	May 11, 1951	2.96	780		June 10, 1955	4.34	666
1952	Apr. 14, 1952	3.40	315	1956	Dec. 22, 1955	4.35	670
	Apr. 27, 1952	4.39	616		Jan. 15, 1956	3.75	488
	May 8, 1952	4.89	816		Mar. 26, 1956	3.58	428
	May 25, 1952	4.36	606		Apr. 22, 1956	4.38	740
					May 8, 1956	4.52	810
					May 24, 1956	4.54	820
1953	Apr. 27, 1953	4.42	698	1957	Mar. 31, 1957	3.39	367
	May 7, 1953	3.79	466		Apr. 5, 1957	3.70	470
	May 19, 1953	4.80	850		Apr. 12, 1957	3.37	361
	June 13, 1953	4.46	714		May 18, 1957	4.82	858
					June 2, 1957	4.10	570
					June 8, 1957	3.76	441
1954	Apr. 13, 1954	3.58	399				
	May 9, 1954	3.88	498				

## 415. North Fork John Day River near Dale, Oreg.

Location.--Lat 44°59'55", long 118°56'25", in SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 35, T.6 S., R.31 E., on right bank a quarter of a mile downstream from Desolation Creek and three-quarters of a mile northeast of Dale.

Drainage area.--525 sq mi. Mean altitude, 5,450 ft; channel slope, 94.1 ft per mile; area of lakes and ponds, 0.3 sq mi.

Gage.--Recording. Datum of gage is 2,775.63 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 6,000 cfs and extended by logarithmic plotting.

Remarks.--Flow regulated by Olive Lake (capacity, about 5,500 acre-ft) and Upper Reservoir on Lake Creek (capacity, about 700 acre-ft). Since 1865 water has been diverted above station at times to North Fork Burnt River. Base for partial-duration series, 1,800 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1930	Apr. 24, 1930	4.75	1,170	1940	Apr. 14, 1940	5.67	1,720
1931	May 3, 1931	5.63	1,800	1941	May 1, 1941	6.84	2,520
1932	Apr. 14, 1932	6.09	2,450		May 13, 1941	6.17	1,850
	May 14, 1932	8.42	4,990		June 6, 1941	6.34	2,010
1933	Apr. 28, 1933	5.60	1,970	1942	Apr. 13, 1942	7.12	2,920
	May 30, 1933	7.63	4,040		Apr. 22, 1942	6.99	2,770
	Jan. 10, 1933	6.60	2,950		May 10, 1942	6.30	2,070
			May 23, 1942		6.68	2,440	
1934	June 7, 1934	4.62	1,120	1943	Apr. 8, 1943	6.22	2,000
1935	May 7, 1935	5.41	1,660		Apr. 16, 1943	7.95	4,180
					May 4, 1943	6.65	2,530
					May 26, 1943	7.09	3,020
1936	Apr. 24, 1936	7.00	2,690	June 9, 1943	6.02	1,930	
	May 5, 1936	6.54	2,800	June 19, 1943	6.07	1,970	
	May 12, 1936	6.58	2,850				
1937	May 3, 1937	6.56	2,690	1944	May 7, 1944	5.10	1,220
	May 14, 1937	7.10	3,260	1945	May 5, 1945	7.12	3,050
			May 31, 1945		5.90	1,820	
1938	Apr. 19, 1938	6.20	2,470	1946	Apr. 19, 1946	6.44	2,400
	Apr. 25, 1938	6.56	2,910		Apr. 26, 1946	7.67	3,860
	Apr. 30, 1938	7.45	3,860		May 5, 1946	7.16	3,200
	May 16, 1938	5.92	2,150		May 28, 1946	6.86	2,850
	May 27, 1938	6.38	2,690				
1939	Apr. 22, 1939	5.86	2,100	1947	Apr. 20, 1947	6.40	2,360
	Apr. 29, 1939	6.30	2,580	May 4, 1947	7.20	3,250	

## Peak stages and discharges of North Fork John Day River near Dale, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	May 7, 1948	6.24	2,300	1952	May 8, 1952	7.37	3,550
	May 26, 1948	10.48	8,170		May 25, 1952	6.77	2,860
	June 4, 1948	9.47	6,530		June 6, 1952	5.89	1,960
	June 21, 1948	6.43	2,490		1953	Apr. 28, 1953	7.03
1949	Apr. 20, 1949	6.25	2,310	May 7, 1953		6.76	2,850
	Apr. 24, 1949	6.47	2,530	May 19, 1953		8.21	4,670
	Apr. 29, 1949	6.57	2,630	June 2, 1953		7.06	3,180
	May 2, 1949	7.24	3,400	June 13, 1953		7.23	3,390
	May 9, 1949	6.80	2,890	1954		May 10, 1954	6.57
	May 15, 1949	7.97	4,340		June 10, 1954	6.02	2,080
1950	May 17, 1950	6.94	3,040	1955	May 21, 1955	6.25	2,310
	May 23, 1950	7.20	3,350		June 10, 1955	6.46	2,520
	June 12, 1950	6.42	2,480	1956	Apr. 22, 1956	7.99	4,370
	June 21, 1950	6.25	2,310		May 8, 1956	7.83	4,150
1951	Apr. 18, 1951	6.55	2,620		May 20, 1956	8.22	4,690
	Apr. 28, 1951	5.93	2,000	1957	Feb. 26, 1957	a7.96	-
	May 11, 1951	7.18	3,330		May 18, 1957	7.63	3,890
1952	Apr. 19, 1952	6.01	2,070				
	Apr. 28, 1952	7.35	3,530				

a Backwater from ice.

## 420. Camas Creek near Lehman, Oreg.

Location--Lat 45°10', long 118°44', in SW $\frac{1}{4}$  sec.33, T.4 S., R.33 E., on left bank 2 miles downstream from Bowman Creek and  $\frac{3}{2}$  miles northwest of Lehman.

Drainage area--61 sq mi, approximately. Mean altitude, 4,680 ft; channel slope, 73.9 ft per mile; area of lakes and ponds, 0 sq mi.

Gage--Recording. Datum of gage is 3,969.53 ft above mean sea level (levels by Oregon State Highway Department).

Stage-discharge relation--Defined by current-meter measurements below 900 cfs and extended by logarithmic plotting. Subject to shifts.

Remarks--Base for partial-duration series, 420 cfs.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1951	Feb. 1, 1951	a3.70	-	1955	Apr. 9, 1955	2.42	462
	Feb. 11, 1951	2.52	544		Apr. 30, 1955	2.45	480
	Apr. 4, 1951	2.42	478		May 5, 1955	2.98	664
1952	Feb. 14, 1952	a2.37	-	1956	Dec. 21, 1955	4.56	1,880
	Apr. 5, 1952	3.09	844		Jan. 15, 1956	2.48	570
	Apr. 14, 1952	2.87	712		Mar. 25, 1956	2.89	804
	May 8, 1952	3.40	1,030		Apr. 12, 1956	2.73	648
			May 8, 1956		4.18	1,560	
1953	Jan. 18, 1953	a3.24	-	May 10, 1956	3.10	810	
	Jan. 18, 1953	2.96	808	1957	Feb. 26, 1957	2.54	500
	Feb. 3, 1953	2.57	522		Mar. 8, 1957	2.56	510
	Mar. 25, 1953	2.42	432		Apr. 5, 1957	3.69	1,200
	Apr. 20, 1953	2.77	659		Apr. 11, 1957	2.49	515
	Apr. 27, 1953	2.78	666				
1954	Apr. 13, 1954	2.37	434				

a Backwater from ice.

425. Camas Creek near Ukiah, Oreg.

(Previously published as Camas Creek above Cable Creek, near Ukiah)

Location.--Lat 45°09', long 118°49', in SE $\frac{1}{4}$  sec.3, T.5 S., R.32 E., on right bank 1.2 miles upstream from Cable Creek and 6 miles east of Ukiah.

Drainage area.--121 sq mi. At site used prior to November 1940, 125 sq mi. Mean altitude, 4,680 ft; channel slope, 66.2 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording prior to June 30, 1924; recording thereafter. Mar. 1, 1932, to July 2, 1940, at site 1.2 miles downstream at a different datum. Datum of gage is 3,588.61 ft above mean sea level (levels by Oregon State Highway Department).

Stage-discharge relation.--Defined by current-meter measurements below 800 cfs and extended by logarithmic plotting. Subject to high-water shifts.

Remarks.--Records for 1932-45 furnished by State engineer of Oregon. Only annual peaks are shown prior to 1932. Base for partial-duration series, 550 cfs.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1915	Apr. 3, 1915	3.2	a770	1946	Apr. 18, 1946	3.22	744
					Apr. 26, 1946	3.01	602
1916	Feb. 11, 1916	3.8	a1,190				
1917	May 13,14,1917	4.5	a1,790	1947	Dec. 12, 1946	4.58	2,350
1920	Apr. 9, 1920	3.92	a1,270	1948	Jan. 7, 1948	4.25	1,860
1921	Mar. 5, 1921	4.4	a1,700		Jan. 23, 1948	b4.93	-
1922	Apr. 21, 1922	4.4	1,630		Feb. 22, 1948	b3.30	-
1923	June 27, 1923	3.10	a540		Feb. 26, 1948	b3.52	-
					Apr. 16, 1948	3.80	1,300
1932	Mar. 18, 1932	5.20	2,600		Apr. 20, 1948	3.84	1,250
	Mar. 24, 1932	4.11	840		May 7, 1948	3.49	912
	Mar. 28, 1932	3.78	565		May 13, 1948	3.68	1,090
	Apr. 2, 1932	4.19	920				
	Apr. 14, 1932	4.35	1,100	1949	Mar. 19, 1949	3.53	947
					Apr. 6, 1949	3.41	844
1933	Mar. 16, 1933	b4.77	-		Apr. 11, 1949	3.52	938
	Apr. 3, 1933	4.18	910		Apr. 14, 1949	3.29	748
	Apr. 16, 1933	4.12	850				
	Apr. 22, 1933	4.10	830	1950	Feb. 16, 1950	b3.98	-
	May 4, 1933	3.96	726		Mar. 3, 1950	3.06	579
	May 18, 1933	3.81	603		Apr. 1, 1950	3.31	763
					Apr. 13, 1950	3.32	771
1934	Mar. 6, 1934	3.39	340	1951	Feb. 11, 1951	3.62	1,030
					Apr. 4, 1951	3.44	869
1935	Mar. 29, 1935	3.92	726		Apr. 13, 1951	3.09	600
	Apr. 15, 1935	3.83	658				
1936	Mar. 3, 1936	b4.72	-	1952	Mar. 25, 1952	3.57	983
	Apr. 14, 1936	4.06	693		Apr. 6, 1952	3.98	1,420
	Apr. 24, 1936	3.85	618		Apr. 14, 1952	3.48	903
	Apr. 30, 1936	3.97	723		May 8, 1952	4.47	2,080
1937	Apr. 14, 1937	4.42	1,150	1953	Jan. 18, 1953	3.83	1,050
	Apr. 26, 1937	3.76	567		Feb. 3, 1953	3.59	811
	May 3, 1937	3.94	709		Feb. 7, 1953	3.33	584
					Mar. 24, 1953	3.38	624
1938	Apr. 18, 1938	4.14	846		Apr. 23, 1953	3.69	910
					Apr. 28, 1953	3.85	1,080
1939	Mar. 16, 1939	3.85	-		May 19, 1953	2.23	551
	Mar. 22, 1939	b4.47	1,220	1954	Mar. 9, 1954	3.39	663
	Mar. 31, 1939	4.25	1,000		Apr. 13, 1954	3.65	875
1940	Mar. 2, 1940	3.79	522	1955	Apr. 9, 1955	3.71	930
					May 5, 1955	3.88	1,110
1941	June 7, 1941	3.13	721	1956	Dec. 12, 1955	3.47	703
					Dec. 21, 1955	4.88	2,360
1942	Apr. 1, 1942	3.58	1,040		Jan. 15, 1956	3.46	874
	Apr. 5, 1942	3.48	966		Feb. 3, 1956	b4.23	-
1943	Mar. 27, 1943	3.96	1,600		Mar. 25, 1956	4.02	1,430
	Apr. 1, 1943	3.27	876		Apr. 13, 1956	3.68	1,080
	Apr. 16, 1943	3.25	860		Apr. 21, 1956	3.34	766
	May 1, 1943	3.18	804		May 8, 1956	4.90	2,510
1944	Apr. 2, 1944	2.81	546	1957	Feb. 24, 1957	b4.98	-
					Feb. 26, 1957	3.61	1,010
1945	Mar. 22, 1945	2.84	564		Mar. 8, 1957	3.43	847
	Apr. 7, 1945	2.94	628		Mar. 31, 1957	3.27	706
	Apr. 20, 1945	3.37	836		Apr. 5, 1957	4.22	1,650
1946	Dec. 28, 1945	b4.01	-		Apr. 12, 1957	3.42	756
	Dec. 29, 1945	3.84	1,180		May 14, 1957	3.20	580

a Maximum discharge observed.

b Backwater from ice.

## 430. Cable Creek near Ukiah, Oreg.

Location.--Lat 45°09', long 118°50', about on line between secs. 9 and 10, T.5 S., R.32 E., at highway bridge, 870 ft upstream from mouth and 5 miles east of Ukiah.

Drainage area.--39 sq mi, approximately.

Gage.--Nonrecording. Altitude of gage is 3,570 ft (by levels to approximate gage datum).

Stage-discharge relation.--Defined by current-meter measurements below 250 cfs and extended by logarithmic plotting.

Remarks.--Only annual peaks are shown.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1915	Apr. 3, 1915	1.40	156	1921	May 4, 1921	1.95	515
1916	Apr. 27, 1916	1.9	310	1922	May 20, 1922	1.65	328
1917	May 15, 1917	2.7	590	1923	June 27, 1923	1.50	265
				1924	Feb. 2, 1924	1.55	285
1920	May 9 to 11, 1920	1.85	270				

## 440. Middle Fork John Day River at Ritter, Oreg.

Location.--Lat 44°53'20", long 119°08'25", in SW $\frac{1}{4}$  NW $\frac{1}{4}$  sec. 8, T. 8 S., R. 30 E., on left bank a quarter of a mile south of Ritter and three-quarters of a mile downstream from Twelvemile Creek.

Drainage area.--515 sq mi. Mean altitude, 4,800 ft; channel slope, 54.1 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. Datum of gage is 2,544.56 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 2,200 cfs and extended by logarithmic plotting.

Remarks.--Base for partial-duration series, 760 cfs.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1930	Feb. 5, 1930	a7.37	-	1937	Apr. 27, 1937	4.56	918
	Mar. 27, 1930	3.90	488		May 4, 1937	4.85	1,160
1931	Apr. 1, 1931	5.75	1,960	1938	Dec. 12, 1937	4.88	1,200
	Apr. 7, 1931	4.62	966		Mar. 16, 1938	4.47	846
1932	Feb. 26, 1932	a6.84	-		Apr. 5, 1938	4.58	934
	Feb. 26, 1932	4.38	776	Apr. 19, 1938	5.55	1,780	
	Feb. 29, 1932	4.60	950	1939	Dec. 15, 1938	a6.82	-
	Mar. 19, 1932	7.78	4,000		Mar. 25, 1939	5.71	1,920
	Mar. 25, 1932	4.69	1,020	Apr. 22, 1939	4.38	767	
	Apr. 2, 1932	5.76	1,960	1940	Feb. 25, 1940	4.68	1,000
	Apr. 13, 1932	5.82	2,010		Feb. 29, 1940	4.95	1,240
	May 14, 1932	5.22	1,470		Mar. 2, 1940	4.64	966
			Mar. 27, 1940		5.42	1,670	
1933	Apr. 4, 1933	4.78	1,090	1941	Dec. 21, 1940	4.88	-
	Apr. 16, 1933	4.38	776		Mar. 2, 1941	4.38	767
	May 4, 1933	5.32	1,560		June 7, 1941	4.39	774
	May 18, 1933	4.88	1,180	1942	Jan. 2, 1942	5.0	-
1934	June 7, 1934	4.25	690		Mar. 11, 1942	4.85	1,110
					Apr. 14, 1942	5.23	1,450
1935	Apr. 16, 1935	5.2	1,470		Apr. 30, 1942	4.56	885
					May 10, 1942	4.68	975
					May 15, 1942	4.66	960
1936	Feb. 22, 1936	a4.95	-	May 22, 1942	4.62	930	
	Mar. 1, 1936	4.40	850	1943	Jan. 1, 1943	4.78	1,120
	Apr. 13, 1936	5.60	2,020		Feb. 22, 1943	4.37	789
1937	Mar. 13, 1937	4.32	794				
	Apr. 1, 1937	4.97	1,240				
	Apr. 15, 1937	5.40	1,650				

a Backwater from ice.

Peak stages and discharges of Middle Fork John Day River at Ritter, Oreg.--Continued								
Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1943	Mar. 30, 1943	5.54	1,850	1950	Apr. 13, 1950	5.00	1,140	
	Apr. 8, 1943	5.44	1,750		Apr. 21, 1950	4.90	1,060	
	Apr. 16, 1943	5.80	2,110		May 15, 1950	4.72	934	
	Apr. 29, 1943	4.98	1,300	1951	Feb. 10, 1951	5.22	1,380	
	May 1, 1943	5.20	1,510		Mar. 15, 1951	5.47	1,630	
	June 1, 1943	4.57	941		Mar. 27, 1951	4.71	928	
1944	Mar. 9, 1944	4.35	730	Apr. 6, 1951	5.33	1,490		
	1945	Feb. 13, 1945	5.06	1,270	1952	Mar. 25, 1952	6.73	3,010
Mar. 23, 1945		4.60	895	Apr. 7, 1952		6.09	2,280	
Apr. 8, 1945		4.42	773	Apr. 14, 1952		5.81	1,970	
Apr. 24, 1945		5.01	1,230	Apr. 19, 1952		5.69	1,840	
May 4, 1945		4.96	1,180	Apr. 27, 1952		5.53	1,660	
May 31, 1945		4.58	881	May 8, 1952		6.58	2,830	
1946	Dec. 28, 1945	4.69	962	1953	Jan. 18, 1953	5.06	1,190	
	Feb. 27, 1946	4.57	976		Feb. 3, 1953	5.26	1,390	
	Mar. 13, 1946	4.56	968		Feb. 7, 1953	4.66	874	
	Mar. 28, 1946	4.68	1,060		Mar. 25, 1953	5.04	1,180	
	Apr. 8, 1946	4.59	992		Apr. 28, 1953	5.83	1,990	
	Apr. 18, 1946	5.53	1,850		May 7, 1953	4.89	1,040	
	Apr. 26, 1946	5.28	1,600		May 20, 1953	5.75	1,900	
	May 5, 1946	4.74	1,110		June 13, 1953	5.67	1,820	
	May 27, 1946	4.57	976		1954	Mar. 10, 1954	4.55	805
	1947	Dec. 14, 1946	4.55			960	Apr. 14, 1954	4.88
Feb. 13, 1947		4.41	766	June 10, 1954		4.62	848	
Mar. 23, 1947		4.40	760	1955	Apr. 10, 1955	4.52	787	
Apr. 18, 1947		4.86	1,100		May 8, 1955	4.68	887	
May 8, 1947		4.78	1,030		May 21, 1955	4.76	942	
1948	Jan. 7, 1948	5.82	2,030	1956	Nov. 27, 1955	4.60	835	
	Feb. 26, 1948	4.98	1,200		Dec. 22, 1955	6.99	3,330	
	Apr. 3, 1948	4.65	932		Jan. 15, 1956	5.88	1,990	
	Apr. 17, 1948	5.52	1,610		Jan. 22, 1956	4.70	850	
	May 7, 1948	5.46	1,550		Mar. 26, 1956	6.58	2,830	
	May 26, 1948	6.37	2,500		Apr. 13, 1956	5.96	2,080	
June 21, 1948	5.24	1,350	May 8, 1956	6.26	2,440			
1949	Feb. 18, 1949	a8.50	-	May 23, 1956	5.46	1,530		
	Mar. 19, 1949	5.20	1,310	1957	Feb. 26, 1957	5.47	1,540	
	Apr. 12, 1949	5.01	1,150		Mar. 6, 1957	5.27	1,340	
	Apr. 19, 1949	5.34	1,440		Mar. 31, 1957	5.40	1,470	
	May 3, 1949	5.31	1,410		Apr. 6, 1957	6.09	2,240	
	May 14, 1949	5.10	1,220		Apr. 13, 1957	5.56	1,650	
Apr. 2, 1950	4.74	948	May 20, 1957		5.33	1,430		

a Backwater from Ice.

445. Fox Creek at gorge, near Fox, Oreg.  
(The lower part of this stream is named Cottonwood Creek)

Location--Lat 44°37'30", long 119°15'10", in SW $\frac{1}{4}$  sec.8, T.11 S., R.29 E., on left bank half a mile upstream from head of gorge and 6 miles southwest of Fox.

Drainage area--90.2 sq mi. Mean altitude, 4,830 ft; channel slope, 87.3 ft per mile; area of lakes and ponds, 0.1 sq mi.

Gage--Recording. Prior to June 12, 1952, at site half a mile downstream at different datum. Altitude of gage is 4,240 ft (from topographic map).

Stage-discharge relation--Defined by current-meter measurements below 200 cfs and extended on basis of slope-area measurement at 1,860 cfs.

Remarks--Diversions for irrigation of about 4,800 acres above station. Base for partial-duration series, 150 cfs.

Peak stages and discharges of Fox Creek at gorge, near Fox, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1931	Jan. 23, 1931	a4.22	-	1945	May 4, 1945	2.36	164	
	Mar. 31, 1931	2.44	188		1946	Feb. 27, 1946	3.10	352
1932	Feb. 28, 1932	a3.25	-	1947		Feb. 4, 1947	a3.51	-
	Mar. 15, 1932	2.80	278		Feb. 12, 1947	3.95	725	
	Mar. 18, 1932	4.55	1,020	1948	Dec. 1, 1947	2.35	160	
	Mar. 24, 1932	3.28	458		Jan. 6, 1948	4.55	812	
	Mar. 30, 1932	2.66	239		Feb. 18, 1948	2.77	261	
	Apr. 14, 1932	2.36	172		Feb. 22, 1948	2.68	238	
May 4, 1932	2.50	198	Feb. 26, 1948		2.58	213		
1933	Mar. 29, 1933	2.95	323		Apr. 10, 1948	2.35	160	
	May 4, 1933	2.40	191	Apr. 18, 1948	2.68	238		
	May 18, 1933	2.30	168	Apr. 29, 1948	2.72	248		
1934	June 7, 1934	1.54	42	May 4, 1948	2.73	251		
	1935	Apr. 7, 1935	2.22	150	May 7, 1948	2.92	302	
Apr. 16, 1935		2.28	164	May 19, 1948	4.10	800		
Apr. 20, 1935		2.62	244	May 22, 1948	5.84	1,850		
1936	Jan. 11, 1936	2.99	320	May 28, 1948	3.70	610		
	Feb. 23, 1936	2.62	229	June 4, 1948	2.72	256		
	Mar. 3, 1936	3.03	331	June 10, 1948	2.90	308		
	Mar. 9, 1936	2.39	177	June 19, 1948	3.18	403		
1937	Mar. 10, 1937	2.42	179	1949	Mar. 18, 1949	2.77	282	
	Mar. 14, 1937	3.04	328		May 3, 1949	2.24	158	
	Mar. 26, 1937	2.37	168	1950	Feb. 25, 1950	a2.87	-	
	Apr. 1, 1937	3.00	318		Mar. 17, 1950	2.35	180	
	Apr. 15, 1937	2.90	292	1951	Feb. 7, 1951	a4.26	-	
	May 4, 1937	2.47	190		Feb. 8, 1951	-	400	
1938	Dec. 12, 1937	2.42	176		Mar. 15, 1951	3.37	507	
	Mar. 2, 1938	3.66	592	Mar. 20, 1951	2.40	212		
	Mar. 12, 1938	3.01	344	1952	Mar. 25, 1952	5.85	1,860	
	Apr. 19, 1938	2.76	267		1953	Jan. 19, 1953	3.27	187
Apr. 25, 1938	2.75	264	Feb. 4, 1953	3.42		214		
1939	Mar. 13, 1939	2.30	152	Mar. 24, 1953		5.15	675	
	Mar. 20, 1939	4.1	800	Apr. 28, 1953		4.35	460	
1940	Feb. 27, 1940	3.05	358	May 20, 1953		3.63	259	
	Mar. 27, 1940	2.57	216	May 24, 1953		3.20	176	
	Mar. 31, 1940	2.70	250	June 2, 1953	3.16	170		
1941	May 1, 1941	2.15	122	June 8, 1953	3.24	182		
		2.15	122	June 13, 1953	3.47	224		
1942	Jan. 27, 1942	3.20	386	1954	Dec. 20, 1953	2.96	142	
	Feb. 3, 1942	2.76	266		Jan. 29, 1954	a3.49	-	
	Mar. 11, 1942	3.37	435	1955	May 21, 1955	3.22	179	
	Mar. 30, 1942	2.88	298		1956	Dec. 12, 1955	3.49	288
	Apr. 11, 1942	2.59	222			Dec. 22, 1955	4.77	561
May 1, 1942	2.33	160	Jan. 15, 1956	5.48		792		
May 10, 1942	2.38	171	Mar. 23, 1956	a7.39		-		
May 16, 1942	2.43	183	Mar. 25, 1956	6.53		1,210		
1943	Feb. 21, 1943	a5.37	-	Apr. 16, 1956	3.51	262		
	Mar. 26, 1943	2.80	269	May 8, 1956	5.27	750		
	Apr. 8, 1943	2.42	176	1957	Feb. 24, 1957	6.84	1,340	
	Apr. 29, 1943	2.67	236		Mar. 7, 1957	4.51	508	
	May 1, 1943	2.63	226		Mar. 18, 1957	3.05	178	
1944	Feb. 6, 1944	2.43	179		Mar. 31, 1957	3.13	190	
	Mar. 9, 1944	3.32	416		Apr. 5, 1957	3.66	292	
1945	Jan. 7, 1945	a3.04	-	Apr. 15, 1957	3.16	194		
				May 19, 1957	3.76	312		

a Backwater from ice.

## 450. Cottonwood Creek near Monument, Oreg.

Location.--Lat 44°45'55", long 119°24'25", in SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.30, T.9 S., R.28 E., 300 ft upstream from diversion dam, about 1 mile upstream from East Fork, and 4 miles south of Monument.

Drainage area.--210 sq mi.

Gage.--Nonrecording. Altitude of gage is 2,180 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 180 cfs and extended by logarithmic plotting. Subject to shifts.

Remarks.--Many diversions for irrigation of 6,100 acres above station. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1925	May 20, 1925	-	a258	1929	Mar. 28, 1929	2.40	b585
				1930	Feb. 1, 1930	2.3	530
1927	June 10, 1927	1.76	b298				
1928	Mar. 27, 1928	1.75	b294	1931	Apr. 1, 1931	2.0	375

a Maximum discharge observed at site at Monument; drainage area, 232 sq mi.  
b Maximum discharge observed.

## 460. North Fork John Day River at Monument, Oreg.

Location.--Lat 44°48'50", long 119°25'50", in SE<sup>1</sup>/<sub>4</sub> sec.2, T.9 S., R.27 E., on right bank just downstream from entrance to canyon, 0.7 mile downstream from Cottonwood Creek and three-quarters of a mile west of Monument.

Drainage area.--2,520 sq mi, approximately. Mean altitude, 4,580 ft; channel slope, 42.9 ft per mile; area of lakes and ponds, 0.42 sq mi.

Gage.--Nonrecording prior to Nov. 24, 1925; recording thereafter. Nov. 24, 1925, to Oct. 16, 1928, at datum 1.10 ft higher and Oct. 17, 1928, to Sept. 30, 1930, at datum 1.00 ft higher. Datum of gage is 1,959.64 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 12,000 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Very slight regulation by small reservoirs upstream. Many small diversions for irrigation above station. Base for partial-duration series, 5,300 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1925	Apr. 11, 1925	6.85	6,400	1933	Apr. 4, 1933	7.75	6,440
					Apr. 28, 1933	7.73	6,280
1926	Feb. 7, 1926	5.95	5,190		May 4, 1933	7.57	6,120
					May 18, 1933	7.28	5,640
1927	Feb. 21, 1927	6.85	6,400		May 26, 1933	7.84	6,440
	Apr. 27, 1927	7.96	8,370		May 31, 1933	7.95	6,780
	May 16, 1927	6.44	5,840				
	June 8, 1927	8.01	8,370	1934	Dec. 26, 1933	5.94	3,640
1928	Mar. 22, 1928	-	a9,500	1935	Apr. 16, 1935	7.85	6,440
1929	Mar. 21, 1929	6.7	6,590	1936	Apr. 18, 1936	8.45	7,590
	Apr. 28, 1929	5.91	5,310		Apr. 25, 1936	7.57	6,200
	May 14, 1929	5.97	5,470				
	May 23, 1929	6.0	5,470	1937	Apr. 1, 1937	7.39	5,880
					Apr. 15, 1937	9.75	10,200
1930	Feb. 15, 1930	4.07	2,740		May 4, 1937	7.89	6,710
					May 14, 1937	7.31	5,720
1931	Apr. 1, 1931	10.48	11,800				
1932	Jan. 11, 1932	b7.39	-	1938	Apr. 19, 1938	9.68	10,000
	Feb. 28, 1932	7.82	6,710		May 1, 1938	8.11	7,050
	Mar. 18, 1932	14.8	22,000	1939	Mar. 25, 1939	10.20	11,000

a Annual peak only; estimated.  
b Backwater from ice.

## Peak stages and discharges of North Fork John Day River at Monument, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1939	Apr. 2, 1939	7.72	6,450	1948	May 28, 1948	13.74	18,600
1940	Feb. 28, 1940	9.80	10,200	June 4, 1948	10.68	11,300	
	Mar. 2, 1940	7.57	6,210	June 21, 1948	7.56	5,590	
	Mar. 27, 1940	8.94	8,570	1949	Mar. 18, 1949	-	a9,500
1941	Dec. 21, 1940	b9.81	-	1950	Apr. 13, 1950	7.50	5,490
	June 7, 1941	6.70	4,890	May 15, 1950	7.58	5,620	
1942	Jan. 27, 1942	b11.8	-	1951	Feb. 11, 1951	9.18	8,950
	Mar. 12, 1942	8.32	7,350	Mar. 15, 1951	8.67	8,010	
	Apr. 1, 1942	8.67	7,980	Apr. 14, 1951	8.21	7,180	
	Apr. 14, 1942	8.65	7,980	May 12, 1951	7.98	6,790	
	Apr. 22, 1942	7.15	5,440	1952	Mar. 26, 1952	14.61	20,900
	May 10, 1942	7.45	5,900		Apr. 7, 1952	9.87	9,690
	May 15, 1942	7.45	5,900		Apr. 14, 1952	8.53	7,210
	May 23, 1942	7.18	5,480		Apr. 18, 1952	8.43	7,040
1943	Jan. 1, 1943	8.67	7,980	Apr. 26, 1952	8.63	7,390	
	Mar. 28, 1943	11.51	13,600	May 8, 1952	12.05	14,400	
	Apr. 8, 1943	9.07	8,500	1953	Jan. 18, 1953	9.25	8,520
	Apr. 16, 1943	9.82	9,960		Feb. 3, 1953	8.29	6,800
	May 1, 1943	9.93	10,200		Feb. 8, 1953	7.69	5,780
1944	Mar. 10, 1944	8.06	6,730		Mar. 25, 1953	9.80	9,560
	1945	Feb. 13, 1945	7.56		6,040	Apr. 28, 1953	10.95
		Mar. 23, 1945	7.69	6,240	May 7, 1953	7.85	6,060
		Mar. 21, 1945	7.40	5,800	May 20, 1953	9.61	9,200
		May 5, 1945	7.91	6,580	June 2, 1953	7.49	5,440
May 17, 1945		7.93	6,610	June 13, 1953	8.58	7,300	
1946	Dec. 29, 1945	11.43	13,400	1954	Apr. 14, 1954	7.34	5,190
	Feb. 28, 1946	7.81	6,420	1955	May 21, 1955	7.61	5,650
	Mar. 13, 1946	7.30	5,650	1956	Dec. 21, 1955	13.60	18,300
	Apr. 19, 1946	8.51	7,560		Jan. 15, 1956	10.79	11,900
	Apr. 26, 1946	8.57	7,660		Jan. 22, 1956	7.45	5,330
May 8, 1946	7.34	5,710	Mar. 24, 1956		12.31	15,200	
1947	Jan. 26, 1947	b9.33	-		Apr. 23, 1956	9.61	9,520
	Apr. 18, 1947	7.11	5,360	May 8, 1956	14.48	20,200	
1948	Jan. 8, 1948	11.4	13,300	1957	Feb. 24, 1957	b10.52	-
	Feb. 16, 1948	b10.0	-	Feb. 26, 1957	10.05	10,400	
	Feb. 26, 1948	7.75	6,320	Mar. 8, 1957	8.54	7,380	
	Apr. 21, 1948	9.02	8,100	Mar. 31, 1957	9.37	9,040	
	Apr. 30, 1948	7.38	5,300	Apr. 6, 1957	9.72	9,740	
	May 7, 1948	9.00	8,060	May 19, 1957	9.05	8,400	
	May 22, 1948	14.67	21,100				

a Annual peak only; estimated.

b Backwater from ice.

465. John Day River at Service Creek, Oreg.

(Published by State engineer of Oregon as "near Twickenham" 1930)

Location.--Lat 44°47'40", long 120°00'30", in N½ sec.18, T.9 S., R.23 E., on left bank 0.2 mile downstream from bridge on State Highway 207, half a mile downstream from Service Creek, and three-quarters of a mile southwest of town of Service Creek.

Drainage area.--5,090 sq mi, approximately. At site used 1925-26, 5,250 sq mi, approximately. Mean altitude, 4,400 ft; channel slope, 32.7 ft per mile; area of lakes and ponds, 1.4 sq mi.

Gage.--Nonrecording at site 12 miles downstream at different datum prior to Nov. 6, 1929, and at site 500 ft upstream at datum 0.76 ft higher Feb. 7, 1956, to Feb. 23, 1957. Recording at site 1,000 ft upstream Nov. 23, 1929, to Feb. 6, 1956, and at present site since Feb. 24, 1957. At datum 4.01 ft higher Nov. 23, 1929, to Sept. 25, 1930. At datum 3.21 ft higher Sept. 26, 1930, to Feb. 6, 1956. Datum of gage is 1,632.42 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 17,500 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Many diversions for irrigation above station. Only annual peak shown for 1926. Base for partial-duration series, 7,300 cfs.

## JOHN DAY RIVER BASIN

Peak stages and discharges of John Day River at Service Creek, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1926	Feb. 5, 1926	-	a7,130	1946	Apr. 26, 1946	10.48	10,200	
1930	Feb. 6, 1930	b8.56	-	1947	May 9, 1946	8.92	7,300	
	Feb. 15, 1930	6.67	3,260		Apr. 20, 1947	9.07	7,380	
1931	Apr. 1, 1931	12.26	14,600	1948	Jan. 8, 1948	13.00	15,800	
1932	Feb. 27, 1932	10.32	9,450		Feb. 26, 1948	9.47	7,500	
	Mar. 19, 1932	16.75	28,900		Apr. 21, 1948	11.29	11,500	
	Mar. 25, 1932	11.32	12,800		May 7, 1948	11.22	11,200	
	Apr. 3, 1932	10.77	11,500		May 22, 1948	15.25	23,900	
	Apr. 14, 1932	11.32	12,800		June 10, 1948	12.00	14,900	
	May 14, 1932	10.52	10,700	June 21, 1948	9.70	7,940		
1933	Apr. 4, 1933	9.42	8,300	1949	Feb. 19, 1949	10.45	10,700	
	Apr. 26, 1933	9.52	8,510		Feb. 23, 1949	11.02	12,200	
	May 4, 1933	9.30	8,090		Mar. 19, 1949	11.36	13,200	
	May 31, 1933	7.44	6,300		Apr. 12, 1949	9.93	9,500	
1934	Dec. 27, 1933	6.85	4,000		Apr. 20, 1949	10.29	10,200	
	1935	Apr. 16, 1935	9.28		8,020	May 3, 1949	10.55	10,900
		Apr. 18, 1936	10.43	10,600	May 14, 1949	10.02	9,530	
1937	Apr. 2, 1937	9.17	7,800	1950	Feb. 26, 1950	9.19	7,550	
	Apr. 15, 1937	11.06	14,500		Mar. 18, 1950	9.58	8,440	
	May 4, 1937	9.97	9,600		Apr. 2, 1950	9.44	8,110	
1938	Dec. 12, 1937	9.18	7,890	Apr. 13, 1950	9.57	8,420		
	Apr. 19, 1938	12.04	14,800	May 15, 1950	9.23	7,640		
	1939	Mar. 24, 1939	12.29	15,600	1951	Feb. 11, 1951	11.59	13,800
1940		Feb. 29, 1940	11.30	12,900		Mar. 16, 1951	10.68	11,300
	Mar. 2, 1940	9.28	8,050	Apr. 24, 1951		10.29	10,300	
	Mar. 27, 1940	11.30	12,900	May 12, 1951		9.86	9,130	
Apr. 1, 1940	9.80	9,150	1952	Mar. 26, 1952		15.50	26,800	
1941	June 8, 1941	8.30		6,270		Apr. 7, 1952	12.36	16,100
	1942	Dec. 20, 1941		9.01	7,530	Apr. 14, 1952	10.79	11,600
Jan. 27, 1942		11.08		12,300	Apr. 19, 1952	10.71	11,400	
Mar. 12, 1942		10.60		11,100	Apr. 27, 1952	10.73	11,400	
Apr. 14, 1942		10.88		11,800	May 9, 1952	12.65	17,000	
1943	Jan. 1, 1943	11.25	14,100	1953	Jan. 19, 1953	11.14	12,500	
	Feb. 22, 1943	9.08	7,660		Feb. 4, 1953	9.81	9,060	
	Mar. 28, 1943	13.14	16,100		Feb. 8, 1953	9.65	8,680	
	Apr. 16, 1943	12.11	13,700		Mar. 25, 1953	11.21	12,700	
	May 1, 1943	12.20	13,900		Apr. 28, 1953	12.58	16,800	
1944	Mar. 10, 1944	8.92	7,200		May 8, 1953	9.37	8,050	
	1945	Apr. 21, 1945	9.22	7,740	May 20, 1953	11.30	13,000	
		May 5, 1945	9.74	8,710	June 13, 1953	10.20	10,000	
		May 17, 1945	9.55	8,340	1954	Apr. 14, 1954	8.93	7,170
	1946	Dec. 29, 1945	14.10	18,600		1955	May 21, 1955	9.17
		Feb. 28, 1946	9.71	8,730	1956		Dec. 22, 1955	14.60
Mar. 13, 1946		9.22	7,830	Jan. 16, 1956		12.88	17,700	
Apr. 19, 1946		10.81	11,000	Mar. 23, 1956	14.2	24,500		
1947	1946	1946	1946	1947	May 8, 1956	15.1	28,100	
					1957	Feb. 27, 1957	10.05	14,200
						Mar. 7, 1957	8.76	10,400
						Mar. 31, 1957	9.58	12,700
						Apr. 6, 1957	10.00	14,000
May 20, 1957	9.30	11,900						

a Maximum discharge observed.  
b Backwater from ice.

480. John Day River at McDonald Ferry, Oreg.  
(Published as "at McDonald" prior to 1931)

Location.--Lat 45°35'20", long 120°24'30", in NW<sup>1</sup> sec.11, T.1 N., R.19 E., on left bank at McDonald Ferry, three-quarters of a mile downstream from Rock Creek and 10 miles east of Klondike.

Drainage area.--7,580 sq mi, approximately. Mean altitude, 3,880 ft; channel slope, 21.1 ft per mile; area of lakes and ponds, 1.4 sq mi.

Gage.--Nonrecording prior to Aug. 30, 1930; recording thereafter. Datum of gage is 392.27 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by discharge measurements below 22,000 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Many diversions for irrigation above station. Only annual peaks are shown prior to 1932. Base for partial-duration series, 6,900 cfs.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1894	-	12.8	39,100	1938	Dec. 13, 1937	5.98	8,060
1905	May 10, 1905	4.85	5,370	Mar. 3, 1938	5.67	7,040	
1906	May 31, 1906	7.90	a14,000	Mar. 20, 1938	5.95	8,060	
1907	Feb. 6, 1907	10.8	27,800	Apr. 20, 1938	7.64	13,700	
1908	May 17, 1908	7.20	a11,700	1939	Mar. 25, 1939	7.68	14,000
1910	Mar. 3, 1910	8.50	16,300	1940	Mar. 1, 1940	7.28	12,500
1911	Mar. 24, 1911	5.90	8,200	Mar. 28, 1940	7.07	11,800	
1912	May 11, 1912	7.9	a14,300	Apr. 2, 1940	6.55	10,000	
1913	Apr. 21, 1913	7.7	a13,700	1941	June 9, 1941	5.32	6,290
1914	Apr. 17, 1914	6.95	11,100	1942	Dec. 21, 1941	5.89	7,940
1915	Apr. 4, 1915	5.1	a5,870	Jan. 28, 1942	7.11	11,900	
1916	Feb. 11, 1916	9.2	18,900	Feb. 5, 1942	5.87	7,880	
1917	Apr. 27, 1917	9.6	22,600	Mar. 13, 1942	6.88	11,100	
1918	Feb. 8, 1918	6.8	11,200	Apr. 15, 1942	6.94	11,300	
1919	Apr. 5, 1919	8.5	17,200	May 11, 1942	5.83	7,760	
1920	Apr. 14, 1920	7.15	12,600	May 17, 1942	5.95	8,120	
1921	Feb. 15, 1921	8.8	18,400	May 24, 1942	5.79	7,640	
1922	Apr. 23, 1922	8.3	a16,400	1943	Jan. 2, 1943	7.79	14,000
1923	Apr. 19, 1923	6.6	a10,500	Feb. 23, 1943	6.08	8,310	
1924	Feb. 9, 1924	6.25	a9,180	Mar. 29, 1943	8.14	15,300	
1925	Feb. 6, 1925	7.92	a15,000	Apr. 17, 1943	7.68	13,700	
1926	Feb. 8, 1926	5.9	a8,180	May 2, 1943	7.80	14,100	
1927	Apr. 28, 1927	7.12	a12,900	1944	Mar. 11, 1944	5.50	6,610
1928	Jan. 14, 1928	7.04	a12,500	1945	Jan. 15, 1945	5.80	7,470
1929	Mar. 23, 1929	5.8	8,270	Mar. 24, 1945	5.69	7,150	
1930	Feb. 16, 1930	4.10	a3,420	Apr. 22, 1945	5.94	7,890	
1931	Apr. 2, 1931	6.84	11,800	May 5, 1945	6.21	8,710	
1932	Feb. 29, 1932	6.24	9,630	May 18, 1945	6.21	8,710	
Mar. 20, 1932	10.60	26,800		May 28, 1945	5.92	7,830	
Mar. 26, 1932	7.16	11,900		1946	Dec. 30, 1945	8.67	17,300
Apr. 4, 1932	6.83	10,500		Mar. 1, 1946	6.23	8,770	
Apr. 15, 1932	7.07	11,500		Mar. 14, 1946	6.04	8,190	
May 15, 1932	6.58	9,900		Apr. 20, 1946	6.79	10,600	
1933	Apr. 5, 1933	5.92	7,760	Apr. 27, 1946	6.54	9,750	
Apr. 29, 1933	5.97	8,060		May 10, 1946	5.68	7,120	
May 27, 1933	5.92	7,760		1947	Apr. 19, 1947	5.59	6,860
1934	Dec. 28, 1933	4.37	3,760	1948	Jan. 8, 1948	8.13	15,600
1935	Apr. 17, 1935	5.90	7,760	Feb. 27, 1948	6.00	8,070	
1936	Feb. 23, 1936	5.89	7,760	Apr. 18, 1948	7.19	12,000	
Apr. 19, 1936	6.58	9,900		May 8, 1948	7.11	11,700	
1937	Apr. 3, 1937	5.90	7,760	May 23, 1948	9.83	23,000	
Apr. 16, 1937	7.65	13,300		June 11, 1948	7.99	15,100	
May 5, 1937	6.29	8,970		1949	Feb. 10, 1949	b8.82	-
				Feb. 20, 1949	6.20	8,680	
				Feb. 24, 1949	6.70	10,300	
				Mar. 20, 1949	7.33	12,500	

a Maximum discharge observed.

b Backwater from ice.

Peak stages and discharges of John Day River at McDonald Ferry, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1949	Apr. 13, 1949	6.24	8,800	1953	Jan. 20, 1953	7.00	11,300	
	Apr. 21, 1949	6.43	9,410		Feb. 9, 1953	6.33	9,090	
	May 4, 1949	6.61	9,990		Mar. 26, 1953	7.25	12,200	
	May 15, 1949	6.23	8,770		Apr. 29, 1953	8.17	15,800	
1950	Feb. 8, 1950	b13.2	-	May 8, 1953	6.11	8,400		
	Feb. 27, 1950	6.0	8,070	May 21, 1953	7.26	12,200		
	Mar. 7, 1950	5.65	7,040	June 14, 1953	6.57	9,860		
	Mar. 19, 1950	6.08	8,310	1954	Apr. 15, 1954	5.68	7,120	
	Apr. 3, 1950	5.98	8,010		1955	May 22, 1955	5.91	7,800
	Apr. 14, 1950	6.00	8,070			1956	Dec. 23, 1955	9.78
	May 16, 1950	5.78	7,410	Jan. 17, 1956	8.84		18,600	
1951	Feb. 12, 1951	7.70	13,900	Mar. 27, 1956	9.21		20,200	
	Mar. 17, 1951	6.90	11,000	Apr. 23, 1956	7.43		12,900	
	Mar. 22, 1951	5.98	8,010	May 9, 1956	10.22	24,900		
	Apr. 7, 1951	6.71	10,300	May 31, 1956	7.03	11,400		
	Apr. 30, 1951	5.73	7,270	1957	Feb. 27, 1957	7.73	14,200	
	May 13, 1951	6.35	9,150		Mar. 11, 1957	6.84	11,000	
1952	Mar. 27, 1952	9.8	22,900		Apr. 1, 1957	7.38	12,900	
	Apr. 8, 1952	8.10	15,500		Apr. 7, 1957	7.43	13,100	
	Apr. 16, 1952	6.99	11,300		May 20, 1957	7.10	12,000	
	Apr. 28, 1952	6.92	11,000					
	May 10, 1952	8.07	15,400					

b Backwater from ice.

## DESCHUTES RIVER BASIN

500. Deschutes River below Snow Creek, near Lapine, Oreg.

Location.--Lat 43°48'50", long 121°46'40", in NW<sup>1</sup> sec.28, T.20 S., R.8 E., on left bank just upstream from Crane Prairie Reservoir, 50 ft downstream from Snow Creek, 300 ft upstream from highway bridge, and 17 miles northwest of Lapine.

Drainage area.--132 sq mi, including Sparks, Elk, and Mud Lake basins, which have no surface outflow to Deschutes River; hydrologic drainage boundary uncertain owing to ground-water exchange. Mean altitude, 5,850 ft; channel slope, 40.8 ft per mile; area of lakes and ponds, 2.7 sq mi.

Gage.--Recording. At site 450 ft downstream at different datum prior to Sept. 9, 1938. Altitude of gage is 4,445 ft (from elevation of Crane Prairie Reservoir when slack water extended to gage).

Stage-discharge relation.--Defined by current-meter measurements below 350 cfs and extended by logarithmic plotting; frequently affected by backwater from Crane Prairie Reservoir.

Bankfull stage.--Not subject to overflow.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1938	July 27, 1938	1.96	291	1949	Aug. 8 to 13, 1949	2.13	295	
1939	Nov. 3, 1938	1.86	233		1950	Aug. 24, 1950	2.51	331
1940	Oct. 5, 1939	1.49	118			1951	Aug. 21, 1951	2.74
1941	Oct. 24, 1940	1.38	89	1952	Aug. 3, 1952		2.49	333
1942	Sept. 2, 1942	1.37	89	1953	Aug. 26, 1953		2.42	335
1943	Aug. 31, 1945	2.42	362	1954	Nov. 23, 1953		2.36	326
1944	July 27, 1944	1.45	106	1955	Sept. 15, 1955		1.58	187
1945	Aug. 25, 1945	1.62	148	1956	July 13, 1956		3.13	444
1946	Aug. 28, 1946	2.26	335		1957	Aug. 21, 1957	1.88	260
1947	July 27, 1947	1.90	250					
1948	Aug. 22, 1948	2.52	341					

505. Cultus River above Cultus Creek, near Lapine, Oreg.

Location.--Lat 43°49'10", long 121°47'50", near line between secs. 20 and 29, T.20 S., R.8 E., on left bank at road crossing, 2 miles upstream from Cultus Creek and 18 miles northwest of Lapine.

Drainage area.--16.5 sq mi, hydrologic drainage boundary uncertain owing to ground-water exchange. Mean altitude, 5,230 ft; channel slope, 33.3 ft per mile; area of lakes and ponds, 0.1 sq mi.

Gage.--Nonrecording at site half a mile upstream at different datum prior to Sept. 30, 1925; recording thereafter. Altitude of gage is 4,450 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 125 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1923	Aug. 8, 1923	0.75	78	1947	May 3, 1947	0.84	87
1924	Oct. 10, 1923	.67	65	1948	June 10, 1948	1.02	101
1925	May 19, 1925	.68	94	1949	May 14, 1949	.95	114
				1950	June 12, 1950	.95	114
1938	May 16, 1938	.99	118	1951	July 26, 1951	1.18	137
1939	Apr. 29, 1939	.85	70	1952	May 22, 1952	.97	124
1940	July 15, 1940	.81	61	1953	June 8, 1953	.91	101
1941	Oct. 26, 1940	.72	43	1954	May 18, 1954	1.08	96
1942	July 19, 1942	.79	57	1955	Aug. 5, 1955	.60	66
1943	June 1, 1943	1.01	118				
1944	July 9, 1944	.70	57	1956	May 31, 1956	1.04	178
1945	June 20, 1945	.89	70	1957	Apr. 29, 1957	.82	118
1946	May 19, 1946	.98	114				

510. Cultus Creek above Crane Prairie Reservoir, near Lapine, Oreg.  
(Published as Cultus Creek above Crane Prairie, near Lapine 1924, and as Cultus Creek near Lapine 1938-41)

Location.--Lat 43°49'30", long 121°49'30", in SW $\frac{1}{4}$  sec.19, T.20 S., R.8 E., on left bank 1,000 ft upstream from highway bridge, three-quarters of a mile downstream from Cultus Lake, and 19 miles northwest of Lapine.

Drainage area.--33.2 sq mi, hydrologic drainage boundary uncertain owing to ground-water exchange. Mean altitude, 5,270 ft; channel slope, 73.2 ft per mile; area of lakes and ponds, 2.4 sq mi.

Gage.--Nonrecording at site 100 ft upstream at different datum prior to Sept. 30, 1924; recording thereafter. Altitude of gage is 4,545 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 205 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Records for 1928-49 furnished by State engineer of Oregon. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1924	May 20, 1924	0.99	43	1947	June 25, 1947	1.66	71
1925	May 19, 1925	2.00	158	1948	June 12, 1948	2.26	144
				1949	May 17, 1949	2.34	163
1938	May 29, 1938	2.35	100	1950	June 15, 1950	2.76	177
1939	May 22, 1939	1.50	59				
1940	May 15, 1940	1.27	40	1951	May 20, 1951	1.96	109
1941	May 25, 1941	1.08	27	1952	May 31, 1952	2.36	149
1942	May 26, 1942	1.53	58	1953	June 18, 1953	2.02	118
1943	June 1, 1943	2.72	214	1954	May 21, 1954	1.91	103
1944	June 14, 1944	1.59	62	1955	June 13, 1955	2.14	133
1945	May 18, 1945	1.80	90	1956	June 2, 1956	2.63	211
				1957	May 14, 1957	2.11	123
1946	May 28, 1946	2.23	136				

520. Deer Creek above Crane Prairie Reservoir, near Lapine, Oreg.  
(Published as "above Crane Prairie, near Lapine" 1924, 1937-41)

Location.--Lat 43°48'20", long 121°50'20", in NW¼ sec.36, T.20 S., R.7 E., on right bank 150 ft downstream from highway bridge, 1½ miles downstream from Little Cultus Lake, and 19 miles northwest of Lapine.

Drainage area.--21.5 sq mi. Mean altitude, 5,290 ft; channel slope, 130 ft per mile; area of lakes and ponds, 0.6 sq mi.

Gage.--Nonrecording at site 75 ft upstream at various datums prior to Sept. 30, 1924; recording thereafter. Dec. 1, 1937, to Sept. 30, 1938, at road bridge 150 ft upstream at different datum. Station has log control. Altitude of gage is 4,520 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--Not subject to overflow.

Remarks.--Records 1938-49 furnished by State engineer of Oregon. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1924	May 15, 1924	1.01	16	1948	June 10, 1948	1.79	78
1938	May 17, 1938	1.45	46	1949	May 12, 1949	1.89	71
1939	Apr. 24, 1939	1.28	30	1950	June 13, 1950	1.73	93
1940	Apr. 15, 1940	1.12	25	1951	Jan. 28, 1951	a2.83	-
1941	May 6, 1941	1.01	16		May 11, 1951	1.53	51
1942	May 25, 1942	1.31	28	1952	May 28, 1952	1.72	70
1943	Nov. 30, 1942	1.95	97	1953	June 7, 1953	1.60	58
1944	May 9, 1944	1.10	23	1954	May 11, 1954	1.47	46
1945	May 5, 1945	1.56	52	1955	June 10, 1955	1.68	66
				1956	(b)	a3.14	-
1946	May 21, 1946	1.72	67		May 23, 1956	1.84	84
1947	May 4, 1947	1.50	46	1957	Dec. 13, 1956	1.76	76

a Backwater from ice.

b During period Jan. 25 to Apr. 2, 1956.

525. Quinn River near Lapine, Oreg.

(Published as "above Crane Prairie, near Lapine" 1922-25)

Location.--Lat 43°47'10", long 121°50'10", in NW¼ sec.1, T.21 S., R.7 E., on left bank just upstream from Crane Prairie Reservoir, 150 ft downstream from springs at head of river and 18 miles northwest of Lapine.

Gage.--Nonrecording at site 150 ft downstream at different datum prior to Sept. 30, 1925; recording thereafter. Log control since Sept. 13, 1938. Datum of gage is 4,442.1 ft above mean sea level (based on elevation of Crane Prairie Reservoir when slack water reached station).

Stage-discharge relation.--Defined by current-meter measurements; frequently affected by backwater from Crane Prairie Reservoir.

Bankfull stage.--Not subject to overflow.

Remarks.--Practically entire flow from springs 150 ft above station. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1923	July 26, 1923	0.83	36	1949	July 4, 1949	1.97	59
1924	Oct. 15, 1923	.76	33		Sept. 29, 1949	a3.03	-
1925	July 24, 1925	.64	35	1950	July 12, 1950	-	40
1938	July 15, 1938	.80	47	1951	June 18, 1951	a3.47	54
1939	June 11, 1939	1.87	29	1952	May 22, 1952	a3.66	-
1940	May 23, 1940	1.79	20		June 16, 1952	-	51
1941	July 5, 1941	1.64	9.5	1953	June 11, 1953	a3.33	-
1942	Aug. 13, 1942	1.80	24		Aug. 7, 1953	1.53	47
1943	June 25, 1943	a3.92	-	1954	May 18, 1954	a3.78	-
	Sept. 10, 1943	-	47	1955	Aug. 10, 1954	1.56	44
1944	June 20, 1944	1.78	24		Sept. 2, 1955	1.34	32
1945	June 15, 1945	1.83	28	1956	June 2, 1956	a3.47	-
1946	July 24, 1946	1.99	55		July 29, 1956	-	56
1947	June 23, 1947	1.90	40	1957	Mar. 18, 1957	a3.73	-
1948	July 4, 1948	1.80	50		June 18, 1957	-	47

a Backwater from Crane Prairie Reservoir.

530. Charlton Creek above Crane Prairie Reservoir, near Lapine, Oreg.

Location.--Lat 43°47'00", long 121°50'00", in NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.1, T.21 S., R.7 E., on left bank 3 miles northwest of Crane Prairie Dam and 18 miles northwest of Lapine.

Drainage area.--15.6 sq mi, hydrologic drainage boundary uncertain owing to ground-water exchange. Mean altitude, 5,360 ft; channel slope, 155 ft per mile; area of lakes and ponds, 0.25 sq mi.

Gage.--Recording. Datum of gage is 4,458.70 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 27 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Records for 1937-49 furnished by State engineer of Oregon. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938	Dec. 18, 1937	1.55	53	1949	May 16, 1949	1.36	34
1939	Apr. 28, 1939	1.08	12	1950	June 12, 1950	1.53	54
1940	Apr. 17, 1940	1.14	15				
				1951	Jan. 28, 1951	a2.17	-
1941	May 14, 1941	.80	2.0		May 26, 1951	1.21	21
1942	May 24, 1942	.95	4.8	1952	May 29, 1952	1.35	32
1943	June 1, 1943	1.56	54	1953	May 21, 1953	1.32	30
1944	May 3, 1944	1.08	12	1954	May 10, 1954	1.24	24
1945	May 16, 1945	1.17	14	1955	June 11, 1955	1.27	26
				1956	May 31, 1956	1.52	49
1946	May 17, 1946	1.32	28	1957	Mar. 9, 1957	a2.39	-
1947	May 2, 1947	1.10	13		May 8, 1957	1.30	24
1948	June 10, 1948	1.42	40				

a Backwater from ice.

540. Deschutes River below Crane Prairie Reservoir, near Lapine, Oreg. (Published as "at Crane Prairie, near Lapine" prior to 1950)

Location.--Lat 43°45'10", long 121°46'50", in NW $\frac{1}{4}$  sec.16, T.21 S., R.8 E., on left bank 600 ft downstream from Crane Prairie Dam and 15 miles northwest of Lapine.

Drainage area.--254 sq mi, hydrologic drainage boundary uncertain owing to ground-water exchange.

Gage.--Nonrecording at site half a mile upstream at different datums prior to June 8, 1922. Recording or nonrecording gage at present site and datum June 9, 1922, to May 9, 1932, and recording thereafter. Datum of gage is 4,419.78 ft above mean sea level, datum of 1912 (Pacific Power & Light Co. bench mark).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--Not subject to overflow.

Remarks.--Flow regulated since Nov. 4, 1922, by Crane Prairie Reservoir (usable capacity, 55,340 acre-ft). Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1914	June 7, 1914	2.20	388	1927	Aug. 26, 1927	2.02	418
1915	Apr. 5, 1915	1.75	252	1928	May 16, 1928	2.06	418
				1929	July 31, 1929	1.83	322
1916	Aug. 31, 1916	2.60	450	1930	July 10, 1930	2.00	373
1917	June 26, 1917	2.80	505				
				1931	July 9, 1931	1.70	283
1922	June 10, 1922	2.20	520	1932	Aug. 10, 1932	2.08	431
1923	Aug. 9, 1923	2.00	430	1933	Aug. 9, 1933	2.22	514
1924	Apr. 18, 1924	2.40	604	1934	July 20, 1934	2.16	490
1925	June 8, 1925	2.05	449	1935	July 22, 1935	2.32	539
				1936	Aug. 7, 1936	2.18	501
1926	May 11, 1926	1.40	231				

Peak stages and discharges of Deschutes River below Crane Prairie Reservoir, near Lapine, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1937	July 12, 1937	2.29	538	1948	Feb. 26, 1948	2.33	578
1938	Aug. 3, 1938	2.58	659	1949	Nov. 17, 1948	2.86	856
1939	Aug. 5, 1939	2.20	474	1950	May 24, 1950	2.96	919
1940	July 2, 1940	2.19	481	1951	Nov. 8, 1950	2.92	893
1941	July 13, 1941	1.84	360	1952	Nov. 27, 1951	2.94	906
1942	July 14, 1942	2.18	507	1953	Nov. 5, 1952	3.14	1,040
1943	Aug. 29, 1943	2.30	550	1954	Sept. 17, 1954	2.80	820
1944	Nov. 10, 1943	2.85	850	1955	Apr. 11, 1955	2.02	430
1945	Aug. 5, 1945	2.12	484	1956	July 28, 1956	2.70	744
1946	June 1, 1946	1.92	403	1957	Sept. 13, 1957	2.45	625
1947	July 28, 1947	3.34	1,170				

## 545. Brown Creek near Lapine, Oreg.

Location.--Lat 43°43'30", long 121°48'40", in SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.30, T.21 S., R.8 E., on left bank  $1\frac{1}{2}$  miles upstream from mouth and 16 miles northwest of Lapine.

Drainage area.--19.7 sq mi; 21.4 sq mi at site used prior to 1946. Hydrologic drainage boundary uncertain owing to ground-water exchange. Mean altitude, 5,150 ft; channel slope, 120 ft per mile; area of lakes and ponds, 0.09 sq mi.

Gage.--Nonrecording prior to June 17, 1938; recording thereafter. June 17, 1938, to Nov. 1, 1945, at site  $1\frac{1}{4}$  miles downstream at different datums. Datum of gage is 4,372.94 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 80 cfs, and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Records furnished by the State engineer of Oregon. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1923	Jan. 1, 1923	0.56	47	1947	Nov. 18, 1946	1.05	54
1925	Sept. 24, 1925	.69	39	1948	Aug. 25, 1948	1.05	47
1938	July 27, 1938	2.22	53	1949	Aug. 20, 1949	1.14	53
1939	Nov. 3, 1938	2.33	58	1950	Sept. 15, 1950	-	55
1940	Dec. 9, 1939	1.84	34	1951	Oct. 28, 1950	1.43	87
1941	Oct. 24, 1940	1.68	28	1952	Aug. 24, 1952	-	64
1942	Dec. 2, 1941	1.58	24	1953	Aug. 26, 1953	1.46	63
1943	Aug. 29, 1943	2.17	60	1954	Nov. 23, 1953	1.56	75
1944	Nov. 4, 1943	2.28	66	1955	May 5, 1955	1.16	50
1945	Nov. 2, 1944	1.71	31	1956	Aug. 4, 1956	1.64	104
1946	Sept. 16, 1946	-	47	1957	Dec. 11, 1956	1.61	101

## 550. Deschutes River above Davis Creek, near Lapine, Oreg.

Location.--Lat 43°41'20", long 121°44'40", in SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.3, T.22 S., R.8 E., at highway bridge at Graft Ranch, half a mile upstream from Davis Creek and 12 miles west of Lapine.

Drainage area.--290 sq mi, hydrologic drainage boundary uncertain owing to ground-water exchange.

Gage.--Nonrecording. Altitude of gage is 4,290 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--Not subject to overflow.

Remarks.--Partly regulated by Crane Prairie Reservoir (usable capacity, 55,340 acre-ft). Only annual observed peaks are shown.

Peak stages and discharges of Deschutes River above Davis Creek, near Lapine, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1925	Sept. 5, 1925	2.02	806	1929	Aug. 1, 1929	1.34	602
1926	Feb. 8, 1926	1.30	586	1930	July 10, 1930	1.52	666
1927	Aug. 23, 1927	1.94	770	1931	June 27, 1931	1.20	564
1928	Aug. 25, 1928	1.88	774	1932	Aug. 15, 1932	1.82	742

555. Odell Creek near Crescent, Oreg.

Location.--Lat 43°32'50", long 121°57'40", in SW $\frac{1}{4}$  sec.25, T.23 S., R.6 E., on left bank 1,000 ft downstream from Odell Lake, 3 $\frac{1}{2}$  miles north of Crescent Lake, and 14 miles northwest of Crescent.

Drainage area.--39.0 sq mi. Mean altitude, 5,540 ft; channel slope, 94.2 ft per mile; area of lakes and ponds, 5.0 sq mi.

Gage.--Recording. Datum of gage is 4,779.05 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 310 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1933	June 11, 1933	1.51	380	1946	Dec. 30, 1945	1.37	405
1934	Apr. 2, 1934	1.02	188	1947	Jan. 5, 1947	a2.03	-
1935	Apr. 14, 1935	1.08	212		Jan. 14, 1947	.84	185
				1948	June 2, 1948	1.08	269
1936	Jan. 4, 1936	1.45	390	1949	May 16, 1949	.91	220
1937	June 21, 1937	1.18	256	1950	June 12, 1950	1.02	268
1938	Dec. 12, 1937	1.04	196				
1939	Feb. 15, 1939	.97	188	1951	Oct. 30, 1950	1.24	365
1940	Mar. 31, 1940	.74	107	1952	June 9, 1952	.97	241
				1953	Jan. 20, 1953	.98	244
1941	May 18, 1941	.72	102	1954	Nov. 24, 1953	1.44	416
1942	Dec. 4, 1941	1.04	223	1955	June 13, 1955	.91	202
1943	Nov. 29, 1942	1.38	355				
1944	Nov. 5, 1943	.94	193	1956	Dec. 23, 1955	1.35	376
1945	May 13, 1945	.84	155	1957	Dec. 13, 1956	1.37	385

a Backwater from ice.

565. Deschutes River below Wickiup Reservoir, near Lapine, Oreg.

Location.--Lat 43°41'20", long 121°41'00", near line between secs. 7 and 8, T.22 S., R.9 E., on left bank 2,000 ft downstream from Wickiup Dam and 9 miles west of Lapine.

Drainage area.--483 sq mi, hydrologic drainage boundary uncertain owing to ground-water exchange.

Gage.--Recording. Datum of gage is 4,257.41 ft above mean sea level (levels by Bureau of Reclamation).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--Not subject to overflow.

Remarks.--Flow regulated by Crane Prairie Reservoir (usable capacity, 55,340 acre-ft) and, since Dec. 24, 1942, by Wickiup Reservoir (usable capacity, 182,100 acre-ft). Only annual peaks are shown.

## DESCHUTES RIVER BASIN

Peak stages and discharges of Deschutes River below Wickiup Reservoir, near Lapine, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938	Aug. 4, 1938	6.15	1,340	1948	July 16, 1948	7.37	1,980
1939	Apr. 13, 1939	6.82	-	1949	July 6, 1949	7.18	1,800
	Aug. 5, 1939	-	1,050	1950	Aug. 22, 1950	7.43	2,020
1940	June 21, 1940	5.01	1,030				
				1951	Sept. 8, 1951	7.79	2,220
1941	July 19, 1941	4.45	819	1952	July 31, 1952	7.71	2,180
1942	July 12, 1942	4.93	1,000	1953	Aug. 4, 1953	7.51	2,090
1943	Sept. 10, 1943	6.43	1,520	1954	July 18, 1954	7.54	1,970
1944	Nov. 11, 1943	6.42	1,600	1955	July 23, 1955	7.65	2,220
1945	July 21, 1945	5.83	1,150				
				1956	July 30, 1956	7.92	2,280
1946	Sept. 27, 1946	6.53	1,520	1957	July 10, 1957	7.38	2,090
1947	May 27, 1947	6.14	1,500				

570. Deschutes River at Pringle Falls, near Lapine, Oreg.

Location.--Lat 43°44'20", long 121°36'50", in SW $\frac{1}{4}$  sec.23, T.21 S., R.9 E., on left bank half a mile upstream from bridge at Pringle Falls, 7 miles north-west of Lapine, and at mile 217.

Drainage area.--507 sq mi.

Gage.--Nonrecording at site at datum 3.09 ft higher prior to June 6, 1922; re-cording thereafter. June 6, 1922, to Nov. 9, 1947, at datum 2.00 ft higher. Datum of gage is 4,243.14 ft above mean sea level (Forest Service bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 1,410 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Flow regulated since 1922 by Crane Prairie Reservoir (usable capacity, 55,340 acre-ft) and, since Dec. 24, 1942, by Wickiup Reservoir (usable capacity, 182,100 acre-ft). Only annual peaks are shown.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1916	Jan. 18, 1916	2.1	-	1937	July 26, 1937	2.51	1,060
	Aug. 12, 1916	-	950	1938	Aug. 4, 1938	2.88	1,290
1917	June 23, 1917	1.49	1,170	1939	Aug. 5, 1939	2.45	1,030
				1940	June 20, 1940	2.27	1,020
1923	Aug. 11, 1923	2.49	995	1941	July 16, 1941	1.88	800
1924	Feb. 16, 1924	2.74	1,140	1942	July 13, 1942	2.22	987
1925	May 19, 1925	2.97	1,260	1943	Sept. 10, 1943	2.91	1,450
1926	June 22, 1926	1.90	725	1944	Nov. 11, 1943	2.90	1,440
1927	Aug. 28, 1927	2.42	984	1945	July 20, 1945	2.45	1,150
1928	Mar. 11, 1928	2.44	1,010				
1929	June 28, 1929	1.93	778	1946	Sept. 27, 1946	2.88	1,450
1930	July 11, 1930	2.13	825	1947	May 27, 1947	2.82	1,440
				1948	July 16, 1948	5.43	1,930
1931	June 27, 1931	2.09	765	1949	July 7, 1949	5.47	1,900
1932	Aug. 15, 1932	2.41	960	1950	Aug. 31, 1950	5.72	2,040
1933	Aug. 8, 1933	2.56	1,080				
1934	July 21, 1934	2.40	995	1951	Sept. 4, 1951	5.94	2,160
1935	July 23, 1935	2.58	1,080	1952	July 31, 1952	5.91	2,120
1936	Aug. 6, 1936	2.50	1,080				

## 575. Fall River near Lapine, Oreg.

Location.--Lat 43°47'50", long 121°34'20", in SE $\frac{1}{4}$  sec.31, T.20 S., R.10 E., on left bank 50 ft downstream from pond spillway at State fish hatchery and 9 miles northwest of Lapine.

Drainage area.--45.1 sq mi; hydrologic drainage boundary uncertain owing to ground-water exchange.

Gage.--Recording. Altitude of gage is 4,220 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--Not subject to overflow.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938	Aug. 10, 1938	1.77	163	1948	Sept. 24, 1948	1.67	171
1939	Oct. 28, 1938	1.79	191	1949	Aug. 18, 1949	1.90	223
1940	July 18, 1940	1.46	147	1950	May 27, 1950	1.85	194
1941	May 20, 1941	1.26	124	1951	June 1, 1951	1.93	248
1942	June 7, 1942	1.26	121	1952	July 28, 1952	1.94	250
1943	Sept. 15, 1943	1.69	194	1953	Aug. 16, 1953	1.83	229
1944	Oct. 11, 1943	1.70	193	1954	Apr. 25, 1954	1.87	236
1945	Oct. 20, 1944	1.54	169	1955	Oct. 4, 1954	1.68	200
1946	May 24, 1946	1.63	183	1956	May 8, 1956	1.86	234
1947	Mar. 8, 1947	1.66	181	1957	May 29, 1957	1.74	210

## 580. Deschutes River near Lapine, Oreg.

Location.--Lat 43°49'10", long 121°29'40", in NW $\frac{1}{4}$  sec.26, T.20 S., R.10 E., at Big River guard station, 5 $\frac{1}{2}$  miles downstream from Fall River, 6 $\frac{1}{2}$  miles upstream from Little Deschutes River, and 10 miles north of Lapine.

Drainage area.--600 sq mi.

Gage.--Nonrecording. At described site at different datum prior to Sept. 12, 1913. Oct. 18, 1913, to Sept. 27, 1914, at site 3 $\frac{1}{2}$  miles downstream at different datum. Altitude of gage is 4,160 ft (from river-profile map).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--Not subject to overflow.

Remarks.--Crater Creek Canal has diverted water to Tumalo Creek basin from tributaries of Soda Creek above stations during irrigation seasons since September 1915. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1912	June 14, 1912	2.2	1,250	1915	Dec. 16, 1914	a4.02	-
1913	June 28, 1913	2.52	1,330				
1914	Nov. 8, 1913	9.3	1,220	1916	Jan. 17, 1916	a2.9	-
1915	Oct. 9, 1914	1.35	1,020		Sept. 1, 1916	2.2	1,220

a Backwater from ice.

590. Little Deschutes River at Crescent, Oreg.  
(Published as East Fork of Deschutes River at Odell 1904-6,  
as East Fork of Deschutes River at Crescent 1907-8,  
1910-12, and as East Fork at Crescent 1913-14)

Location.--Lat 43°27'50", long 121°41'50", in SW $\frac{1}{4}$  sec.30, T.24 S., R.9 E., at  
highway bridge at Crescent and 5 miles upstream from Crescent Creek.

Drainage area.--109 sq mi.

Gage.--Nonrecording. At site 50 ft upstream at same datum prior to Dec. 24,  
1910. Altitude of gage is 4,450 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 180 cfs  
and extended by logarithmic plotting.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1906	May 14, 1906	3.7	174	1912	June 8, 1912	4.5	220
1907	Feb. 6, 1907	5.2	395	1913	May 29, 1913	4.2	193
1911	June 15, 1911	3.80	157				

600. Crescent Creek at Crescent Lake, near Crescent, Oreg.

Location.--Lat 43°30'00", long 121°58'20", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.11, T.24 S., R.6 E.,  
on left bank 400 ft downstream from Crescent Lake dam, three-quarters of a  
mile south of town of Crescent Lake, and 14 miles west of Crescent.

Drainage area.--60.7 sq mi, hydrologic drainage boundary uncertain owing to  
ground-water exchange.

Gage.--Nonrecording gages at different datums prior to July 31, 1915; recording  
since July 19, 1927. At different datum July 19, 1927, to June 1936. Par-  
shall flume, and at datum 6.76 ft higher June 1936 to July 14, 1955. At  
different datum July 15, 1955, to Sept. 10, 1956; Parshall flume, and at  
present datum thereafter. Datum of gage is 4,819.96 ft above mean sea level,  
datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--Not subject to overflow.

Remarks.--Flow regulated since 1922 by Crescent Lake (usable capacity, 86,050  
acre-ft). Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1912	June 11, 1912	1.70	181	1941	July 2, 1941	1.60	99
				1942	July 16, 1942	1.67	106
1914	May 22, 1914	1.50	127	1943	Aug. 1, 1943	2.38	187
1915	June 12, 1915	1.10	61	1944	July 26, 1944	2.50	203
				1945	July 21, 1945	2.37	186
1927	Aug. 24, 1927	2.22	205	1946	July 28, 1946	2.58	213
1928	Aug. 13, 1928	2.41	249	1947	July 1, 1947	2.50	203
1929	July 9, 1929	2.73	313	1948	June 14, 1948	2.74	235
1930	June 25, 1930	2.37	241	1949	July 22, 1949	2.82	246
				1950	June 15, 1950	2.62	219
1931	July 8, 1931	1.92	159				
1932	July 20, 1932	1.78	134	1951	Sept. 28, 1951	2.64	221
1933	Aug. 2, 1933	2.55	271	1952	Aug. 24, 1952	2.67	225
1934	July 20, 1934	2.16	186	1953	July 21, 1953	2.67	225
1935	July 19, 1935	2.42	254	1954	July 23, 1954	2.78	240
				1955	July 30, 1955	2.92	273
1936	Aug. 9, 1936	3.28	313				
1937	Aug. 9, 1937	2.76	237	1956	Aug. 27, 1956	1.68	274
1938	July 28, 1938	2.17	161	1957	July 1, 1957	2.98	269
1939	June 21, 1939	2.86	251				
1940	June 18, 1940	2.54	208				

605. Crescent Creek below Cold Creek, near Crescent, Oreg.

Location.--Lat 43°30'10", long 121°56'10", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.7, T.24 S., R.7 E., 1 mile downstream from Cold Creek, 3 $\frac{1}{2}$  miles downstream from outlet of Crescent Lake, and 12 $\frac{1}{2}$  miles west of Crescent.

Drainage area.--About 77 sq mi, hydrologic drainage boundary uncertain owing to ground-water exchange.

Gage.--Recording. Prior to Sept. 19, 1926, at datum 0.53 ft higher. Altitude of gage is 4,670 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Records for 1931-32 furnished by State engineer of Oregon. Flow regulated by Crescent Lake (usable capacity, 86,050 acre-ft). Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1922	June 17, 1922	1.50	228	1926	June 19, 1926	1.74	233
1923	Aug. 10, 1923	1.47	222				
1924	June 29, 1924	1.47	213	1931	July 10, 1931	1.64	152
1925	July 30, 1925	1.73	257	1932	July 23, 1932	1.54	146

610. Big Marsh Creek at Hoey Ranch, near Crescent, Oreg.  
(Published as Big Marsh Outlet near Crescent 1912, and as Big Marsh Creek near Crescent 1913-14)

Location.--Lat 43°28'40", long 121°54'50", in sec.20, T.24 S., R.7 E., about half a mile upstream from mouth, 2 miles east of Crescent Lake, and 11 miles west of Crescent.

Drainage area.--51.5 sq mi, hydrologic drainage boundary uncertain owing to ground-water exchange. Mean altitude, 5,330 ft; channel slope, 94.3 ft per mile; area of lakes and ponds, 0.2 sq mi.

Gage.--Nonrecording at different sites and datums prior to Apr. 29, 1931; recording thereafter. Apr. 30, 1931, to Sept. 30, 1939, at site within a quarter of a mile downstream at different datums. Altitude of gage is 4,630 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 350 cfs and extended by logarithmic plotting.

Bankfull stage.--3 ft.

Remarks.--Records for 1928-57 furnished by State engineer of Oregon. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1912	June 9, 1912	7.1	297	1942	Dec. 2, 1941	3.11	181
1913	May 10, 1913	7.0	265	1943	Apr. 20, 1943	3.79	581
1914	Apr. 17, 1914	6.55	180	1944	Nov. 4, 1943	2.74	139
				1945	Feb. 15, 1945	3.26	216
1928	May 13, 1928	2.50	215	1946	Dec. 31, 1945	4.56	500
1929	Mar. 21, 1929	2.04	166	1947	May 11, 1947	3.01	169
1930	Dec. 20, 1929	2.86	290	1948	May 31, 1948	3.59	352
1931	May 3, 1931	1.95	106	1949	May 3, 1949	3.77	488
1932	May 19, 1932	3.13	258	1950	June 11, 1950	3.64	426
1933	Mar. 19, 1933	4.43	475	1951	Oct. 28, 1950	3.57	358
1934	Apr. 2, 1934	2.48	172	1952	Apr. 30, 1952	3.65	395
1935	May 13, 1935	2.81	206	1953	Feb. 8, 1953	3.51	313
1936	Apr. 24, 1936	3.37	315	1954	Apr. 21, 1954	3.65	320
1937	Mar. 13, 1937	3.51	319	1955	June 11, 1955	4.56	218
1938	Apr. 23, 1938	3.66	297				
1939	Apr. 7, 1939	3.12	208	1956	May 30, 1956	5.54	602
1940	Mar. 29, 1940	3.28	211	1957	Dec. 11, 1956	5.50	576
1941	May 4, 1941	2.36	111				

a Backwater from ice.

## DESCHUTES RIVER BASIN

620. Little Deschutes River above Walker Basin intake, near Lapine, Oreg. (Published as East Fork at Morson intake, near Lapine, 1914-17, 1919-21, and as East Fork above Walker Basin intake, near Lapine, 1922)

Location.--Lat 43°31'40", long 121°39'10", in NE $\frac{1}{4}$  sec.4, T.24 S., R.9 E., about half a mile downstream from Crescent Creek, three-quarters of a mile upstream from Walker Basin Canal intake, and 12 miles southwest of Lapine.

Drainage area.--307 sq mi, hydrologic drainage boundary uncertain owing to ground-water exchange. At site used 1914-15, 1917, 305 sq mi. At site used 1915-16, 1919-21, 314 sq mi.

Gage.--Nonrecording prior to June 9, 1921; recording thereafter. At site a quarter of a mile upstream at different datum prior to Sept. 22, 1914. At site  $1\frac{1}{2}$  miles downstream at different datum July 29, 1915, to Dec. 9, 1916, May 7, 1919, to June 8, 1921. Altitude of gage is 4,340 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--About 6 ft at site used 1921-32.

Historical data.--Flood of Nov. 24, 1909, may have reached 1,800 cfs.

Remarks.--Records for 1931-32 furnished by State engineer of Oregon. Walker Basin Canal diverted above site used May 1919 to June 8, 1921; peaks given herein include diversion. Seasonal regulation by Crescent Lake since August 1922 (usable capacity, 86,050 acre-ft). Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1910	Nov. 24, 1909	-	al,800	1922	June 10, 1922	6.40	828
1915	Apr. 3, 1915	4.82	233	1923	May 13, 1923	4.90	469
1916	May 7, 1916	4.40	772	1924	June 26, 1924	3.86	252
1917	June 12, 1917	6.78	835	1925	Apr. 21, 1925	5.31	585
1919	June 1, 1919	4.20	616	1926	June 13, 1926	3.55	194
1920	May 10, 1920	-	319	1931	Apr. 1, 1931	2.31	355
1921	June 12, 1921	5.6	660	1932	May 16, 1932	2.91	595

a Estimated.

630. Little Deschutes River near Lapine, Oreg.

Location.--Lat 43°41'30", long 121°30'10", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.2, T.22 S., R.10 E., on right bank just downstream from bridge at former town of Rosland and  $1\frac{1}{4}$  miles north of Lapine.

Drainage area.--859 sq mi, hydrologic drainage boundary uncertain owing to ground-water exchange.

Gage.--Nonrecording at different sites and datums prior to Sept. 28, 1928; recording thereafter. Mar. 7 to Sept. 28, 1912, at site  $1\frac{1}{4}$  miles downstream at different datum. May 15, 1924, to Sept. 28, 1928, at higher datum. Sept. 29, 1928, to Sept. 30, 1931, recording gage at higher datum. Datum of gage is 4,192.81 above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--6 ft.

Remarks.--Flow partly regulated since August 1922 by Crescent Lake (usable capacity, 86,050 acre-ft). Diversions for irrigation of 13,700 acres above station. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1912	June 12, 1912	4.60	760	1928	May 16, 1928	3.46	462
1925	May 21, 1925	4.30	558	1929	May 28, 1929	2.64	336
1926	July 10, 1926	2.84	250	1930	Dec. 20, 1929	3.17	404
1927	May 21, 1927	4.98	750	1931	Apr. 2, 1931	2.45	307
				1932	May 23, 1932	5.08	556

Peak stages and discharges of Little Deschutes River near Lapine, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1933	June 12, 1933	6.43	792	1946	Jan. 2, 1946	6.49	770
1934	Apr. 2, 1934	3.03	251	1947	May 11, 1947	4.39	380
1935	May 13, 1935	4.25	410	1948	June 12, 1948	6.77	836
				1949	May 17, 1949	6.89	872
1936	Apr. 27, 1936	5.89	693	1950	June 13, 1950	7.25	1,320
1937	Apr. 17, 1937	4.30	435				
1938	May 3, 1938	6.57	750	1951	Feb. 10, 1951	6.80	880
1939	May 22, 1939	4.48	422	1952	Apr. 29, 1952	7.08	1,120
1940	May 31, 1940	4.19	382	1953	May 24, 1953	6.52	761
				1954	Nov. 25, 1953	7.08	1,120
1941	May 6, 1941	2.78	197	1955	June 14, 1955	3.81	311
1942	May 30, 1942	4.10	369				
1943	Apr. 22, 1943	7.00	985	1956	May 9, 1956	7.30	1,320
1944	June 19, 1944	3.79	298	1957	Feb. 27, 1957	6.68	725
1945	May 19, 1945	4.83	423				

635. Little Deschutes River at Allens ranch, near Lapine, Oreg.  
(Published as East Fork at Allen's ranch, near Lava 1905-15)

Location--Lat 43°51'20", long 121°26'30", in NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.8, T.20 S., R.11 E., three-quarters of a mile upstream from mouth and 13 miles north of Lapine.

Drainage area--1,020 sq mi, approximately. Hydrologic drainage boundary uncertain owing to ground-water exchange.

Gage--Nonrecording prior to July 8, 1931; recording thereafter. Prior to Oct. 1, 1915, at site a quarter of a mile upstream at different datum. July 8, 1931, to Sept. 30, 1932, at different datum than present gage. Altitude of gage is 4,150 ft (from river-profile map).

Stage-discharge relation--Defined by current-meter measurements below 590 cfs and extended by logarithmic plotting.

Bankfull stage--Not subject to overflow.

Remarks--Records for 1932 and 1943 furnished by State engineer of Oregon. Many small diversions for irrigation upstream, and since May 1917, diversion by Walker Basin Canal. Flow regulated by Crescent Lake since August 1922, (usable capacity, 86,050 acre-ft). Only annual observed peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1906	May 18, 1906	7.40	559	1914	Apr. 19, 1914	7.4	505
1907	Feb. 10, 1907	10.70	1,950	1915	Apr. 5, 1915	6.10	303
1908	Apr. 27, 1908	7.55	687				
1909	June 19, 1909	7.45	575	1932	May 25, 1932	3.49	479
1910	Nov. 25, 1909	11.1	2,150				
1911	June 18, 1911	7.4	559	1943	June 7, 1943	11.45	514

645. Deschutes River at Benham Falls, near Bend, Oreg.  
(Published as Deschutes River at West's ranch, near Lava, 1906-9)

Location--Lat 43°56'20", long 121°24'40", in SE $\frac{1}{4}$  sec.9, T.19 S., R.11 E., on left bank 150 ft upstream from head of Benham Falls, 1 $\frac{1}{2}$  miles downstream from Benham Falls damsite, 10 miles southwest of Bend, and at mile 181.1.

Drainage area--1,759 sq mi.

Gage--Nonrecording at different sites and datums prior to Feb. 12, 1924; recording thereafter. At site 8 miles upstream at different datums, prior to Feb. 20, 1909. Mar. 30, 1909, to Sept. 22, 1913, at site 600 ft upstream at different datum. Feb. 12, 1924, to Nov. 12, 1947, at datum 1.00 ft higher. Altitude of gage is 4,140 ft (from river-profile map).

Stage-discharge relation--Defined by current-meter measurements below 2,700 cfs

Bankfull stage--Not subject to overflow.

Remarks--Flow regulated since 1922 by Crane Prairie Reservoir (usable capacity, 55,340 acre-ft), Crescent Lake (usable capacity, 86,050 acre-ft), and since 1942 by Wickiup Reservoir (usable capacity, 182,100 acre-ft). Diversions for irrigation of over 14,000 acres above station. Only annual peaks are shown.

Peak stages and discharges of Deschutes River at Benham Falls, near Bend, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1907	Feb. 10, 1907	11.35	4,260	1937	July 28, 1937	1.98	1,680
1908	Dec. 26, 1907	10.0	2,560	1938	May 5, 1938	2.39	1,850
1909	Jan. 19, 1909	9.75	2,280	1939	July 11, 1939	2.01	1,660
1910	Nov. 27, 1909	-	a5,000	1940	July 1, 1940	1.84	1,550
1911	Dec. 3, 1910	4.45	1,780	1941	July 16, 1941	1.08	1,200
1912	June 15, 1912	5.03	2,260	1942	July 16, 1942	1.49	1,440
1913	July 4, 1913	4.98	2,130	1943	Apr. 23, 1943	2.63	2,100
1924	Feb. 17, 1924	2.06	1,710	1944	Nov. 12, 1943	2.51	2,010
1925	May 21, 1925	2.30	1,850	1945	July 21, 1945	1.95	1,640
1926	Feb. 10, 1926	1.62	1,440	1946	Aug. 30, 1946	2.59	2,020
1927	May 24, 1927	2.16	1,780	1947	July 3, 1947	2.48	2,000
1928	Jan. 3, 1928	2.45	1,850	1948	July 19, 1948	4.30	2,670
1929	Feb. 1, 1929	1.55	1,360	1949	July 9, 1949	4.36	2,520
1930	July 8, 1930	-	1,330	1950	July 21, 1950	4.60	2,710
1931	July 12, 1931	1.06	1,120	1951	July 20, 1951	4.67	2,770
1932	June 1, 1932	1.54	1,350	1952	June 4, 1952	5.07	3,090
1933	June 15, 1933	2.16	1,770	1953	Aug. 6, 1953	4.86	2,920
1934	July 24, 1934	1.68	1,500	1954	July 2, 1954	4.90	2,970
1935	July 23, 1935	1.98	1,680	1955	July 26, 1955	4.70	2,840
1936	May 2, 1936	2.05	1,710	1956	May 9, 1956	5.10	3,120
				1957	July 14, 1957	4.92	2,990

a Estimated from records for station at Bend.

650. Deschutes River above Lava Island, near Bend, Oreg.  
(Published as Deschutes River at Lava Island, near Bend 1915-16)

Location.--Lat 43°59'10", long 121°23'50", in SW $\frac{1}{4}$  sec.27, T.18 S., R.11 E.,  
about 500 ft upstream from Arnold Canal intake and 6 miles southwest of Bend.

Drainage area.--1,790 sq mi.

Gage.--Nonrecording prior to Dec. 1, 1916, at site 100 ft upstream at different datum. June 2, 1943, to Nov. 18, 1947, at site 400 ft upstream at approximately present datum. Altitude of gage is 3,840 ft (from river-profile map).

Stage-discharge relation.--Defined by current-meter measurements. Arnold Canal gate regulation affected the stage-discharge relation throughout period of record.

Bankfull stage.--Not subject to overflow.

Remarks.--Records for 1943-50 furnished by State engineer of Oregon. Diversions for irrigation of more than 14,000 acres above station. Flow regulated since 1922 by Crane Prairie Reservoir (usable capacity, 55,340 acre-ft), Crescent Lake (usable capacity, 86,050 acre-ft), and since 1942 by Wickiup Reservoir (usable capacity, 182,100 acre-ft).

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1915	Apr. 5, 1915	2.20	1,540	1946	Aug. 31, 1946	3.88	2,050
1916	May 14, 1916	2.76	2,090	1947	July 3, 1947	3.47	1,810
1944	Nov. 12, 1943	3.75	1,870	1948	July 20, 1948	4.04	2,460
1945	July 24, 1945	3.09	1,520	1949	July 10, 1949	4.09	2,480
				1950	July 21, 1950	4.00	2,640

660. Deschutes River below Lava Island, near Bend, Oreg.

Location--Lat 44°00'00", long 121°22'30", in SW $\frac{1}{4}$  sec.23, T.18 S., R.11 E., on right bank three-quarters of a mile downstream from Lava Island,  $\frac{1}{2}$  miles downstream from intake of Arnold Canal, 5 miles southwest of Bend, and at mile 173.0.

Drainage area--1,829 sq mi.

Gage--Recording. Prior to Nov. 11, 1947, at datum 1.00 ft higher. Altitude of gage is 3,825 ft (by barometer).

Stage-discharge relation--Defined by current-meter measurements below 2,770 cfs

Bankfull stage--Not subject to overflow.

Remarks--Flow regulated by Crescent Lake (usable capacity, 86,050 acre-ft), Crane Prairie Reservoir (usable capacity, 55,340 acre-ft), and since 1942 by Wickiup Reservoir (usable capacity, 182,100 acre-ft). Arnold Canal diverts water for irrigation above station. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1927	May 8, 1927	1.36	1,560	1943	Apr. 24, 1943	1.68	1,830
1928	Jan. 3, 1928	1.55	1,780	1944	Nov. 12, 1943	1.75	1,880
1929	Feb. 1, 1929	1.15	1,300	1945	Aug. 4, 1945	1.34	1,500
1930	July 12, 1930	1.15	1,300				
				1946	Sept. 2, 1946	1.83	1,890
1931	Apr. 4, 1931	.85	1,030	1947	July 3, 1947	1.65	1,800
1932	June 27, 1932	1.08	1,250	1948	June 20, 1948	3.14	2,300
1933	June 16, 1933	1.35	1,540	1949	July 10, 1949	3.12	2,280
1934	Aug. 2, 1934	1.15	1,360	1950	July 8, 1950	3.33	2,510
1935	July 24, 1935	1.30	1,450				
				1951	July 19, 1951	3.47	2,600
1936	July 20, 1936	1.34	1,490	1952	June 29, 1952	3.64	2,780
1937	July 14, 1937	1.42	1,600	1953	Aug. 1, 1953	3.59	2,730
1938	May 6, 1938	1.56	1,700	1954	July 3, 1954	3.56	2,650
1939	July 6, 1939	1.31	1,440	1955	July 26, 1955	3.48	2,610
1940	July 4, 1940	1.24	1,350				
				1956	May 10, 1956	3.78	2,940
1941	Jan. 3, 1941	.89	1,110	1957	June 6, 1957	3.64	2,670
1942	July 15, 1942	1.05	1,220				

705. Deschutes River below Bend, Oreg.

Location--Lat 44°05'00", long 121°18'20", in SE $\frac{1}{4}$  sec.20, T.17 S., R.12 E., on right bank half a mile downstream from North Canal, half a mile north of Bend city limits, and at mile 164.4.

Drainage area--1,899 sq mi.

Gage--Recording. Prior to Oct. 1, 1931, at site 200 ft downstream at datum 1.00 ft higher. Datum of gage is 3,503.96 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation--Defined by current-meter measurements below 1,860 cfs.

Bankfull stage--Not subject to overflow.

Historical data--Maximum discharge known near this site since 1905, 4,820 cfs Nov. 27, 1909.

Remarks--Flow regulated by hydroelectric plant at Bend, since 1922 by Crescent Lake (usable capacity, 86,050 acre-ft), Crane Prairie Reservoir (usable capacity, 55,340 acre-ft), and since 1942 by Wickiup Reservoir (usable capacity, 182,100 acre-ft). Six large canals and several small ditches divert water above station for irrigation. Only annual peaks are shown.

## DESCHUTES RIVER BASIN

Peak stages and discharges of Deschutes River below Bend, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1910	Nov. 27, 1909	-	4,820	1936	Feb. 3, 1936	3.16	1,280
1915	Apr. 5, 1915	2.15	1,500	1937	Apr. 18, 1937	2.95	1,080
1916	July 2, 1916	2.52	2,050	1938	Mar. 22, 1938	3.30	1,340
1917	June 17, 1917	2.48	2,080	1939	Nov. 25, 1938	3.36	1,340
1918	Mar. 31, 1918	2.90	2,500	1940	Mar. 29, 1940	3.12	1,160
1919	Apr. 28, 1919	2.31	1,680	1941	Dec. 15, 1940	3.23	1,270
1920	Feb. 1, 1920	2.75	2,320	1942	Dec. 23, 1941	2.91	969
1921	Mar. 21, 1921	2.51	1,700		Jan. 2, 1942	a3.25	-
1922	Dec. 7, 1921	2.90	2,500	1943	Jan. 31, 1943	3.51	1,500
1923	Feb. 3, 1923	2.58	1,850	1944	Dec. 12, 1943	3.50	1,490
1924	Feb. 15, 1924	2.50	1,740	1945	Feb. 13, 1945	2.79	812
1925	Dec. 24, 1924	a3.08	-	1946	Dec. 29, 1945	3.08	1,050
	Feb. 9, 1925	2.33	1,510	1947	Dec. 30, 1946	3.17	1,130
1926	Jan. 27, 1926	2.18	1,400	1948	Dec. 23, 1947	2.98	968
1927	Feb. 24, 1927	2.35	1,560	1949	Oct. 5, 1948	3.44	1,260
1928	Mar. 27, 1928	2.38	1,580	1950	June 13, 1950	3.69	1,650
1929	Feb. 2, 1929	2.14	1,320	1951	Jan. 30, 1951	a4.05	-
1930	Dec. 24, 1929	2.04	1,210		Feb. 16, 1951	3.74	1,700
1931	Dec. 28, 1930	1.88	1,050	1952	Apr. 2, 1952	3.90	1,800
1932	Dec. 15, 1931	2.94	1,110	1953	Mar. 30, 1953	3.55	1,300
1933	Dec. 15, 1932	a5.38	-	1954	Mar. 10, 1954	3.70	1,660
	Dec. 26, 1932	3.10	1,220	1955	Feb. 14, 1955	3.66	1,620
1934	Dec. 25, 1933	3.11	1,230	1956	May 10, 1956	3.76	1,760
1935	Dec. 25, 1934	2.90	1,030	1957	Jan. 29, 1957	a4.21	-
					Feb. 27, 1957	4.15	2,210

a Backwater from ice.

715. Tumalo Creek near Tumalo, Oreg.

(Published as Tumalo Creek near Laidlaw 1906-13)

Location.--Lat 44°02'20", long 121°30'20", in SW $\frac{1}{4}$  sec.2, T.18 S., R.10 E., several hundred feet upstream from Wimer Canal, 10 miles west of Bend, and 12 miles southwest of Tumalo.

Drainage area.--30.9 sq mi.

Gage.--Nonrecording. Prior to Oct. 31, 1907, at site a quarter of a mile downstream at different datum. Altitude of gage is 4,620 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 325 cfs.

Bankfull stage.--Not subject to overflow.

Remarks.--Prior to November 1907, Wimer Canal diverted above station for irrigation outside the basin. No diversion or regulation after October 1907. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1906	May 16, 1906	2.9	450	1911	June 12, 1911	5.1	498
1907	Nov. 14, 1906	-	-	1912	June 13, 1912	5.0	468
1908	June 14, 1908	3.65	462	1913	June 3, 1913	5.0	468
1909	June 2, 1909	3.67	440	1914	Apr. 14, 1914	4.75	396
1910	Nov. 22, 1909	-	-				

730. Tumalo Creek near Bend, Oreg.  
(Published as Tumalo Creek below Bend 1950)

Location.--Lat 44°05'20", long 121°22'20", near center of sec.23, T.17 S., R.11 E., on left bank a quarter of a mile upstream from Tumalo feed canal, 3 miles upstream from mouth, and 4 miles northwest of Bend.

Drainage area.--47.3 sq mi. Mean altitude 5,630 ft; channel slope, 177 ft per mile; area of lakes and ponds, 0.05 sq mi.

Gage.--Nonrecording prior to Apr. 26, 1915; recording thereafter. Datum of gage is 3,566.82 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 450 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--All peak discharges shown herein include flow in Columbia Southern Canal, which diverts 8 miles above station for irrigation of lands near Tumalo. Crater Creek Canal diverts flow of tributaries of Soda Creek into head of Tumalo Creek. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1914	Apr. 15, 1914	2.70	457	1937	June 20, 1937	3.39	562
1915	Dec. 23, 1914	a6.40	-	1938	June 7, 1938	2.84	402
	June 7, 1915	2.11	227	1939	May 29, 1939	2.33	406
				1940	May 10, 1940	2.21	233
1916	July 16, 1916	2.70	694				
1917	June 16, 1917	2.58	439	1941	May 24, 1941	2.13	320
1918	Dec. 29, 1917	2.95	500	1942	Dec. 2, 1941	3.51	598
1919	May 27, 1919	2.85	557	1943	Nov. 29, 1942	4.53	950
1920	June 23, 1920	2.18	308	1944	Nov. 4, 1943	2.58	354
				1945	Jan. 13, 1945	2.61	297
1921	June 3, 1921	2.73	430				
1922	Nov. 30, 1921	3.10	615	1946	Dec. 28, 1945	3.73	670
1923	Jan. 6, 1923	4.55	1,000	1947	May 2, 1947	2.77	333
1924	May 15, 1924	2.43	324	1948	Oct. 20, 1947	3.62	732
1925	May 21, 1925	2.80	566		Feb. 12, 1948	a6.23	-
				1949	May 27, 1949	3.10	465
1926	June 6, 1926	2.16	258	1950	Nov. 27, 1949	3.87	882
1927	June 10, 1927	2.37	410				
1928	May 26, 1928	2.62	457	1951	Jan. 29, 1951	a4.24	-
1929	June 15, 1929	2.52	441		June 16, 1951	2.81	422
1930	Dec. 19, 1929	2.33	349		June 6, 1952	2.94	495
					July 14, 1953	2.92	490
1931	May 13, 1931	2.51	384	1954	June 15, 1954	2.77	430
1932	June 22, 1932	2.49	393	1955	June 11, 1955	3.13	584
1933	June 9, 1933	3.60	750				
1934	Mar. 29, 1934	2.32	276	1956	May 30, 1956	3.25	735
1935	July 23, 1935	2.34	367	1957	Dec. 11, 1956	3.17	585
1936	May 13, 1936	2.59	335				

a Backwater from ice.

745. Deschutes River at Cline Falls, near Redmond, Oreg.  
(Published as "at Cline Falls" 1910, 1912, and as "near Cline Falls" 1937-41)

Location.--Lat 44°16'30", long 121°15'30", in NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.14, T.15 S., R.12 E., at Cline Falls and 4 miles west of Redmond.

Drainage area.--2,080 sq mi. At site used prior to July 26, 1928, 2,073 sq mi.

Gage.--Nonrecording. Prior to July 26, 1928, at site 1 mile upstream at different datum. Altitude of gage is 2,833 ft (from river-profile map).

Stage-discharge relation.--Defined by current-meter measurements below 1,600 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Records for 1935-46 furnished by State engineer of Oregon. Many large canals divert water upstream for irrigation. Some winter and spring runoff stored in Crescent Lake (usable capacity, 86,050 acre-ft), Crane Prairie Reservoir since 1922 (usable capacity, 55,340 acre-ft), and by Wicklup Reservoir since 1942 (usable capacity, 182,100 acre-ft). Only annual peaks are shown.

Peak stages and discharges of Deschutes River at Cline Falls, near Redmond, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1910	Mar. 7, 1910	1.8	2,480	1940	Feb. 7, 1940	3.87	1,110
1912	June 14, 1912	1.4	1,820	1941	Jan. 4, 1941	3.82	1,110
1935	Dec. 25, 1934	3.73	1,050	1942	Dec. 2, 1941	3.86	1,160
				1943	Nov. 29, 1942	4.25	1,700
1936	Mar. 13, 1936	3.83	1,220	1944	Dec. 17, 1943	4.16	1,570
				1945	Feb. 14, 1945	3.71	982
1937	Apr. 19, 1937	3.78	1,140	1946	Dec. 29, 1945	4.06	1,430
1938	Mar. 22, 1938	4.05	1,420				
1939	Nov. 25, 1938	4.10	1,490				

750. Squaw Creek near Sisters, Oreg.

Location.--Lat 44°13'50", long 121°34'20", in NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.32, T.15 S., R.10 E., on right bank 600 ft upstream from intake of McAllister ditch and 4 miles south of Sisters.

Drainage area.--54.8 sq mi. Mean altitude, 5,840 ft; channel slope, 325 ft per mile; area of lakes and ponds, 1.5 sq mi.

Gage.--Nonrecording at different sites and datums prior to Mar. 24, 1916; recording thereafter. At site 800 ft downstream at different datum prior to May 29, 1913. May 30, 1913, to Sept. 2, 1915, and Mar. 24, 1916, to Oct. 5, 1928, at site 100 ft downstream at different datum. Altitude of gage is 3,490 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--Not subject to overflow.

Remarks.--A canal near mouth of Pole Creek, a tributary, diverts entire flow of that creek past this station for irrigation of lands near Sisters. Only annual peaks are shown prior to 1926. Base for partial-duration series, 470 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)				
1907	Nov. 10, 1906	5.7	-	1937	June 19, 1937	2.65	892				
1908	Mar. 16, 1908	4.05	335	1938	Dec. 10, 1937	2.08	430				
1909	Oct. 14, 1908	4.9	378								
1910	Nov. 22, 1909	8.75	-	1939	May 29, 1939	2.02	400				
1911	July 17, 1911	4.10	344	1940	June 12, 1940	1.75	285				
	June 13, 1912	4.15	395								
1912	June 23, 1913	3.20	420	1941	May 24, 1941	1.76	283				
1913	June 18, 1914	2.75	288								
1916	July 16, 1916	3.56	574	1942	Nov. 3, 1941	2.48	639				
	July 18, 1917	3.47	518		Nov. 15, 1941	2.20	490				
	June 13, 1918	3.50	490		Dec. 2, 1941	3.33	1,130				
1920	Sept. 14, 1920	3.25	375	1943	Nov. 23, 1942	3.14	994				
1926	May 20, 1926	2.90	257		Nov. 27, 1942	2.61	710				
					Nov. 29, 1942	4.57	1,040				
				1927	Nov. 29, 1926	3.58	496	1944	Nov. 4, 1943	3.87	722
1928	May 26, 1928	3.25	390					1945	Jan. 13, 1945	3.09	426
									1929	June 15, 1929	2.19
1930	Dec. 18, 1929	2.85	785	June 21, 1946	3.10	488					
1931	May 13, 1931	2.09	451	1947	May 26, 1947	2.40	336				
1932	June 21, 1932	2.15	460	1948	Oct. 16, 1947	3.40	580				
					June 9, 1948	3.07	484				
1933	June 9, 1933	2.98	925	1949	June 10, 1949	2.94	474				
1934	Mar. 28, 1934	2.05	375	1950	Nov. 27, 1949	4.30	930				
1935	June 7, 1935	2.06	386	1951	Nov. 1, 1950	3.28	586				
1936	June 23, 1936	2.10	418	1952	June 6, 1952	2.65	445				

## Peak stages and discharges of Squaw Creek near Sisters, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	July 10, 1952	2.45	372	1956	Dec. 12, 1955	2.57	476
1953	July 14, 1953	2.61	467		Dec. 22, 1955	3.76	744
1954	Nov. 23, 1953	3.36	946		Jan. 15, 1956	3.67	710
					May 30, 1956	2.99	542
					June 10, 1956	2.53	486
1955	June 11, 1955	2.58	438	1957	Dec. 10, 1956	3.48	968

## 765. Deschutes River near Culver, Oreg.

Location--Lat 44°32'30", long 121°17'10", in SW $\frac{1}{4}$  sec.10, T.12 S., R.12 E., on right bank 0.7 mile downstream from bridge on Cove-Grandview road, 2 $\frac{1}{2}$  miles upstream from Crooked River, 4 miles northwest of Culver, and at mile 116.5.

Drainage area--2,723 sq mi.

Gage--Recording. Datum of gage is 1,755 ft above mean sea level (river-profile survey).

Stage-discharge relation--Defined by current-meter measurements.

Bankfull stage--Not subject to overflow.

Remarks--Slight regulation by Crescent Lake (usable capacity, 86,050 acre-ft), Crane Prairie Reservoir (usable capacity, 55,340 acre-ft), and Wickiup Reservoir (usable capacity, 182,100 acre-ft). Many diversions for irrigation above station. Only annual peaks are shown.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	Jan. 19, 1953	4.00	2,030	1956	Dec. 22, 1955	5.18	3,040
1954	Nov. 23, 1953	4.37	2,330	1957	Feb. 27, 1957	4.94	2,680
1955	Feb. 14, 1955	4.16	2,180				

## 770. South Fork Beaver Creek near Paulina, Oreg.

Location--Lat 44°08'00", long 119°44'40", in NE $\frac{1}{4}$  sec.5, T.17 S., R.25 E., on right bank 1 $\frac{1}{2}$  miles downstream from Camp Creek, 2 $\frac{1}{2}$  miles upstream from confluence with North Fork Beaver Creek, and 11 miles east of Paulina.

Drainage area--95 sq mi, approximately. Mean altitude, 5,240 ft; channel slope, 76.7 ft per mile; area of lakes and ponds, 0 sq mi.

Gage--Nonrecording prior to Sept. 15, 1948; recording thereafter. At datum 0.03 ft higher prior to Sept. 15, 1948. Altitude of gage is 3,920 ft (by barometer).

Stage-discharge relation--Defined by current-meter measurements below 206 cfs and extended on basis of slope-area measurement at 614 cfs. Frequent shifts in ratings prior to construction of control Sept. 16, 1948.

Bankfull stage--Not subject to overflow.

Remarks--Water is diverted for irrigations of 300 acres above station. One ditch bypasses the station for irrigation of 430 acres below station. Base for partial-duration series, 200 cfs. Only annual peaks are shown prior to 1949.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	Dec. 28, 1945	7.0	720	1951	Mar. 19, 1951	5.12	229
1947	Feb. 12, 1947	4.50	400				
1948	May 21, 1948	6.40	510	1952	Feb. 1, 1952	5.07	235
					Mar. 25, 1952	7.70	614
					Apr. 5, 1952	6.42	443
1949	Mar. 18, 1949	3.51	163		Apr. 14, 1952	5.95	372
1950	Mar. 16, 1950	3.77	190				
				1953	Jan. 18, 1953	4.88	205
1951	Mar. 15, 1951	6.27	420		Feb. 3, 1953	5.38	285

## 775. North Fork Beaver Creek near Paulina, Oreg.

Location.--Lat 44°10'00", long 119°44'00", in SW $\frac{1}{4}$  sec.21, T.16 S., R.25 E., on left bank 2 miles upstream from confluence with South Fork and 12 miles east of Paulina.

Drainage area.--64.4 sq mi. Mean altitude, 4,670 ft; channel slope, 60.2 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. Datum of gage is 3,848.83 ft above mean sea level (survey by Bureau of Reclamation).

Stage-discharge relation.--Defined by current-meter measurements below 330 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Several small dams above station store water for irrigation of 1,000 acres above station and for stock watering. Base for partial-duration series, 400 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	Dec. 28, 1945	5.90	899	1951	Dec. 7, 1950	4.32	558
	Feb. 27, 1946	4.70	650		Jan. 24, 1951	3.61	402
	Mar. 13, 1946	3.43	402		Feb. 7, 1951	4.13	514
			Mar. 15, 1951		3.81	442	
	Nov. 27, 1946	3.54	404	1952	Mar. 25, 1952	5.85	955
1948	Jan. 7, 1948	4.20	550		Apr. 5, 1952	4.93	708
	May 22, 1948	3.99	508	1953	Jan. 18, 1953	5.02	745
	May 27, 1948	4.01	512		Feb. 3, 1953	4.19	542
	June 3, 1948	3.96	502		Feb. 7, 1953	3.84	465
1949	Feb. 18, 1949	3.46	440	1954	Dec. 19, 1953	4.76	678
	Feb. 22, 1949	4.25	628		Feb. 12, 1954	4.27	561
	Mar. 4, 1949	4.49	688		Mar. 9, 1954	3.57	410
1950	Feb. 24, 1950	3.93	549				

## 780. Beaver Creek near Paulina, Oreg.

Location.--Lat 44°09'50", long 119°55'20", in NE $\frac{1}{4}$  sec.26, T.16 S., R.23 E., on right bank three-quarters of a mile downstream from Paulina Creek,  $1\frac{3}{4}$  miles downstream from Wolf Creek, and 3 miles northeast of Paulina.

Drainage area.--450 sq mi, approximately. Mean altitude, 4,600 ft; channel slope, 52.3 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. Altitude of gage is 3,690 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 1,700 cfs and extended on basis of slope-area measurement at 2,540 cfs.

Bankfull stage.--Not subject to overflow.

Remarks.--Records for 1942-45 furnished by Bureau of Reclamation. Diversions for irrigation of about 6,400 acres above station. Only annual peaks are shown prior to 1946. Base for partial-duration series, 700 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1943	Mar. 27, 1943	8.56	3,060	1948	Jan. 7, 1948	6.31	1,890
1944	Feb. 6, 1944	2.75	664		Feb. 22, 1948	3.37	832
1945	Feb. 8, 1945	-	950		May 22, 1948	3.67	966
					May 27, 1948	3.27	786
1946	Dec. 28, 1945	10.2	3,620	1949	Feb. 18, 1949	5.97	1,770
	Feb. 27, 1946	8.18	2,750		Feb. 22, 1949	4.77	1,350
	Mar. 10, 1946	3.65	980		Mar. 5, 1949	4.65	1,310
	Mar. 13, 1946	4.96	1,500		Mar. 18, 1949	3.76	1,010
	Mar. 21, 1946	3.12	754				
	Mar. 26, 1946	3.51	840	1950	Feb. 25, 1950	4.75	1,480
1947	Nov. 27, 1946	2.75	605		Mar. 5, 1950	3.40	845

Peak stages and discharges of Beaver Creek near Paulina, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Mar. 17, 1950	4.95	1,420	1954	Dec. 20, 1953	5.70	1,440
	Apr. 1, 1950	4.80	1,360		Feb. 12, 1954	5.50	1,380
1951	Dec. 7, 1950	3.22	764		Mar. 10, 1954	3.83	899
	Feb. 7, 1951	5.81	2,000	1955	Mar. 28, 1955	3.46	781
	Feb. 11, 1951	5.30	1,750		1956	Dec. 12, 1955	4.02
	Mar. 16, 1951	3.20	755	Dec. 22, 1955		8.71	2,540
	Mar. 20, 1951	4.08	1,150	Jan. 15, 1956		8.00	2,250
	Mar. 24, 1951	3.25	778	Jan. 23, 1956		4.82	1,180
1952	Feb. 2, 1952	5.03	1,620	Feb. 21, 1956		4.04	960
	Mar. 26, 1952	10.38	3,450	Feb. 24, 1956		7.42	2,020
	Apr. 6, 1952	7.37	2,440	May 8, 1956	5.18	1,280	
	Apr. 15, 1952	4.07	1,040	1957	Feb. 24, 1957	7.07	1,870
1953	Jan. 19, 1953	6.73	1,770		Feb. 26, 1957	7.26	1,930
	Feb. 3, 1953	5.08	1,250		Mar. 6, 1957	3.61	818
	Feb. 7, 1953	6.41	1,650		Mar. 19, 1957	3.24	702
	Mar. 24, 1953	3.47	784		Mar. 31, 1957	5.00	1,230
	Apr. 28, 1953	3.69	857				

785. North Fork Crooked River above Deep Creek, Oreg.

Location.--Lat 44°20', long 120°05', in NE $\frac{1}{4}$  sec.28, T.14 S., R.22 E., on left bank three-quarters of a mile upstream from Deep Creek, 15 miles northwest of Paulina, and 38 miles east of Prineville.

Drainage area.--159 sq mi. Mean altitude, 5,130 sq mi; channel slope, 88.0 ft per mile; area of lakes and ponds, 0.01 sq mi.

Gage.--Recording. Prior to Oct. 1, 1946, at datum 0.33 ft higher; records herein corrected to described datum. Datum of gage is 4,356.00 ft above mean sea level (levels by Bureau of Reclamation).

Stage-discharge relation.--Defined by current-meter measurements below 950 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Diversions for irrigation of about 3,600 acres above station. Base for partial-duration series, 850 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1942	Apr. 8, 1942	3.22	1,250	1949	Mar. 18, 1949	3.47	1,200
1943	Jan. 1, 1943	a8.01	-		Apr. 12, 1949	3.11	932
	Mar. 26, 1943	4.99	2,500	1950	Apr. 2, 1950	3.48	1,210
	Apr. 2, 1943	4.93	2,480		1951	Feb. 11, 1951	a4.93
	Apr. 7, 1943	4.50	2,060	Apr. 4, 1951		3.74	1,420
	Apr. 12, 1943	3.80	1,480	Apr. 28, 1951		3.40	1,140
	Apr. 18, 1943	3.67	1,320	1952		Mar. 28, 1952	a4.38
	May 6, 1943	3.27	1,060		Apr. 7, 1952	4.09	1,690
1944	Mar. 17, 1944	2.86	770		Apr. 19, 1952	3.46	1,140
	1945	Apr. 20, 1945	3.09	910	1953	Jan. 20, 1953	a3.91
1946		Dec. 29, 1945	4.16	1,760		Feb. 3, 1953	3.60
	Apr. 17, 1946	3.55	1,270	Apr. 6, 1953		3.06	856
1947	Feb. 12, 1947	-	450	Apr. 27, 1953		4.19	1,790
		1948	Jan. 7, 1948	3.23	1,020	1954	Feb. 22, 1954
Apr. 16, 1948	3.24		1,030	Mar. 9, 1954	3.63		1,270
Apr. 21, 1948	3.16		970				

a Backwater from ice.

## 790. North Fork Crooked River below Deep Creek, Ore.

Location.--Lat 44°19', long 120°05', in SW $\frac{1}{4}$  sec.27, T.14 S., R.22 E., on left bank a quarter of a mile downstream from Deep Creek, 14 miles northwest of Paulina, and 38 miles east of Prineville.

Drainage area.--264 sq mi. Mean altitude, 5,200 ft; channel slope, 82.4 ft per mile; area of lakes and ponds, 0.01 sq mi.

Gage.--Recording. Altitude of gage is 4,320 (by barometer).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--7 ft.

Remarks.--Diversions for irrigation of about 3,600 acres above station. Base for partial-duration series, 1,400 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1947	Feb. 12, 1947	a7.69	-	1950	Apr. 13, 1950	5.74	1,540
	Feb. 12, 1947	4.75	780		Apr. 19, 1950	5.77	1,570
1948	Jan. 6, 1948	a6.27	-	1951	Feb. 11, 1951	a6.02	-
	Jan. 7, 1948	6.14	1,980		Apr. 4, 1951	6.52	2,610
	Apr. 15, 1948	6.37	2,250		Apr. 28, 1951	5.86	1,740
	Apr. 20, 1948	6.52	2,450	1952	Mar. 30, 1952	a5.75	-
	May 6, 1948	5.88	1,690		Apr. 5, 1952	7.10	3,620
	May 21, 1948	5.73	1,530		Apr. 18, 1952	6.92	3,280
	May 26, 1948	5.76	1,560		1953	Feb. 3, 1953	5.99
	May 30, 1948	5.79	1,590	Apr. 5, 1953		5.77	1,600
June 3, 1948	6.35	2,230	Apr. 22, 1953	6.69		2,700	
1949	Mar. 18, 1949	5.94	1,750	Apr. 27, 1953	8.01	5,000	
	Apr. 11, 1949	6.31	2,280				
1950	Apr. 2, 1950	6.07	1,900				

a Backwater from ice.

## 795. Crooked River near Post, Ore.

Location.--Lat 44°07'00", long 120°15'50", in NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.7, T.17 S., R.21 E., on right bank 1 mile downstream from North Fork and 11 $\frac{1}{2}$  miles southeast of Post.

Drainage area.--2,160 sq mi, approximately, of which 500 sq mi is probably non-contributing. Mean altitude, 4,650 ft; channel slope, 37.2 ft per mile; area of lakes and ponds, 0.15 sq mi.

Gage.--Nonrecording at site half a mile upstream at different datum prior to Aug. 27, 1911; recording thereafter. Datum of gage is 3,461.60 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 3,800 cfs and extended by logarithmic plotting.

Remarks.--Many diversions for irrigation above station. One small ditch diverts above station for irrigation of about 60 acres below. Only annual peaks are shown 1909-11. Base for partial-duration series, 2,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1909	Jan. 17, 1909	a6.20	-	1942	Apr. 8, 1942	4.89	3,120
	Mar. 29, 1909	5.10	1,490		1943	Nov. 29, 1942	4.80
1910	Mar. 1, 1910	10.50	6,000	Jan. 1, 1943		5.27	3,560
1911	Mar. 5, 1911	a6.8	-	Mar. 9, 1943		4.30	2,090
	Feb. 28, 1940	5.22	3,680	Mar. 27, 1943		6.43	5,700
1940	Mar. 26, 1940	6.22	5,540	Apr. 8, 1943		5.25	3,530
	Apr. 2, 1941	4.07	1,820	Apr. 15, 1943		4.99	3,110
1942	Jan. 28, 1942	a6.08	-	May 1, 1943		4.50	2,370
	Mar. 12, 1942	4.18	2,020	1944	Feb. 6, 1944	a4.74	-
	Apr. 4, 1942	4.78	2,950		Mar. 10, 1944	4.34	2,040

a Ice affected.

Peak stages and discharges of Crooked River near Post, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1945	Jan. 8, 1945	4.33	2,130	1951	Feb. 7, 1951	6.12	4,100
	Apr. 21, 1945	4.68	2,640		Feb. 11, 1951	5.57	3,990
1946	Dec. 28, 1945	6.66	6,190	Mar. 15, 1951	5.22	3,360	
	Feb. 27, 1946	4.83	2,860	Apr. 5, 1951	5.10	3,160	
	Mar. 27, 1946	4.24	2,010	Apr. 29, 1951	4.37	2,010	
	Apr. 18, 1946	4.93	3,020	1952	Feb. 1, 1952	5.41	2,470
1947	Nov. 27, 1946	3.82	1,440		Mar. 26, 1952	7.31	7,550
	Feb. 12, 1947	4.62	-		Apr. 5, 1952	6.35	5,540
1948	Jan. 7, 1948 Apr. 15, 1948 Apr. 20, 1948 May 21, 1948 June 3, 1948	5.06	3,290		Apr. 19, 1952	5.26	3,430
		4.98	3,170	1953	Jan. 18, 1953	5.18	3,300
		4.87	3,000		Feb. 3, 1953	4.94	2,890
		4.47	2,400		Feb. 7, 1953	4.82	2,690
		4.43	2,340		Apr. 23, 1953	4.99	3,160
		1949	Feb. 17, 1949		7.21	-	Apr. 28, 1953
Feb. 22, 1949	4.88		3,020		1954	Dec. 20, 1953	4.42
Mar. 19, 1949	4.87		2,940	Mar. 9, 1954		5.47	3,810
Apr. 12, 1949	4.71		2,760	1955	Apr. 8, 1955	4.01	1,550
1950	Mar. 18, 1950	4.28	2,120		1956	Dec. 22, 1955	7.20
	Apr. 2, 1950	5.08	3,320	Jan. 14, 1956		5.07	3,110
	Apr. 6, 1950	4.37	2,260	Mar. 24, 1956		6.67	6,210
	Apr. 13, 1950	4.39	2,280	May 8, 1956		5.83	4,470
	Apr. 20, 1950	4.30	2,150	1957		Feb. 26, 1957	6.25
Dec. 7, 1950	4.39	2,280	Mar. 31, 1957		4.78	2,740	

a Ice affected.

805. Crooked River above Hoffman Dam, near Prineville, Oreg.  
(Published as "near Prineville" 1908-12 and as "at Hoffman's Ranch, near Prineville" 1913-14)

Location--Lat 44°08'40", long 120°49'40", in NE $\frac{1}{4}$  sec.32, T.16 S., R.16 E., on right bank 0.9 mile upstream from Hoffman diversion dam and 11 miles south of Prineville.

Drainage area--2,760 sq mi, approximately, of which 500 sq mi is probably non-contributing; at site used prior to Jan. 1, 1913, 2,810 sq mi, approximately; at site used 1913-14, 2,770 sq mi, approximately. Mean altitude, 4,650 ft; channel slope, 25.9 ft per mile; area of lakes and ponds, 0.15 sq mi.

Gage--Nonrecording prior to Sept. 30, 1914; recording thereafter. Prior to Jan. 1, 1913, at Stearns Ranch, 8 miles downstream, at different datum. Jan. 23, 1913, to Sept. 30, 1914, at Hoffman's Ranch 3 miles downstream at different datum. Datum of gage is 2,981.00 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation--Defined by current-meter measurements below 6,200 cfs and extended by logarithmic plotting.

Bankfull stage--Not subject to overflow.

Remarks--Diversions for irrigation of over 20,000 acres above station. Only annual peaks are given prior to 1942. Base for partial-duration series, 2,500 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1909	Feb. 17, 1909	5.0	2,350	1943	Jan. 1, 1943	5.91	4,090
1910	Mar. 1, 1910	10.0	8,000		Jan. 22, 1943	5.30	-
1911	Mar. 24, 1911	5.65	2,740		Mar. 28, 1943	7.07	6,300
	Apr. 10, 1912	5.7	2,730		Apr. 15, 1943	5.57	3,560
1913	Apr. 13, 1913	6.16	4,420	May 1, 1943	4.96	2,710	
1914	Apr. 5, 1914	6.0	4,000	1944	Mar. 10, 1944	4.64	2,290
1941	Apr. 2, 1941	4.43	1,970		1945	Jan. 8, 1945	4.92
	1942	Jan. 28, 1942	6.77	-		Feb. 3, 1945	5.00
Apr. 8, 1942		5.38	3,280	Apr. 21, 1945		5.21	3,040
1943	Nov. 30, 1942	5.31	3,180	1946	Dec. 29, 1945	6.74	5,620
					Feb. 28, 1946	5.45	3,380

## DESCHUTES RIVER BASIN

Peak stages and discharges of Crooked River above Hoffman Dam, near Prineville, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	Mar. 28, 1946	4.99	2,750	1951	Apr. 5, 1951	5.57	3,320
	Apr. 18, 1946	5.72	3,780		1952	Feb. 2, 1952	5.25
1947	Feb. 13, 1947	4.04	1,550	Mar. 26, 1952		8.2	8,410
	1948	Jan. 8, 1948	5.50	3,450		Apr. 6, 1952	6.92
Feb. 19, 1948		5.50	-	1953	Jan. 19, 1953	5.28	3,090
Apr. 16, 1948		5.48	3,420		Feb. 4, 1953	5.29	3,110
May 21, 1948		5.04	2,800		Feb. 8, 1953	5.34	3,180
May 26, 1948		5.67	3,700		Apr. 28, 1953	6.57	5,110
June 4, 1948		4.83	2,500	1954	Mar. 10, 1954	5.85	3,920
1949	Feb. 18, 1949	7.07	-		1955	Apr. 10, 1955	4.06
	Feb. 19, 1949	5.31	3,170	1956		Dec. 23, 1955	7.35
	Feb. 23, 1949	5.16	2,960		Jan. 17, 1956	5.44	3,320
	Mar. 19, 1949	5.28	3,130		Mar. 25, 1956	6.72	5,370
	1950	Apr. 2, 1950	5.48	3,420	Apr. 14, 1956	5.23	2,990
Apr. 13, 1950		4.87	2,560	May 8, 1956	6.82	5,550	
1951	Feb. 7, 1951	6.03	4,050	1957	Feb. 27, 1957	6.24	4,550
	Mar. 16, 1951	5.49	3,200		Apr. 1, 1957	-	2,500

830. Ochoco Creek above Mill Creek, near Prineville, Oreg.

Location.--Lat 44°18'30", long 120°38'40", in SW $\frac{1}{4}$  sec.36, T.14 S., R.17 E., about  $\frac{1}{2}$  miles upstream from Mill Creek and 10 miles east of Prineville.

Drainage area.--200 sq mi, approximately.

Gage.--Recording. Altitude of gage is 3,140 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 520 cfs and extended by logarithmic plotting.

Bankfull stage.--4 ft.

Remarks.--Records for 1927-33 furnished by State engineer of Oregon. Many small private ditches divert water for irrigation above station. Base for partial-duration series, 200 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1918	Mar. 26, 1918	2.58	235	1926	Feb. 4, 1926	1.86	94	
1919	Apr. 4, 1919	3.75	600	1927	Feb. 21, 1927	2.72	241	
	Apr. 11, 1919	3.00	350		Apr. 27, 1927	2.89	262	
1920	Apr. 13, 1920	2.72	260		June 8, 1927	2.60	212	
	Apr. 28, 1920	2.57	222	1928	Jan. 13, 1928	3.48	430	
1921	Feb. 14, 1921	3.58	500		Jan. 29, 1928	2.83	262	
	Mar. 3, 1921	3.4	430		Mar. 11, 1928	2.57	206	
	Mar. 18, 1921	3.24	385	Mar. 23, 1928	3.11	315		
	Apr. 10, 1921	3.56	482	1929	Apr. 22, 1929	1.72	85	
	May 17, 1921	3.61	500		1930	Feb. 20, 1930	1.33	51
	June 4, 1921	2.77	246	1931		Apr. 1, 1931	3.26	326
1922	Dec. 1, 1921	2.67	223		1932	Feb. 25, 1932	3.04	241
	Apr. 3, 1922	2.62	212			Mar. 19, 1932	5.20	821
	Apr. 7, 1922	2.82	258			Apr. 2, 1932	3.16	260
	Apr. 23, 1922	3.53	482	1933	Apr. 3, 1933	3.15	250	
1925	Jan. 31, 1925	3.08	336					
	Feb. 4, 1925	3.91	600					
	Apr. 16, 1925	2.58	209					

## 835. Mill Creek near Prineville, Oreg.

Location.--Lat 44°20'10", long 120°40'00", in SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.22, T.14 S., R.17 E., about 1 $\frac{1}{2}$  miles upstream from Ochoco Reservoir and 9 miles east of Prineville.

Drainage area.--78.8 sq mi.

Gage.--Nonrecording at sites within 500 ft upstream at different datums prior to Dec. 21, 1919; recording thereafter. Altitude of gage is 3,190 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 225 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Records for 1927-32 furnished by State engineer of Oregon. Many small ditches divert above station for irrigation. Two small ditches divert up to a few hundred acre-feet per year around station. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1918	Mar. 26, 1918	2.15	110	1926	Feb. 6, 1926	2.1	112
1920	Dec. 24, 1919	1.32	84	1927	Feb. 21, 1927	3.77	274
				1928	Jan. 13, 1928	2.86	180
1921	Feb. 14, 1921	2.86	225	1929	Apr. 29, 1929	1.14	31
1922	Apr. 23, 1922	2.03	140	1930	Feb. 20, 1930	1.34	44
1925	Feb. 4, 1925	4.20	314	1931	Apr. 1, 1931	2.57	144
				1932	Mar. 12, 1932	4.39	301

## 850. Ochoco Creek at Elliott Ranch, near Prineville, Oreg.

Location.--44°17'50", long 120°43'10", in W $\frac{1}{2}$  sec.5, T.15 S., R.17 E., in Ochoco Reservoir area, 2 $\frac{1}{2}$  miles upstream from Johnson Creek, 6 $\frac{1}{2}$  miles upstream from Johnson Creek, and 6 $\frac{1}{2}$  miles east of Prineville.

Drainage area.--300 sq mi, approximately.

Gage.--Nonrecording prior to Apr. 20, 1916; recording thereafter. At different datum prior to Apr. 30, 1910. Altitude of gage is 3,050 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 450 cfs and extended by logarithmic plotting.

Remarks.--Many diversions for irrigations of about 2,200 acres above station. Tableland ditch and Elliott ditch divert above station for irrigation below station. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1909	Feb. 17, 1909	3.0	530	1916	Mar. 20, 1916	3.5	660
1910	Nov. 23, 1909	4.5	1,180	1917	Apr. 26, 1917	4.12	930
1915	Apr. 3, 1915	2.4	290				

## 860. McKay Creek near Prineville, Oreg.

Location.--Lat 44°24'30", long 120°48'40", in SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.28, T.13 S., R.16 E., a quarter of a mile downstream from Allen Creek, 3 miles upstream from Old Dry Creek, and 7 miles north of Prineville.

Drainage area.--76.6 sq mi.

Gage.--Recording. Altitude of gage is 3,400 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 124 cfs and extended by logarithmic plotting.

Bankfull stage.--5 ft.

Remarks.--Records for 1927-32 furnished by State engineer of Oregon. Several small ditches divert above station for irrigation. Base for partial-duration series, 100 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1925	Jan. 29, 1925	1.90	144	1928	Mar. 27, 1928	2.00	161
	Feb. 4, 1925	3.27	429	1929	Mar. 20, 1929	1.03	36
	May 21, 1925	3.23	429				
1926	Feb. 7, 1926	2.17	191	1930	Feb. 15, 1930	1.15	38
1927	Feb. 20, 1927	3.30	441	1931	Apr. 1, 1931	1.77	102
	Mar. 2, 1927	1.70	111				
	Apr. 27, 1927	1.72	114	1932	Feb. 27, 1932	1.76	119
1928	Jan. 13, 1928	2.24	205				
	Jan. 28, 1928	1.72	114	Apr. 2, 1932	1.69	108	

## 875. Crooked River near Culver, Oreg.

Location.--Lat 44°33'40", long 121°16'10", in sec.3 (50 ft west of quarter corner on line between secs. 2 and 3), T.12 S., R.12 E., on right bank 1 mile upstream from mouth, 1.2 miles downstream from Cove powerplant, and 4 miles northwest of Culver.

Drainage area.--4,330 sq mi, approximately, of which 500 sq mi is probably non-contributing. Mean altitude, 4,470 ft; channel slope, 25.1 ft per mile; area of lakes and ponds, 0.65 sq mi.

Gage.--Nonrecording prior to Aug. 27, 1945; recording thereafter. At several sites within 1.2 miles at different datums prior to Aug. 2, 1945. Aug. 2-27, 1945, at present site at datum 1.11 ft higher. Datum of gage is 1,664.86 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--Not subject to overflow.

Remarks.--Water is diverted for irrigation of about 37,000 acres above station. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1918	Mar. 25, 1918	4.4	3,300	1931	Apr. 2, 1931	2.76	2,980
1919	Apr. 5, 1919	6.3	5,200	1932	Mar. 21, 1932	5.50	6,530
1920	Jan. 27, 1920	5.2	4,100	1933	Apr. 5, 1933	2.90	3,090
				1934	Jan. 25, 1934	1.08	1,560
				1935	Apr. 17, 1935	2.90	3,090
1921	Feb. 15, 1921	6.0	4,900	1936	Apr. 15, 1936	5.0	5,800
1922	Apr. 24, 1922	5.10	5,940				
1923	Apr. 3, 1923	3.7	3,720	1937	Apr. 16, 1937	5.8	6,980
1924	Feb. 8, 1924	4.7	5,440	1938	Apr. 20, 1938	6.20	7,600
1925	Feb. 6, 1925	6.0	7,280	1939	Mar. 26, 1939	3.90	4,310
				1940	Mar. 29, 1940	5.15	6,010
1926	Feb. 8, 1926	2.9	2,720	1941	Apr. 3, 1941	2.70	2,970
1927	Apr. 27, 1927	3.80	4,330				
1928	Mar. 24, 1928	4.3	4,830	1942	Apr. 9, 1942	3.80	4,190
1929	Apr. 23, 1929	2.2	2,370	1943	Mar. 30, 1943	6.70	8,260
1930	Feb. 7, 1930	2.2	2,390				

Peak stages and discharges of Crooked River near Culver, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1944	Mar. 11, 1944	3.00	3,220	1951	Feb. 8, 1951	6.49	5,260
1945	Apr. 22, 1945	10.24	3,820	1952	Mar. 27, 1952	8.22	8,000
				1953	Apr. 29, 1953	6.98	6,170
1946	Dec. 31, 1945	7.73	7,150	1954	Mar. 11, 1954	5.90	4,690
1947	Nov. 29, 1946	4.05	2,540	1955	May 8, 1955	4.14	2,760
1948	Apr. 22, 1948	5.79	4,290				
1949	Feb. 20, 1949	6.16	4,780	1956	May 9, 1956	8.14	8,150
1950	Apr. 3, 1950	5.49	3,920	1957	Feb. 28, 1957	6.84	5,890

## 880. Lake Creek near Sisters, Oreg.

Location.--Lat 44°25'40", long 121°43'30", in SW $\frac{1}{4}$  sec.24, T.13 S., R.8 E., on left bank a quarter of a mile downstream from Suttle Lake, 6 miles upstream from mouth, and 13 miles northwest of Sisters.

Drainage area.--22.2 sq mi. Mean altitude, 4,440 ft; channel slope, 174 ft per mile; area of lakes and ponds, 1.1 sq mi.

Gage.--Nonrecording at sites 1,000 ft upstream at different datums prior to Apr. 1, 1916; nonrecording or recording at site 40 ft downstream at different datum Apr. 1, 1916, to Oct. 12, 1928; recording thereafter. Altitude of gage is 3,430 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 265 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Occasional regulation by Suttle Lake. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1915	Apr. 22, 1915	1.33	81	1937	May 18, 1937	2.18	138
				1938	May 3, 1938	2.14	125
1916	June 20, 1916	1.70	164	1939	May 11, 1939	2.07	115
1917	May 27, 1917	1.60	146	1940	Mar. 31, 1940	1.82	86
1918	Dec. 30, 1917	2.24	247				
1919	Jan. 22, 1919	-	200	1941	Jan. 15, 1941	1.69	85
1920	Jan. 29, 1920	1.3	107	1942	Nov. 15, 1941	1.99	110
				1943	Jan. 3, 1943	3.23	300
1921	Jan. 6, 1921	1.68	148	1944	Apr. 14, 1944	1.54	69
1922	Dec. 4, 1921	2.37	257	1945	May 16, 1945	2.30	142
1923	Jan. 10, 1923	2.58	302				
1924	Feb. 8, 1924	1.13	82	1946	Jan. 4, 1946	2.45	158
1925	Feb. 7, 1925	1.54	138	1947	Dec. 16, 1946	3.50	351
				1948	Jan. 10, 1948	2.47	174
1926	Feb. 14, 1926	1.17	87	1949	May 9, 1949	2.64	199
1927	Nov. 30, 1926	1.60	130	1950	June 29, 1950	2.79	223
1928	Nov. 30, 1927	1.92	196				
1929	May 26, 1929	1.69	118	1951	Nov. 4, 1950	2.62	196
1930	Feb. 22, 1930	1.65	110		Feb. 14, 1951	2.35	156
				1952	May 22, 1952	2.29	148
1931	Apr. 4, 1931	2.60	168	1953	Jan. 20, 1953	3.38	313
1932	Mar. 28, 1932	2.17	111	1954	Dec. 22, 1953	2.36	157
1933	June 9, 1933	3.05	269	1955	June 13, 1955	2.44	169
1934	Dec. 25, 1933	2.59	200				
1935	June 2, 1935	2.12	120	1956	Dec. 24, 1955	3.65	380
				1957	Mar. 12, 1957	2.27	145
1936	Apr. 28, 1936	2.02	113				

## 890. First Creek near Sisters, Oreg.

Location.--Lat 44°27'10", long 121°43'40", in SW $\frac{1}{4}$  sec.12, T.13 S., R.8 E., about 2 miles north of Suttle Lake and 14 $\frac{1}{4}$  miles northwest of Sisters.

Drainage area.--12.2 sq mi.

Gage.-- Nonrecording at different datums prior to Mar. 31, 1917; recording thereafter. Altitude of gage is 3,340 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 50 cfs and extended by logarithmic plotting.

Remarks.--Record for 1926-28 furnished by State engineer of Oregon. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1915	Apr. 22, 1915	0.81	42	1926	Feb. 4, 1926	1.50	53
1916	June 19, 1916	6.30	71	1927	June 8, 1927	1.87	82
				1928	Nov. 28, 1927	2.28	117
1925	May 21, 1925	1.98	91				

915. Metolius River near Grandview, Oreg.  
(Published as "at Hubbard's ranch, near Grandview" 1912-13)

Location.--Lat 44°36'40", long 121°27'10", in NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.19, T.11 S., R.11 E., on right bank three-quarters of a mile upstream from Street Creek, 7 $\frac{1}{2}$  miles northwest of Grandview, and 13 miles northwest of Culver.

Drainage area.--324 sq mi, hydrologic drainage boundary uncertain owing to ground-water exchange. At site used prior to Dec. 31, 1913, 299 sq mi. Mean altitude, 4,320 ft; channel slope, 66.8 ft per mile; area of lakes and ponds, 1.4 sq mi.

Gage.--Nonrecording prior to May 3, 1949; recording thereafter. Prior to Dec. 31, 1913, at site 5 miles downstream at different datum. Oct. 1, 1921, to May 3, 1949, at site 20 ft downstream at present datum. Datum of gage is 1,910 ft above mean sea level (river-profile survey).

Stage-discharge relation.--Defined by current-meter measurements below 2,300 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Many small diversions for irrigation of about 670 acres above station. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1913	June 23, 1913	0.62	2,070	1940	Feb. 6, 1940	0.68	1,640
1922	Nov. 30, 1921	2.40	4,200	1941	May 5, 1941	.50	1,420
1923	Jan. 7, 1923	3.32	5,780	1942	Dec. 2, 1941	1.20	2,340
1924	Nov. 24, 1923	.86	1,950	1943	Jan. 1, 1943	2.86	5,130
1925	Feb. 5, 1925	1.62	2,930	1944	Nov. 4, 1943	.88	1,890
				1945	Feb. 8, 1945	.90	1,920
1926	Feb. 7, 1926	1.06	2,200				
1927	Feb. 20, 1927	2.16	3,870	1946	Dec. 28, 1945	2.10	3,730
1928	Nov. 25, 1927	1.40	2,630	1947	Dec. 15, 1946	1.70	3,080
1929	Nov. 10, 1928	.72	1,720	1948	Jan. 7, 1948	1.66	3,020
1930	Dec. 19, 1929	.70	1,720	1949	May 2, 1949	1.10	2,200
				1950	June 17, 1950	1.36	2,240
1931	Apr. 1, 1931	1.56	2,930				
1932	Mar. 19, 1932	.94	1,930	1951	Feb. 11, 1951	1.84	2,770
1933	June 9, 1933	1.50	2,780	1952	June 6, 1952	1.15	2,080
1934	Dec. 22, 1933	1.38	2,630	1953	Feb. 3, 1953	1.65	2,720
1935	Dec. 20, 1934	1.10	2,200	1954	Nov. 23, 1953	1.83	2,930
				1955	June 11, 1955	1.22	2,230
1936	May 16, 1936	.84	1,860				
1937	June 20, 1937	1.02	2,060	1956	Dec. 22, 1955	3.03	4,340
1938	Dec. 11, 1937	1.26	2,410	1957	Dec. 11, 1956	1.78	2,870
1939	Nov. 3, 1938	.82	1,800				

## 925. Deschutes River near Madras, Oreg.

Location.--Lat 44°42'30", long 121°14'10", in NE $\frac{1}{4}$  sec.13, T.10 S., R.12 E., 1 mile downstream from Pelton Dam, 5 miles upstream from Shitike Creek, and 7 $\frac{1}{2}$  miles northwest of Madras.

Drainage area.--7,800 sq mi, approximately. Mean altitude, 4,440 ft; channel slope, 26.4 ft per mile; area of lakes and ponds, 23.7 sq mi.

Gage.--Nonrecording prior to May 6, 1924; recording thereafter. May 6, 1924, to June 14, 1933, at site 1 mile upstream at different datum. Datum of gage is 1,407.35 ft above mean sea level (levels by Ebasco Services, Inc.).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--Not subject to overflow.

Remarks.--Large diversions in upper river basin for irrigation. Some winter and spring runoff stored in Ochoco Reservoir (capacity, 47,500 acre-ft) and in Crescent Lake (usable capacity, 86,050 acre-ft), Crane Prairie (usable capacity, 55,340 acre-ft), and Wickiup Reservoir (usable capacity, 182,100 acre-ft). Only annual peaks are shown. Figures of peak discharge adjusted for change in contents in reservoirs furnished by Corps of Engineers.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1924	Feb. 9, 1924	3.95	7,440	1941	Mar. 3, 1941	3.09	5,500
1925	Feb. 6, 1925	6.54	10,700	1942	Apr. 9, 1942	3.76	6,680
1926	Feb. 8, 1926	3.59	6,940	1943	Jan. 1, 1943	6.89	13,300
1927	Feb. 20, 1927	6.40	10,500	1944	Mar. 11, 1944	3.72	6,590
1928	Mar. 24, 1928	4.67	8,320	1945	Apr. 22, 1945	3.41	6,050
1929	Mar. 23, 1929	2.74	5,820	1946	Dec. 30, 1945	6.34	12,000
1930	Feb. 15, 1930	3.02	6,190	1947	Dec. 15, 1946	3.77	6,700
1931	Apr. 2, 1931	3.42	6,600	1948	Jan. 9, 1948	4.37	7,820
1932	Mar. 20, 1932	5.22	8,940	1949	Feb. 20, 1949	4.82	8,720
1933	Apr. 5, 1933	3.16	6,400	1950	Apr. 3, 1950	4.42	7,920
1934	May 29, 1934	4.44	7,820	1951	Feb. 8, 1951	6.03	11,300
1935	Apr. 17, 1935	3.42	6,090	1952	Mar. 28, 1952	6.62	12,700
1936	Apr. 15, 1936	4.66	8,280	1953	Jan. 20, 1953	5.23	9,570
1937	Apr. 17, 1937	5.34	9,730	1954	Mar. 11, 1954	5.15	9,430
1938	Apr. 20, 1938	5.99	11,300	1955	Feb. 15, 1955	3.02	5,490
1939	Mar. 27, 1939	4.34	7,770	1956	Dec. 24, 1955	6.79	13,100
1940	Mar. 29, 1940	4.94	8,960	1957	Feb. 28, 1957	-	all,000

a Maximum daily discharge.

## 930. Shitike Creek at Warm Springs, Oreg.

Location.--Lat 44°45'40", long 121°15'40", in SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.26, T.9 S., R.12 E., about a quarter of a mile downstream from Tenino Creek, 2 miles upstream from mouth, and 11 miles northwest of Madras.

Drainage area.--104 sq mi.

Gage.--Nonrecording. At different datums prior to Nov. 1, 1916. Altitude of gage is 1,480 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 260 cfs and extended by logarithmic plotting. Frequent shifts occur.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1912	Jan. 14, 1912	2.50	480	1924	Nov. 24, 1923	1.70	370
1913	Mar. 31, 1913	2.30	405	1925	Dec. 30, 1924	1.90	530
1914	Oct. 7, 1913	2.00	295	1926	Feb. 6, 1926	1.56	358
1915	May 13, 1915	1.50	175	1927	Feb. 20, 1927	3.30	1,100
1916	Feb. 9, 1916	2.90	640	1928	Nov. 25, 1927	2.62	765

## 935. Deschutes River at Mecca, Oreg.

Location.--Lat 44°46'20", long 121°12'30", in SW $\frac{1}{4}$  sec.20, T.9 S., R.13 E., at road bridge, 1 $\frac{1}{2}$  miles downstream from Shitlike Creek.

Drainage area.--7,940 sq mi, approximately.

Gage.--Nonrecording prior to Aug. 10, 1924; recording thereafter. Altitude of gage is 1,350 ft (from river-profile map).

Stage-discharge relation.--Defined by current-meter measurements below 11,000 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Many diversions for irrigation above station. Regulation and storage by Ochoco Reservoir since 1919, Crescent Lake and Crane Prairie Reservoir since 1922 (combined capacity, 189,000 acre-ft). Only annual peaks are shown. Records herein are combined with those for station near Madras for use in the analysis.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1912	Feb. 19, 1912	4.8	8,490	1920	Jan. 27, 1920	5.10	10,100
1913	Apr. 13, 1913	5.2	9,410				
1914	Mar. 18, 1914	4.65	8,430	1921	Feb. 15, 1921	5.05	9,820
1915	Apr. 3, 1915	4.20	7,470	1922	Dec. 2, 1921	5.30	10,600
				1923	Jan. 6, 1923	6.90	15,200
1916	Mar. 21, 1916	5.75	11,700	1924	Feb. 9, 1924	4.10	7,570
1917	Apr. 27, 1917	5.70	11,600	1925	Feb. 6, 1925	5.90	12,200
1918	Dec. 29, 1917	4.80	9,300				
1919	Apr. 6, 1919	5.20	10,300	1926	Feb. 8, 1926	4.10	7,570

## 970. Warm Springs River near Warm Springs, Oreg.

Location.--Lat 44°52'00", long 121°13'00", in NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.19, T.8 S., R.13 E., at highway bridge 7 $\frac{1}{2}$  miles north of Warm Springs and 10 miles southeast of Simmasno.

Drainage area.--517 sq mi.

Gage.--Nonrecording at site and datum prior to July 1, 1914; recording thereafter. Altitude of gage is 1,530 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,200 cfs and extended by logarithmic plotting.

Bankfull stage.--Not determined.

Remarks.--Only annual peaks are given prior to 1915. Base for partial-duration series, 900 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1913	May 22, 1913	2.1	980	1917	May 12, 1917	2.56	1,430
1914	Mar. 9, 1914	2.0	910		May 30, 1917	2.28	1,180
1915	Apr. 4, 1915	1.62	642	1918	Dec. 19, 1917	3.34	2,230
					Dec. 28, 1917	3.27	2,130
1916	Dec. 23, 1915	2.70	1,580		Jan. 4, 1918	2.50	1,380
	Feb. 11, 1916	3.13	2,030		Jan. 14, 1918	2.86	1,730
	Mar. 9, 1916	4.00	2,930		Feb. 6, 1918	3.04	1,930
	Mar. 20, 1916	3.52	2,380				
	May 5, 1916	2.48	1,380	1919	Jan. 17, 1919	2.54	1,400
					Jan. 23, 1919	2.60	1,450
1917	Mar. 29, 1917	2.95	1,830		Feb. 27, 1919	2.33	1,220
	Apr. 1, 1917	1.98	914		Apr. 6, 1919	2.15	1,040
	Apr. 28, 1917	2.22	1,130				

## 975. Clear Creek near Government Camp, Oreg.

Location.--Lat 45°10'20", long 121°41'00", in NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.4, T.5 S., R.9 E., on right bank 0.7 mile downstream from Clear Lake Outlet and 10 miles southeast of Government Camp.

Drainage area.--8.9 sq mi, approximately. Mean altitude, 3,760 ft; channel slope, 97.2 ft per mile; area of lakes and ponds, 1.5 sq mi.

Gage.--Recording. Datum of gage is 3,450.94 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Base for partial-duration series, 80 cfs.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1947	Dec. 15, 1946	3.00	150	1951	Jan. 29, 1951	2.86	-
1948	Jan. 7, 1948	2.30	80	1952	May 13, 1951	2.50	83
	May 29, 1948	2.34	89		May 21, 1952	2.38	76
1949	May 16, 1949	2.82	127	1953	May 27, 1953	2.42	64
1950	June 7, 1950	2.47	91				

## 990. White River near Wapinitia, Oreg.

Location.--Lat 45°09'10", long 121°30'20", in NE $\frac{1}{4}$  sec.11, T.5 S., R.10 E., 500 ft downstream from Crane Creek, 1 mile downstream from Clear Creek, and 12 $\frac{1}{2}$  miles west of Wapinitia.

Drainage area.--115 sq mi. Mean altitude, 3,920 ft; channel slope, 232 ft per mile; area of lakes and ponds, 1.7 sq mi.

Gage.--Recording. Altitude of gage is 2,420 ft (from river-profile map).

Stage-discharge relation.--Defined by current-meter measurements below 3,000 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Diversions above station for irrigation of about 1,640 acres below station. Base for partial-duration series, 850 cfs.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1946	Dec. 28, 1945	4.84	2,010	1948	Feb. 26, 1948	3.42	940	
	Apr. 26, 1946	3.46	939		May 26, 1948	3.87	1,190	
	May 4, 1946	3.57	1,010		June 12, 1948	3.30	895	
	May 19, 1946	3.50	965	1949	May 2, 1949	4.58	1,710	
1947	Dec. 15, 1946	6.43	3,620		May 13, 1949	4.75	1,870	
	Jan. 26, 1947	3.58	1,020	1950	Feb. 25, 1950	3.68	987	
1948	Nov. 15, 1947	3.12	862			May 14, 1950	3.93	1,260
	Jan. 7, 1948	5.20	2,370			June 4, 1950	3.91	1,250
	Feb. 22, 1948	3.80	1,220					

## 1005. White River near Tygh Valley, Oreg.

Location.--Lat 45°14'10", long 121°09'40", in SE $\frac{1}{4}$  sec.10, T.4 S., R.13 E., at highway bridge, 0.8 mile upstream from Tygh Creek and 1 mile southeast of Tygh Valley.

Drainage area.--221 sq mi.

Gage.--Nonrecording. Altitude of gage is 1,074 ft (from river-profile map).

Stage-discharge relation.--Defined by current-meter measurements below 1,100 cfs and extended by logarithmic plotting.

Remarks.--Several diversions for irrigation of about 1,000 acres above station. Water is diverted from Clear Creek, a tributary above station, for irrigation of several hundred acres on Juniper Flat, partly above station but largely in the Wapinitia Creek basin. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1912	Jan. 9, 1912	a5.3	-	1916	Dec. 22, 1915	3.7	2,230
	Jan. 13, 1912	3.5	2,050	1917	June 9, 1917	2.95	1,530
1913	May 27, 1913	2.4	1,120	1918	Dec. 18, 1917	5.3	3,800
1914	Jan. 22, 1914	2.3	1,040				
1915	Apr. 3, 1915	1.92	797				

a Affected by ice.

## 1015. White River below Tygh Valley, Oreg.

Location.--Lat 45°14'30", long 121°05'40", in NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.7, T.4 S., R.14 E., on left bank 200 ft below Pacific Power and Light Co. plant at White River Falls, 2 miles upstream from mouth, and 4 miles east of Tygh Valley.

Drainage area.--368 sq mi. Mean altitude, 2,940 ft; channel slope, 134 ft per mile; area of lakes and ponds, 1.9 sq mi.

Gage.--Recording. Prior to July 28, 1931, at site 750 ft downstream at different datum. July 28, 1931, to Sept. 30, 1954, at site 700 ft downstream at different datums. Datum of gage is 870.15 ft above mean sea level, datum of 1929, supplementary adjustment of 1947 (levels by Pacific Power and Light Co.).

Stage-discharge relation.--Defined by current-meter measurements below 5,000 cfs and extended by logarithmic plotting. Subject to high-water shifts.

Bankfull stage.--Not subject to overflow.

Remarks.--Diversions above station for irrigation; 4,400 acres in 1917; 7,200 acres in 1946. Base for partial-duration series, 1,200 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1918	Dec. 13, 1917	3.55	1,440	1921	June 3, 1921	3.56	1,240
	Dec. 19, 1917	8.24	5,940				
	Dec. 29, 1917	7.01	4,500	1922	Nov. 20, 1921	5.30	2,730
	Jan. 4, 1918	4.45	2,000		Nov. 30, 1921	7.80	5,820
	Feb. 7, 1918	4.19	1,840		Dec. 13, 1921	4.49	1,960
					May 5, 1922	3.97	1,710
1919	Jan. 23, 1919	4.30	1,890		May 18, 1922	4.95	2,650
	Apr. 4, 1919	3.41	1,230		June 2, 1922	4.03	1,710
	May 1, 1919	3.58	1,460				
	May 28, 1919	3.58	1,320	1923	Dec. 24, 1922	3.57	1,320
					Dec. 31, 1922	3.66	1,390
1920	Nov. 4, 1919	4.65	2,220		Jan. 3, 1923	3.64	1,320
	Jan. 16, 1920	5.02	2,400		Jan. 6, 1923	12.9	13,300
	Jan. 26, 1920	5.60	3,000		Apr. 17, 1923	4.02	1,430
					May 10, 1923	4.41	1,750
1921	Dec. 30, 1920	4.45	1,870				
	Jan. 3, 1921	6.15	3,640	1924	Feb. 5, 1924	3.70	1,220
	Jan. 5, 1921	4.98	2,430				
	Feb. 11, 1921	4.57	2,050	1925	Nov. 21, 1924	4.80	2,000
	Mar. 1, 1921	3.84	1,380		Feb. 5, 1925	5.8	3,020
	Mar. 18, 1921	4.26	1,780		Apr. 12, 1925	3.92	1,290
	Apr. 22, 1921	4.01	1,530		Apr. 16, 1925	4.06	1,430
	Apr. 29, 1921	3.92	1,450		May 21, 1925	4.43	1,650
	May 25, 1921	3.73	1,310				

Peak stages and discharges of White River below Tygh Valley, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1926	Feb. 6, 1926	5.5	2,690	1947	Dec. 15, 1946	8.6	6,120	
1927	Nov. 29, 1926	6.97	4,530	Jan. 26, 1947	5.45	2,600		
	Jan. 2, 1927	4.16	1,590	Feb. 2, 1947	4.13	1,410		
	Feb. 2, 1927	4.66	2,000	1948	Jan. 7, 1948	7.90	5,330	
	Feb. 18, 1927	5.22	2,500		Feb. 15, 1948	3.85	1,260	
	Feb. 20, 1927	9.3	7,880		Feb. 22, 1948	6.72	3,980	
	Apr. 27, 1927	4.37	1,750		Feb. 26, 1948	4.57	1,840	
May 16, 1927	4.47	1,830	May 26, 1948		5.49	2,520		
1928	Nov. 25, 1927	5.91	3,220	1949	Dec. 12, 1948	4.70	1,890	
	Jan. 13, 1928	4.90	2,250	Feb. 10, 1949	5.8	2,750		
	Mar. 11, 1928	5.20	2,500	Feb. 23, 1949	4.6	1,660		
	Mar. 23, 1928	3.82	1,330	Mar. 20, 1949	3.83	1,200		
1929	May 24, 1929	3.55	1,160	Apr. 19, 1949	4.52	1,730		
1930	Feb. 20, 1930	3.79	1,330	May 2, 1949	5.45	2,600		
1931	Apr. 1, 1931	10.3	9,480	1950	May 14, 1949	5.65	2,800	
				Feb. 24, 1950	6.35	3,320		
1932	Jan. 12, 1932	5.1	2,210	Mar. 5, 1950	4.40	1,500		
	Feb. 27, 1932	4.15	1,400	Mar. 18, 1950	4.13	1,310		
	Mar. 19, 1932	6.0	3,120	Apr. 2, 1950	4.00	1,220		
	Mar. 24, 1932	3.9	1,210	May 15, 1950	4.65	1,700		
	May 13, 1932	4.15	1,400	June 5, 1950	4.68	1,720		
1933	Nov. 17, 1932	4.15	1,340	1951	Nov. 2, 1950	4.00	1,220	
	Apr. 29, 1933	4.50	1,620	Dec. 7, 1950	4.46	1,550		
	May 30, 1933	4.32	1,450	Dec. 23, 1950	4.48	1,560		
	June 9, 1933	5.12	2,200	Jan. 2, 1951	4.75	1,780		
	1934	Dec. 6, 1933	4.77	1,850	Jan. 17, 1951	6.73	3,760	
Dec. 22, 1933		7.9	5,450	Jan. 21, 1951	4.88	1,880		
Jan. 3, 1934		5.22	2,300	Jan. 24, 1951	5.03	2,020		
Jan. 23, 1934		6.35	3,620	Feb. 6, 1951	5.83	2,780		
Mar. 2, 1934		3.95	1,200	Feb. 12, 1951	5.85	2,790		
1935		Dec. 20, 1934	7.00	4,340	Mar. 15, 1951	4.35	1,710	
	Jan. 24, 1935	4.04	1,320	Apr. 18, 1951	4.23	1,610		
	May 6, 1935	3.93	1,240	May 11, 1951	4.51	1,840		
	1936	Jan. 4, 1936	4.86	2,040	1952	Dec. 22, 1951	3.84	1,320
Apr. 19, 1936		4.84	2,040	Feb. 1, 1952	4.73	2,020		
May 4, 1936		4.15	1,400	Feb. 4, 1952	5.18	2,410		
May 15, 1936		4.03	1,320	Apr. 19, 1952	3.85	1,330		
1937	Apr. 15, 1937	4.95	2,140	Apr. 28, 1952	4.21	1,450		
	May 4, 1937	4.21	1,450	May 13, 1952	4.12	1,380		
1938	Dec. 30, 1937	6.03	3,220	1953	Jan. 9, 1953	6.3	3,430	
	Jan. 22, 1938	5.30	2,490	Jan. 12, 1953	4.25	1,560		
	Mar. 18, 1938	4.83	2,040	Jan. 18, 1953	7.45	4,740		
	Mar. 21, 1938	5.09	2,290	Jan. 23, 1953	5.25	2,380		
	Apr. 18, 1938	5.17	2,340	Feb. 6, 1953	5.55	2,650		
1939	Mar. 26, 1939	3.88	1,200	Feb. 17, 1953	3.85	1,260		
	1940	Feb. 6, 1940	5.07	2,290	Apr. 28, 1953	3.94	1,320	
		Feb. 28, 1940	4.63	1,830	May 27, 1953	4.28	1,580	
		Mar. 31, 1940	3.88	1,220	1954	Nov. 22, 1953	3.81	1,230
	1941	Nov. 29, 1940	3.65	1,080	Dec. 10, 1953	4.00	1,370	
1942	Dec. 2, 1941	4.27	1,310	Dec. 20, 1953	5.87	2,970		
	Feb. 4, 1942	4.88	1,820	Jan. 29, 1954	-	1,500		
1943	Nov. 23, 1942	5.13	2,320	Feb. 14, 1954	4.22	1,540		
	Nov. 27, 1942	4.00	1,300	Feb. 21, 1954	-	1,900		
	Nov. 29, 1942	5.71	2,900	Mar. 10, 1954	3.88	1,280		
	Dec. 9, 1942	4.06	1,340	May 11, 1954	3.90	1,300		
	Jan. 1, 1943	7.76	5,270	May 19, 1954	4.03	1,390		
	Feb. 6, 1943	7.23	4,620	1955	May 21, 1955	4.19	1,390	
	Feb. 11, 1943	6.68	3,970		June 10, 1955	4.80	1,910	
	Apr. 1, 1943	4.58	1,670		1956	Nov. 27, 1955	5.91	3,090
	Apr. 19, 1943	5.08	2,210			Dec. 12, 1955	5.56	2,680
	May 26, 1943	4.57	1,740			Dec. 22, 1955	8.17	6,620
	1944	Nov. 4, 1943	2.98	745		Jan. 4, 1956	4.30	1,480
Feb. 13, 1945		4.07	1,350	Jan. 15, 1956		8.29	6,850	
May 4, 1945		4.08	1,360	Feb. 21, 1956		4.03	1,260	
1945		Nov. 5, 1944	7.1	4,320	Apr. 23, 1956	4.73	1,850	
		Jan. 24, 1946	3.94	1,280	May 10, 1956	4.40	1,560	
	May 5, 1946	4.08	1,380	May 20, 1956	5.07	2,160		
	May 26, 1946	4.07	1,370	May 31, 1956	4.85	1,960		
1946	Dec. 29, 1945	7.1	4,320	1957	Dec. 11, 1956	5.68	2,820	
	Jan. 24, 1946	3.94	1,280		Feb. 26, 1957	4.33	1,500	
	May 5, 1946	4.08	1,380		Mar. 9, 1957	5.17	2,260	
	May 26, 1946	4.07	1,370		Mar. 16, 1957	4.58	1,710	
						Apr. 6, 1957	4.32	1,500
				Apr. 14, 1957	4.07	1,300		
				May 9, 1957	4.17	1,380		

## 1020. Deschutes River at Sherars Bridge, Oreg.

Location.--Lat 45°15'20", long 121°02'30", in NE $\frac{1}{4}$  sec.3, T.4 S., R.14 E., half a mile upstream from Sherars Bridge and 6 $\frac{1}{2}$  miles east of Tygh Valley.

Drainage area.--10,200 sq mi, approximately.

Gage.--Nonrecording. Prior to Apr. 14, 1928, at site 1 $\frac{1}{4}$  miles downstream at different datum. Altitude of gage is 720 ft (from river-profile map).

Stage-discharge relation.--Defined by current-meter measurements below 10,000 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Many diversions for irrigation in upper river basin. Some winter and spring runoff stored in Ochoco Reservoir since 1919 (capacity, 47,500 acre-ft) and Crescent Lake and Crane Prairie Reservoirs since 1922 (combined capacity, 141,000 acre-ft). Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1926	Feb. 7, 1926	5.0	12,300	1930	Feb. 2, 1930	3.20	8,650
1927	Feb. 21, 1927	13.5	32,000				
1928	Mar. 24, 1928	4.6	11,700	1931	Apr. 1, 1931	4.60	13,300
1929	Mar. 23, 1929	2.62	7,060	1932	Mar. 21, 1932	4.00	11,200

a Estimated.

1030. Deschutes River at Moody, near Biggs, Oreg.  
(Published as "near Moro" 1897-99)

Location.--Lat 45°37'20", long 120°54'05", in SE $\frac{1}{4}$  sec.26, T.2 N., R.15 E., on right bank at Moody, 1 mile upstream from mouth and 4 miles southwest of Biggs.

Drainage area.--10,500 sq mi, approximately. Mean altitude, 4,060 ft; channel slope, 20.8 ft per mile; area of lakes and ponds, 26.6 sq mi.

Gage.--Nonrecording prior to July 22, 1906; recording thereafter. Prior to Dec. 31, 1899, at site 10 miles upstream at different datum. July 22, 1906, to July 18, 1930, at site 300 ft downstream at datum 0.5 ft lower. Datum of gage is 167.43 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 20,000 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Many diversions for irrigation in upper river basin. Some winter and spring runoff stored in Ochoco Reservoir since 1919 (capacity, 47,500 acre-ft), Crescent Lake and Crane Prairie Reservoirs since 1922 (combined capacity, 141,000 acre-ft), and Wickiup Reservoir since 1942 (capacity 182,100 acre-ft). Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1898	Dec. 14, 1897	4.1	11,700	1921	Jan. 3, 1921	4.85	14,600
1899	Mar. 1, 1899	5.5	16,000	1922	Dec. 1, 1921	6.4	22,900
				1923	Jan. 7, 1923	10.2	45,600
1907	Feb. 6, 1907	7.50	30,600	1924	Feb. 1, 1924	3.7	8,660
1908	Dec. 27, 1907	6.00	22,200	1925	Feb. 6, 1925	5.95	19,200
1909	Jan. 19, 1909	4.60	14,700				
1910	Mar. 2, 1910	6.85	26,900	1926	Feb. 7, 1926	4.8	13,300
				1927	Feb. 21, 1927	8.4	32,400
1911	Apr. 2, 1911	3.8	10,800	1928	Mar. 25, 1928	4.4	11,500
1912	Jan. 14, 1912	5.2	17,900	1929	Mar. 2, 1929	3.38	7,400
1913	Apr. 14, 1913	4.4	13,700	1930	Feb. 2, 1930	3.7	8,550
1914	Jan. 22, 1914	4.1	11,800				
1915	Apr. 4, 1915	3.7	9,850	1931	Apr. 1, 1931	5.26	15,700
				1932	Mar. 21, 1932	4.61	12,400
1916	Feb. 10, 1916	7.4	27,000	1933	June 10, 1933	4.03	10,000
1917	Apr. 30, 1917	4.8	14,500	1934	Dec. 23, 1933	4.76	13,300
1918	Dec. 29, 1917	5.3	17,500	1935	Dec. 22, 1934	3.89	9,400
1919	Apr. 6, 1919	4.6	13,500				
1920	Jan. 27, 1920	5.2	16,900	1936	Apr. 16, 1936	4.33	11,200

## Peak stages and discharges of Deschutes River at Moody, near Biggs, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1937	Apr. 17, 1937	4.75	13,500	1948	Jan. 7, 1948	5.96	19,000
1938	Apr. 21, 1938	5.19	15,200	1949	Feb. 20, 1949	5.5	19,000
1939	Mar. 27, 1939	3.99	9,760	1950	Feb. 26, 1950	5.30	15,200
1940	Feb. 28, 1940	4.40	11,500				
				1951	Feb. 11, 1951	6.18	19,500
1941	Jan. 19, 1941	3.11	6,400	1952	Mar. 28, 1952	5.27	15,000
1942	Feb. 5, 1942	4.82	13,400	1953	Jan. 19, 1953	6.22	19,200
1943	Jan. 1, 1943	8.48	32,900	1954	Jan. 29, 1954	5.25	15,600
1944	Mar. 12, 1944	3.41	7,490	1955	June 12, 1955	3.58	8,380
1945	Feb. 14, 1945	3.74	8,760				
				1956	Dec. 22, 1955	7.91	28,900
1946	Dec. 29, 1945	7.13	25,400	1957	Mar. 9, 1957	5.13	14,300
1947	Dec. 15, 1946	5.41	16,200				

## FIFTEENMILE CREEK BASIN

1045. Fifteenmile Creek near Wrentham, Oreg.

Location.--Lat 45°30'40", long 121°02'20", in SW $\frac{1}{4}$  sec.3, T.1 S., R.14 E., on left bank 0.1 mile downstream from Dry Creek, 3 miles southwest of Wrentham, and 9 $\frac{1}{2}$  miles southeast of The Dalles.

Drainage area.--171 sq mi.

Gage.--Recording. Altitude of gage is 980 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 950 cfs and extended on basis of slope-area measurements at 2,400 cfs and 3,980 cfs.

Remarks.--The town of Dufur diverts water from creek about 5 miles above station. Several small diversions above station for irrigation of about 2,400 acres. Base for partial-duration series, 270 cfs.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
	Dec. 15, 1946	4.47	388	1950	Feb. 23, 1950	5.17	1,210
	June 7, 1947	5.58	668		June 16, 1950	4.12	654
1948	Jan. 6, 1948	6.32	1,760	1951	Jan. 2, 1951	3.29	300
	Feb. 15, 1948	5.95	1,460		Jan. 17, 1951	4.91	1,060
	Feb. 22, 1948	4.79	700		Jan. 21, 1951	4.05	615
					Jan. 24, 1951	4.18	680
1949	Dec. 11, 1948	4.52	425		Feb. 9, 1951	4.32	750
	Feb. 10, 1949	8.42	-		Mar. 15, 1951	4.15	665
	Feb. 10, 1949	8.35	3,000	1952	Feb. 1, 1952	7.42	1,700
	Feb. 17, 1949	6.31	1,670				
	Feb. 22, 1949	7.07	2,400	1953	Jan. 9, 1953	8.08	3,540
	Mar. 19, 1949	3.65	417		Jan. 11, 1953	4.44	447
1950	Feb. 16, 1950	4.24	710		Jan. 20, 1953	5.58	1,190

1050. Eightmile Creek near Boyd, Oreg.

Location.--Lat 45°31'10", long 121°06'40", in SE $\frac{1}{4}$  sec.31, T.1 N., R.14 E., on left bank at upstream side of highway bridge, a quarter of a mile downstream from Jap Hollow Creek, 2 $\frac{1}{2}$  miles northwest of Boyd, and 7 miles southeast of The Dalles.

Drainage area.--56 sq mi, approximately. Mean altitude, 2,260 ft; channel slope, 174 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. Datum of gage is 802.32 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 270 cfs and extended by logarithmic plotting.

Remarks.--Several small diversions above gage for irrigation of about 1,300 acres. Base for partial-duration series, 120 cfs.

## FIFTEENMILE CREEK BASIN

Peak stages and discharges of Eightmile Creek near Boyd, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1947	Feb. 16, 1947	4.28	141	1950	Mar. 3, 1950	4.53	166	
	June 7, 1947	6.55	334					
1948	Jan. 7, 1948	5.35	227	1951	Jan. 17, 1951	5.85	272	
	Feb. 14, 1948	4.20	135		Jan. 21, 1951	4.42	158	
	Feb. 22, 1948	4.85	187		Jan. 26, 1951	4.18	142	
					Feb. 11, 1951	5.49	266	
			Mar. 15, 1951		5.45	253		
1949	Feb. 8, 1949	5.38	150	1952	Feb. 4, 1952	4.13	149	
	Feb. 10, 1949	7.11	385					
	Feb. 17, 1949	4.81	160					
	Feb. 23, 1949	5.93	279		1953	Jan. 9, 1953	4.78	195
	Mar. 20, 1949	4.64	202			Jan. 20, 1953	4.44	172
1950	Feb. 25, 1950	5.19	219					

## 1055. Fivemile Creek near The Dalles, Oreg.

Location.--Lat 45°32'30", long 121°08'30", in W $\frac{1}{2}$  sec.25, T.1 N., R.13 E., on left bank 4 $\frac{1}{2}$  miles southeast of The Dalles and 5 miles upstream from mouth.

Drainage area.--32.4 sq mi. At site used November 1927 to May 1931, 31.7 sq mi. Mean altitude, 2,650 ft; channel slope, 176 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording prior to May 1931; recording thereafter. December 1927 to May 1931 at site half a mile upstream at different datum. Altitude of gage is 740 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 130 cfs and extended by logarithmic plotting.

Bankfull stage.--3.5 ft.

Remarks.--Records for 1926, 1928-31, furnished by State engineer of Oregon. Base for partial-duration series, 130 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1926	Feb. 7, 1926	1.49	35	1949	Mar. 19, 1949	2.96	178
1928	Mar. 30, 1928	1.96	74		1950	Feb. 25, 1950	2.95
1930	Feb. 22, 1930	1.14	20	1951		Jan. 17, 1951	3.45
1931	Apr. 1, 1931	3.10	166		Feb. 12, 1951	3.19	217
					Mar. 15, 1951	3.32	242
1949	Dec. 12, 1948	2.69	138	1952	Feb. 4, 1952	2.62	133
	Feb. 10, 1949	3.66	315				
	Feb. 17, 1949	3.19	217	1953	Jan. 20, 1953	2.34	91
	Feb. 24, 1949	3.62	205				

1057. Columbia River at The Dalles, Oreg.  
(Published as "near The Dalles" 1937-56)

Location.--Lat 45°36'10", long 121°10'40", in NW<sup>1</sup>/<sub>4</sub> sec.3, T.1 N., R.13 E., at upstream end of Port of The Dalles dock at The Dalles, 3.2 miles downstream from The Dalles Dam and at mile 189.3.

Drainage area.--237,000 sq mi, approximately.

Gage.--Nonrecording gages prior to May 2, 1935; recording thereafter. 1858 to 1877, maximum stage for each year from levels to high-water marks at Lower Cascades Landing about 42 miles downstream from present gage and at different datum. June 1 to Dec. 6, 1878, at site at Umatilla 100 miles upstream from present gage at different datum. Dec. 12, 1878, to Oct. 9, 1879, and July 1, 1881, to Jan. 31, 1892, at Cascade Locks 40 miles downstream from and at datum 52.44 ft lower than present gage. Oct. 10, 1879, to June 30, 1881, at site 3,000 ft downstream from present gage and at datum 46.98 ft higher. Feb. 1, 1892, to Sept. 30, 1931, at site 700 ft downstream from present gage and at datum 46.98 ft higher. Oct. 1, 1931, to May 1, 1935, at entrance to Celilo Canal 11.6 miles upstream from present gage and at datum 37.71 ft higher. May 2, 1935, to Mar. 15, 1957, at site 11.7 miles upstream from present gage and at datum 0.12 ft higher. Datum of present gage is at mean sea level, datum of 1929, supplementary adjustment of 1947. Auxiliary recording gage since Mar. 16, 1957, at Hood River, 19.3 miles downstream from present gage at same datum.

Stage-discharge relation.--Defined by current-meter measurements below 1,000,000 cfs.

Bankfull stage.--98 ft, present site and datum, by U.S. Weather Bureau.

Remarks.--Some regulation by Franklin D. Roosevelt Lake since April 1938 (usable capacity, 5,071,700 acre-ft), and by reservoirs in Kootenai, Flathead, Pend Oreille, Spokane, Chelan, Yakima and Snake River basins. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1858	-	84.3	563,000	1895	May 31, 1895	28.7	475,000
1859	-	93.6	874,000				
1860	-	87.5	668,000	1896	June 22, 1896	42.9	785,000
				1897	May 24, 1897	42.7	780,000
1861	-	86.0	618,000	1898	June 20, 1898	36.9	649,000
1862	-	95.7	948,000	1899	June 22, 1899	43.0	787,000
1863	-	90.8	777,000	1900	June 19, 1900	32.2	547,000
1864	-	87.1	654,000				
1865	-	88.9	714,000	1901	June 1, 1901	37.5	662,000
				1902	June 1, 1902	36.7	644,000
1866	-	92.6	837,000	1903	June 18, 1903	43.0	787,000
1867	-	87.6	671,000	1904	May 26, 1904	36.0	629,000
1868	-	81.8	483,000	1905	June 15, 1905	25.5	412,000
1869	-	76.6	328,000				
1870	-	90.8	777,000	1906	June 1, 1906	23.4	374,000
				1907	June 5, 1907	34.1	587,000
1871	-	93.1	856,000	1908	June 18, 1908	37.1	653,000
1872	-	89.6	737,000	1909	June 19, 1909	38.1	675,000
1873	-	86.6	638,000	1910	May 14, 1910	33.1	566,000
1874	-	84.9	582,000				
1875	-	88.0	684,000	1911	June 17, 1911	33.5	574,000
				1912	June 1, 1912	33.2	568,000
1876	-	96.0	958,000	1913	June 12, 1913	41.8	759,000
1877	-	81.9	486,000	1914	May 27, 1914	29.6	493,000
				1915	June 1, 1915	20.8	328,000
1878	June 12, 1878	18.0	485,000				
1879	June 18, 1879	31.2	643,000	1916	July 1, 1916	40.4	727,000
1880	June 30, 1880	48.5	914,000	1917	June 20, 1917	40.4	727,000
				1918	June 25, 1918	33.7	578,000
1881	June 17, 1881	34.6	598,000	1919	June 1, 1919	32.5	553,000
1882	June 13, 1882	40.8	883,000	1920	June 26, 1920	26.3	428,000
1883	June 14, 1883	28.3	573,000				
1884	June 13, 1884	31.4	698,000	1921	June 11, 1921	42.4	773,000
1885	June 23, 1885	22.5	482,000	1922	June 9, 1922	38.2	677,000
				1923	June 14, 1923	33.8	581,000
1886	June 9, 1886	30.4	673,000	1924	May 26, 1924	26.6	433,000
1887	June 19, 1887	39.3	896,000	1925	May 24, 1925	36.6	642,000
1888	June 18, 1888	25.9	564,000				
1889	June 5, 1889	14.7	302,000	1926	May 8, 1926	17.1	269,000
1890	May 14, 1890	28.8	633,000	1927	June 18, 1927	38.8	690,000
				1928	May 29, 1928	42.1	766,000
1891	June 2, 1891	21.1	448,000	1929	June 19, 1929	27.7	460,000
1892	June 22, 1892	35.0	607,000	1930	June 14, 1930	20.2	332,000
1893	June 14, 1893	38.3	679,000				
1894	June 6, 1894	59.6	1,240,000				

Peak stages and discharges of Columbia River at The Dalles, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1931	May 19, 1931	18.8	308,000	1945	June 8, 1945	142.03	508,000
1932	May 24, 1932	106.4	578,000				
1933	June 18, 1933	110.0	722,000	1946	May 30, 1946	144.00	583,000
1934	May 2, 1934	103.1	453,000	1947	May 11, 1947	142.91	542,000
1935	June 10, 1935	141.36	480,000	1948	May 31, 1948	154.56	1,010,000
				1949	May 18, 1949	145.06	624,000
1936	May 17, 1936	142.74	529,000	1950	June 25, 1950	148.13	744,000
1937	June 24, 1937	138.68	379,000				
1938	May 31, 1938	144.70	609,000	1951	May 30, 1951	144.48	602,000
1939	May 21, 1939	138.94	387,000	1952	May 28, 1952	143.42	561,000
1940	June 5, 1940	138.46	370,000	1953	June 17, 1953	144.74	612,000
				1954	May 23, 1954	143.66	570,000
1941	June 10, 1941	135.73	273,000	1955	June 26, 1955	143.09	548,000
1942	June 17, 1942	140.11	431,000				
1943	June 21, 1943	143.12	546,000	1956	June 2, 1956	150.10	823,000
1944	June 19, 1944	137.18	327,000	1957	May 22, 1957	94.90	705,000

## KLICKITAT RIVER BASIN

1070. Klickitat River above West Fork, near Glenwood, Wash.

Location--Lat 46°15'40", long 121°14'30", in S $\frac{1}{2}$  sec.18, T.9 N., R.13 E., on right bank half a mile upstream from Swamp Creek,  $\frac{1}{2}$  miles upstream from West Fork, and 17 miles north of Glenwood.

Drainage area--151 sq mi. Area of lakes and ponds, 0.1 sq mi; mean elevation, 4,690 ft.

Gage--Recording. Altitude of gage is 2,720 ft (from river-profile map).

Stage-discharge relation--Defined by current-meter measurements.

Bankfull stage--7.5 ft.

Remarks--Base for partial-duration series, 1,300 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1945	May 4, 1945	2.93	1,300	1951	Feb. 11, 1951	3.04	1,370
					May 11, 1951	3.78	2,490
1946	May 9, 1946	3.27	1,700		May 23, 1951	3.40	1,890
	May 17, 1946	3.28	1,710				
				1952	Jan. 6, 1952	a3.92	-
1947	Dec. 15, 1946	3.21	1,600		Apr. 26, 1952	3.18	1,560
	May 7, 1947	3.10	1,450		May 19, 1952	3.13	1,490
1948	May 27, 1948	4.28	3,280	1953	Apr. 27, 1953	3.00	1,370
	June 11, 1948	3.50	2,040		May 6, 1953	3.02	1,400
	June 16, 1948	3.19	1,580		May 18, 1953	3.18	1,620
1949	Dec. 28, 1948	a3.82	-	1954	May 19, 1954	3.64	2,150
	May 15, 1949	4.00	2,800				
	June 7, 1949	3.23	1,640	1955	June 10, 1955	3.37	1,730
1950	Jan. 22, 1950	a3.82	-	1956	Apr. 23, 1956	3.30	1,630
	May 13, 1950	3.35	1,820		May 9, 1956	3.19	1,490
	June 5, 1950	3.44	1,960		May 20, 1956	4.27	3,220
	June 21, 1950	3.32	1,740		May 31, 1956	4.04	2,800
1951	Dec. 23, 1950	3.18	1,560	1957	May 9, 1957	3.54	1,980

a Backwater from ice.

1080. West Fork Klickitat River near Glenwood, Wash.

Location--Lat 46°15'30", long 121°16'20", in SE $\frac{1}{4}$  sec.14, T.9 N., R.12 E., on right bank at road bridge, 2 miles upstream from mouth and 17 miles north of Glenwood.

Drainage area--87.0 sq mi. Area of lakes and ponds, 0.8 sq mi; mean elevation, 4,600 ft.

Gage--Recording. Altitude of gage is 2,800 ft (from river-profile map).

Stage-discharge relation--Defined by current-meter measurements.

Remarks--Base for partial-duration series, 740 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1945	May 5, 1945	2.82	800	1948	May 26, 1948	4.23	1,560
1946	May 26, 1946	3.31	950				
				1954	May 19, 1954	3.00	940
1947	Nov. 18, 1946	2.88	752		June 23, 1954	2.74	813
	Dec. 14, 1946	3.54	1,210				

1100. Klickitat River near Glenwood, Wash.

Location.--Lat 46°05'20", long 121°15'30", in SE $\frac{1}{4}$  sec.14, T.7 N., R.12 E., on left bank half a mile downstream from Dairy Creek, 5 miles north of Glenwood, and 7 miles upstream from Trout Creek.

Drainage area.--360 sq mi. At site October 1909 to December 1910, 350 sq mi. Area of lakes and ponds, 1.0 sq mi; mean elevation, 4,520 ft.

Gage.--Nonrecording prior to July 19, 1910; recording thereafter. July 19 to Dec. 16, 1910, at site  $1\frac{1}{2}$  miles upstream at different datum. Dec. 17, 1910, to Sept. 30, 1918, at datum 1.50 ft higher, and Oct. 1, 1918, to Nov. 6, 1928, at datum 0.50 ft higher, at site 50 ft downstream. Nov. 7, 1928, to Sept. 30, 1934, at present site at datum 1 ft higher. Datum of present gage is 1,703 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 3,000 cfs, 1910-18 and below 4,300 cfs (maximum discharge from curve defined below 2,000 cfs), 1928-57.

Bankfull stage.--9.5 ft.

Remarks.--At times, entire flow of Hellroaring Creek, a tributary of Big Muddy Creek, is diverted for irrigation of about 7,000 acres below station in vicinity of Glenwood. Peaks probably not affected. Records for 1910-12 furnished by Klickitat Valley Development Co. and peak discharges are observed. Base for partial-duration series, 1,700 cfs. Incomplete records 1921-28; records collected are for periods when peaks usually occur.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)		
1910	Nov. 24, 1909	5.20	6,250	1919	Jan. 23, 1919	4.26	4,600		
	Dec. 12, 1909	2.00	1,720		May 1, 1919	2.98	2,400		
	Jan. 25, 1910	2.40	2,280		May 27, 1919	3.33	2,790		
	Mar. 3, 1910	2.45	2,350	1920	Dec. 24, 1919	2.62	1,710		
	Mar. 21, 1910	3.25	3,490		Jan. 26, 1920	2.80	1,960		
	Apr. 25, 1910	3.20	3,410		May 17, 1920	2.58	1,840		
	May 10, 1910	3.15	3,340		1921	Nov. 19, 1920	3.08	2,550	
	May 24, 1910	2.40	2,280			Apr. 22, 1921	3.06	2,320	
1911	May 4, 1911	2.08	1,830	May 25, 1921		3.90	3,770		
	June 1, 2, 1911	2.68	2,910	June 4, 1921	3.90	3,770			
	June 13, 1911	2.55	2,700	1922	Dec. 1, 1921	3.65	3,000		
1912	May 14, 15, 1912	2.87	2,790		May 17, 1922	3.80	3,250		
	June 8, 1912	2.44	2,140		June 5, 1922	3.90	3,420		
1913	May 10, 1913	2.72	2,320	1923	Jan. 7, 1923	3.40	2,590		
	May 27, 1913	3.21	3,100		Apr. 17, 1923	2.87	1,780		
	June 3, 1913	3.33	3,310		May 9, 1923	3.74	3,160		
	June 8, 1913	3.15	3,000		June 10, 1923	-	-		
	June 23, 1913	2.45	2,150		July 1, 1923	2.80	1,720		
1914	Jan. 7, 1914	2.93	2,890	July 7, 1923	2.83	1,780			
	Apr. 15, 1914	2.92	2,770	1924	May 13, 1924	3.28	2,230		
	Apr. 20, 1914	2.85	2,660		1925	Feb. 3, 1925	3.90	3,030	
	May 3, 1914	2.78	2,550	May 25, 1925		3.24	2,080		
	May 15, 1914	2.95	2,820	1926		Apr. 18, 1926	2.99	1,750	
	June 2, 3, 1914	2.39	1,880			1927	Apr. 27, 1927	3.47	2,670
1915	Apr. 3, 1915	2.67	2,200	May 16, 1927	3.80		3,450		
	Apr. 20, 1915	2.38	1,860	June 8, 1927	4.18		4,490		
	1916	Apr. 15, 1916	2.53	2,070	1928	Nov. 25, 1927	3.32	2,370	
		May 4, 1916	3.34	3,470		Dec. 2, 1927	3.05	1,920	
June 18, 1916		3.47	4,620	May 21, 1928		3.67	3,100		
July 2, 1916		3.09	3,920	1929	May 24, 1929	3.80	2,560		
1917	May 15, 1917	2.14	2,310		June 15, 1929	3.11	1,840		
	May 30, 1917	2.74	3,060	1930	Apr. 23, 1930	2.92	1,520		
	June 9, 1917	2.90	3,300		1931	Mar. 31, 1931	3.27	1,740	
	June 17, 1917	2.83	3,220			May 2, 1931	3.77	2,200	
	1918	Dec. 29, 1917	4.2			6,200	May 14, 1931	3.31	1,790
		Jan. 9, 1918	-			-	1932	Feb. 27, 1932	3.35
May 4, 1918		1.80	2,220			May 13, 1932		4.09	2,700
May 14, 1918		1.70	2,070						
May 31, 1918	1.43	1,740							
June 10, 1918	1.67	2,000							
1919	Jan. 18, 1919	3.02	2,400						

Peak stages and discharges of Klickitat River near Glenwood, Wash.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1932	June 13, 1932	3.40	1,940	1945	May 31, 1945	5.02	1,890
1933	Nov. 17, 1932	3.94	2,710	1946	Apr. 26, 1946	5.27	2,370
	Apr. 29, 1933	3.99	2,780		May 19, 1946	6.05	3,210
	May 30, 1933	4.41	3,350	1947	Nov. 18, 1946	5.20	1,990
	June 9, 1933	4.76	3,950		Dec. 14, 1946	6.33	3,970
	June 15, 1933	4.77	3,950		May 8, 1947	5.29	2,420
1934	Dec. 10, 1933	4.82	3,950	1948	Oct. 19, 20, 1947	5.08	2,180
	Dec. 22, 1933	6.91	9,870		May 26, 1948	7.01	4,710
	Jan. 23, 1934	3.70	3,980		June 11, 1948	5.91	3,690
	Mar. 29, 1934	2.51	2,570		June 16, 1948	5.43	3,060
1935	Nov. 6, 1934	3.62	2,680	1949	Apr. 19, 1949	4.65	2,120
	May 23, 1935	3.47	2,300		May 15, 1949	6.58	4,710
1936	Apr. 23, 1936	3.49	2,360	1950	Nov. 24, 1949	4.71	1,780
	May 14, 1936	4.08	3,070		Nov. 27, 1949	5.56	2,680
	May 28, 1936	3.72	2,250		May 14, 1950	5.98	3,130
	June 7, 1936	3.85	2,420		June 5, 1950	6.28	3,410
1937	Apr. 14, 1937	3.32	1,850	1951	June 21, 1940	6.08	3,130
	May 4, 1937	3.46	1,860		Nov. 27, 1950	4.95	1,720
	May 26, 1937	3.69	2,110		Dec. 23, 1950	5.83	2,800
	June 3, 1937	3.86	2,280		Feb. 11, 1951	5.77	2,540
	June 21, 1937	3.96	2,390		Apr. 18, 1951	5.60	2,420
1938	Dec. 29, 1937	3.43	1,740	1952	May 11, 1951	6.63	3,830
	Apr. 18, 1938	4.65	2,940		Apr. 27, 1952	6.00	2,770
	May 1, 1938	4.87	3,200	May 19, 1952	6.03	2,810	
	May 16, 1938	4.90	3,260	1953	Jan. 18, 1953	5.07	1,780
	May 27, 1938	5.43	3,960		Apr. 27, 1953	5.76	2,560
	June 22, 1938	4.17	2,040		May 6, 1953	5.74	2,540
May 16, 1939	4.26	2,140	May 18, 1953		5.98	2,830	
1939	May 29, 1939	4.09	1,880	May 30, 1953	5.47	2,220	
	May 16, 1940	4.36	1,720	June 13, 1953	5.49	2,240	
1940	May 10, 1940	4.65	2,040	1954	Apr. 18, 1954	5.24	1,960
	May 17, 1941	4.19	1,540		May 19, 1954	6.41	3,380
1942	Dec. 3, 1941	4.71	1,960		June 15, 1954	5.55	2,320
	Apr. 22, 1942	4.79	1,820	1955	May 20, 1955	5.22	1,970
	May 23, 1942	4.98	2,050		June 10, 1955	6.32	3,500
1943	Nov. 23, 1942	4.90	1,930	1956	Nov. 10, 1955	5.69	2,370
	Apr. 19, 1943	5.71	2,930		Dec. 12, 1955	5.8	2,610
	May 25, 1943	5.96	3,280		Dec. 22, 1955	5.32	1,920
	June 10, 1943	5.40	2,540		Apr. 22, 1956	6.37	3,040
1944	May 8, 1944	4.23	1,220	May 20, 1956	6.78	4,920	
	May 5, 1945	5.41	2,380	June 1, 1956	6.42	4,380	

1120. Little Klickitat River near Goldendale, Wash.

Location.--Lat 43°50'50", long 120°47'50", in NW $\frac{1}{4}$  sec.10, T.4 N., R.16 E., on right bank just below highway bridge,  $2\frac{1}{2}$  miles northeast of Goldendale and 13 miles upstream from mouth.

Drainage area.--78 sq mi, approximately. Areas of lakes and ponds, 0 sq mi; mean elevation, 3,160 ft.

Gage.--Nonrecording prior to Oct. 21, 1946; recording thereafter. At site at different datum Oct. 3, 1910, to June 30, 1912. From Oct. 21, 1946, to Feb. 11, 1951, at site 60 ft downstream at different datum, destroyed by flood of Feb. 11, 1951. Altitude of gage is 1,688 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--Not subject to overflow.

Remarks.--Base for partial-duration series, 500 cfs.

Peak stages and discharges of Little Klickitat River near Goldendale, Wash.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1911	Mar. 21, 1911	2.25	230	1949	Feb. 23, 1949	3.92	539
1912	Feb. 16, 1912	3.10	524	1949	Mar. 4, 1949	3.90	530
				1949	Mar. 18, 1949	4.38	795
1947	Dec. 15, 1946	5.15	1,330	1950	Feb. 24, 1950	5.22	1,360
1948	Jan. 7, 1948	5.55	1,760	1950	Mar. 4, 1950	3.83	620
	Feb. 22, 1948	4.54	990	1951a/	Dec. 16, 1950	3.74	581
	Feb. 26, 1948	3.82	582		Dec. 23, 1950	4.23	788
1949	Feb. 17, 1949	4.56	888		Jan. 26, 1951	-	-
					Feb. 11, 1951	-	-

a Maximum discharge for year not determined.

1125. Little Klickitat River near Wahkiacus, Wash.

Location.--Lat 45°50'30", long 121°03'20", in SE $\frac{1}{4}$  sec.9, T.4 N., R.14 E., on right bank half a mile downstream from Bowman Creek, three-quarters of a mile upstream from mouth, and 2 miles northeast of Wahkiacus.

Drainage area.--280 sq mi, approximately. Area of lakes and ponds, 0.1 sq mi; mean elevation, 2,600 ft.

Gage.--Recording. Prior to Dec. 29, 1950, staff gage and crest-stage indicator at same site and datum. Datum of gage is 576.2 ft above mean sea level (river-profile survey).

Stage-discharge relation.--Defined by current-meter measurements below 2,600 cfs and extended by logarithmic plotting.

Bankfull stage.--7 ft.

Remarks.--Peaks for period of nonrecording gage are from graphs based on gage readings. Base for partial-duration series, 1,600 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1945	Feb. 8, 1945	4.40	932	1952	Feb. 4, 1952	8.0	4,450
1946	Dec. 28, 1945	9.2	6,600	1953	Jan. 9, 1953	7.79	4,140
	Jan. 25, 1946	6.20	2,080		Jan. 12, 1953	5.98	1,830
	Feb. 8, 1946	6.10	1,980		Jan. 18, 1953	6.76	2,720
1947	Dec. 15, 1946	5.60	1,530	1954	Dec. 19, 1953	5.83	1,640
1948	Jan. 7, 1948	9.4	7,000		Feb. 21, 1954	6.50	2,410
	Feb. 22, 1948	7.60	3,850	1955	Apr. 13, 1955	3.76	304
	Feb. 25, 1948	6.15	2,080	1956	Nov. 26, 1955	6.59	2,520
1949	Feb. 17, 1949	8.80	5,820		Dec. 11, 1955	6.57	2,490
	Mar. 19, 1949	6.10	1,980		Dec. 21, 1955	8.63	5,500
1951	Dec. 16, 1950	5.88	1,780		Jan. 4, 1956	6.17	1,950
	Dec. 23, 1950	5.76	1,680		Jan. 15, 1956	7.07	3,100
	Jan. 2, 1951	5.8	1,680		Jan. 18, 1956	6.48	2,330
	Jan. 17, 1951	7.1	3,150	1957	Mar. 9, 1957	6.45	2,290
	Jan. 26, 1951	6.8	2,770				
	Feb. 9, 1951	7.5	3,700				

1130. Klickitat River near Pitt, Wash.  
(Published as "at Klickitat" 1909-12, and as "at Pitt" 1929-35)

Location.--Lat 45°45'30", long 121°12'30", in SW $\frac{1}{4}$  sec.8, T.3 N., R.13 E., on left bank  $3\frac{1}{2}$  miles south of Pitt, 5 miles upstream from Silvias Creek, and 7 miles upstream from mouth at Lyle.

Drainage area.--1,290 sq mi, approximately. Area of lakes and ponds, 1.2 sq mi; mean elevation, 3,140 ft.

Gage.--Nonrecording prior to Sept. 30, 1935; recording thereafter, July 3, 1909, to Jan. 31, 1912, at Klickitat just downstream from Snider Creek, 7 miles upstream at different datum. Oct. 1, 1928, to Sept. 30, 1935, staff gage at site 175 ft downstream from highway bridge at Pitt, 3.5 miles upstream from present site at different datum. Datum of gage is 288.9 ft above mean sea level (from river-profile survey).

Stage-discharge relation.--Defined by current-meter measurements below 3,400 cfs and extended on basis of velocity-area study and gage-height curve of relation.

Bankfull stage.--12 ft.

Remarks.--Peaks for period of nonrecording gage are from graphs based on gage readings. Base for partial-duration series, 4,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1910	Nov. 24, 1909	9.0	11,100	1941	Jan. 18, 1941	5.70	2,870	
	Nov. 30, 1909	5.5	5,680		1942	Feb. 4, 1942	6.84	5,010
	Jan. 23, 1910	7.7	9,100	Feb. 6, 1942		6.47	4,180	
Mar. 2, 1910	8.7	10,600	Feb. 9, 1942	6.45		4,180		
1911	June 2, 1911	4.0	3,610	1943	Dec. 2, 1942	6.34	4,060	
1912	Feb. 16, 1912	92.8	a6,720		Jan. 1, 1943	7.88	7,570	
					Jan. 14, 1943	6.95	5,280	
1929	May 24, 1929	3.8	3,430		Feb. 6, 1943	7.03	5,280	
				Feb. 11, 1943	6.89	5,120		
				Mar. 31, 1943	10.10	14,500		
1930	Feb. 20, 1930	5.40	6,120	Apr. 20, 1943	7.33	6,040		
				May 26, 1943	6.52	4,280		
1931	Mar. 31, 1931	10.3	18,500	1944	Feb. 6, 1944	5.08	2,150	
1932	Jan. 11, 1932	6.3	7,810		1945	Feb. 8, 1945	5.93	2,940
	Feb. 26, 1932	6.40	8,020	1946		Dec. 28, 1945	9.15	11,400
	Mar. 19, 1932	5.0	5,400		Jan. 24, 1946	6.44	4,400	
	Mar. 25, 1932	4.9	5,230		1947	Dec. 14, 1946	8.04	7,660
1933	Dec. 26, 1932	4.5	4,550			Feb. 15, 1947	6.32	4,130
	Jan. 4, 1933	4.5	4,550	1948		Jan. 7, 1948	10.34	15,700
	Feb. 22, 1933	5.0	5,400		Feb. 22, 1948	7.45	6,310	
	Apr. 29, 1933	4.3	4,530		Feb. 26, 1948	6.75	4,980	
1934	June 9, 1933	4.9	5,580	May 27, 1948	7.59	6,750		
	June 15, 1933	4.7	5,220	1949	Feb. 17, 1949	10.90	17,300	
	1934	Dec. 6, 1933	5.2		6,120	Feb. 23, 1949	7.09	5,560
		Dec. 10, 1933	5.6		6,840	Mar. 19, 1949	7.50	6,530
Dec. 22, 1933	12.5	25,500	May 16, 1949		7.40	6,250		
Jan. 3, 1934	9.6	16,400	1950		Feb. 24, 1950	8.82	10,200	
Jan. 23, 1934	9.0	14,600		Mar. 5, 1950	7.25	5,600		
1935	Dec. 21, 1934	6.1		7,030	Mar. 19, 1950	6.92	5,120	
	Jan. 24, 1935	4.8		4,640	Mar. 21, 1950	6.71	4,880	
1936	Jan. 10, 1936	6.78		4,900	Apr. 2, 1950	6.38	4,270	
	Jan. 12, 1936	7.05		5,460	May 15, 1950	6.63	4,780	
	Feb. 28, 1936	6.87	5,010	June 5, 1950	6.53	4,570		
1937	Apr. 15, 1937	7.55	6,780	1951	Dec. 4, 1950	6.63	4,780	
	1938	Dec. 30, 1937	10.80		17,300	Dec. 16, 1950	6.74	4,980
Jan. 15, 1938		6.72	4,690		Dec. 23, 1950	8.11	8,250	
Mar. 18, 1938		8.63	9,560		Jan. 2, 1951	7.13	5,760	
Mar. 23, 1938		7.30	6,040		Jan. 17, 1951	8.50	9,350	
Apr. 18, 1938		7.30	6,040		Jan. 26, 1951	6.36	9,070	
May 28, 1938		6.62	4,480		Feb. 4, 1951	6.40	4,270	
1939	Feb. 15, 1939	5.86	3,080		Feb. 11, 1951	9.53	12,400	
	1940	Feb. 6, 1940	7.80		7,300	Mar. 15, 1951	7.64	6,700
Feb. 28, 1940		8.10	8,120		Apr. 14, 1951	6.87	4,980	

a Computed from station "at Lyle".

Peak stages and discharges of Klickitat River near Pitt, Wash.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Feb. 4, 1952	9.83	13,500	1955	June 11, 1955	6.27	4,020
	Apr. 27, 1952	6.45	4,370				
1953	Jan. 9, 1953	8.96	10,900	1956	Nov. 27, 1955	7.90	7,720
	Jan. 12, 1953	7.17	6,060		Dec. 12, 1955	8.25	8,660
	Jan. 19, 1953	8.82	10,400		Dec. 22, 1955	11.58	19,800
	Feb. 1, 1953	6.91	5,420		Jan. 4, 1956	6.90	5,460
	Apr. 28, 1953	6.38	4,140		Jan. 15, 1956	7.64	7,230
1954	Dec. 20, 1953	6.50	4,470	Jan. 18, 1956	7.41	6,650	
	Feb. 21, 1954	8.00	7,980	Mar. 25, 1956	6.85	5,350	
	Mar. 10, 1954	7.04	5,620	Apr. 23, 1956	7.60	7,120	
	Apr. 6, 1954	6.38	4,230	May 20, 1956	8.01	8,200	
	Apr. 18, 1954	6.47	4,410	June 1, 1956	7.45	6,750	
	May 11, 1954	6.38	4,230	1957	Feb. 26, 1957	6.62	4,710
	May 20, 1954	6.65	4,780		Mar. 9, 1957	7.54	6,800
				May 9, 1957	6.60	4,660	

HOOD RIVER BASIN

1180. Green Point Creek below North Fork, near Dee, Oreg.

Location.--Lat 45°35'20", long 121°39'30", in NE $\frac{1}{4}$  sec.11, T.1 N., R.9 E., on left bank three-quarters of a mile upstream from mouth, 1 $\frac{1}{4}$  miles downstream from North Fork, and 1 $\frac{1}{2}$  miles west of Dee.

Drainage area.--20.0 sq mi. Mean altitude, 3,380 ft; channel slope, 423 ft per mile; area of lakes and ponds, 0.1 sq mi.

Gage.--Recording. Altitude of gage is 1,100 ft above mean sea level (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 940 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Base for partial-duration series, 850 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Feb. 24, 1950	4.14	1,270	1953	Jan. 11, 1953	3.73	948
1951	Feb. 9, 1951	3.58	888		Jan. 18, 1953	4.67	1,640
				1954	Dec. 9, 1953	4.03	1,150
1952	Feb. 4, 1952	3.80	1,030		Dec. 19, 1953	3.87	1,040
1953	Jan. 9, 1953	5.00	1,670				

1185. West Fork Hood River near Dee, Oreg.

Location.--Lat 45°36'00", long 121°38'20", in SE $\frac{1}{4}$  sec.1, T.1 N., R.9 E., on left bank a quarter of a mile upstream from Dead Point Creek, half a mile upstream from mouth, and 1 mile northwest of Dee.

Drainage area.--96 sq mi, approximately. Mean altitude, 3,170 ft; channel slope, 166 ft per mile; area of lakes and ponds, 0.6 sq mi.

Gage.--Nonrecording at site half a mile upstream at different datum prior to Feb. 12, 1916; recording thereafter. Datum of gage is 802.1 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 5,300 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Peak discharges slightly affected by diversions. Only annual peaks are shown prior to 1933. Base for partial-duration series, 4,100 cfs.

Peak stages and discharges of West Fork Hood River near Dee, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1914	Jan. 5, 1914	4.3	3,400	1946	Dec. 28, 1945	10.7	9,660
1915	Apr. 2, 1915	3.2	2,000	1947	Nov. 27, 1946	7.53	4,520
1933	June 9, 1933	8.0	4,780	Dec. 12, 1946	10.91	10,100	
1934	Dec. 6, 1933	11.72	11,600	Dec. 14, 1946	10.53	9,350	
Dec. 17, 1933	8.47	5,940	1948	Jan. 25, 1947	8.47	5,900	
Dec. 22, 1933	12.40	12,900	Oct. 17, 1947	7.38	4,360		
Jan. 22, 1934	8.77	6,410	Jan. 7, 1948	10.6	9,480		
1935	Dec. 20, 1934	9.80	8,060	Feb. 22, 1948	9.03	6,780	
1936	Jan. 2, 1936	8.06	5,340	1949	Dec. 12, 1948	7.20	4,140
Jan. 4, 1936	8.68	6,250	Feb. 17, 1949	7.64	4,700		
Jan. 12, 1936	7.60	4,620	May 1, 1949	7.76	4,860		
1937	Apr. 14, 1937	7.47	4,480	1950	Feb. 24, 1950	8.82	6,440
1938	Nov. 25, 1937	7.97	5,040	1951	Dec. 22, 1950	7.57	4,610
Dec. 27, 1937	7.33	4,210	1952	Oct. 23, 1951	7.71	4,790	
Dec. 29, 1937	10.06	8,510	Feb. 4, 1952	7.81	4,920		
Apr. 18, 1938	7.25	4,080	1953	Jan. 9, 1953	9.17	7,240	
1939	Feb. 15, 1939	7.95	5,120	Jan. 11, 1953	7.33	4,460	
1940	Feb. 6, 1940	7.67	4,720	Jan. 18, 1953	10.0	8,690	
1941	Nov. 29, 1940	7.16	4,030	Jan. 22, 1953	7.56	4,770	
1942	Dec. 19, 1941	7.25	4,140	Jan. 31, 1953	7.10	4,160	
1943	Nov. 23, 1942	11.18	10,600	1954	Nov. 22, 1953	8.55	6,230
Nov. 29, 1942	7.23	4,120	Dec. 9, 1953	9.20	7,290		
Dec. 31, 1942	7.45	4,410	Dec. 19, 1953	8.63	6,400		
Mar. 31, 1943	7.49	4,470	1955	Dec. 30, 1954	8.60	6,350	
1944	Nov. 4, 1943	6.00	2,720	1956	Nov. 19, 1955	7.30	4,490
1945	Jan. 7, 1945	7.35	4,280	Nov. 26, 1955	10.70	9,950	
Feb. 8, 1945	7.90	5,040	Dec. 12, 1955	11.40	11,300		
1946	Nov. 27, 1945	7.68	4,730	Dec. 21, 1955	9.80	8,360	
				1957	Dec. 11, 1956	9.52	7,900
				Mar. 7, 1957	7.15	4,400	
				Apr. 5, 1957	6.95	4,140	

1200. Hood River at Tucker Bridge, near Hood River, Oreg.

Location.--Lat 45°39'20", long 121°33'00", in SE $\frac{1}{4}$  sec.15, T.2 N., R.10 E., at Tucker Bridge, half a mile upstream from Odell Creek and 4 miles southwest of Hood River.

Drainage area.--278 sq mi.

Gage.--Nonrecording at different datum prior to Jan. 1, 1900. July 23 to Dec. 21, 1915, recording gage at site three-quarters of a mile upstream at different datum. Altitude of gage is 390 ft (from river-profile map).

Stage-discharge relation.--Defined by current-meter measurements below 4,800 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1898	Dec. 28, 1897	9.6	10,000	1916	Dec. 22, 1915	6.8	14,600
1899	Jan. 21, 1899	13.0	15,200	1917	Nov. 27, 1916	5.56	3,870
1914	Jan. 5, 1914	6.9	6,100				

1210. Hood River near Hood River, Oreg.

(Published as Hood River at Powerdale, near Hood River, 1913-26)

Location.--Lat 45°42'00", long 121°30'30", in NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.36, T.3 N., R.10 E., on right bank at Powerdale, 0.5 mile upstream from Pacific Power & Light Co. powerplant and 0.8 mile southeast of town of Hood River.

Drainage area.--329 sq mi. Mean altitude, 3,110 ft; channel slope, 148 ft per mile; area of lakes and ponds, 0.7 sq mi.

Gage.--Nonrecording at different datums prior to Jan. 1, 1920; recording thereafter. Prior to Oct. 1, 1914, at site 220 ft upstream at different datum; Oct. 1, 1914, to Dec. 21, 1915, at site half a mile downstream at different datum. Dec. 22, 1915, to Dec. 31, 1919, at site 220 ft upstream. Jan. 1, 1920, to Nov. 13, 1934, at site 220 ft upstream, datum lowered 1.00 ft to present datum on Oct. 1, 1924. Datum of gage is 106.37 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 18,500 cfs and extended by logarithmic plotting. Gage heights herein since Dec. 22, 1915, adjusted to present datum.

Bankfull stage.--8 ft.

Remarks.--Records given herein include flow in Pacific Power & Light Co. conduit, which diverts 2.7 miles above station and returns water to river 0.5 mile below station. Base for partial-duration series, 4,600 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet) <sub>a</sub>	Discharge (cfs)	Water year	Date	Gage height (feet) <sub>a</sub>	Discharge (cfs)	
1914	Jan. 5, 1914	5.0	4,880	1930	Feb. 14, 1930	5.78	4,220	
1915	Apr. 3, 1915	4.9	3,180	1931	Mar. 31, 1931	10.2	22,800	
1916	Nov. 17, 1915	5.73	5,000	1932	Jan. 11, 1932	6.31	4,730	
	Nov. 23, 1915	5.97	5,660		Mar. 18, 1932	7.7	8,870	
	Nov. 25, 1915	6.10	6,040	1933	Nov. 15, 1932	6.14	4,720	
	Dec. 22, 1915	8.50	14,200		June 9, 1933	7.49	8,320	
1917	Nov. 27, 1916	6.0	4,500	1934	Dec. 6, 1933	9.35	17,300	
1918	Dec. 18, 1917	9.9	22,800		Dec. 17, 1933	7.94	9,400	
1919	Jan. 22, 1919	7.5	9,020		Dec. 22, 1933	10.74	26,800	
		8.5	13,600		Jan. 3, 1934	6.79	6,460	
1920	Jan. 25, 1920	8.5	13,600	Jan. 17, 1934	6.46	5,280		
		8.30	13,700	Jan. 23, 1934	8.30	11,000		
1921	Dec. 30, 1920	8.30	13,700	Mar. 2, 1934	6.12	4,800		
	Jan. 2, 1921	8.45	14,300	1935	Oct. 24, 1934	6.35	5,460	
	Feb. 10, 1921	6.53	6,220		Dec. 20, 1934	7.01	13,200	
1922	Nov. 30, 1921	9.35	21,300	1936	Jan. 2, 1936	5.64	6,650	
	Dec. 12, 1921	6.38	5,830		Jan. 4, 1936	6.04	8,020	
1923	Dec. 24, 1922	7.24	8,390		Jan. 10, 1936	5.25	5,300	
	Dec. 27, 1922	6.45	5,830		Jan. 12, 1936	5.71	6,850	
	Jan. 6, 1923	11.1	34,000	1937	Apr. 14, 1937	5.56	6,230	
1924	Nov. 23, 1923	(b)	(b)		1938	Nov. 25, 1937	5.54	6,120
	Dec. 6, 1923	8.40	16,300			Dec. 27, 1937	5.59	6,440
	Dec. 28, 1923	6.99	9,210			Dec. 29, 1937	7.25	14,900
	Jan. 29, 1924	6.00	6,040	Jan. 22, 1938		5.61	6,210	
1925	Nov. 21, 1924	6.94	8,920	Mar. 18, 1938	5.34	5,600		
	Dec. 30, 1924	(b)	(b)	Apr. 18, 1938	5.37	5,390		
	Feb. 3, 1925	6.46	7,660	1939	Feb. 15, 1939	5.71	6,860	
1926	Feb. 6, 1926	6.24	6,680		1940	Feb. 6, 1940	5.64	6,560
		1927	Nov. 29, 1926	7.20	8,560	1941	Nov. 29, 1940	5.22
Feb. 21, 1927	8.10		12,700	1942	Dec. 19, 1941	5.16	4,830	
1928	Nov. 16, 1927	6.26	5,360		1943	Nov. 23, 1942	7.09	14,100
	Nov. 25, 1927	8.9	17,300	Nov. 29, 1942		5.98	7,400	
	Nov. 27, 1927	6.90	6,960	Dec. 31, 1942		6.12	8,500	
	Jan. 13, 1928	6.1	4,850	Feb. 6, 1943		5.68	6,470	
	Mar. 10, 1928	7.75	11,200	Feb. 11, 1943		5.68	6,480	
1929	Nov. 9, 1928	5.70	3,980	Mar. 31, 1943	5.87	7,210		

a Gage height in river channel.

b Not determined; may have exceeded base.

Peak stages and discharges of Hood River near Hood River, Oreg.--Continued

Water year	Date	Gage height (feet) <sup>a</sup>	Discharge (cfs)	Water year	Date	Gage height (feet) <sup>a</sup>	Discharge (cfs)
1944	Nov. 4, 1943	4.99	4,230	1951	Jan. 17, 1951	5.15	5,700
1945	Jan. 7, 1945	5.39	5,310		Jan. 26, 1951	5.22	5,930
	Jan. 13, 1945	5.19	4,840		Feb. 9, 1951	5.53	6,990
	Feb. 8, 1945	5.84	7,140	1952	Oct. 23, 1951	5.32	6,250
1946	Nov. 27, 1945	5.10	4,620		Feb. 4, 1952	5.83	8,100
	Dec. 28, 1945	7.82	21,200	1953	Jan. 9, 1953	6.44	10,600
	Jan. 24, 1946	5.28	5,970		Jan. 11, 1953	5.37	6,330
1947	Jan. 18, 1946	5.11	5,340		Jan. 18, 1953	6.95	14,000
	Nov. 27, 1946	5.39	6,390		Jan. 22, 1953	5.56	7,470
	Dec. 13, 1946	7.22	16,200		Jan. 31, 1953	5.19	5,820
	Dec. 15, 1946	7.71	20,200		Feb. 3, 1953	5.24	5,960
	Jan. 24, 1947	4.94	4,780		Feb. 5, 1953	4.92	5,010
	Jan. 26, 1947	5.90	8,480	1954	Nov. 22, 1953	5.65	8,420
	Feb. 2, 1947	5.09	5,300		Dec. 9, 1953	5.87	9,550
1948	Oct. 17, 1947	5.25	5,790		Dec. 12, 1953	4.67	4,860
	Jan. 7, 1948	7.60	19,200		Dec. 19, 1953	5.97	9,990
	Feb. 22, 1948	6.07	9,020		Feb. 21, 1954	5.00	5,900
	Feb. 26, 1948	5.30	5,960	1955	Dec. 30, 1954	5.53	6,990
1949	Nov. 24, 1948	5.20	5,610		Feb. 8, 1955	5.04	5,350
	Dec. 2, 1948	4.96	4,900	1956	Oct. 9, 1955	5.02	5,290
	Dec. 12, 1948	5.65	7,380		Nov. 4, 1955	4.85	4,820
	Feb. 17, 1949	6.43	10,800		Nov. 19, 1955	5.45	6,270
	May 2, 1949	5.48	6,630		Nov. 26, 1955	7.12	13,900
1950	Nov. 27, 1949	5.30	5,970		Dec. 12, 1955	7.09	15,000
	Feb. 24, 1950	6.40	10,700		Dec. 21, 1955	6.75	13,300
	Mar. 4, 1950	4.97	4,890	1957	Dec. 11, 1956	5.61	8,240
	Mar. 17, 1950	5.00	4,990		Feb. 26, 1957	4.54	5,000
1951	Nov. 2, 1950	5.05	5,390		Mar. 7, 1957	4.74	5,600
	Dec. 23, 1950	5.84	7,760		Apr. 5, 1957	4.38	4,760

<sup>a</sup> Gage height in river channel.

<sup>b</sup> Not determined; may have exceeded base.

#### WHITE SALMON RIVER BASIN

1230. White Salmon River at Husum, Wash.

Location.--Lat 45°47'50", long 121°29'00", in SW $\frac{1}{4}$  sec.30, T.4 N., R.11 E., on right bank at Husum, 500 ft upstream from Rattlesnake Creek.

Drainage area.--293 sq mi. Area of lakes and ponds, 0.07 sq mi; mean elevation, 3,380 ft.

Gage.--Nonrecording Sept. 23, 1909, to Oct. 11, 1912, and Feb. 21, 1915, to Oct. 31, 1919, and recording Oct. 12, 1912, to Feb. 20, 1915, at sites within a quarter of a mile at different datums. Recording after Oct. 31, 1919, at present site and datum. Altitude of gage is 360 ft (from river-profile map).

Stage-discharge relation.--Defined by current-meter measurements below 2,600 cfs.

Bankfull stage.--7 ft.

Remarks.--Several diversions for irrigation of a large area around Trout Lake. Probably no effect on peak discharges. Peak discharges for periods of non-recording gage are from graphs based on gage readings. Base for partial-duration series, 2,000 cfs.

Peak stages and discharges of White Salmon River at Husum, Wash.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1910	Nov. 4, 1909	7.30	3,990	1932	Mar. 19, 1932	4.90	2,330	
	Nov. 19, 1909	7.50	4,190		May 11, 1932	4.60	2,070	
	Nov. 24, 1909	7.65	4,340	1933	June 9, 1933	6.23	3,660	
	Nov. 30, 1909	7.30	3,990		1934	Dec. 7, 1933	6.16	3,660
	Mar. 3, 1910	6.80	3,650			Dec. 10, 1933	7.02	4,600
	1911	Apr. 21, 1910	5.65	2,580	Dec. 22, 1933	11.0	10,800	
		Apr. 27, 1910	5.12	2,100	Jan. 3, 1934	6.57	4,360	
Nov. 11, 1910		5.0	2,000	Jan. 23, 1934	8.39	6,730		
1912	Nov. 21, 1910	6.40	3,260	Mar. 6, 1934	4.84	2,410		
	May 6, 1911	5.8	2,140	Mar. 29, 1934	4.78	2,410		
1913	Feb. 17, 1912	5.85	2,760	1935	Nov. 7, 1934	5.08	2,680	
	May 15, 1912	5.00	2,000		Dec. 21, 1934	5.17	2,770	
1914	June 2-4, 1913	5.6	2,070	1936	May 5, 1936	4.61	2,180	
1915	Jan. 6, 1914	6.32	2,370		May 16, 1936	4.58	2,180	
1916	Apr. 3-4, 1915	5.60	2,260		June 7, 1936	4.55	2,140	
1917	Dec. 21, 1915	6.35	2,950	1937	Apr. 15, 1937	5.51	3,070	
	Mar. 26, 1916	5.80	2,440		June 21, 1937	4.89	2,440	
	May 5, 1916	5.95	2,620	1938	Nov. 26, 1937	4.50	2,090	
	June 18, 1916	6.60	3,200		Dec. 30, 1937	7.36	5,370	
	July 3, 1916	6.20	2,800		Jan. 15, 1938	4.65	2,220	
1918	May 29, 1917	5.6	2,220	Apr. 18, 1938	5.18	2,730		
	Dec. 18, 1917	10.0	7,500	May 28, 1938	4.51	2,100		
1919	Dec. 29, 1917	10.0	7,500	1939	Feb. 15, 1939	3.30	1,240	
	Feb. 6, 1918	5.84	2,360		Dec. 16, 1939	4.62	2,020	
	1919a	Jan. 19, 1919	3.95	3,300	Mar. 1, 1940	4.71	2,180	
1930	Jan. 23, 1919	b6.90	-	Mar. 30, 1940	4.71	2,180		
	Feb. 20, 1930	4.91	2,410	1941	May 18, 1941	3.49	1,280	
1931	Apr. 1, 1931	7.10	4,720					

a Maximum discharge for year not determined.

b Backwater from ice.

### 1235. White Salmon River near Underwood, Wash.

Location.--Lat 45°45'00", long 121°31'30", in NW $\frac{1}{4}$  sec.14, T.3 N., R.10 E., on right bank 300 ft downstream from bridge, 1,000 ft downstream from Pacific Power & Light Co.'s Conduit powerplant, and 2 miles north of Underwood and mouth.

Drainage area.--390 sq mi, approximately. Area of lakes and ponds, 1.0 sq mi; mean elevation, 3,220 ft.

Gage.--Recording. March 1915 to July 16, 1918, at site 200 ft upstream at datum 3.24 ft higher and July 17, 1918, to Sept. 30, 1930, at datum 2.24 ft higher than present datum. Datum of gage is 112.96 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 2,700 cfs prior to Sept. 30, 1930, and below 5,900 cfs thereafter.

Bankfull stage.--Not subject to overflow.

Remarks.--Minor diversions above station for irrigation. Flow regulated by powerplant. Peak discharges are affected. Only annual peaks are shown.

## WHITE SALMON RIVER BASIN

Peak stages and discharges of White Salmon River near Underwood, Wash.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1916	Mar. 21, 1916	5.0	4,100	1940	Feb. 28, 1940	6.91	3,920
1917	June 9, 1917	3.0	2,130				
1918	June 17, 1918	9.5	9,700	1941	Jan. 19, 1941	5.09	1,750
1919	Jan. 23, 1919	7.45	5,800	1942	Dec. 19, 1941	6.81	3,790
1920	Jan. 26, 1920	5.83	3,820	1943	Mar. 31, 1943	8.31	6,000
				1944	Dec. 3, 1943	5.10	1,720
1921	Mar. 18, 1921	5.98	4,300	1945	Feb. 8, 1945	6.49	3,440
1922	Dec. 1, 1921	5.67	3,930				
1923	Jan. 7, 1923	8.00	6,800	1946	Dec. 29, 1945	7.73	5,280
1924	Feb. 1, 1924	5.10	3,060	1947	Dec. 13, 1946	8.68	6,910
1925	Feb. 3, 1925	6.8	5,190	1948	Jan. 7, 1948	8.40	6,430
				1949	Feb. 17, 1949	8.84	7,200
1926	Feb. 6, 1926	4.75	2,780	1950	Feb. 24, 1950	7.69	5,260
1927	Feb. 22, 1927	6.25	4,410				
1928	Nov. 25, 1927	6.90	5,320	1951	Feb. 11, 1951	8.29	6,240
1929	May 3, 1929	4.77	2,720	1952	Feb. 4, 1952	7.95	5,900
1930	Feb. 20, 1930	5.15	3,220	1953	Jan. 18, 1953	8.50	7,170
				1954	Feb. 21, 1954	7.10	4,410
1936	May 18, 1936	6.90	3,490	1955	June 11, 1955	5.64	2,330
1937	Apr. 15, 1937	7.47	4,210				
1938	Dec. 29, 1937	9.05	7,300	1956	Dec. 22, 1955	8.22	6,420
1939	Feb. 15, 1939	5.65	2,260	1957	Feb. 26, 1957	7.00	4,250

## LITTLE WHITE SALMON RIVER BASIN

1240. Little White Salmon River near Willard, Wash.

Location.--Lat 45°48'00", long 121°38'30", in SW $\frac{1}{4}$  sec.26, T.4 N., R.9 E., on left bank 300 ft upstream from Moss Creek and  $\frac{1}{2}$  miles north of Willard.

Drainage area.--40.6 sq mi. Area of lakes and ponds, 0 sq mi; mean elevation, 2,530 ft.

Gage.--Nonrecording. Altitude of gage is 1,340 ft (from topographic map).

Remarks.--Peaks for 1945-48 are from graphs based on gage readings. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1945	Feb. 8, 1945	6.50	2,010	1947	Dec. 15, 1946	8.00	2,900
				1948	Jan. 7, 1948	7.16	2,390
1946	Dec. 28, 1945	6.80	2,200	1949	Feb. 17, 1949	7.1	2,330

1245. Little White Salmon River at Willard, Wash.

Location.--Lat 45°46'50", long 121°37'30", in NW $\frac{1}{4}$  sec.1, T.3 N., R.9 E., on right bank a quarter of a mile downstream from Lava Creek at Willard.

Drainage area.--117 sq mi. Area of lakes and ponds, 0 sq mi; mean elevation, 2,570 ft.

Gage.--Recording. Altitude of gage is 1,230 ft (from river-profile map).

Stage-discharge relation.--Defined by current-meter measurements below 2,700 cfs and extended by logarithmic plotting.

Bankfull stage.--6.5 ft.

Remarks.--Records for 1945-50 do not include flow of Broughton Lumber Co. flume. Other diversions above station for water supply, irrigation, and hatchery operation. Minor effect on flood peaks. Base for partial-duration series, 1,500 cfs.

Peak stages and discharges of Little White Salmon River at Willard, Wash.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1945	Feb. 8, 1945	8.46	2,820	1952	Dec. 1, 1951 Feb. 4, 1952	7.34 8.70	1,600 3,070
1946	Dec. 28, 1945 Jan. 24, 1946	8.80 7.80	3,200 2,030	1953	Jan. 9, 1953 Jan. 12, 1953 Jan. 18, 1953 Jan. 31, 1953	8.87 7.74 8.90 8.17	3,290 1,970 3,330 2,430
1947	Nov. 27, 1946 Dec. 15, 1946 Jan. 26, 1947 Feb. 2, 1947	7.77 9.50 7.86 7.70	2,030 4,140 2,130 1,930	1954	Dec. 9, 1953 Dec. 20, 1953 Feb. 21, 1954 Mar. 9, 1954	9.08 - 8.01 7.26	3,560 - 2,250 1,520
1948	Jan. 7, 1948 Feb. 22, 1948	8.68 7.56	3,070 1,830	1955	Dec. 30, 1954 Feb. 8, 1955	7.30 -	1,560 -
1949	Feb. 17, 1949	8.55	2,820	1956	Nov. 27, 1955 Dec. 12, 1955 Dec. 22, 1955	- - 8.5	- - 2,760
1950	Feb. 24, 1950 Mar. 3, 1950 Mar. 17, 1950 Apr. 1, 1950	8.32 7.90 7.62 7.30	2,580 2,130 1,830 1,560	1957	Feb. 26, 1957	7.98	2,160
1951	Dec. 23, 1950 Jan. 3, 1951 Feb. 11, 1951	- - 8.36	- - 2,700				

1250. Little White Salmon River below Lapham Creek, near Willard, Wash.

Location.--Lat 45°46'00", long 121°37'40", in NW<sup>1</sup> sec.12, T.3 N., R.9 E., on right bank 0.3 mile downstream from Lapham Creek and 1.2 miles south of Willard.

Drainage area.--123 sq mi.

Gage.--Recording. Altitude of gage is 980 ft (from river-profile map).

Stage-discharge relation.--Defined by current-meter measurements below 2,100 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Minor diversions for lumber flume, water supply, irrigation, and hatchery operation. Base for partial-duration series, 1,500 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Feb. 24, 1950 Mar. 4, 1950 Mar. 17, 1950 Apr. 1, 1950	5.32 4.92 4.69 4.48	2,540 2,020 1,790 1,580	1954	Dec. 20, 1953 Jan. 5, 1954 Jan. 22, 1954 Feb. 21, 1954 Mar. 9, 1954	4.80 4.53 4.60 5.16 4.56	1,820 1,500 1,580 2,300 1,540
1951	Nov. 25, 1950 Dec. 23, 1950 Jan. 3, 1951 Jan. 26, 1951 Feb. 11, 1951	4.62 5.24 4.62 4.55 5.29	1,630 2,400 1,680 1,630 2,540	1955	Dec. 31, 1954 Feb. 8, 1955	4.68 4.76	1,680 1,770
1952	Dec. 1, 1951 Feb. 4, 1952	4.53 5.71	1,510 3,080	1956	Nov. 27, 1955 Dec. 12, 1955 Dec. 22, 1955 Jan. 5, 1956 Mar. 24, 1956 Apr. 21, 1956	5.93 5.73 5.65 4.57 4.47 4.43	3,520 3,190 3,060 1,650 1,550 1,510
1953	Jan. 9, 1953 Jan. 12, 1953 Jan. 18, 1953 Jan. 31, 1953	5.98 4.84 5.94 5.19	3,610 1,950 3,540 2,390	1957	Feb. 26, 1957 Mar. 9, 1957	5.13 4.63	2,310 1,510
1954	Dec. 9, 1953	5.46	2,750				

## LITTLE WHITE SALMON RIVER BASIN

1252. Rock Creek near Willard, Wash.

Location.--Lat 45°45'10", long 121°38'50", in NW $\frac{1}{4}$  sec.14, T.3 N., R.9 E., at county road, 4.4 miles north of U.S. Highway 830 and 1 mile south of Willard.

Drainage area.--4.04 sq mi. Area of lakes and ponds, 0 sq mi; mean altitude of basin, 1,910 ft.

Gage.--Crest-stage gage. Datum of gage is 5.68 ft below upstream invert of culvert.

Stage-discharge relation.--Defined by computations of discharge through a 6- by 8-foot concrete box culvert.

Remarks.--Only annual peaks are shown.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	Feb. 17, 1949	13.16	428	1954	Dec. 9, 1953	9.87	182
1950	Feb. 24, 1950	11.88	323	1955	Feb. 8, 1955	9.38	151
1951	Feb. 9, 1951	9.77	175	1956	Nov. 26, 1955	10.96	257
1952	Feb. 4, 1952	10.66	237	1957	Mar. 7, 1957	8.63	107
1953	Jan. 9, 1953	10.96	256				

## UNNAMED BASIN

1263. Columbia River tributary at Home Valley, Wash.

Location.--Lat 45°42'50", long 121°46'40", in SE $\frac{1}{4}$  sec.27, T.3 N., R.8 E., at U.S. Highway 830, 0.3 mile east of Home Valley Post Office, Home Valley.

Drainage area.--0.54 sq mi. Area of lakes and ponds, 0 sq mi; mean altitude of basin, 710 ft.

Gage.--Crest-stage gage. Prior to July 1955, at site 25 ft downstream. Datum of gage is 17.54 ft below upstream invert of culvert.

Stage-discharge relation.--Defined by computations of discharge through a 3- by 3-foot concrete box culvert.

Remarks.--Prior to July 1955, upstream invert of culvert was 1.03 ft lower. Only annual peaks are shown.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Feb. 24, 1950	20.56	74.0	1954	Dec. 9, 1953	19.16	40.0
1951	Feb. 11, 1951	18.80	32.3	1955	Feb. 8, 1955	<17.97	<19
1952	Feb. 4, 1952	19.14	39.3	1956	Dec. 21, 1955	22.58	75.4
1953	Jan. 9, 1953	19.95	58.2	1957	Mar. 7, 1957	20.58	45.1

## WIND RIVER BASIN

1270. Wind River above Trout Creek, near Carson, Wash.

Location.--Lat 45°48'30", long 121°54'30", in NE $\frac{1}{4}$  sec.26, T.4 N., R.7 E., on left bank 30 ft downstream from bridge, three-quarters of a mile upstream from Trout Creek, and 7 miles northwest of Carson.

Drainage area.--108 sq mi. Area of lakes and ponds, 0.03 sq mi; mean elevation, 2,740 ft.

Gage.--Nonrecording. Datum of gage is 890.3 ft (from river-profile survey).

Stage-discharge relation.--Defined by current-meter measurements below 4,800 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Minor regulation. Peaks are from graphs based on gage readings except the maximums for 1951-54 and 1956-57, which are from crest-stage gage. Base for partial-duration series, 3,000 cfs.

Peak stages and discharges of Wind River above Trout Creek, near Carson, Wash.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1945	Jan. 13, 1945	10.0	3,290	1952	Feb. 4, 1952	11.15	4,340
	Feb. 8, 1945	15.5	8,880		1953	Jan. 9, 1953	13.15
1946	Nov. 27, 1945	10.0	3,380	Jan. 11 or 12, 1953		12.3	5,400
	Dec. 28, 1945	13.1	6,210	Jan. 18 or 19, 1953		13.0	6,100
1947	Nov. 18, 1946	10.7	3,940	Jan. 23, 1953	10.60	3,860	
	Nov. 27, 1946	10.9	4,110	Jan. 31, 1953	10.0	3,380	
	Dec. 13, 1946	13.7	6,870	1954	Dec. 9, 1953	12.36	5,460
1948	Jan. 7, 1948	12.2	5,300		Dec. 20, 1953	11.17	4,350
	May 2, 1949	9.66	3,020		Feb. 21, 1954	10.67	3,920
1950	Nov. 27, 1949	11.8	4,770	1955	Dec. 31, 1954	9.50	3,050
	Feb. 24, 1950	10.1	3,510		1956	Nov. 27, 1955	12.50
	Mar. 5, 1950	9.9	3,160	Dec. 11, 1955		12.4	5,500
1951	Dec. 23, 1950	11.4	4,560	Dec. 21, 1955		13.35	6,480
	Feb. 9, 1951	10.7	3,940	1957	Dec. 11, 1956	10.51	3,930
	Feb. 11, 1951	10.9	3,960		Feb. 26, 1957	13.2	6,320
1952	Oct. 23, 1951	9.70	3,140		Mar. 7, 1957	11.68	4,860
	Dec. 1, 1951	11.47	4,620				

## 1280. Panther Creek near Carson, Wash.

Location.--Lat 45°48'00", long 121°52'00", in SW $\frac{1}{4}$  sec.25, T.4 N., R.7 $\frac{1}{2}$  E., on left bank, a third of a mile upstream from Cedar Creek and 6 miles northeast of Carson.

Drainage area.--30.1 sq mi. Area of lakes and ponds, 0 sq mi; mean elevation, 2,650 ft.

Gage.--Recording (discontinued October 1953). Altitude of gage is 800 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,600 cfs and extended by logarithmic plotting.

Remarks.--Base for partial-duration series, 1,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1945	Feb. 7, 1945	5.0	2,150	1950	Feb. 24, 1950	4.67	1,880
	Nov. 27, 1945	3.77	1,220		Mar. 3, 1950	3.76	1,160
1946	Dec. 28, 1945	4.86	2,030		Mar. 17, 1950	3.69	1,130
	Jan. 24, 1946	3.44	1,020	1951	Nov. 24, 1950	3.70	1,160
	1947	Nov. 27, 1946	3.92		1,330	Dec. 23, 1950	4.11
Dec. 15, 1946		4.58	1,830		Feb. 9, 1951	4.65	1,920
1948	Jan. 26, 1947	3.50	1,050	1952	Oct. 23, 1951	4.06	1,090
	Jan. 1, 1948	3.62	1,120		Dec. 1, 1951	4.23	1,180
	Jan. 7, 1948	5.1	2,230		Feb. 4, 1952	5.17	1,770
1949	Feb. 22, 1948	3.55	1,120	1953	Jan. 9, 1953	5.18	2,400
	Feb. 26, 1948	3.73	1,220		Jan. 12, 1953	3.86	1,280
	1949	Feb. 17, 1949	4.16		1,500	Jan. 18, 1953	4.73
May 2, 1949		4.15	1,500	Jan. 23, 1953	3.52	1,040	
1950	Nov. 27, 1949	4.53	1,840	Jan. 31, 1953	3.48	1,020	

## WIND RIVER BASIN

1285. Wind River near Carson, Wash.

Location.--Lat 45°44'10", long 121°48'10", in SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.21, T.3 N., R.8 E., on right bank three-quarters of a mile upstream from Little Wind River, 1 mile northeast of Carson, and 2 $\frac{1}{2}$  miles upstream from mouth.

Drainage area.--225 sq mi, includes that of Little Wind River. Area of lakes and ponds, 0.07 sq mi; mean elevation, 2,460 ft.

Gage.--Recording. Datum of gage is 112.6 ft above mean sea level (from river-profile survey).

Stage-discharge relation.--Defined by current-meter measurements below 15,000 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Base for partial-duration series, 5,700 cfs.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1935a	Dec. 21, 1934	14.6	12,200	1948	Jan. 2, 1948	12.30	7,530
1936	Jan. 4, 1936	12.65	8,190	Jan. 7, 1948	15.28	13,500	
	Jan. 12, 1936	13.96	10,900	Feb. 22, 1948	11.56	6,450	
1937	Dec. 23, 1936	12.60	8,190	Feb. 26, 1948	11.46	6,310	
	Apr. 14, 1937	15.72	14,900	1949	Feb. 17, 1949	13.43	9,460
1938	Nov. 25, 1937	12.02	7,170	May 2, 1949	12.08	7,210	
	Dec. 29, 1937	17.30	20,000	1950	Nov. 27, 1949	14.07	10,800
	Jan. 15, 1938	11.52	6,390	Feb. 24, 1950	13.62	9,840	
	Apr. 18, 1938	12.27	7,670	Mar. 5, 1950	12.05	7,050	
1939	Feb. 15, 1939	11.90	7,300	Mar. 17, 1950	11.31	6,030	
	Dec. 23, 1950	11.84	6,750	1951	Nov. 24, 1950	11.84	6,750
1940	Dec. 16, 1939	12.07	7,600	Dec. 23, 1950	13.38	9,460	
	Feb. 6, 1940	13.7	10,100	Feb. 11, 1951	13.33	9,270	
	Feb. 28, 1940	11.50	6,700	1952	Oct. 23, 1951	12.64	8,260
1941	Nov. 29, 1940	10.94	5,860	Dec. 1, 1951	13.49	9,880	
	Dec. 2, 1941	12.14	7,600	Feb. 4, 1952	15.28	13,800	
1942	Dec. 19, 1941	15.99	15,800	1953	Jan. 9, 1953	16.02	15,500
	Nov. 23, 1942	16.58	17,600	Jan. 12, 1953	14.14	11,000	
1943	Dec. 31, 1942	11.17	6,280	Jan. 18, 1953	15.94	15,300	
	Mar. 28, 1943	13.21	9,320	Jan. 23, 1953	13.19	9,150	
	Mar. 31, 1943	13.39	9,640	Jan. 31, 1953	12.43	7,770	
	Feb. 6, 1944	10.18	4,910	Feb. 3, 1953	11.51	6,300	
1944	Jan. 13, 1945	11.48	6,700	1954	Nov. 22, 1953	11.63	6,580
	Feb. 8, 1945	16.62	17,600	Dec. 6, 1953	12.35	7,760	
	Nov. 27, 1945	12.75	8,680	Dec. 9, 1953	15.42	14,600	
	Dec. 6, 1945	10.80	5,720	Dec. 19, 1953	13.34	9,670	
1945	Dec. 28, 1945	16.02	15,800	Feb. 21, 1954	13.32	9,630	
	Jan. 5, 1946	11.51	6,700	Mar. 9, 1954	11.60	6,430	
	Jan. 24, 1946	12.04	7,450	1955	Dec. 31, 1954	12.67	8,330
	Nov. 18, 1946	13.21	9,320	Feb. 8, 1955	11.96	7,030	
1946	Nov. 27, 1946	13.62	9,970	1956	Nov. 27, 1955	15.01	13,500
	Dec. 13, 1946	15.92	15,000	Dec. 12, 1955	15.42	14,600	
	Jan. 26, 1947	12.25	7,370	Dec. 21, 1955	16.70	18,500	
	Feb. 2, 1947	12.11	7,210	Jan. 4, 1956	12.28	7,600	
	Oct. 17, 1947	12.17	7,370	Jan. 16, 1956	11.41	6,110	
	Oct. 20, 1947	11.32	6,030	Mar. 25, 1956	11.43	6,140	
1948	Dec. 11, 1956	12.89	8,760	1957	Dec. 11, 1956	12.89	8,760
	Feb. 26, 1957	14.52	12,300	Feb. 26, 1957	14.52	12,300	
	Mar. 7, 1957	12.85	8,680	Mar. 7, 1957	12.85	8,680	

a Partial year.

1287.4. Dry Creek at Cascade Locks, Oreg.  
 (Published as Columbia River tributary at Cascade Locks)

Location.--Lat 45°40'20", long 121°52'50", in NW $\frac{1}{4}$  sec.7, T.2 N., R.8 E., at culvert on U.S. Highway 30, 0.8 mile east of Cascade Locks.

Drainage area.--3.18 sq mi. Mean altitude, 2,170 ft; channel slope, 682 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording. Altitude of gage is 130 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 105 cfs and extended on basis of computations of flow through culvert.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Dec. 18, 1951	7.57	68	1956	Dec. 21, 1955	10.18	186
1953	Jan. 18, 1953	8.94	125	1957	Mar. 7, 1957	8.12	90
1954	Dec. 19, 1953	7.62	70				
1955	Dec. 31, 1954	7.08	52				

SANDY RIVER BASIN

1300. Lost Creek near Brightwood, Oreg.

Location.--Lat 45°22'30", long 121°53'00", in NE $\frac{1}{4}$  sec.25, T.2 S., R.7 E., 300 ft upstream from mouth, 5 miles northeast of Welches, and 6 $\frac{1}{2}$  miles east of Brightwood.

Drainage area.--11.2 sq mi.

Gage.--Recording. Altitude of gage is 1,800 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 330 cfs and extended by logarithmic plotting.

Remarks.--Discharge at times includes overflow from Sandy River at point about 3 miles upstream from station. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1914	Jan. 5, 1914	2.46	495	1917	Nov. 27, 1916	2.48	485
1915	Apr. 1, 1915	1.75	208	1918	Dec. 18, 1917	4.32	1,610
1916	Dec. 22, 1915	3.75	1,330				

1310. Little Zigzag River at Twin Bridges, near Rhododendron, Oreg.

Location.--Lat 45°18'50", long 121°48'30", in NW $\frac{1}{4}$  sec.15, T.3 S., R.8 E., 0.1 mile upstream from mouth and from upper of Twin Bridges on Mount Hood Loop Highway and 5 $\frac{1}{2}$  miles east of Rhododendron.

Drainage area.--3.7 sq mi, approximately.

Gage.--Recording. Datum of gage is 2,905.16 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 100 cfs and extended on basis of area-velocity studies and peak discharge for nearby streams. Frequent large shifts caused by failure of log controls.

Remarks.--Base for partial-duration series, 50 cfs.

## SANDY RIVER BASIN

Peak stages and discharges of Little Zigzag River at Twin Bridges, near Rhododendron, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1927	Nov. 15, 1926	1.36	53	1933	Jan. 5, 1933	1.86	50
	Nov. 29, 1926	1.65	90		June 8, 1933	2.03	79
	Feb. 20, 1927	1.55	76				
1928	Nov. 25, 1927	1.55	50	1934	Nov. 1, 1933	2.40	74
					Dec. 6, 1933	2.60	100
					Dec. 22, 1933	2.68	120
1929	May 24, 1929	1.26	41		Jan. 23, 1934	2.44	79
					Mar. 2, 1934	2.28	60
					Mar. 5, 1934	2.23	54
1930	Feb. 1, 1930	1.36	42	Mar. 28, 1934	2.22	53	
1931	Oct. 7, 1930	a3.5	55	1935	Oct. 24, 1934	2.29	70
					Dec. 19, 1934	2.52	90
1932	Mar. 18, 1932	a2.35	76	1936	Jan. 2, 1936	2.36	69
					Jan. 4, 1936	2.36	69
1933	Nov. 5, 1932	2.06	76		Jan. 10, 1936	2.26	58
		Nov. 16, 1932	1.95	61			
	Dec. 2, 1932	1.94	61				

a Affected by backwater.

## 1312. Lady Creek near Rhododendron, Oreg.

Location.--Lat 45°19'00", long 121°49'50", in NW $\frac{1}{4}$  sec.16, T.3 S., R.8 E., at diversion dam, 4 miles east of Rhododendron.

Drainage area.--3.82 sq mi. Mean altitude, 4,010 ft; channel slope, 554 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording gage above log dam. Altitude of gage is 2,550 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 53 cfs and extended on basis of computations of flow over dam.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	Jan. 18, 1953	12.65	331	1956	Nov. 26, 1956	12.44	293
1954	Nov. 22, 1953	12.24	221	1957	Dec. 11, 1956	13.23	439
1955	June 9, 1955	11.52	148				

## 1325. Still Creek near Government Camp, Oreg.

Location.--Lat 45°17'10", long 121°44'20", in NW $\frac{1}{4}$  sec.25, T.3 S., R.8 $\frac{1}{2}$  E., 300 ft downstream from Mineral Creek and 1 $\frac{1}{2}$  miles southeast of Government Camp.

Drainage area.--2.55 sq mi.

Gage.--Nonrecording. Altitude of gage is 3,630 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 43 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1927	June 8, 1927	1.34	50	1931	Mar. 31, 1931	1.3	75
1928	Dec. 1, 1927	1.50	105	1932	Mar. 18, 1932	1.40	104
1929	May 22, 1929	1.28	52				
1930	Feb. 1, 1930	1.34	62				

1330. Still Creek at Rhododendron, Oreg.  
(Published as Still Creek at Zigzag 1920-21)

Location.--Lat 45°20'00", long 121°54'50", in NE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.11, T.3 S., R.7 E., at Rhododendron, 100 ft downstream from highway bridge and about 500 ft upstream from mouth.

Drainage area.--23 sq mi, approximately.

Gage.--Nonrecording. Altitude of gage is 1,590 ft (from river-profile map). Prior to Sept. 15, 1921, at different datum.

Stage-discharge relation.--Defined by current-meter measurements below 900 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1921	Feb. 10, 1921	4.2	1,230	1928	Nov. 25, 1927	4.55	1,600
	Mar. 17, 1921	a5.0	-	1929	Mar. 21, 1929	3.22	765
1927	Nov. 29, 1926	4.50	1,550	1930	Dec. 14, 1929	2.60	425

a Backwater from ice.

1335. Sandy River above Salmon River, at Brightwood, Oreg.

Location.--Lat 45°21'40", long 121°59'10", in NE $\frac{1}{4}$  sec.31, T.2 S., R.7 E., 2 miles southeast of Brightwood and 3 miles upstream from Salmon River.

Drainage area.--117 sq mi at described site and measuring section, since 1926. At site used 1910-14, 121 sq mi.

Gage.--Nonrecording. Prior to Sept. 17, 1927, and Nov. 25, 1927, to Oct. 6, 1928, at site  $2\frac{1}{4}$  miles downstream at different datums. Sept. 18 to Nov. 24, 1927, at present site and datum. Altitude of gage is 1,190 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 2,000 cfs and extended by logarithmic plotting. Subject to high-water shifts.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1911	Nov. 21, 1910	4.6	3,250	1928	Nov. 25, 1927	6.2	9,800
1912	Jan. 13, 1912	6.80	6,940	1929	Mar. 21, 1929	5.3	5,270
1913	Mar. 29, 1913	5.6	4,900	1930	Feb. 1, 1930	4.5	3,910
1914	Jan. 5, 1914	4.10	2,750				
1927	Nov. 29, 1926	5.2	5,950	1931	Mar. 31, 1931	9.0	14,000

1340. Salmon River near Government Camp, Oreg.  
(Published as Salmon River near Rowe 1911-12)

Location.--Lat 45°16'00", long 121°43'00", in N½ sec.31, T.3 S., R.9 E., on right bank near lower end of Red Top Meadows, 3 miles southeast of Government Camp.

Drainage area.--8.7 sq mi, approximately. Mean altitude, 4,800 ft; channel slope, 633 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. Prior to May 31, 1912, and Apr. 21, 1926, to Sept. 30, 1933, at site a quarter of a mile upstream at different datums. Datum of gage is 3,446.53 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 480 cfs and extended by logarithmic plotting.

Bankfull stage.--3 ft.

Remarks.--Base for partial-duration series, 150 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1911	Nov. 22, 1910	2.06	153	1943	Nov. 29, 1942	2.59	284	
1912	Nov. 11, 1911	2.10	201	Apr. 19, 1943	1.69	150		
	Jan. 13, 1912	1.82	162	May 23, 1943	2.18	237		
	Feb. 9, 1912	1.82	162	June 8, 1943	1.77	162		
1927	Nov. 15, 1926	2.54	202	June 12, 1943	1.93	189		
	Nov. 29, 1926	3.43	350	1944	Nov. 4, 1943	2.06	213	
	Feb. 20, 1927	2.29	167	Dec. 2, 1943	1.72	154		
1928	Nov. 15, 1927	2.16	198	1945	Jan. 7, 1945	2.55	312	
	Nov. 25, 1927	3.04	338	Jan. 13, 1945	2.13	227		
	Nov. 28, 1927	2.42	235	Feb. 13, 1945	1.93	189		
	Dec. 1, 1927	2.42	235	May 3, 1945	1.89	169		
1929	May 13, 1929	1.72	135	May 15, 1945	1.86	167		
1930	Feb. 1, 1930	1.82	149	1946	Dec. 28, 1945	4.12	-	
1931	Mar. 31, 1931	3.55	424	Dec. 28, 1945	3.05	412		
	1932	Mar. 18, 1932	3.39	259	1947	Nov. 18, 1946	1.84	156
		Nov. 5, 1932	3.28	267	Dec. 12, 1946	3.08	420	
Nov. 15, 1932		3.60	355	Dec. 15, 1946	3.45	525		
1933	Dec. 2, 1932	2.54	190	1948	Nov. 7, 1947	2.27	234	
	May 29, 1933	2.30	160	Nov. 15, 1947	2.20	220		
	June 8, 1933	3.08	266	Jan. 7, 1948	2.61	306		
	1934	Nov. 2, 1933	2.62	330	Feb. 22, 1948	1.84	156	
		Dec. 6, 1933	2.52	302	1949	Nov. 23, 1948	1.91	168
		Dec. 22, 1933	3.61	650	May 1, 1949	2.03	197	
Jan. 23, 1934	2.37	283	May 13, 1949	2.00	192			
Mar. 2, 1934	1.94	197	June 6, 1949	1.80	158			
Mar. 5, 1934	1.78	176	1950	Nov. 27, 1949	2.18	212		
1935	Oct. 24, 1934	2.03	191	June 12, 1950	2.05	201		
	Dec. 20, 1934	2.78	377	June 16, 1950	2.29	248		
1936	Jan. 2, 1936	1.94	169	1951	Nov. 1, 1950	1.94	199	
	Jan. 4, 1936	2.15	208	Dec. 6, 1950	1.75	157		
1937	June 20, 1937	1.81	152	Dec. 22, 1950	2.03	206		
1938	Nov. 25, 1937	1.80	150	May 10, 1951	1.85	181		
	Dec. 29, 1937	2.21	226	May 23, 1951	1.71	154		
	Jan. 22, 1938	2.14	212	1952	Oct. 23, 1951	2.15	240	
	Apr. 18, 1938	1.92	171	May 12, 1952	1.75	176		
1939	Nov. 3, 1938	1.61	144	May 20, 1952	1.82	189		
	1940	Feb. 6, 1940	1.75	156	June 29, 1952	1.99	223	
		Nov. 29, 1940	2.26	254	1953	Jan. 9, 1953	1.60	150
Dec. 2, 1941		1.80	167	Jan. 18, 1953	2.77	408		
1942	Nov. 23, 1942	2.65	348	Jan. 22, 1953	1.93	211		
	Nov. 27, 1942	1.92	188	Jan. 31, 1953	1.82	189		
1943	1941	2.26	254	Feb. 3, 1953	1.90	205		
				Feb. 5, 1953	2.06	237		
				May 26, 1953	1.97	219		
1944	1942	1.80	167	1954	Nov. 22, 1953	2.62	329	
				Dec. 9, 1953	1.83	184		
				Dec. 12, 1953	1.78	176		
Dec. 19, 1953	2.27	260						

Peak stages and discharges of Salmon River near Government Camp, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1954	May 18, 1954	1.66	150	1956	Dec. 21, 1955	2.38	242
1955	June 9, 1955	2.15	235	May 19, 1956		2.01	185
				May 30, 1956		2.37	255
1956	Oct. 9, 1955	2.22	249	1957	Nov. 16, 1956	1.84	155
	Nov. 19, 1955	2.13	231	Dec. 11, 1956		3.95	682
	Nov. 26, 1955	3.10	430	Apr. 5, 1957		1.82	164
	Dec. 12, 1955	2.48	263				

## 1345. Salmon River below Linney Creek, Oreg.

Location.--Lat 45°13'20", long 121°51'40", in SW $\frac{1}{4}$  sec.17, T.4 S., R.8 E., 200 ft downstream from Linney Creek, 8 miles southwest of Government Camp, and 9 miles southeast of Welches.

Drainage area.--54 sq mi, approximately. Mean altitude, 4,000 ft; channel slope, 301 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. Altitude of gage is 2,500 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,500 cfs and extended by logarithmic plotting.

Bankfull stage.--5 ft.

Remarks.--Base for partial-duration series, 800 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1928	Nov. 25, 1927	4.30	2,220	1942	Dec. 2, 1941	3.06	996
	Nov. 28, 1927	3.46	1,450				
	Mar. 11, 1928	2.68	920	1943	Nov. 23, 1942	4.10	1,660
1929	May 13, 1929	2.43	771	Nov. 27, 1942		3.04	984
				Nov. 29, 1942		3.72	1,420
1930	Feb. 19, 1930	2.32	702	Dec. 2, 1942		2.98	948
				Apr. 15, 1943		3.03	978
1931	Mar. 31, 1931	5.81	3,670	1944	Nov. 4, 1943	2.52	691
1932	Mar. 18, 1932	3.54	1,520	1945	Jan. 7, 1945	2.89	894
				Feb. 13, 1945		3.11	1,030
1933	Nov. 16, 1932	2.92	1,050	Apr. 24, 1945		2.91	906
	May 29, 1933	2.67	888	May 3, 1945		3.01	966
	June 8, 1933	3.42	1,430	May 15, 1945		2.76	823
1934	Nov. 3, 1933	2.59	855	1946	Dec. 28, 1945	5.10	2,210
	Dec. 6, 1933	3.30	1,330	May 3, 1946		2.73	806
	Dec. 22, 1933	5.02	3,010				
	Dec. 25, 1933	3.40	1,410	1947	Nov. 18, 1946	2.90	900
	Jan. 23, 1934	3.55	1,530	Dec. 12, 1946		5.61	3,070
1935	Dec. 20, 1934	4.20	1,720	Dec. 15, 1946		5.74	3,200
				Jan. 26, 1947		3.14	1,040
1936	Jan. 2, 1936	3.02	972	1948	Nov. 8, 1947	3.20	1,080
	Jan. 4, 1936	3.99	1,590	Nov. 15, 1947		3.13	1,040
	Apr. 17, 1936	2.98	949	Jan. 7, 1948		4.51	1,940
1937	Apr. 14, 1937	3.4	1,200	Feb. 22, 1948		3.31	1,150
	May 3, 1937	2.88	894	Feb. 26, 1948		2.93	918
	May 12, 1937	2.74	817	May 28, 1948		2.88	889
1938	Dec. 30, 1937	3.77	1,430	1949	Dec. 12, 1948	3.09	934
	Jan. 22, 1938	3.43	1,200	Apr. 23, 1949		3.03	902
	Apr. 18, 1938	3.20	1,080	May 1, 1949		3.83	1,410
				May 13, 1949		3.53	1,200
1939	Dec. 5, 1938	2.43	650	1950	Nov. 27, 1949	2.87	815
1940	Feb. 6, 1940	2.68	779	Feb. 25, 1950		2.98	874
				May 14, 1950		3.11	946
1941	Nov. 29, 1940	3.23	1,100	May 22, 1950		2.94	852

## 1350. Salmon River at Welches, Oreg.

Location.--Lat 45°19'10", long 121°57'10", in S $\frac{1}{2}$  sec.9, T.3 S., R.7 E., 1,200 ft downstream from Cheeny Creek and three-quarters of a mile southeast of Welches.

Drainage area.--100 sq mi.

Gage.--Nonrecording. Prior to Sept. 30, 1914, at site three-quarters of a mile downstream at different datum. July 26, 1920, to Sept. 15, 1921, and Apr. 1, 1925, to May 2, 1931, at site about 500 ft downstream at various datums. Altitude of gage is 1,350 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 5,300 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Only annual peaks are shown. Records herein for 1928-36, adjusted on basis of drainage-area ratio, are combined with those for station above Boulder Creek, near Brightwood (see following station) for use in the analysis.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1914	Oct. 7, 1913	4.0	3,420	1931	Mar. 31, 1931	9.80	13,000
				1932	Mar. 18, 1932	6.1	5,330
1921	Jan. 2, 1921	10.8	8,000	1933	June 8, 1933	5.10	4,050
				1934	Dec. 22, 1933	7.1	6,460
1926	Feb. 6, 1926	4.3	4,010	1935	Dec. 20, 1934	6.0	4,650
1927	Nov. 29, 1926	5.3	5,680				
1928	Nov. 25, 1927	6.8	8,760	1936	Jan. 4, 1936	6.6	5,590
1929	Mar. 21, 1929	4.4	4,160				
1930	Feb. 1, 1930	4.70	3,840				

## 1355. Salmon River above Boulder Creek, near Brightwood, Oreg.

Location.--Lat 45°21'40", long 122°00'40", in SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.25, T.2 S., R.6 E., on left bank 1 mile upstream from Boulder Creek, 1 $\frac{1}{4}$  miles south of Brightwood, and 2 $\frac{1}{4}$  miles upstream from mouth.

Drainage area.--106 sq mi. Mean altitude, 3,460 ft; channel slope, 214 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. Datum of gage is 1,089.2 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 4,100 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Base for partial-duration series, 3,400 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1937	Apr. 13, 1937	4.35	3,600	1945	Feb. 13, 1945	4.88	4,630
1938	Dec. 27, 1937	4.23	3,430	1946	Nov. 27, 1945	4.22	3,470
	Dec. 29, 1937	5.34	6,020		Dec. 28, 1945	7.02	11,500
	Jan. 22, 1938	4.78	4,370	1947	Dec. 12, 1946	6.65	10,200
1939	Feb. 15, 1939	4.33	3,600		Dec. 14, 1946	7.08	11,700
1940	Feb. 6, 1940	4.07	3,140	1948	Jan. 7, 1948	6.40	9,380
1941	Nov. 29, 1940	4.66	4,120		Feb. 22, 1948	5.78	7,440
1942	Dec. 2, 1941	3.93	2,920		Feb. 26, 1948	4.30	3,690
1943	Nov. 23, 1942	5.88	7,740	1949	Nov. 23, 1948	4.20	3,520
	Nov. 27, 1942	4.51	3,870		Dec. 12, 1948	4.54	4,100
	Nov. 29, 1942	4.50	3,850		May 1, 1949	4.94	4,810
	Feb. 6, 1943	4.40	3,680	1950	Feb. 24, 1950	5.02	5,350
	Feb. 11, 1943	4.42	3,710	1951	Nov. 2, 1950	4.00	3,280
1944	Nov. 4, 1943	3.88	2,840	1952	Oct. 23, 1951	4.17	3,590

1370. Sandy River near Marmot, Oreg.

(Published as "at Marmot" 1913, and as "below dam, near Marmot" 1916-19)

Location.--Lat 45°23'10", long 122°08'00", in NE $\frac{1}{4}$  sec. 24, T.2 S., R.5 E., on right bank 1 mile southwest of Marmot,  $1\frac{1}{2}$  miles upstream from Sandy River Dam of Portland General Electric Co., and 6 miles downstream from Salmon River.

Drainage area.--262 sq mi. Mean altitude, 3,350 ft; channel slope, 177 ft per mile; area of lakes and ponds, 0.1 sq mi.

Gage.--Recording. Prior to Dec. 20, 1915, and July 2, 1919, to Oct. 19, 1933, at site half a mile upstream at different datum. January 1916 to June 1919, below dam  $1\frac{1}{2}$  miles downstream at different datum. Datum of gage is 742.4 ft above mean sea level (Portland General Electric Co. bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 19,300 cfs and extended on basis of computation of flow over dam at 29,200 cfs.

Bankfull stage.--Not subject to overflow.

Remarks.--Sandy River Canal diverted an average of 300 cfs above gage at site used January 1916 to June 1919; records herein are combined flow of Sandy River and canal. Base for partial-duration series, 7,700 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1912	Jan. 13, 1912	9.25	14,800	1928	Nov. 25, 1927	12.20	15,600	
	Feb. 15, 1912	8.03	11,300		Nov. 28, 1927	9.32	8,870	
1913	Dec. 29, 1912	8.41	12,300		Mar. 11, 1928	9.9	10,200	
	Mar. 29, 1913	9.40	15,200	1929	Mar. 21, 1929	8.7	7,700	
	1914	Oct. 7, 1913	6.84		7,380	1930	Feb. 1, 1930	-
1915		Nov. 13, 1914	5.00	4,000	1931	Mar. 31, 1931	16.5	26,600
1916	Nov. 17, 1915	9.10	14,300	1932	Mar. 18, 1932	11.1	12,900	
	Nov. 22, 1915	7.65	10,200		1933	Nov. 6, 1932	8.3	7,800
	Dec. 21, 1915	10.5	20,100	Nov. 16, 1932		8.9	9,030	
1917	Nov. 27, 1916	9.00	7,790	June 9, 1933		9.3	9,970	
1918	Nov. 29, 1917	9.40	10,700	1934	Nov. 2, 1933	9.4	9,650	
	Dec. 13, 1917	12.15	13,800		Dec. 6, 1933	12.50	14,700	
	Dec. 18, 1917	15.3	22,800		Dec. 22, 1933	13.8	19,300	
	Dec. 23, 1917	8.45	8,440		Dec. 26, 1933	8.78	8,250	
	Dec. 26, 1917	8.15	8,020		Jan. 21, 1934	9.45	9,580	
	Dec. 28, 1917	9.95	12,200		1935	Dec. 20, 1934	10.85	13,400
	Jan. 12, 1918	8.85	9,340	1936		Jan. 2, 1936	9.66	9,620
	1919	Jan. 22, 1919	9.05		10,000	Jan. 4, 1936	11.1	12,400
1920		Nov. 1, 1919	-		12,000	Jan. 10, 1936	8.70	7,960
		Nov. 4, 1919	11.6	12,500	1937	Apr. 14, 1937	9.10	8,860
	Jan. 26, 1920	11.6	12,300	1938		Nov. 20, 1937	8.70	8,070
1921	Dec. 30, 1920	11.1	11,100		Nov. 26, 1937	8.78	8,260	
	Jan. 2, 1921	13.05	15,800		Dec. 30, 1937	12.16	15,500	
	Feb. 10, 1921	11.3	11,600		Jan. 22, 1938	9.70	10,100	
	Mar. 16, 1921	10.3	9,360		Apr. 16, 1938	9.10	8,860	
1922	Apr. 22, 1921	9.64	7,840	1939	Feb. 15, 1939	9.08	8,860	
	Nov. 20, 1921	-	25,600		1940	Feb. 6, 1940	8.44	7,580
1923	Nov. 30, 1921	13.4	17,600	1941		Nov. 29, 1940	9.12	9,100
	Dec. 23, 1922	9.70	8,650		1942	Dec. 2, 1941	7.59	6,240
	Dec. 27, 1922	10.85	11,300			1943	Nov. 23, 1942	13.85
	Dec. 31, 1922	10.20	9,760	Nov. 27, 1942	9.32		9,720	
	Jan. 6, 1923	17.5	29,200	Nov. 29, 1942	9.58		9,840	
1924	Dec. 6, 1923	-	12,400	Dec. 31, 1942	9.10	8,880		
	Dec. 28, 1923	11.8	10,200	Feb. 6, 1943	9.30	9,280		
1925	Nov. 21, 1924	10.48	11,600	Feb. 11, 1943	9.42	9,520		
	Dec. 29, 1924	8.9	8,080	Mar. 31, 1943	9.39	9,460		
1926	Feb. 6, 1926	9.5	9,300	1944	Nov. 4, 1943	8.03	6,830	
	Feb. 24, 1926	8.90	8,080		1945	Jan. 7, 1945	8.61	7,930
1927	Nov. 29, 1926	9.8	9,960	Feb. 13, 1945		8.99	10,200	
	Feb. 20, 1927	9.8	9,960					

a Backwater from ice.

Peak stages and discharges of Sandy River near Marmot, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	Nov. 27, 1945	8.76	8,210	1953	Jan. 9, 1953	10.1	9,520
	Dec. 28, 1945	15.23	22,400		Jan. 18, 1953	14.21	19,600
1947	Dec. 12, 1946	13.85	18,700		Jan. 22, 1953	11.13	11,500
	Dec. 15, 1946	14.79	21,200	Jan. 31, 1953	9.94	8,770	
	Jan. 26, 1947	11.15	12,000	Feb. 3, 1953	10.18	9,310	
1948	Oct. 18, 1947	-	7,800	1954	Feb. 5, 1953	9.74	8,340
	Nov. 7, 1947	10.75	11,000		Nov. 22, 1953	11.86	13,300
	Nov. 15, 1947	9.40	8,020		Dec. 9, 1953	10.80	10,700
	Jan. 7, 1948	14.08	19,300		Dec. 12, 1953	9.77	8,400
	Feb. 22, 1948	12.70	15,700	Dec. 19, 1953	11.67	12,800	
	Feb. 26, 1948	9.90	9,080	1955	Dec. 30, 1954	11.60	12,600
1949	Nov. 24, 1948	9.63	8,500		1956	Nov. 19, 1955	10.78
	Dec. 12, 1948	10.60	10,600	Nov. 26, 1955		15.72	23,700
	Feb. 17, 1949	9.61	8,460	Dec. 12, 1955		13.16	16,700
	May 1, 1949	11.08	11,600	Dec. 22, 1955		11.90	13,400
Jan. 1, 1949	11.08	11,600	Jan. 15, 1956	-		13,000	
1950	Feb. 24, 1950	12.02	14,000	1957	Dec. 11, 1956	14.43	20,200
	Jan. 14, 1951	9.20	7,600		Mar. 7, 1957	10.80	10,700
1952	Oct. 23, 1951	9.92	9,120		Apr. 5, 1957	11.00	11,200

1956. Bull Run River below Lake Ben Morrow, Oreg.  
(Published as "below Bull Run Reservoir, near Bull Run" 1930,  
and as "below Bull Run Reservoir" 1931-37)

Location.--Lat 45°29'00", long 122°04'50", in SW $\frac{1}{4}$  sec.16, T.1 S., R.6 E., in gatehouse at Bear Creek Dam on Bull Run River, 500 ft downstream from Bear Creek, 1,000 ft upstream from Fivemile Creek, and 8 $\frac{1}{2}$  miles northeast of Bull Run.

Drainage area.--74 sq mi, approximately. At site used prior to Oct. 1, 1934, 75 sq mi, approximately.

Gage.--Recording. At site half a mile downstream at different datum prior to Oct. 1, 1934.

Stage-discharge relation.--Defined by current-meter measurements below 10,000 cfs and extended on basis of computation of peak flow over crest of dam and flow through valves at 16,100 cfs.

Bankfull stage.--Not subject to overflow.

Remarks.--Peak discharges herein represent combined flow over crest of dam and through valves. Flow regulated by Bull Run Lake and Lake Ben Morrow (capacity, 26,930 acre-ft). Base for partial duration series, 4,800 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet) <sup>a</sup>	Discharge (cfs)	Water year	Date	Gage height (feet) <sup>a</sup>	Discharge (cfs)
1930	Dec. 14, 1929	5.75	5,360	1936	Jan. 4, 1936	42.98	7,390
	Feb. 1, 1930	6.33	6,240		Jan. 10, 1936	41.57	5,260
1931	Mar. 31, 1931	10.85	16,100	1937	Apr. 13, 1937	41.40	4,980
1932	Mar. 6, 1932	5.15	4,940	1938	Dec. 27, 1937	41.73	5,400
	Mar. 18, 1932	7.77	9,870		Dec. 29, 1937	43.68	8,550
1933	Nov. 5, 1932	5.43	5,100		Jan. 22, 1938	42.67	6,590
	June 9, 1933	7.05	8,240	Apr. 17, 1938	42.82	7,070	
1934	Nov. 2, 1933	5.46	5,280	1939	Feb. 15, 1939	-	6,300
	Dec. 6, 1933	b9.0	12,100		1940	Feb. 6, 1940	42.05
	Dec. 22, 1933	8.9	12,800	1941		Nov. 29, 1940	42.55
	Jan. 22, 1934	6.03	6,540		1942	Dec. 18, 1941	41.07
1935	Oct. 24, 1934	42.37	6,450	1943		Nov. 1, 1942	41.31
	Dec. 20, 1934	45.06	11,000		Nov. 23, 1942	45.28	11,400
1936	Jan. 2, 1936	42.60	6,750				

a Lake elevations given after Oct. 1, 1934; add 1,000 ft to correct to mean sea level.  
b Backwater from ice.

## Peak stages and discharges of Bull Run River below Lake Ben Morrow, Oreg.--Continued

Water year	Date	Gage height (feet) <sup>a</sup>	Discharge (cfs)	Water year	Date	Gage height (feet) <sup>a</sup>	Discharge (cfs)
1943	Nov. 29, 1942	42.21	6,160	1949	Nov. 24, 1948	42.01	5,860
	Dec. 31, 1942	41.77	5,500		Dec. 9, 1948	41.32	4,870
	Feb. 6, 1943	41.63	5,300		Dec. 12, 1948	41.42	5,010
	Mar. 31, 1943	42.14	6,050		May 2, 1949	42.23	6,180
1944	Feb. 6, 1944	40.80	4,170	1950	Nov. 24, 1949	41.31	4,850
1945	Jan. 7, 1945	41.98	5,810	Feb. 24, 1950	42.97	7,340	
1946	Nov. 27, 1945	41.56	5,200	1951	Nov. 24, 1950	41.33	4,880
	Dec. 28, 1945	46.08	13,000		1952	Oct. 23, 1951	41.88
	Jan. 24, 1946	41.42	5,010	Feb. 4, 1952	41.52	5,150	
1947	Nov. 27, 1946	41.69	5,390	1953	Jan. 9, 1953	41.77	5,500
	Dec. 11, 1946	44.91	10,700		Jan. 17, 1953	44.21	9,440
	Dec. 15, 1946	44.03	9,110		Jan. 23, 1953	41.88	5,660
	Jan. 23, 1947	41.56	5,200		Jan. 31, 1953	41.51	5,130
	Jan. 26, 1947	41.65	5,330		Feb. 3, 1953	41.65	5,330
1948	Nov. 7, 1947	42.02	5,870	1954	Nov. 22, 1953	43.92	8,920
	Jan. 7, 1948	43.87	8,840		Dec. 9, 1953	42.42	6,470
	Feb. 22, 1948	43.64	8,450		Dec. 12, 1953	41.44	5,040
	Feb. 26, 1948	41.91	5,700		Dec. 19, 1953	42.89	7,210

<sup>a</sup> Lake elevations given after Oct. 1, 1934; add 1,000 ft to correct to mean sea level.

1400. Bull Run River near Bull Run, Oreg.

Location.--Lat 45°27'20", long 122°07'50", in SE $\frac{1}{4}$  sec.25, T.1 S., R.5 E., on left bank 1 mile upstream from intake of pipeline for water supply of city of Portland and 5 miles east of Bull Run.

Drainage area.--102 sq mi. Mean altitude, 2,620 ft; channel slope, 136 ft per mile; area of lakes and ponds, 0.9 sq mi.

Gage.--Nonrecording at site 1 mile downstream at different datum prior to July 27, 1909; recording thereafter. At present site at datum 1.0 ft lower July 27, 1909, to July 25, 1916; at present site at datum 1.0 ft higher July 26, 1916, to July 21, 1924, and at datum 0.5 ft higher July 22, 1924, to Aug. 24, 1928. Datum of gage is 759 ft above mean sea level (topographic survey of 1954).

Stage-discharge relation.--Defined by current-meter measurements below 8,250 cfs and extended on basis of computation of flow over Bear Creek Dam at 20,600 cfs. Gage heights herein adjusted to present datum.

Bankfull stage.--Not subject to overflow.

Remarks.--Flow partly regulated by Bull Run Lake and Lake Ben Morrow (capacity, 26,930 acre-ft). Base for partial-duration series, 6,300 cfs. Only annual peaks are shown 1908-9.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1908	Mar. 15, 1908	9.1	11,700	1915	Nov. 13, 1914	-	3,320
1909	Jan. 19, 1909	7.6	8,140	1916	Nov. 17, 1915	10.28	10,200
1910	Nov. 2, 1909	10.1	9,900		Nov. 25, 1915	-	7,920
	Nov. 19, 1909	9.4	8,780		Dec. 21, 1915	11.5	13,800
	Nov. 22, 1909	-	11,400		Mar. 25, 1916	8.42	8,010
	Mar. 1, 1910	-	10,400	1917	Nov. 27, 1916	8.40	7,970
1911	Nov. 9, 1910	7.83	6,320		1918	Dec. 13, 1917	12.0
	Nov. 20, 1910	7.9	6,430	Dec. 18, 1917		12.0	15,800
	Jan. 19, 1911	-	7,920	Dec. 26, 1917		7.83	7,050
1912	Nov. 14, 1911	9.30	8,620	Dec. 28, 1917		11.1	13,900
	Jan. 12, 1912	-	11,400	Feb. 6, 1918	7.75	7,050	
	Feb. 15, 1912	8.95	8,060	1919	Jan. 22, 1919	-	7,300
1913	Dec. 29, 1912	-	8,000		Mar. 2, 1919	7.50	6,520
	Mar. 29, 1913	9.3	8,620	1920	Nov. 1, 1919	9.50	11,400
1914	Jan. 5, 1914	7.8	6,280		Nov. 4, 1919	9.31	11,000

## SANDY RIVER BASIN

Peak stages and discharges of Bull Run River near Bull Run, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)		
1920	Nov. 30, 1919	7.60	6,670	1938	Dec. 27, 1937	7.54	7,040		
	Dec. 24, 1919	7.60	6,670		Dec. 29, 1937	9.28	10,600		
	Jan. 25, 1920	11.65	16,000		Jan. 22, 1938	7.70	7,420		
	Mar. 13, 1920	7.28	6,170		Apr. 18, 1938	8.12	8,190		
1921	Apr. 5, 1920	7.28	6,170	1939	Feb. 15, 1939	8.20	8,390		
	Dec. 30, 1920	9.60	10,800		1940	Feb. 6, 1940	7.44	6,950	
	Jan. 2, 1921	11.70	15,000			1941	Nov. 29, 1940	8.15	8,290
	Feb. 10, 1921	9.83	11,200				1942	Dec. 18, 1941	6.58
Mar. 16, 1921	9.47	10,600	1943	Nov. 23, 1942				10.80	13,900
Apr. 22, 1921	7.84	7,500		Nov. 29, 1942	7.82			7,650	
1922	Nov. 20, 1921	14.13		20,500	Dec. 31, 1942	7.51		7,060	
	Nov. 30, 1921	11.00		13,500	Feb. 6, 1943	7.36	6,770		
	1923	Dec. 24, 1922	9.90	11,400	Mar. 31, 1943	7.73	7,480		
Dec. 26, 1922		7.50	6,730	1944	Feb. 6, 1944	6.36	4,980		
Jan. 5, 1923		13.37	18,700		1945	Jan. 7, 1945	7.52	7,080	
1924	Dec. 6, 1923	-	8,750			1946	Dec. 28, 1945	11.4	15,200
	Dec. 28, 1923	-	5,300	Jan. 24, 1946			7.11	6,310	
	1925	Nov. 2, 1924	-	6,400	1947		Nov. 27, 1946	7.34	6,740
		Nov. 21, 1924	8.85	9,400			Dec. 11, 1946	10.40	13,000
Dec. 29, 1924		7.95	7,490	Dec. 15, 1946		9.27	10,600		
Feb. 3, 1925		7.16	6,320	Jan. 23, 1947		7.25	6,560		
1926	Feb. 24, 1926	7.59	6,970	Jan. 26, 1947	7.37	6,790			
	Dec. 21, 1925	7.52	6,800	1948	Nov. 7, 1947	7.90	7,800		
	Feb. 6, 1926	9.25	10,200		Jan. 7, 1948	9.37	10,800		
	Feb. 24, 1926	7.59	6,970		Feb. 22, 1948	9.05	10,100		
1927	Nov. 29, 1926	8.80	10,200		Feb. 26, 1948	7.49	7,020		
	Jan. 2, 1927	6.84	6,370	1949	Nov. 24, 1948	7.38	6,760		
	Feb. 20, 1927	8.87	10,400		Dec. 12, 1948	7.23	6,490		
	Sept. 11, 1927	7.00	6,730		May 2, 1949	7.76	7,520		
	Sept. 29, 1927	7.07	6,920		1950	Feb. 24, 1950	8.35	8,700	
1928	Nov. 16, 1927	8.30	9,200			1951	Nov. 24, 1950	6.86	5,850
	Nov. 25, 1927	11.3	15,400	1952			Oct. 23, 1951	7.52	7,040
	Nov. 28, 1927	7.5	7,260		Feb. 3, 1952		7.36	6,730	
	Jan. 13, 1928	7.33	6,900		1953		Jan. 9, 1953	7.16	6,370
	Mar. 10, 1928	8.43	9,000				Jan. 17, 1953	9.53	11,100
1929	Mar. 21, 1929	4.60	3,100			Jan. 23, 1953	7.23	6,490	
	1930	Dec. 14, 1929	7.07	6,740	1954	Nov. 22, 1953	9.18	10,400	
		Feb. 1, 1930	7.84	8,020		Dec. 9, 1953	7.81	7,620	
1931		Mar. 31, 1931	13.8	20,600		Dec. 19, 1953	8.10	8,200	
	1932	Mar. 18, 1932	10.2	12,300	1955	Dec. 30, 1954	9.02	10,200	
		1933	June 9, 1933	8.98		9,740	1956	Nov. 19, 1955	7.30
1934			Dec. 6, 1933	10.84		13,900		Nov. 26, 1955	10.90
	Dec. 22, 1933		11.2	14,700	Dec. 12, 1955	9.64		11,300	
	Jan. 22, 1934	7.80	7,610	Dec. 21, 1955	8.11	8,130			
1935	Oct. 24, 1934	8.03	7,990	1957	Dec. 11, 1956	9.24	10,500		
	Dec. 20, 1934	10.2	12,500		Mar. 7, 1957	8.82	9,620		
	1936	Jan. 2, 1936	8.08		8,190	Apr. 5, 1957	7.73	7,390	
Jan. 4, 1936		8.41	8,790						
Jan. 10, 1936		7.36	6,850						
1937	Apr. 14, 1937	7.12	6,290						

## 1405. Little Sandy River near Marmot, Oreg.

Location.--Lat 45°25'10", long 122°07'30", in SW $\frac{1}{4}$  sec.6, T.2 S., R.6 E., 1 $\frac{1}{2}$  miles north of Marmot and 5 $\frac{1}{2}$  miles east of Bull Run.

Drainage area.--17.9 sq mi.

Gage.--Recording. Altitude of gage is 1,080 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 500 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Base for partial-duration series, 1,100 cfs. Records herein, for 1913-19, adjusted on basis of drainage-area ratio, are combined with those for station near Bull Run (see following station) for use in the analysis.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1914	Feb. 27, 1914	3.40	1,060	1917	Nov. 27, 1916	3.60	1,180
1915	Nov. 13, 1914	2.56	514	1918	Dec. 13, 1917	4.54	2,150
1916	Nov. 17, 1915	4.55	2,220		Dec. 18, 1917	4.56	2,280
	Nov. 23, 1915	3.73	1,300		Dec. 28, 1917	3.95	1,560
	Nov. 25, 1915	3.79	1,350		Jan. 12, 1918	3.68	1,270
	Dec. 21, 1915	4.36	1,970	1919	Jan. 22, 1919	3.70	1,270

## 1415. Little Sandy River near Bull Run, Oreg.

Location.--Lat 45°25'00", long 122°10'20", in NE $\frac{1}{4}$  sec.10, T.2 S., R.5 E., on right bank three-eighths of a mile upstream from Portland General Electric Co. dam and tunnel from Sandy River and 3 miles east of Bull Run.

Drainage area.--22.3 sq mi; 23 sq mi, approximately, at site used prior to April 1913. Mean altitude, 2,440 ft; channel slope, 190 ft per mile; area of lakes and ponds, 0.15 sq mi.

Gage.--Nonrecording at site 0.9 mile downstream at different datum prior to Apr. 29, 1913; recording thereafter. July 1, 1919, to Sept. 30, 1931, at present site at datum 0.28 ft higher. Datum of gage is 712 ft above mean sea level (topographic survey of 1954).

Stage-discharge relation.--Defined by current-meter measurements below 2,200 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Only annual peak shown for 1913. Base for partial-duration series, 1,400 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1913	Mar. 30, 1913	9.0	5,200	1925	Dec. 29, 1924	6.33	1,820
1920	Nov. 4, 1919	7.3	2,960	1926	Feb. 6, 1926	5.88	1,490
	Jan. 25, 1920	7.0	2,600		Feb. 24, 1926	6.00	1,550
	Apr. 5, 1920	6.02	1,600	1927	Sept. 11, 1927	5.95	1,520
1921	Dec. 30, 1920	7.2	2,840	1928	Nov. 25, 1927	7.4	2,020
	Jan. 2, 1921	-	3,800		Mar. 11, 1928	6.07	1,660
	Feb. 10, 1921	-	2,900	1929	Mar. 21, 1929	6.25	1,780
1922	Nov. 20, 1921	9.18	5,320	1930	Feb. 1, 1930	6.45	1,930
	Nov. 30, 1921	7.15	2,780		1931	Mar. 31, 1931	8.4
1923	Dec. 24, 1922	6.44	1,960	1932	Mar. 18, 1932	6.90	2,380
	Jan. 5, 1923	8.6	4,830		1933	Nov. 16, 1932	5.95
1924	Dec. 28, 1923	6.1	1,410				
1925	Nov. 21, 1924	6.32	1,890				

Peak stages and discharges of Little Sandy River near Bull Run, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1934	Nov. 2, 1933	6.00	1,570	1948	Nov. 15, 1947	6.00	1,700
	Dec. 6, 1933	7.50	3,000		Jan. 8, 1948	6.80	2,460
	Dec. 22, 1933	6.85	2,330		Feb. 22, 1948	6.4	2,050
1935	Oct. 24, 1934	6.03	1,610	1949	Nov. 23, 1948	5.64	1,410
	Dec. 20, 1934	7.0	2,480		Dec. 11, 1948	5.88	1,600
					May 1, 1949	6.0	1,700
1936	Jan. 2, 1936	6.39	1,920	1950	Feb. 24, 1950	-	1,900
	Jan. 4, 1936	5.98	1,570				
1937	Apr. 14, 1937	5.77	1,370	1951	Jan. 13, 1951	5.70	1,360
1938	Dec. 29, 1937	6.80	2,280	1952	Oct. 23, 1951	5.94	1,550
	Jan. 22, 1938	5.85	1,450				
1939	Feb. 15, 1939	6.03	1,610	1953	Jan. 9, 1953	a5.84	1,420
					Jan. 17, 1953	6.86	2,820
					Feb. 5, 1953	5.64	1,570
1940	Feb. 6, 1940	5.43	1,130	1954	Nov. 22, 1953	6.36	2,270
1941	Nov. 29, 1940	6.33	1,860		Dec. 12, 1953	5.50	1,400
					Dec. 19, 1953	5.90	1,770
1942	Dec. 2, 1941	5.47	1,160	1955	Dec. 30, 1954	6.37	2,280
1943	Nov. 23, 1942	8.0	3,050	1956	Oct. 9, 1955	5.59	1,480
	Feb. 6, 1943	6.50	1,420		Nov. 4, 1955	5.21	1,550
1944	Dec. 2, 1943	5.55	1,000		Nov. 10, 1955	5.19	1,530
					Nov. 19, 1955	5.67	2,050
					Nov. 26, 1955	a8.88	4,730
1945	Feb. 13, 1945	6.54	1,720		Dec. 12, 1955	6.71	3,370
					Dec. 21, 1955	5.47	1,830
1946	Dec. 28, 1945	7.45	2,940		Jan. 15, 1956	5.60	1,970
				1957	Dec. 11, 1956	6.28	2,800
1947	Oct. 25, 1946	6.00	1,700		Mar. 7, 1957	5.67	2,050
	Dec. 11, 1946	7.3	3,040		Apr. 5, 1957	6.00	2,450
1948	Nov. 7, 1947	6.85	2,520				

a Backwater from debris.

#### 1420. Bull Run River at Bull Run, Oreg.

Location.--Lat 45°25'50", long 122°14'00", in NE $\frac{1}{4}$  sec.6, T.2 S., R.5 E., on left bank at Bull Run, 450 ft downstream from tailrace of Portland General Electric Co.'s powerplant, 1.4 miles upstream from mouth, and 1.7 miles downstream from Little Sandy River.

Drainage area.--136 sq mi.

Gage.--Recording. Datum of gage is 308 ft above mean sea level (topographic survey of 1954).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--Not subject to overflow.

Remarks.--About 80,000 acre-ft diverted annually above station by Portland Water Bureau. Flow partly regulated by Bull Run Lake and Lake Ben Morrow (capacity, 26,930 acre-ft). Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Feb. 24, 1950	12.45	10,200	1952	Feb. 3, 1952	11.47	8,400
				1953	Jan. 17, 1953	13.91	13,000
1951	Nov. 24, 1950	11.06	8,330	1954	Nov. 22, 1953	13.48	12,200

1425. Sandy River below Bull Run River, near Bull Run, Oreg.

Location.--Lat 45°27'20", long 122°15'00", in NW $\frac{1}{4}$  sec.30, T.1 S., R.5 E., on left bank 1 mile downstream from Bull Run River and 2 miles northwest of Bull Run.

Drainage area.--440 sq mi. Mean altitude, 2,890 ft; channel slope, 143 ft per mile; area of lakes and ponds, 1.15 sq mi.

Gage.--Nonrecording at site three-quarters of a mile upstream at different datum April 1910 to September 1914; recording thereafter. Altitude of gage is 200 ft (from river-profile map).

Stage-discharge relation.--Defined by current-meter measurements below 34,000 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--About 80,000 acre-ft annually diverted from Bull Run River by Portland Water Bureau. Flow slightly regulated by Bull Run Lake and Lake Ben Morrow (capacity, 26,930 acre-ft). Base for partial-duration series, 17,000 cfs. Only annual peaks are shown prior to 1934.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1911	Jan. 19, 1911	8.6	20,700	1945	Feb. 13, 1945	11.90	21,400
1912	Jan. 12, 1912	9.5	24,800				
1913	Mar. 29, 1913	8.7	21,200	1946	Nov. 27, 1945	11.40	19,500
1914	Jan. 5, 1914	7.3	15,400		Dec. 28, 1945	17.46	44,300
1930	Feb. 1, 1930	12.05	21,300	1947	Dec. 12, 1946	16.15	38,600
1931	Mar. 31, 1931	20.6	58,000		Dec. 15, 1946	15.52	36,000
1932	Mar. 18, 1932	14.7	32,000		Jan. 26, 1947	12.08	22,100
1933	June 9, 1933	12.40	22,600	1948	Nov. 7, 1947	12.32	23,000
1934	Nov. 2, 1933	11.50	19,200		Jan. 7, 1948	15.60	36,300
	Dec. 6, 1933	16.08	38,000		Feb. 22, 1948	13.89	29,300
	Dec. 22, 1933	16.78	41,000		Feb. 26, 1948	11.48	19,800
	Jan. 21, 1934	11.87	20,600	1949	Dec. 12, 1948	11.98	19,300
1935	Oct. 24, 1934	11.40	18,800		May 2, 1949	12.40	20,800
	Dec. 20, 1934	14.8	32,500	1950	Feb. 24, 1950	-	27,000
1936	Jan. 2, 1936	12.39	22,600	1951	Nov. 2, 1950	10.71	15,100
	Jan. 4, 1936	13.43	26,600	1952	Oct. 23, 1951	-	19,500
1937	Apr. 14, 1937	11.56	19,500		Feb. 3, 1952	11.56	17,900
1938	Dec. 27, 1937	10.96	17,400	1953	Jan. 9, 1953	11.70	18,400
	Dec. 29, 1937	14.66	32,000		Jan. 18, 1953	15.80	34,200
	Jan. 22, 1938	11.46	19,200		Jan. 23, 1953	12.15	19,900
	Apr. 18, 1938	11.92	20,600		Jan. 31, 1953	11.36	17,200
1939	Feb. 15, 1939	12.23	21,800		Feb. 3, 1953	11.66	18,200
1940	Feb. 6, 1940	11.10	17,800	1954	Nov. 22, 1953	13.85	26,400
1941	Nov. 29, 1940	12.14	21,600		Dec. 9, 1953	12.63	21,700
1942	Dec. 2, 1941	10.00	14,400		Dec. 12, 1953	11.35	17,200
1943	Nov. 23, 1942	16.53	40,300	1955	Dec. 19, 1953	13.22	23,900
	Nov. 27, 1942	11.11	18,400	1956	Dec. 30, 1954	13.78	26,100
	Nov. 29, 1942	12.16	22,400		Nov. 19, 1955	12.16	20,000
	Dec. 31, 1942	11.73	20,800		Nov. 26, 1955	17.55	42,200
	Feb. 6, 1943	11.92	21,500		Dec. 12, 1955	14.97	30,900
	Feb. 11, 1943	11.42	19,600		Dec. 21, 1955	13.09	23,400
	Mar. 31, 1943	-	21,000	1957	Jan. 15, 1956	13.28	24,100
1944	Feb. 6, 1944	9.74	13,500		Dec. 11, 1956	15.33	32,300
1945	Jan. 7, 1945	11.20	18,700		Mar. 7, 1957	13.16	23,600
					Apr. 5, 1957	12.38	20,800

## WASHOUGAL RIVER BASIN

1432. Canyon Creek near Washougal, Wash.

Location.--Lat 45°35'45", long 122°11'30", in SE $\frac{1}{4}$  sec.4, T.1 N., R.5 E., at State Highway 8B, 2.4 miles from U.S. Highway 830 and 8 miles east of Washougal.

Drainage area.--2.74 sq mi. Area of lakes and ponds, 0 sq mi; mean altitude, 1,310 ft.

Gage.--Crest-stage gage. Datum of gage is 3.31 ft below upstream invert of culvert.

Stage-discharge relation.--Defined by computations of discharge through a 6- by 6-foot concrete box culvert.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	Feb. 17, 1949	9.51	261	1954	Dec. 9, 1953	6.36	100
1950	Feb. 24, 1950	8.41	210	1955	Dec. 31, 1954	6.36	99
1951	Dec. 23, 1950	6.19	90.6	1956	Nov. 26, 1955	7.42	153
1952	Feb. 4, 1952	7.04	134	1957	Mar. 7, 1957	8.76	233
1953	Jan. 18, 1953	8.06	188				

1435. Washougal River near Washougal, Wash.

Location.--Lat 45°37'20", long 122°18'00", in SE $\frac{1}{4}$  sec.27, T.2 N., R.4 E., on right bank half a mile upstream from Cougar Creek and 4 miles northeast of Washougal.

Drainage area.--108 sq mi. Area of lakes and ponds, 0 sq mi; mean elevation, 1,610 ft.

Gage.--Nonrecording. Altitude of gage is 175 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 12,000 cfs and extended by logarithmic plotting.

Bankfull stage.--24 ft.

Remarks.--Peaks are from graphs based on gage readings except the maximums for 1951-52, 1954, and 1957 which are from crest-stage indicator. Base for partial-duration series, 8,000 cfs (revised).

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1945	Jan. 7, 1945	9.7	8,150	1951	Dec. 23, 1950	10.74	9,650
	Feb. 7, 1945	14.4	15,700	1952	Oct. 25, 1951	10.63	9,500
1946	Nov. 26, 1945	10.3	9,050		Feb. 3 or 4, 1952	12.84	13,000
	Dec. 28, 1945	13.4	14,000				
1947	Nov. 18, 1946	12.8	13,000	1953	Jan. 18, 1953	12.90	13,100
	Nov. 27, 1946	10.0	8,600		Jan. 23, 1953	10.40	9,200
	Dec. 11, 1946	14.20	15,300		Feb. 3, 1953	9.72	8,180
	Jan. 23, 1947	10.0	8,600	1954	Nov. 22, 1953	9.80	8,300
	Feb. 2, 1947	11.6	11,000		Dec. 9, 1953	15.56	17,700
1948	Jan. 7, 1948	10.2	8,900		Dec. 19, 1953	10.58	9,410
	Feb. 22, 1948	9.80	8,300		Feb. 21, 1954	10.24	8,860
1949	Dec. 9, 1948	10.4	9,200	1955	Dec. 31, 1954	-	-
	Feb. 10, 1949	9.9	8,450		Feb. 8, 1955	11.6	11,000
	Feb. 17, 1949	15.5	17,600	1956	Nov. 26, 1955	12.77	12,900
1950	Nov. 24, 1949	10.8	9,800		Dec. 11, 1955	13.45	14,100
	Dec. 23, 1949	9.4	8,320	1957	Dec. 11, 1956	10.51	9,300
	Feb. 24, 1950	15.5	17,600		Feb. 26, 1957	9.87	8,270
	Mar. 17, 1950	10.6	9,500		Mar. 7, 1957	12.62	12,700
1951	Nov. 24, 1950	9.46	8,520				

1440. Little Washougal River near Washougal, Wash.

Location.--Lat 45°36'45", long 122°21'30", in SE $\frac{1}{4}$  sec.31, T.2 N., R.4 E., on right bank 20 ft downstream from road bridge, 1 mile upstream from mouth, and 2 $\frac{1}{2}$  miles north of Washougal.

Drainage area.--23.8 sq mi. Area of lakes and ponds, 0 sq mi; mean elevation, 1,010 ft.

Gage.--Recording prior to Nov. 28, 1955; nonrecording thereafter. Altitude of gage is 115 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--9 ft.

Remarks.--Annual peak only for 1957 which is from crest-stage indicator and determined from latest rating table. Base for partial-duration series, 920 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Oct. 23, 1951	6.82	1,130	1955	Feb. 8, 1955	6.39	915
	Feb. 3, 1952	6.47	955		1956	Nov. 26, 1955	7.09
1953	Jan. 18, 1953	7.73	1,620	1957		Mar. 7, 1957	7.03
	Jan. 22, 1953	6.42	930				
1954	Dec. 9, 1953	7.34	1,360				

1443. Shanghai Creek near Hockinson, Wash.

Location.--Lat 45°42'05", long 122°26'25", in SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.33, T.3 N., R.3 E., at county road 3.3 miles southeast of Hockinson.

Drainage area.--2.14 sq mi. Area of lakes and ponds, 0 sq mi; mean altitude, 750 ft.

Gage.--Crest-stage gage. Datum of gage is 14.79 ft below upstream invert of culvert.

Stage-discharge relation.--Defined by computations of discharge through a 4-foot concrete pipe culvert.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Jan. 6, 1950	17.82	50.5	1954	Jan. 22, 1954	19.32	99.0
					1955	Feb. 7, 1955	18.24
1951	Dec. 23, 1950	18.24	64.2	1956	Jan. 5, 1956	20.24	124
1952	Oct. 23, 1951	19.32	99.0		1957	Feb. 26, 1957	17.81
1953	Jan. 18, 1953	19.78	112				

## 1447. Columbia River at Vancouver, Wash.

Location.--Lat 45°37'15", long 122°40'14", in SE $\frac{1}{4}$  sec.27, T.2 N., R.1 E., on right bank at U.S. Coast Guard dock 500 ft upstream from Interstate Bridge on U.S. Highway 99 at Vancouver, 5.0 miles upstream from Willamette River, and at mile 106.3.

Drainage area.--242,000 sq mi, approximately.

Gage.--Nonrecording. Prior to October 1956, at Vancouver terminal No. 1 dock 800 ft downstream at present datum. Datum of gage is 2.63 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Not rated; subject to tidal effect and occasional backwater from Willamette River during winter months.

Flood stage.--16 ft.

Historical data.--Maximum stage known, 33.6 ft June 7, 1894, from floodmarks.

Remarks.--Records herein furnished by U.S. Weather Bureau. Only annual peak stages are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1894	June 7, 1894	33.6	-	1931	Apr. 4, 1931	21.4.9	-
				1932	May 25, 1932	21.6	-
1902	June 2, 1902	21.6	-	1935	June 19, 1935	25.5	-
1903	June 16, 1903	24.8	-	1934	May 9, 1934	17.1	-
1904	May 27, 1904	21.8	-	1935	June 11, 1935	17.9	-
1907	June 10, 1907	20.1	-	1936	June 10, 1936	20.4	-
1908	June 20, 1908	22.4	-	1937	June 24, 1937	16.8	-
1909	June 21, 1909	22.0	-	1938	June 10, 1938	21.5	-
1910	May 15, 1910	19.6	-	1939	May 22, 1939	14.2	-
				1940	June 6, 1940	15.1	-
1911	June 20, 1911	19.8	-				
1912	June 2, 1912	20.0	-	1941	May 12, 1941	9.2	-
1913	June 15, 1913	24.4	-	1942	May 30, 1942	16.4	-
1914	May 28, 1914	17.2	-	1943	June 23, 1943	19.9	-
1915	June 1, 1915	12.6	-	1944	June 20, 1944	11.1	-
				1945	June 11, 1945	16.4	-
1916	July 4, 1916	24.5	-				
1917	June 22, 1917	24.5	-	1946	June 1, 1946	21.4	-
1918	June 26, 1918	20.1	-	1947	June 13, 1947	19.1	-
1919	June 1, 1919	19.3	-	1948	June 13, 1948	30.2	-
1920	June 26, 1920	15.2	-	1949	May 19, 1949	22.5	-
				1950	June 26, 1950	25.1	-
1921	June 12, 1921	25.2	-				
1922	June 11, 1922	23.4	-	1951	May 27, 1951	21.5	-
1923	June 16, 1923	20.6	-	1952	May 24, 1952	20.3	-
1924	May 28, 1924	15.3	-	1953	June 17, 1953	21.7	-
1925	May 25, 1925	22.3	-	1954	June 19, 1954	20.0	-
				1955	June 27, 1955	19.5	-
1926	Feb. 10, 1926	210.6	-				
1927	June 19, 1927	23.9	-	1956	June 4, 1956	26.8	-
1928	May 31, 1928	25.4	-	1957	May 23, 1957	23.3	-
1929	June 20, 1929	17.7	-				
1930	June 15, 1930	11.8	-				

a Backwater from Willamette River.

## WILLAMETTE RIVER BASIN

## 1450. Hills Creek near Oakridge, Oreg.

Location.--Lat 43°42'20", long 122°24'00", in NW $\frac{1}{4}$  sec.36, T.21 S., R.3 E.,  $\frac{1}{2}$  miles upstream from mouth and 4 miles southeast of Oakridge.

Drainage area.--59 sq mi, approximately.

Gage.--Nonrecording prior to Nov. 13, 1937, at site 900 ft upstream at dif-ferent datum. Altitude of gage is 1,365 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 900 cfs and extended by logarithmic plotting.

Remarks.--Only annual peaks are shown.

## Peak stages and discharges of Hills Creek near Oakridge, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1936	Jan. 12, 1936	3.3	1,320	1941	Jan. 19, 1941	3.3	442
1937	Apr. 14, 1937	4.02	2,120	1942	Nov. 15, 1941	8.02	3,150
1938	Dec. 11, 1937	5.30	1,380	1943	Dec. 31, 1942	9.5	4,300
1939	Mar. 22, 1939	4.06	795				
1940	Mar. 26, 1940	4.4	859				

1455. Middle Fork Willamette River above Salt Creek, near Oakridge, Oreg.

Location.--Lat 43°43'30", long 122°26'20", in SW $\frac{1}{4}$  sec.22, T.21 S., R.3 E., on left bank 400 ft upstream from Salt Creek and 2 miles southeast of Oakridge.

Drainage area.--392 sq mi. Mean altitude, 4,080 ft; channel slope, 129 ft per mile; area of lakes and ponds, 0.3 sq mi.

Gage.--Nonrecording at site 600 ft upstream at different datum from Oct. 3, 1913, to Sept. 30, 1914; recording thereafter. Datum of gage is 1,202.8 ft above mean sea level (river-profile survey).

Stage-discharge relation.--Defined by current-meter measurements below 17,500 cfs and extended on basis of slope-area measurement at 33,300 cfs. Large shifts in relation occur.

Remarks.--Base for partial-duration series, 5,500 cfs.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1914	Jan. 23, 1914	3.12	5,170	1948	Feb. 22, 1948	8.16	14,700
1936	Jan. 2, 1936	5.96	7,940	1949	Dec. 12, 1948	8.33	15,700
	Jan. 4, 1936	6.30	9,350		Feb. 22, 1949	6.03	6,310
	Jan. 11, 1936	6.34	9,560		May 2, 1949	7.42	11,300
1937	Apr. 14, 1937	7.60	15,100	1950	Jan. 22, 1950	6.44	7,040
1938	Nov. 20, 1937	6.13	8,740		Feb. 25, 1950	6.24	6,450
	Dec. 11, 1937	6.38	9,770		Mar. 17, 1950	6.65	7,720
	Jan. 22, 1938	6.62	10,600	1951	Oct. 29, 1950	10.97	27,400
	Mar. 19, 1938	6.12	8,540		Nov. 2, 1950	6.15	5,700
1939	Mar. 12, 1939	5.14	4,710		Nov. 18, 1950	7.24	8,200
1940	Mar. 26, 1940	5.42	5,530		Dec. 4, 1950	7.07	8,610
1941	Jan. 25, 1941	4.71	3,570		Dec. 7, 1950	7.43	9,900
1942	Nov. 15, 1941	7.53	15,000		Jan. 17, 1951	6.52	8,810
	Dec. 3, 1941	6.29	8,630		Jan. 21, 1951	6.21	5,870
	Dec. 19, 1941	-	7,100	1952	Jan. 24, 1951	6.75	7,540
1943	Nov. 23, 1942	7.87	17,100		Feb. 4, 1951	7.60	10,600
	Nov. 27, 1942	7.67	15,800	1952	Oct. 23, 1951	6.15	5,700
	Nov. 29, 1942	8.15	18,800		Dec. 1, 1951	6.72	7,440
	Dec. 1, 1942	6.30	8,670		Dec. 22, 1951	6.12	5,610
	Dec. 8, 1942	5.48	5,510		Feb. 1, 1952	6.91	8,060
	Dec. 27, 1942	7.90	17,200		Mar. 24, 1952	6.67	7,280
	Dec. 30, 1942	10.70	25,900	1953	Jan. 9, 1953	7.10	8,710
	Jan. 21, 1943	6.98	8,550		Jan. 13, 1953	6.13	5,640
	June 1, 1943	6.10	5,830		Jan. 18, 1953	10.87	26,800
1944	Nov. 4, 1943	6.8	7,950		Feb. 3, 1953	7.86	11,600
1945	Feb. 8, 1945	6.66	7,500		Feb. 6, 1953	-	10,000
	Feb. 13, 1945	6.78	7,890	1954	Nov. 23, 1953	11.40	30,000
1946	Nov. 18, 1945	6.29	6,380		Dec. 6, 1953	6.30	6,180
	Nov. 27, 1945	6.81	7,980		Dec. 9, 1953	6.47	6,670
	Dec. 8, 1945	6.72	7,690		Dec. 20, 1953	7.28	9,350
	Dec. 28, 1945	12.06	34,000		Jan. 16, 1954	6.46	6,640
	Jan. 5, 1946	7.60	11,100		Jan. 27, 1954	6.58	7,010
	Feb. 27, 1946	6.06	5,930	1955	Dec. 30, 1954	5.95	5,160
1947	Nov. 18, 1946	7.02	8,970	1956	Nov. 19, 1955	7.30	9,420
	Nov. 26, 1946	6.87	8,450		Dec. 12, 1955	7.06	8,540
	Dec. 14, 1946	7.48	10,600		Dec. 22, 1955	12.71	33,300
	Jan. 26, 1947	6.13	6,130		Jan. 15, 1956	9.05	14,700
1948	Jan. 7, 1948	9.04	19,900		Jan. 22, 1956	8.09	11,300
				1957	Oct. 30, 1956	6.24	5,800
					Dec. 11, 1956	9.98	18,900
					Feb. 26, 1957	8.65	13,300

1460. Salt Creek near Oakridge, Oreg.

Location.--Lat 43°43'45", long 122°25'25", in SW $\frac{1}{4}$  sec.23, T.21 S., R.3 E., on right bank 0.7 mile upstream from mouth and 2 miles southeast of Oakridge.

Drainage area.--113 sq mi. At site used July 1913 to September 1914, 114 sq mi. Mean altitude, 4,460 ft; channel slope, 159 ft per mile; area of lakes and ponds, 0.3 sq mi.

Gage.--Nonrecording at site half a mile downstream at different datum prior to Sept. 30, 1914; recording thereafter. Datum of gage is 1,245.67 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 2,600 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Peak discharges not affected by small diversion to millpond since 1948. Base for partial-duration series, 1,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1914	Mar. 6, 1914	3.08	758	1943	June 1, 1943	4.53	1,520
1934	Jan. 23, 1934	4.75	1,280	1944	Nov. 4, 1943	4.65	1,620
1935	Dec. 20, 1934	5.92	2,170	1945	Feb. 8, 1945	4.14	1,220
1936	Jan. 4, 1936	4.22	1,090	Feb. 13, 1945	4.69	1,650	
	Jan. 13, 1936	4.18	1,090	Apr. 24, 1945	4.21	1,270	
1937	Apr. 15, 1937	5.73	2,040	May 4, 1945	3.98	1,100	
	Nov. 20, 1937	4.57	1,340	1946	Nov. 18, 1945	4.16	1,230
1938	Dec. 11, 1937	4.81	1,460	Dec. 28, 1945	7.70	4,320	
	Dec. 17, 1937	4.23	1,130	Jan. 5, 1946	4.49	1,330	
	Jan. 22, 1938	4.98	1,580	1947	Nov. 18, 1946	4.22	1,150
	Mar. 19, 1938	4.32	1,160	Nov. 26, 1946	4.50	1,340	
				Dec. 14, 1946	5.64	2,130	
1939	Mar. 23, 1939	3.82	886	1948	Jan. 7, 1948	6.69	3,070
1940	Mar. 26, 1940	3.65	775	Feb. 22, 1948	5.17	1,700	
				June 10, 1948	4.24	1,050	
1941	Nov. 29, 1940	3.05	500	1949	Dec. 12, 1948	5.71	2,130
1942	Nov. 15, 1941	6.52	2,620	May 2, 1949	5.49	1,950	
	Dec. 3, 1941	4.78	1,470	1950	Jan. 23, 1950	4.36	1,140
	Dec. 18, 1941	4.08	1,060	June 12, 1950	4.64	1,300	
1943	Nov. 24, 1942	5.95	2,220	1951	Oct. 29, 1950	8.00	4,500
	Nov. 27, 1942	5.74	2,070	Nov. 2, 1950	4.93	1,500	
	Nov. 29, 1942	7.00	3,000	Nov. 18, 1950	4.42	1,180	
	Dec. 1, 1942	5.44	1,820	Dec. 4, 1950	4.43	1,180	
	Dec. 8, 1942	4.43	1,120	Dec. 7, 1950	5.17	1,700	
	Dec. 28, 1942	5.65	2,000	Jan. 24, 1951	4.48	1,210	
	Dec. 31, 1942	7.15	3,800	Feb. 7, 1951	4.22	1,070	
	Jan. 21, 1943	4.12	1,200				

a Backwater from debris.

## 1465. Salmon Creek near Oakridge, Oreg.

Location.--Lat 43°45'30", long 122°23'00", in SW<sup>1</sup> sec.7, T.21 S., R.4 E., on right bank a quarter of a mile upstream from Slide Creek and 4 miles east of Oakridge.

Drainage area.--117 sq mi, at cable a quarter of a mile upstream from gage, where all discharge measurements are made. Mean altitude, 4,140 ft; channel slope, 232 ft per mile; area of lakes and ponds, 0.2 sq mi.

Gage.--Nonrecording at several sites within 3 miles downstream from present site at different datums prior to Oct. 1, 1914; recording thereafter. Oct. 1, 1914, to Oct. 14, 1917, at site 1 mile downstream at different datum. Datum of gage is 1421.83 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-measurements below 4,000 cfs and extended on basis of slope-area measurement at 10,400 cfs.

Bankfull stage.--Not subject to overflow.

Remarks.--Peak discharges not affected by diversions above station to Oakridge through 8-inch pipeline for water supply, and diversion into Salmon River basin by inadvertent leakage through tunnel from Waldo Lake. Base for partial-duration series, 1,700 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1913	Mar. 30, 1913	5.8	a2,900	1946	Dec. 28, 1945 Jan. 5, 1946	8.40 -	8,040 2,200
1914	Mar. 5, 1914	4.6	1,430	1947	Nov. 26, 1946 Dec. 14, 1946	4.86 4.15	2,380 6,000
1915	Oct. 19, 1914	1.94	872	1948	Jan. 7, 1948 Feb. 22, 1948	6.25 5.88	4,240 3,690
1916	Nov. 25, 1915 Feb. 7, 1916	2.92 2.85	2,610 2,450	1949	Dec. 12, 1948 May 2, 1949	6.04 5.34	3,930 2,960
1917	Apr. 7, 1917	2.51	1,740	1950	June 12, 1950	4.20	1,650
1918	Dec. 23, 1917 Jan. 12, 1918 Feb. 6, 1918	3.00 4.35 2.77	2,800 7,150 2,240	1951	Oct. 29, 1950 Nov. 2, 1950 Dec. 4, 1950 Dec. 7, 1950 Jan. 24, 1951 Feb. 4, 1951 Mar. 15, 1951	6.65 5.84 4.70 4.99 4.89 5.00 -	4,870 3,640 2,190 2,540 2,420 2,550 1,800
1919	Jan. 22, 1919 Apr. 4, 1919	2.58 2.75	1,930 2,030	1952	Oct. 23, 1951 Dec. 22, 1951 Mar. 24, 1952	4.34 4.28 4.31	1,800 1,740 1,770
1934	Jan. 23, 1934	4.72	2,160	1953	Jan. 18, 1953 Feb. 3, 1953 Feb. 6, 1953	7.16 5.82 6.34	5,710 3,610 4,380
1935	Dec. 20, 1934	6.09	4,000	1954	Nov. 23, 1953 Dec. 9, 1953 Dec. 20, 1953	b7.28 4.33 4.82	5,760 1,880 2,390
1936	Jan. 4, 1936 Jan. 11, 1936	4.33 4.26	1,840 1,760	1955	June 9, 1955	4.18	1,720
1937	Apr. 14, 1937	5.55	3,040	1956	Nov. 19, 1955 Nov. 27, 1955 Dec. 12, 1955 Dec. 22, 1955 Jan. 15, 1956 Jan. 22, 1956	4.51 4.91 5.39 8.20 5.91 5.48	2,050 2,480 3,060 7,640 3,750 3,170
1938	Jan. 22, 1938	5.52	2,940	1957	Dec. 11, 1956 Feb. 26, 1957 Mar. 6, 1957 Apr. 5, 1957	11.18 4.61 3.94 3.84	10,400 2,690 1,950 1,840
1939	Mar. 23, 1939	4.12	1,640				
1940	Feb. 10, 1940	3.76	1,150				
1941	Nov. 29, 1940	3.97	1,510				
1942	Nov. 15, 1941	6.15	4,100				
1943	Nov. 23, 1942 Nov. 27, 1942 Nov. 29, 1942 Dec. 1, 1942 Dec. 28, 1942 Dec. 31, 1942	5.61 5.77 7.68 5.25 5.25 7.90	3,320 3,540 6,630 2,850 2,850 7,050				
1944	Nov. 4, 1943	4.64	2,140				
1945	Feb. 13, 1945	5.88	3,760				

a Annual peak only.

b Backwater from debris.

1470. Waldo Lake Outlet near Oakridge, Oreg.

Location.--Lat 43°46'00", long 122°03'10", in NW $\frac{1}{4}$  sec.7, T.21 S., R.6 E., on left bank of artificial outlet channel of Waldo Lake, 20 miles east of Oakridge.

Drainage area.--30 sq mi, approximately. Mean altitude, 5,670 ft; channel slope, 32 ft per mile; area of lakes and ponds, 8.5 sq mi.

Gage.--Recording gage and sharp-crested weir. Altitude of gage is 5,410 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 90 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Lake not artificially regulated. Peak discharges occasionally affected by seiches. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1937	June 21, 1937	2.06	87	1946	Feb. 7, 1946	2.08	78
1938	Mar. 29, 1938	2.15	92	1947	Feb. 2, 1947	1.85	71
1939	Mar. 13, 1939	1.71	66	1948	June 21, 1948	1.85	71
1940	May 4, 1940	1.19	40	1949	Dec. 12, 1948	2.06	88
				1950	Mar. 22, 1950	2.13	87
1941	June 21, 1941	.61	16				
1942	May 23, 1942	1.25	42	1951	Jan. 23, 1951	2.66	125
1943	Jan. 2, 1943	2.98	144	1952	Feb. 4, 1952	1.96	82
1944	Apr. 24, 1944	1.00	32	1953	Feb. 8, 1953	2.35	105
1945	May 29, 1945	1.76	66				

1475. North Fork of Middle Fork Willamette River, near Oakridge, Oreg.  
(Published as "near Hazeldehl" 1909-12)

Location.--Lat 43°45'30", long 122°30'30", in SW $\frac{1}{4}$  sec.7, T.21 S., R.3 E., on left bank 1 mile upstream from mouth and 2 $\frac{1}{2}$  miles northwest of Oakridge.

Drainage area.--246 sq mi. Mean altitude, 3,760 ft; channel slope, 108 ft per mile; area of lakes and ponds, 9.4 sq mi.

Gage.--Nonrecording at site half a mile downstream at datum 12.6 ft lower prior to Oct. 24, 1912, and three-quarters of a mile upstream at datum 22.4 ft higher Oct. 3, 1913, to July 7, 1914; at present site and datum Sept. 16, 1935, to Oct. 4, 1938. Recording from July 8, 1914, to Feb. 26, 1917, at site half a mile upstream at datum 23.61 ft higher, and after Oct. 4, 1938, at present site and datum. Datum of present gage is 1,029.6 ft above mean sea level (river-profile survey).

Stage-discharge relation.--Defined by current-meter measurements below 8,400 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Base for partial-duration series, 3,500 cfs. Only annual peaks are shown prior to 1939.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1910	Nov. 22, 1909	14.0	16,000	1940	Feb. 10, 1940	5.82	3,400
1911	Nov. 29, 1910	6.85	5,150	1941	Nov. 29, 1940	5.87	3,450
1912	Jan. 12, 1912	10.5	10,700				
1914	Jan. 25, 1914	5.80	2,890	1942	Nov. 15, 1941	9.96	8,580
					Dec. 19, 1941	6.85	4,480
1916	Feb. 7, 1916	8.5	6,320	1943	Nov. 23, 1942	8.34	6,320
					Nov. 27, 1942	10.48	9,390
1936	Jan. 11, 1936	8.1	5,850		Nov. 29, 1942	12.98	13,600
1937	Apr. 14, 1937	8.8	6,320		Dec. 1, 1942	7.75	5,560
1938	Jan. 22, 1938	8.7	6,560		Dec. 28, 1942	8.45	6,460
					Dec. 31, 1942	14.24	15,900
1939	Mar. 23, 1939	5.88	3,480				

Peak stages and discharges of North Fork of Middle Fork Willamette River, near Oakridge, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1944	Nov. 4, 1943	7.72	5,590	1951	Dec. 6, 1950	9.81	6,020
1945	Feb. 8, 1945	6.52	4,250	Jan. 24, 1951	9.17	5,220	
	Feb. 13, 1945	9.53	8,150	Feb. 7, 1951	9.82	6,040	
	Apr. 24, 1945	5.90	3,580	1952	Oct. 23, 1951	9.49	5,540
1946	Nov. 27, 1945	6.72	4,470	Dec. 22, 1951	7.93	3,630	
	Dec. 28, 1945	16.6	17,000	Feb. 3, 1952	8.77	4,620	
	Jan. 5, 1946	8.50	4,280	Mar. 24, 1952	8.03	3,740	
	Jan. 24, 1946	8.22	3,980	1953	Jan. 9, 1953	8.13	3,860
1947	Nov. 26, 1946	10.56	6,940	Jan. 18, 1953	15.58	15,100	
	Dec. 14, 1946	13.96	12,300	Feb. 3, 1953	11.20	7,940	
	Dec. 26, 1946	8.18	4,100	Feb. 6, 1953	11.0	7,500	
1948	Nov. 16, 1947	7.78	3,660	1954	Nov. 23, 1953	14.17	12,600
	Jan. 7, 1948	12.30	9,580	Dec. 3, 1953	7.96	3,810	
	Feb. 22, 1948	11.90	8,960	Dec. 9, 1953	8.44	4,350	
1949	Dec. 12, 1948	13.20	11,000	Dec. 19, 1953	10.6	7,090	
	Feb. 18, 1949	7.97	3,600	1955	Dec. 30, 1954	7.75	3,580
	May 2, 1949	10.65	7,160	1956	Nov. 19, 1955	8.70	4,660
1950	Jan. 22, 1950	7.74	3,560	Nov. 26, 1955	9.26	5,330	
	Feb. 25, 1950	8.65	4,600	Dec. 12, 1955	10.80	7,370	
	Mar. 17, 1950	8.74	4,710	Dec. 22, 1955	14.60	13,400	
1951	Oct. 29, 1950	12.72	10,200	Jan. 15, 1956	11.96	9,050	
	Nov. 2, 1950	11.54	8,440	Jan. 22, 1956	10.29	6,660	
	Nov. 18, 1950	8.07	3,930	1957	Dec. 11, 1956	15.47	14,900
	Dec. 4, 1950	8.66	4,610	Feb. 26, 1957	9.80	6,660	
				Mar. 9, 1957	8.36	4,930	

1480. Middle Fork Willamette River below North Fork, near Oakridge, Oreg.  
(Published as "near Hazeldell" 1911-12, and as "at Eula" 1923-50)

Location.--Lat 43°48'05", long 122°33'35", in SW $\frac{1}{4}$  sec.27, T.20 S., R.2 E., on left bank 0.5 mile downstream from Whitehead Creek, 4.2 miles downstream from North Fork of Middle Fork Willamette River, and 7 miles northwest of Oakridge.

Drainage area.--924 sq mi. 896 sq mi at site used 1911-12; 941 sq mi at site used 1923-50. Mean altitude, 3,850 ft; channel slope, 107 ft per mile; area of lakes and ponds, 10.2 sq mi.

Gage.--Nonrecording prior to Aug. 12, 1935; recording thereafter. Mar. 22, 1911, to Sept. 30, 1912, at site 4.1 miles upstream from present gage at datum 1,002 ft above mean sea level (river profile survey). July 1, 1923, to Sept. 30, 1950, at site 4 miles downstream from present gage at datum 72.92 ft lower than present datum. Datum of gage is 934.76 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 40,000 cfs and extended by logarithmic plotting.

Bankfull stage.--15 ft at site and datum used 1923-50. Not subject to overflow at present site.

Historical data.--Maximum stage known since 1861 and prior to beginning of record, 17.0 ft in February 1890 at site used 1923-50, from information by local resident (discharge, about 55,000 cfs).

Remarks.--Base for partial-duration series, 12,000 cfs. Only annual peaks are shown prior to 1936.

## WILLAMETTE RIVER BASIN

Peak stages and discharges of Middle Fork Willamette River below North Fork,  
near Oakridge, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1890	February 1890	17.0	55,000	1947	Nov. 19, 1946	9.10	14,500	
1912	Jan. 12, 1912	9.2	34,800		Nov. 26, 1946	10.35	19,200	
	1923	Jan. 6, 1923	14.0		37,700	Dec. 14, 1946	12.54	32,000
		Dec. 7, 1923	8.6		11,400	Jan. 28, 1947	8.38	14,400
1924	Dec. 30, 1924	12.0	27,000	1948	Jan. 2, 1948	8.58	15,200	
1925	1926	Feb. 6, 1926	10.5		19,600	Jan. 6, 1948	13.04	38,000
		Feb. 21, 1927	17.0	55,100	Feb. 22, 1948	12.16	32,600	
1927	Mar. 11, 1928	12.5	29,600	1949	Dec. 12, 1948	12.90	37,000	
1928	Mar. 21, 1929	10.9	21,400		Feb. 23, 1949	7.84	12,400	
1929	Dec. 19, 1929	12.0	26,300		May 2, 1949	10.64	23,700	
1930	1931	Apr. 1, 1931	12.2	28,000	1950	Jan. 22, 1950	8.60	15,200
1932		Mar. 19, 1932	14.7	41,800		Feb. 25, 1950	8.31	14,100
1933		June 9, 1933	10.6	20,600		Mar. 17, 1950	8.75	15,800
1934	Jan. 23, 1934	10.2	18,200	1951	Oct. 29, 1950	11.72	59,900	
1935	Dec. 20, 1934	12.1	27,500		Nov. 2, 1950	7.54	21,700	
1936	Jan. 2, 1936	9.34	14,500		Nov. 18, 1950	7.08	18,700	
	Jan. 4, 1936	10.45	19,200		Dec. 4, 1950	7.09	18,700	
	Jan. 11, 1936	10.30	18,700		Dec. 7, 1950	7.78	23,400	
1937	1938	Apr. 14, 1937	12.50		29,600	Jan. 17, 1951	6.25	14,000
		Nov. 20, 1937	9.27		14,500	Jan. 24, 1951	7.10	18,800
		Dec. 11, 1937	9.40	15,000	Feb. 4, 1951	7.46	21,100	
1938	Jan. 22, 1938	11.32	23,500	1952	Oct. 23, 1951	6.40	14,800	
1939	Mar. 19, 1938	9.85	16,500		Dec. 1, 1951	6.46	15,100	
	Feb. 15, 1939	7.80	10,300		Dec. 22, 1951	6.34	14,500	
1940	Feb. 28, 1940	7.34	9,350		Feb. 2, 1952	6.86	17,400	
1941	Nov. 29, 1940	6.22	7,330	Mar. 24, 1952	6.80	17,000		
1942	Nov. 15, 1941	13.19	33,200	1953	Jan. 9, 1953	6.87	17,400	
	Dec. 3, 1941	9.28	14,400		Jan. 13, 1953	5.88	12,200	
	Dec. 18, 1941	9.93	17,000		Jan. 18, 1953	12.16	59,400	
1943	Nov. 23, 1942	12.50	29,600	Feb. 3, 1953	8.49	26,400		
	Nov. 27, 1942	13.09	32,700	Feb. 6, 1953	8.12	23,900		
	Nov. 29, 1942	15.05	43,700	1954	Nov. 23, 1953	12.23	60,100	
	Dec. 1, 1942	10.53	19,800		Dec. 3, 1953	6.10	12,800	
	Dec. 27, 1942	12.36	28,900		Dec. 6, 1953	6.04	12,600	
	Dec. 31, 1942	16.95	53,400		Dec. 9, 1953	6.71	15,800	
	Jan. 21, 1943	9.22	14,500	Dec. 20, 1953	7.85	22,200		
1944	1945	Dec. 28, 1945	18.8	81,800	Dec. 28, 1953	5.92	12,000	
		Jan. 5, 1946	9.67	16,600	1955	Dec. 31, 1954	6.02	12,500
		Nov. 4, 1943	10.10	17,900		1956	Nov. 19, 1955	7.34
Feb. 8, 1945	8.82	15,400	Nov. 27, 1955	6.33	13,900			
Feb. 13, 1945	10.36	21,300	Dec. 1, 1955	5.98	12,300			
1946	Nov. 18, 1945	8.14	13,400	Dec. 12, 1955	7.63		20,800	
	Nov. 27, 1945	8.72	15,000	Dec. 22, 1955	13.36		72,900	
Dec. 6, 1945	8.46	14,600	Jan. 15, 1956	9.43	33,600			
Dec. 28, 1945	18.8	81,800	Jan. 22, 1956	8.49	26,400			
Jan. 5, 1946	9.67	16,600	1957	Dec. 11, 1956	12.16	59,400		
1947	Nov. 19, 1946	9.10		14,500	Feb. 26, 1957	8.44	28,100	
	Nov. 26, 1946	10.35		19,200	Mar. 9, 1957	6.21	15,200	

1500. Middle Fork Willamette River near Dexter, Oreg.  
(Published as "at Lowell" 1946-54)

Location.--Lat 43°56'40", long 122°50'10", near center of sec.5, T.19 S., R.1 W, on right bank 0.6 mile upstream from Lost Creek, 2 miles northwest of Dexter, and 2.7 miles downstream from Dexter Dam.

Drainage area.--1,001 sq mi. At site used prior to Sept. 30, 1954, 994 sq mi.

Gage.--Nonrecording prior to Aug. 23, 1950; recording thereafter. Prior to Sept. 30, 1954, at site 4 miles upstream at datum 688 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Altitude of gage is 600 ft (from river-profile map).

Stage-discharge relation.--Defined by current-meter measurements below 33,000 cfs and extended by logarithmic plotting.

Remarks.--Flow regulated since November 1953 by Lookout Point Reservoir (usable capacity, 349,400 acre-ft), and by Dexter Reservoir (usable capacity for regulation purposes, 4,800 acre-ft). Only annual peaks are shown since November 1953. Base for partial-duration series, 13,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	Dec. 28, 1945	a13.9		1951	Jan. 17, 1951	7.74	17,200
1947	Dec. 14, 1946	11.50	34,200	1951	Jan. 24, 1951	8.34	20,900
				1951	Feb. 5, 1951	8.71	24,400
1948	Jan. 2, 1948	8.45	18,200	1952	Oct. 23, 1951	7.36	16,600
	Jan. 7, 1948	12.75	43,100	1952	Dec. 1, 1951	7.50	17,300
	Feb. 22, 1948	11.50	33,900	1952	Dec. 5, 1951	6.68	13,200
1949	Dec. 12, 1948	12.10	38,200	1952	Dec. 22, 1951	7.40	18,600
	Feb. 23, 1949	8.0	16,000	1952	Feb. 2, 1952	7.89	21,700
	May 2, 1949	10.29	27,600	1952	Mar. 24, 1952	8.37	25,000
1950	Jan. 22, 1950	8.30	17,200	1953	Jan. 9, 1953	7.38	18,200
	Feb. 25, 1950	7.92	15,600	1953	Jan. 18, 1953	12.46	62,600
	Mar. 17, 1950	8.3	17,500	1953	Feb. 3, 1953	8.66	26,500
1951	Oct. 29, 1950	13.00	62,000	1953	Feb. 6, 1953	8.25	23,600
	Nov. 2, 1950	8.63	22,900	1953	May 1, 1953	8.83	27,700
	Nov. 18, 1950	8.58	22,600	1954	Nov. 23, 1953	7.80	23,700
	Dec. 4, 1950	8.26	20,400	1956	Jan. 26, 1956	8.30	16,900
	Dec. 7, 1950	9.00	25,500	1957	Dec. 20, 1956	7.83	15,000

a Maximum stage known, site and datum then in use.

1505. Fall Creek above Winberry Creek, near Lowell, Oreg.

Location.--Lat 43°57'20", long 122°42'20", in SE $\frac{1}{4}$  sec.32, T.18 S., R.1 E., 2 $\frac{1}{2}$  miles upstream from Winberry Creek and 4 $\frac{1}{2}$  miles northeast of Lowell.

Drainage area.--127 sq mi.

Gage.--Nonrecording. Datum of gage is 727.99 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 2,600 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1936	Jan. 4, 1936	7.30	5,850	1941	Dec. 27, 1940	4.74	2,070
1937	Apr. 13, 1937	7.8	6,520	1942	Nov. 15, 1941	8.17	6,820
1938	Mar. 19, 1938	8.0	6,850	1943	Dec. 31, 1942	11.4	12,700
1939	Feb. 15, 1939	6.80	4,950				
1940	Feb. 10, 1940	4.90	2,340				

1510. Fall Creek below Winberry Creek, near Fall Creek, Oreg.

Location.--Lat 43°56'40", long 122°46'30", near center of sec.2, T.19 S., R.1 W., on left bank 10 ft upstream from highway bridge, 1.6 miles downstream from Winberry Creek, 2.3 miles southeast of town of Fall Creek, and 6.1 miles upstream from mouth.

Drainage area.--186 sq mi. Mean altitude, 2,300 ft; channel slope, 116 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording prior to Aug. 3, 1950; recording thereafter. Datum of gage is 637.80 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 10,000 cfs and extended by logarithmic plotting.

Bankfull stage.--Not determined.

Remarks.--Only annual peaks are shown prior to 1948. Base for partial-duration series, 6,300 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1936	Jan. 4, 1936	10.6	7,550	1951	Oct. 29, 1950	13.79	12,900
1937	Apr. 14, 1937	10.8	7,820	Nov. 2, 1950	10.24	7,040	
1938	Mar. 19, 1938	11.1	8,240	Nov. 18, 1950	10.45	7,330	
1939	Feb. 15, 1939	9.60	6,210	Jan. 17, 1951	10.80	7,820	
1940	Feb. 28, 1940	6.82	2,830	Jan. 24, 1951	11.51	8,920	
1941	Dec. 27, 1940	7.14	3,140	1952	Oct. 23, 1951	10.78	7,790
1942	Nov. 15, 1941	13.1	11,200	Dec. 22, 1951	12.08	9,840	
1943	Dec. 31, 1942	15.5	16,000	Mar. 24, 1952	11.46	8,840	
1944	Nov. 4, 1943	10.8	7,520	1953	Jan. 18, 1953	13.41	12,200
1945	Feb. 13, 1945	10.8	7,520	Feb. 3, 1953	11.08	8,230	
1946	Dec. 28, 1945	18.0	22,500	Feb. 6, 1953	10.86	7,900	
1947	Dec. 14, 1946	13.8	12,900	1954	Nov. 23, 1953	14.96	15,300
1948	Oct. 16, 1947	9.8	6,340	Dec. 8, 1953	10.24	7,040	
	Jan. 2, 1948	8.6	4,780	1955	Dec. 30, 1954	12.18	10,000
	Jan. 6, 1948	13.3	12,000	1956	Nov. 19, 1955	13.13	11,600
	Feb. 22, 1948	12.8	11,000	Dec. 12, 1955	10.37	7,220	
1949	Dec. 7, 1948	10.1	6,740	Dec. 22, 1955	13.74	12,800	
	Dec. 12, 1948	15.24	15,900	Jan. 15, 1956	12.90	11,200	
	Feb. 18, 1949	10.7	7,600	1957	Dec. 11, 1956	18.80	24,700
	Feb. 22, 1949	10.4	7,160	Mar. 9, 1957	9.58	6,400	
1950	Jan. 22, 1950	9.7	6,210				

1515. Little Fall Creek near Fall Creek, Oreg.

Location.--Lat 43°58'10", long 122°45'20", in S $\frac{1}{2}$  sec.25, T.18 S., R.1 W., 4 miles east of Fall Creek Post Office and 4 $\frac{1}{2}$  miles upstream from mouth.

Drainage area.--52.5 sq mi. Mean altitude, 2,100 ft; channel slope, 153 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording. Altitude of gage is 715 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 2,400 cfs and extended by velocity-area study at 6,110 cfs.

Bankfull stage.--Not subject to overflow.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1936	Jan. 4, 1936	6.30	3,000	1943	Dec. 31, 1942	7.60	5,000
1937	Apr. 14, 1937	5.8	2,240	1944	Nov. 4, 1943	5.5	1,850
1938	Mar. 18, 1938	7.0	4,020	1945	Feb. 13, 1945	6.2	2,780
1939	Feb. 15, 1939	5.60	1,990	1946	Dec. 28, 1945	8.20	6,110
1940	Feb. 10, 1940	4.32	820	1947	Dec. 14, 1946	6.90	3,840
1941	Nov. 29, 1940	4.14	732	1948	Jan. 6, 1948	6.7	3,540
1942	Nov. 15, 1941	5.90	2,370				

## 1520. Middle Fork Willamette River at Jasper, Oreg.

Location.--Lat 43°59'50", long 122°54'20", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.14, T.18 S., R.2 W., on Right bank 25 ft downstream from highway bridge at Jasper, 650 ft downstream from Hills Creek, and 7 $\frac{1}{2}$  miles southeast of Springfield.

Drainage area.--1,340 sq mi.

Gage.--Nonrecording at different sites prior to Oct. 1, 1953; recording thereafter. At different datum prior to February 1912 and July 1913 to March 1917. At site 25 ft upstream at same datum Oct. 22, 1952, to Oct. 1, 1953. Datum of gage is 513.45 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 42,000 cfs and extended by logarithmic plotting.

Bankfull stage.--16 ft.

Remarks.--Flow regulated since January 1953 by Lookout Point Reservoir (usable capacity, 349,400 acre-ft). Only annual peaks are shown.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1906	Jan. 16, 1906	7.1	21,100	1915	Jan. 14, 1915	7.4	15,400
1907	Feb. 4, 1907	15.0	82,600	1916	Feb. 7, 1916	12.4	49,200
1908	Dec. 25, 1907	15.9	90,500				
1909	Jan. 15, 1909	12.6	59,900	1953	Jan. 18, 1953	16.60	73,400
1910	Nov. 23, 1909	17.4	94,000				
1911	Nov. 28, 1910	13.0	54,000				
1912	Jan. 12, 1912	14.4	65,600	1954	Nov. 23, 1953	12.49	40,900
				1955	Dec. 30, 1954	8.19	17,900
1914	Jan. 22, 1914	8.0	19,000	1956	Nov. 19, 1955	9.20	22,600
				1957	Dec. 11, 1956	10.37	28,500

## 1525. Coast Fork Willamette River at London, Oreg.

Location.--Lat 43°38'30", long 123°05'10", in SW $\frac{1}{4}$  sec.20, T.22 S., R.3 W., on left bank 0.6 mile north of London and 11 miles south of Cottage Grove.

Drainage area.--69 sq mi, approximately. Mean altitude, 2,120 ft; channel slope, 175 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. Datum of gage is 852.58 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 4,500 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Base for partial-duration series, 2,100 cfs.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1936	Jan. 4, 1936	7.25	3,200	1943	Dec. 8, 1942	9.73	5,270
	Jan. 11, 1936	6.30	2,550		Dec. 27, 1942	6.83	2,760
	Jan. 13, 1936	7.45	3,350		Dec. 30, 1942	11.11	6,650
			Jan. 21, 1943		7.30	3,120	
1937	Apr. 14, 1937	7.98	3,820	1944	Nov. 4, 1943	6.04	2,210
1938	Feb. 6, 1938	7.50	3,420				
	Mar. 18, 1938	8.00	3,820	1945	Feb. 13, 1945	5.52	1,750
	Mar. 22, 1938	6.66	2,830				
1939	Mar. 12, 1939	6.67	2,780	1946	Nov. 18, 1945	8.36	3,820
		6.67	2,780		Dec. 6, 1945	7.51	3,130
		6.67	2,780		Dec. 28, 1945	13.25	8,800
1940	Feb. 28, 1940	5.56	1,850		Jan. 5, 1946	7.03	2,760
1941	Dec. 26, 1940	5.65	2,040	1947	Nov. 26, 1946	6.81	2,610
		5.65	2,040		Dec. 14, 1946	6.52	2,400
1942	Nov. 15, 1941	10.37	6,070	1948	Oct. 16, 1947	7.43	3,060
1943	Nov. 29, 1942	6.31	2,400				

## Peak stages and discharges of Coast Fork Willamette River at London, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1948	Jan. 6, 1948	8.69	4,120	1954	Nov. 23, 1953	11.28	6,630	
	Feb. 22, 1948	8.65	4,080		Dec. 6, 1953	6.11	2,210	
1949	Dec. 12, 1948	9.52	4,890	Jan. 16, 1954	6.30	2,340		
	Feb. 18, 1949	6.24	2,210	Jan. 27, 1954	7.32	3,050		
	Feb. 22, 1949	7.27	2,940	1955	Dec. 30, 1954	5.97	2,110	
	May 2, 1949	6.30	2,250		1956	Nov. 19, 1955	8.15	3,710
1950	Jan. 23, 1950	7.07	2,790	Dec. 22, 1955		10.88	6,210	
	1951	Oct. 28, 1950	11.43	6,790		Dec. 26, 1955	9.15	4,540
		Nov. 18, 1950	7.81	3,370		Jan. 15, 1956	6.85	2,720
1952	Jan. 17, 1951	9.56	4,930	Jan. 22, 1956	6.60	2,550		
	Nov. 29, 1951	6.90	2,760	Feb. 21, 1956	6.72	2,630		
1953	Jan. 18, 1953	10.78	6,110	1957	Dec. 11, 1956	7.18	2,960	
					Feb. 26, 1957	7.14	2,930	

1535. Coast Fork Willamette River below Cottage Grove Dam, Oreg.  
(Published as Coast Fork Willamette River near Cottage Grove 1939-44)

Location.--Lat 43°43'15", long 123°02'55", in NE $\frac{1}{4}$  sec. 28, T.21 S., R.3 W., on right bank at bridge 0.3 mile downstream from Cottage Grove Dam and 5 $\frac{1}{2}$  miles south of Cottage Grove.

Drainage area.--104 sq mi. At site used prior to Oct. 1, 1944, 108 sq mi.

Gage.--Nonrecording prior to Oct. 13, 1939; recording thereafter. At site three-quarters of a mile downstream at different datum prior to Feb. 13, 1939. Feb. 14, to Oct. 12, 1939, at site 0.8 mile downstream at datum 15.82 ft lower. Oct. 13, 1939, to Sept. 30, 1944, at site 0.8 mile downstream at datum 15.93 ft lower. Datum of present gage is 711.00 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--About 16.7 ft, left bank.

Historical data.--Flood of Jan. 2, 1933, reached a stage of 17.5 ft, site and datum of 1939, from information of observer in 1939.

Remarks.--Flow regulated since Oct. 31, 1942, by Cottage Grove Reservoir (capacity, 32,940 acre-ft). Diversions above station do not affect peak discharges. Only annual peaks are shown.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1933	Jan. 2, 1933	17.5	-	1948	Jan. 7, 1948	8.05	2,480
				1949	May 4, 1949	9.75	3,460
1939	Mar. 12, 1939	9.20	3,260	1950	Jan. 25, 1950	8.33	2,680
1940	Feb. 28, 1940	8.44	2,820	1951	Oct. 29, 1950	8.36	2,700
1941	Dec. 27, 1940	9.08	2,850		1952	Feb. 1, 1952	7.73
1942	Nov. 15, 1941	9.86	3,520	1953	Jan. 24, 1953	8.41	2,650
1943	Jan. 4, 1943	10.06	3,340	1954	Nov. 25, 1953	8.87	2,920
1944	Sept. 17, 1944	7.21	1,950	1955	Jan. 1, 1955	6.94	1,760
1945	Oct. 15, 1944	7.06	1,850	1956	Dec. 30, 1955	9.36	3,220
1946	Dec. 30, 1945	9.16	3,230		1957	Mar. 1, 1957	8.23
1947	Dec. 16, 1946	7.50	2,090				

## 1539. Prather Creek near Disston, Oreg.

Location.--Lat 43°42'45", long 122°44'25", in SW $\frac{1}{4}$  sec.30, T.21 S., R.1 E., at diversion dam 0.2 mile upstream from mouth and 1.8 miles northeast of Disston.

Drainage area.--5.69 sq mi. Mean altitude, 2,630 ft; channel slope, 562 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording gage above concrete dam. Altitude of gage is 1,260 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 76 cfs and extended on basis of computations of flow over dam.

Remarks.--Only annual peaks are shown.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	Jan. 18, 1953	5.54	237	1956	Dec. 21, 1955	5.65	284
1954	Nov. 22, 1953	5.73	286	1957	Dec. 11, 1956	5.59	250
1955	Dec. 30, 1954	4.89	92				

1545. Row River above Pitcher Creek, near Dorena, Oreg.  
(Published as Row River at Star prior to 1950)

Location.--Lat 43°44'10", long 122°52'20", in NE $\frac{1}{4}$  sec.24, T.21 S., R.2 W., on right bank 0.5 mile upstream from Pitcher Creek and 1.2 miles northwest of Dorena.

Drainage area.--211 sq mi. Mean altitude, 2,850 ft; channel slope, 140 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording prior to Oct. 18, 1938, at site 450 ft upstream at datum 1.00 ft higher; recording thereafter. Datum of gage is 856.16 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 9,300 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Only annual peaks are shown prior to 1939. Base for partial-duration series, 7,000 cfs.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1936	Jan. 13, 1936	12.0	13,000	1948	Jan. 6, 1948	12.00	12,700
1937	Apr. 13, 1937	12.85	15,000		Feb. 22, 1948	11.54	11,500
1938	Mar. 18, 1938	11.40	11,600				
1939	Mar. 12, 1939	9.80	7,900	1949	Dec. 12, 1948	12.56	14,300
1940	Feb. 28, 1940	8.56	4,980		Feb. 22, 1949	10.18	8,090
1941	Dec. 27, 1940	8.11	4,150	1950	Jan. 22, 1950	9.86	7,330
1942	Nov. 15, 1941	13.19	16,600		Mar. 17, 1950	9.82	7,240
	Dec. 2, 1941	10.8	9,950	1951	Oct. 28, 1950	13.41	16,700
1943	Nov. 23, 1942	9.77	7,130		Nov. 18, 1950	10.18	8,090
	Nov. 29, 1942	10.80	9,610		Jan. 17, 1951	10.06	7,800
	Dec. 27, 1942	10.9	9,860	1952	Nov. 30, 1951	9.48	7,120
	Dec. 30, 1942	14.00	18,500		Dec. 22, 1951	9.81	7,850
	Jan. 21, 1943	10.23	8,240		Mar. 24, 1952	11.48	12,000
1944	Nov. 4, 1943	9.78	7,160	1953	Jan. 9, 1953	10.14	8,640
1945	Feb. 13, 1945	8.92	5,400		Jan. 18, 1953	12.83	16,200
1946	Nov. 18, 1945	10.81	9,630		Feb. 3, 1953	9.75	7,720
	Dec. 6, 1945	10.30	8,380	1954	Nov. 23, 1953	13.34	18,100
	Dec. 28, 1945	14.33	19,600	1955	Dec. 30, 1954	9.47	7,100
1947	Nov. 18, 1946	10.68	9,320	1956	Nov. 19, 1955	11.41	11,800
	Nov. 26, 1946	10.23	8,210		Dec. 12, 1955	9.52	7,200
	Dec. 14, 1946	11.02	10,200		Dec. 22, 1955	13.62	18,200
1948	Oct. 16, 1947	10.00	7,650		Jan. 15, 1956	10.54	8,600
	Jan. 2, 1948	9.74	7,070		Jan. 22, 1956	10.31	9,040
				1957	Dec. 11, 1956	12.44	15,300
					Feb. 26, 1957	10.42	9,650

1555. Row River near Cottage Grove, Oreg.

Location.--Lat 43°47'35", long 122°59'25", in NE $\frac{1}{4}$  sec.36, T.20 S., R.3 W., on right bank 1.7 miles upstream from Mosby Creek, 2.1 miles downstream from Dorena Dam, and 3.5 miles east of Cottage Grove.

Drainage area.--270 sq mi.

Gage.--Nonrecording prior to Oct. 13, 1939, at site 180 ft upstream at datum 1.00 ft higher; recording thereafter. Datum of gage is 685.24 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--Not subject to overflow.

Remarks.--Flow regulated since October 1949 by Dorena Reservoir (capacity, 77,510 acre-ft). Only annual peaks are shown 1939 and 1950-57. Base for partial-duration series, 8,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1939	Mar. 12, 1939	10.2	8,770	1947	Nov. 18, 1946	12.08	10,600
1940	Feb. 28, 1940	8.82	5,680		Nov. 26, 1946	11.80	10,200
1941	Dec. 27, 1940	8.57	5,290		Dec. 14, 1946	12.88	11,900
1942	Nov. 15, 1941	17.16	19,400	1948	Oct. 16, 1947	11.48	9,690
1943	Nov. 23, 1942	12.18	10,000		Jan. 2, 1948	10.91	8,800
	Nov. 27, 1942	11.43	8,870		Jan. 6, 1948	14.78	15,100
	Nov. 29, 1942	13.68	12,600		Feb. 22, 1948	13.75	13,300
	Dec. 27, 1942	12.38	10,400	1949	Dec. 12, 1948	15.08	15,600
	Dec. 30, 1942	17.45	20,000		Feb. 22, 1949	11.52	9,750
	Jan. 21, 1943	11.63	9,910		May 2, 1949	10.40	8,040
1944	Nov. 4, 1943	11.09	9,040	1950	Jan. 19, 1950	8.67	5,630
1945	Feb. 13, 1945	9.84	6,510	1951	Nov. 18, 1950	8.34	5,200
1946	Nov. 18, 1945	13.31	11,900		Nov. 11, 1951	8.31	5,070
	Dec. 6, 1945	11.71	9,300	1953	Jan. 20, 1953	8.31	5,070
	Dec. 28, 1945	18.20	21,400	1954	Dec. 1, 1953	8.37	5,150
	Jan. 5, 1946	11.04	9,000	1955	Jan. 2, 1955	8.00	4,700
				1956	Dec. 22, 1955	11.02	9,060
				1957	Dec. 14, 1956	8.41	5,240

1560. Mosby Creek near Cottage Grove, Oreg.

Location.--Lat 43°44'40", long 122°58'45", in SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.18, T.21 S., R.2 W., on right bank 0.7 mile upstream from Kizer Creek and 5.5 miles southeast of Cottage Grove.

Drainage area.--85 sq mi, approximately.

Gage.--Nonrecording. Altitude of gage is 750 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 2,400 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Only annual peaks are shown. Records herein, 1936-46, adjusted on basis of drainage-area ratio, are combined with those for station at mouth (see following station) for use in the analysis.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1936	Feb. 21, 1936	4.3	1,900	1942	Nov. 15, 1941	8.50	6,260
1937	Apr. 13, 1937	6.4	3,540	1943	Dec. 30, 1942	9.8	7,760
1938	Mar. 18, 1938	7.8	5,480	1944	Nov. 4, 1943	5.1	2,760
1939	Mar. 12, 1939	6.20	3,820	1945	Feb. 13, 1945	4.30	2,020
1940	Feb. 28, 1940	4.40	2,140	1946	Dec. 28, 1945	10.4	8,520
1941	Dec. 27, 1940	4.3	2,020				

1565. Mosby Creek at mouth, near Cottage Grove, Oreg.

Location.--Lat 43°46'35", long 122°59'55", in sec.1, T.21 S., R.3 W., on left bank 1.0 mile upstream from mouth and 3.5 miles southeast of Cottage Grove.

Drainage area.--96 sq mi, approximately. Mean altitude, 2,030 ft; channel slope, 104 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. Datum of gage is 676.62 ft above mean sea level, datum of 1929, supplementary adjustment of 1947 (Corps of Engineers bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 4,100 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Base for partial-duration series, 2,500 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1947	Nov. 18, 1946	6.69	3,240	1952	Feb. 1, 1952	5.57	2,520
	Nov. 26, 1946	7.05	3,540		Mar. 24, 1952	7.40	3,990
	Dec. 14, 1946	6.95	3,460	1953	Jan. 9, 1953	5.78	2,680
1948	Oct. 16, 1947	7.07	3,560		Jan. 18, 1953	10.18	6,490
	Jan. 2, 1948	6.95	3,460		Feb. 3, 1953	6.20	3,020
	Jan. 6, 1948	9.85	6,020	1954	Nov. 23, 1953	10.48	6,760
	Feb. 22, 1948	9.05	5,300		Dec. 6, 1953	5.96	2,830
1949	Dec. 12, 1948	9.18	5,410	Jan. 16, 1954	6.72	3,440	
	Feb. 18, 1949	6.17	2,790	Jan. 22, 1954	5.96	2,830	
	Feb. 22, 1949	6.86	3,380	Jan. 27, 1954	7.49	4,070	
	May 2, 1949	6.10	2,740	1955	Dec. 30, 1954	5.69	2,610
1950	Jan. 23, 1950	6.68	3,230		Nov. 19, 1955	7.49	4,070
	Mar. 17, 1950	5.90	2,600	Dec. 22, 1955	10.66	6,920	
1951	Oct. 28, 1950	10.82	7,160	Dec. 26, 1955	7.92	4,460	
	Nov. 18, 1950	7.69	4,470	Jan. 15, 1956	6.81	3,510	
	Jan. 17, 1951	8.75	5,480	Jan. 22, 1956	6.67	3,400	
	Jan. 21, 1951	5.89	2,900	Feb. 21, 1956	6.57	3,520	
	Jan. 27, 1951	5.52	2,570	1957	Oct. 30, 1956	5.69	2,650
	Feb. 4, 1951	5.66	2,690		Dec. 11, 1956	7.01	3,670
	Mar. 15, 1951	5.49	2,540		Feb. 26, 1957	7.74	4,500
	1952	Nov. 30, 1951	7.12		3,760	Mar. 9, 1957	5.85
Dec. 22, 1951		5.94	2,810				

1570. Coast Fork Willamette River at Saginaw, Oreg.

Location.--Lat 43°50'05", long 123°02'30", in NW<sup>1</sup>/<sub>4</sub> sec.15, T.20 S., R.3 W., at Saginaw, 1.0 mile downstream from Row River.

Drainage area.--529 sq mi. Mean altitude, 2,210 ft; channel slope, 93.8 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Prior to May 9, 1930, nonrecording gage at site 50 ft upstream at different datum and May 10, 1930, to Oct. 12, 1938, at present datum; recording thereafter. Datum of gage is 595.76 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 24,000 cfs and extended by logarithmic plotting. Stage-discharge relation very unstable owing to operation of gravel plant on control.

Bankfull stage.--10 ft.

Remarks.--Flow regulated since 1942 by Cottage Grove Reservoir (usable capacity, 32,940 acre-ft), and since October 1949 by Dorena Reservoir (usable capacity, 77,510 acre-ft). Only annual peaks are shown.

## WILLAMETTE RIVER BASIN

Peak stages and discharges of Coast Fork Willamette River at Saginaw, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1924	Dec. 7, 1923	9.2	13,800	1938	Mar. 19, 1938	11.7	22,300
1925	Oct. 31, 1924	13.3	28,000	1939	Mar. 12, 1939	9.70	15,000
				1940	Feb. 28, 1940	8.34	11,200
1926	Feb. 4, 1926	11.6	24,100				
1927	Feb. 20, 1927	12.9	32,500	1941	Dec. 27, 1940	8.20	10,800
1928	Mar. 11, 1928	9.07	13,800	1942	Nov. 15, 1941	12.01	29,100
1929	Apr. 14, 1929	9.5	15,100	1943	Dec. 30, 1942	11.92	30,600
1930	Dec. 18, 1929	10.0	16,700	1944	Nov. 4, 1943	8.15	14,600
				1945	Feb. 13, 1945	7.43	12,100
1931	Apr. 1, 1931	10.4	17,000				
1932	Mar. 19, 1932	11.8	21,100	1946	Dec. 28, 1945	12.38	32,900
1933	Jan. 2, 1933	12.64	26,100	1947	Dec. 14, 1946	8.74	17,500
1934	Jan. 23, 1934	8.9	12,400	1948	Jan. 6, 1948	10.74	28,100
1935	Dec. 20, 1934	9.88	15,600	1949	Dec. 12, 1948	9.58	27,200
				1950	Jan. 21, 1950	5.40	13,600
1936	Jan. 13, 1936	11.7	22,300				
1937	Apr. 15, 1937	11.6	21,900	1951	Oct. 29, 1950	6.68	18,400

1575. Coast Fork Willamette River near Goshen, Oreg.

Location.--Lat 43°58'40", long 122°58'00", in NW $\frac{1}{4}$  sec. 29, T.18 S., R.2 W., on right bank at downstream side of highway bridge, 2.5 miles southeast of Goshen and 6 $\frac{1}{2}$  miles upstream from confluence with Middle Fork Willamette River.

Drainage area.--642 sq mi.

Gage.--Nonrecording prior to Feb. 7, 1912, at site 600 ft upstream at different datum; recording thereafter. Datum of gage is 473.80 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 15,000 cfs and extended on basis of slope-area measurement at 23,600 cfs.

Remarks.--Flow regulated since October 1942 by Cottage Grove Reservoir (usable capacity, 32,940 acre-ft), and since October 1949 by Dorena Reservoir (usable capacity, 77,510 acre-ft). Only annual peaks are shown. Records herein for 1952-57, adjusted on basis of drainage-area ratio, are combined with those for station at Saginaw (see preceding station) for use in the analysis.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1906	May 28, 1906	11.0	18,300	1951	Oct. 29, 1950	16.0	24,000
1907	Jan. 4, 1907	19.3	57,100	1952	Nov. 30, 1951	12.57	14,600
1908	Dec. 25, 1907	17.6	46,100	1953	Jan. 18, 1953	13.85	17,800
1909	Jan. 15, 1909	17.4	44,900	1954	Nov. 23, 1953	13.55	17,000
1910	Nov. 22, 1909	19.5	58,500	1955	Dec. 31, 1954	10.17	9,440
1911	Nov. 28, 1910	16.2	38,100	1956	Dec. 26, 1955	16.44	25,400
1912	Jan. 12, 1912	15.7	35,400	1957	Feb. 26, 1957	12.23	13,600

1580. Willamette River at Springfield, Oreg.  
(Published as "at Eugene" prior to 1929)

Location.--Lat 44°02'45", long 123°01'40", in NE<sup>1</sup>SE<sup>1</sup> sec.34, T.17 S., R.3 W., at downstream end of center pier of bridge on U.S. Highway 28 at Springfield, 1.7 miles downstream from confluence of Coast and Middle Forks, and at mile 185.6.

Drainage area.--2,030 sq mi, approximately. Mean altitude, 2,770 ft; channel slope, 87.5 ft per mile; area of lakes and ponds, 10.2 sq mi.

Gage.--Nonrecording prior to Nov. 25, 1928; recording Nov. 25, 1928, to Sept. 30, 1957 (discontinued). Prior to 1894 at unknown site (probably at Southern Pacific Railroad bridge 0.2 mile upstream from described gage) at different datum. January 1894 to Nov. 26, 1911, and Jan. 1, 1914, to Nov. 24, 1928, at Ferry Street Bridge in Eugene, 3.4 miles downstream from described site at datum 23.92 ft lower. Nov. 27, 1911, to Dec. 31, 1913, at South Pacific Railroad bridge 0.2 mile upstream from described site at different datum. Datum of last used gage is 423.77 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 93,000 cfs and extended by logarithmic plotting.

Flood stage.--12 ft at site at Eugene by U.S. Weather Bureau.

Historical data.--Maximum stage recorded by U.S. Weather Bureau, 22.0 ft Jan. 25, 1903, at Eugene. Floods of Dec. 4, 1861, and Feb. 3, 1890, reached about the same stage.

Remarks.--Peak discharges partly regulated by Cottage Grove Reservoir (capacity, 32,940 cfs) since October 1942, Dorena Reservoir (capacity, 77,510 cfs) since October 1949, and Lookout Point Reservoir (capacity, 349,400 cfs) since November 1953. Annual peak stages prior to 1912 and 1914-19, furnished by U.S. Weather Bureau. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1862	Dec. 4, 1861	22	-	1922	Nov. 21, 1921	14.5	50,500
				1923	Jan. 7, 1923	18.0	98,000
1861	Mar. 1, 1861	11.1	-	1924	Dec. 7, 1923	12.0	37,400
1862	Mar. 1, 1862	15.0	-	1925	Dec. 30, 1924	15.3	63,100
1863	Dec. 13, 1862	14.0	-				
1884	Feb. 21, 1884	9.8	-	1926	Feb. 6, 1926	15.0	62,400
1885	Dec. 13, 1884	13.0	-	1927	Feb. 21, 1927	17.0	99,200
				1928	Mar. 11, 1928	12.5	48,200
1890	Feb. 3, 1890	22	-	1929	Mar. 21, 1929	12.5	35,400
				1930	Dec. 19, 1929	16.5	55,400
1894	Jan. 15, 1894	18.0	-				
1895	Jan. 13, 1895	10.8	-	1931	Apr. 1, 1931	15.75	51,800
				1932	Mar. 19, 1932	18.10	64,000
1896	Jan. 21, 1896	16.6	-	1933	Jan. 2, 1933	16.4	55,600
1897	Mar. 25, 1897	12.4	-	1934	Jan. 23, 1934	12.92	38,200
1898	Dec. 14, 1897	12.4	-	1935	Dec. 20, 1934	14.6	46,300
1899	Mar. 1, 1899	16.4	-				
1900	Jan. 14, 1900	16.8	-	1936	Jan. 5, 1936	14.9	48,900
				1937	Apr. 15, 1937	16.65	57,600
1901	Jan. 13, 1901	21.0	-	1938	Mar. 19, 1938	15.80	53,500
1902	Dec. 9, 1901	13.0	-	1939	Mar. 13, 1939	11.5	32,800
1903	Jan. 25, 1903	22.0	-	1940	Feb. 29, 1940	10.20	26,800
1904	Feb. 16, 1904	17.0	-				
1905	Dec. 30, 1904	14.0	-	1941	Dec. 27, 1940	9.35	23,700
				1942	Nov. 16, 1941	16.8	70,500
1906	Jan. 17, 1906	9.5	-	1943	Jan. 1, 1943	19.4	100,000
1907	Feb. 5, 1907	19.8	-	1944	Nov. 4, 1943	11.35	34,600
1908	Dec. 26, 1907	18.0	-	1945	Feb. 14, 1945	13.25	48,700
1909	Jan. 16, 1909	16.0	-				
1910	Nov. 23, 1909	21.5	-	1946	Dec. 29, 1945	20.9	140,000
				1947	Dec. 14, 1946	15.80	75,000
1911	Nov. 29, 1910	15.0	-	1948	Jan. 7, 1948	17.55	94,100
1912	Jan. 13, 1912	16.8	59,600	1949	Dec. 12, 1948	16.20	79,100
1913	Mar. 30, 1913	14.2	48,900	1950	Jan. 22, 1950	-	43,000
1914	Jan. 25, 1914	10.0	-				
1915	Jan. 14, 1915	9.5	-	1951	Oct. 29, 1950	17.41	92,500
				1952	Mar. 24, 1952	10.52	40,600
1916	Feb. 7, 1916	18.2	-	1953	Jan. 19, 1953	15.39	92,900
1917	Apr. 8, 1917	10.5	-	1954	Nov. 23, 1953	11.50	59,000
1918	Jan. 12, 1918	14.0	-	1955	Dec. 31, 1954	7.53	25,900
1919	Jan. 19, 1919	11.5	-				
1920	Nov. 5, 1919	13.0	42,000	1956	Dec. 26, 1955	9.94	48,500
				1957	Dec. 11, 1956	8.60	37,300
1921	Dec. 30, 1920	16.5	74,600				

## WILLAMETTE RIVER BASIN

1582.5. Hackelman Creek near Upper Soda, Oreg.

Location.--Lat 44°23'50", long 122°07'30", in SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.32, T.13 S., R.6 E., at culvert on U.S. Highway 20, 1.5 miles upstream from Indian Creek and 7 miles east of Upper Soda.

Drainage area.--0.21 sq mi. Mean altitude, 4,800 ft; channel slope, 1,860 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording. Altitude of gage is 3,970 ft (from topographic map).

Stage-discharge relation.--Defined by computations of flow through culvert.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	Dec. 7, 1952	3.72	47	1956	Jan. 15, 1956	4.23	62
1954	Nov. 22, 1953	4.04	56	1957	Dec. 11, 1956	5.38	102
1955	June 11, 1955	2.77	22				

1585. McKenzie River at outlet of Clear Lake, Oreg.

Location.--Lat 44°21'40", long 121°59'40", in SE $\frac{1}{4}$  sec.8, T.14 S., R.7 E., on west bank of Clear Lake in narrow channel, 150 ft upstream from outlet and at mile 85.9 (river-profile map).

Drainage area.--101 sq mi. Mean altitude, 4,120 ft; channel slope, 106 ft per mile; area of lakes and ponds, 0.6 sq mi.

Gage.--Nonrecording prior to July 31, 1915, at site 1 mile north at different datum; recording thereafter. Datum of gage is 3,015.32 ft above mean sea level (levels by Eugene Water and Electric Board).

Stage-discharge relation.--Defined by current-meter measurements below 1,500 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Flow regulated by natural storage in lake. At high stages undetermined flow enters numerous sinkholes in lava rock along south edge of lake above station. Base for partial-duration series, 1,300 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1913	May 27, 1913	10.69	1,130	1953	Jan. 18, 1953	7.21	2,600
1914	Apr. 16, 1914	10.13	902		Feb. 3, 1953	5.21	1,510
1915	Apr. 4, 1915	9.50	645	1954	Dec. 20, 1953	5.49	1,640
1948	Jan. 7, 1948	6.75	2,320	1955	June 11, 1955	4.88	1,360
1949	May 2, 1949	5.35	1,580	1956	Dec. 12, 1955	4.99	1,410
1950	June 12, 1950	4.96	1,400		Dec. 22, 1955	7.66	2,970
1951	Nov. 2, 1950	5.90	1,850		May 31, 1956	5.00	1,450
	Dec. 7, 1950	4.75	1,310	1957	Dec. 12, 1956	5.29	1,600
1952	May 28, 1952	4.17	1,090		Mar. 8, 1957	4.85	1,380

1590. McKenzie River at McKenzie Bridge, Oreg.  
(Published as McKenzie River near McKenzie Bridge, 1910-11, 1915-16)

Location.--Lat 44°10'45", long 122°07'45", near line between NE $\frac{1}{4}$  and NW $\frac{1}{4}$  sec.18, T.16 S., R.6 E., on left bank 1.7 miles east of village of McKenzie Bridge and 2.7 miles upstream from Horse Creek.

Drainage area.--345 sq mi at measuring section three-quarters of a mile upstream from gage. Mean altitude, 4,220 ft; channel slope, 97.7 ft per mile; area of lakes and ponds, 1.6 sq mi.

Gage.--Nonrecording prior to June 12, 1932, at several sites within 2 miles of present site at various datums; recording thereafter. Datum of gage is 1,419.04 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 7,200 cfs and extended by logarithmic plotting.

Bankfull stage.--Not determined.

Remarks.--Only annual peaks are shown prior to 1933. Base for partial-duration series, 3,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1911	Dec. 3, 1910	3.65	3,710	1940	Mar. 26, 1940	2.82	3,000
1912	Jan. 13, 1912	5.2	7,660				
1913	Mar. 30, 1913	4.5	5,030	1941	Nov. 29, 1940	2.54	2,610
1914	Apr. 15, 1914	2.10	2,920				
1916	Feb. 7, 1916	4.5	5,750	1942	Nov. 15, 1941	3.37	3,830
					Dec. 2, 1941	3.18	3,530
1919	Jan. 22, 1919	3.7	5,150		Dec. 19, 1941	3.89	4,710
1920	Jan. 26, 1920	4.20	6,250	1943	Nov. 23, 1942	5.06	6,970
					Nov. 27, 1942	5.10	7,050
1921	Dec. 30, 1920	5.2	8,750		Nov. 29, 1942	5.68	8,250
1922	Nov. 21, 1921	5.0	8,250		Dec. 22, 1942	3.11	3,420
1923	Jan. 6, 1923	8.3	16,500		Dec. 27, 1942	4.28	5,430
1924	Feb. 4, 1924	3.00	3,540		Dec. 31, 1942	7.07	11,300
1925	Feb. 4, 1925	5.04	7,420		Apr. 1, 1943	3.08	3,380
					Apr. 21, 1943	3.07	3,360
1926	Feb. 6, 1926	5.4	8,300				
1927	Feb. 20, 1927	6.8	12,000	1944	Nov. 4, 1943	3.62	4,240
1928	Nov. 28, 1927	5.0	7,420				
1929	Mar. 21, 1929	2.8	3,240	1945	Feb. 8, 1945	4.16	5,200
1930	Dec. 18, 1929	3.6	4,580		Feb. 13, 1945	4.33	5,530
1931	Apr. 1, 1931	6.50	10,400	1946	Nov. 27, 1945	3.65	3,960
1932	Mar. 19, 1932	5.25	7,660		Dec. 28, 1945	8.03	13,300
					Jan. 4, 1946	3.73	4,260
1933	Nov. 5, 1932	3.14	3,820		Jan. 24, 1946	3.57	4,160
	Nov. 15, 1932	2.73	3,120	1947	Nov. 18, 1946	3.52	4,070
	June 9, 1933	4.86	7,150		Nov. 27, 1947	4.32	5,510
1934	Dec. 6, 1933	3.41	4,270		Dec. 15, 1946	6.63	10,300
	Dec. 22, 1933	4.64	6,550		Jan. 26, 1947	3.67	4,330
	Jan. 3, 1934	3.19	3,910	1948	Oct. 18, 1947	3.11	3,420
	Jan. 14, 1934	2.83	3,280		Nov. 15, 1947	2.99	3,250
	Jan. 23, 1934	5.01	7,350		Jan. 2, 1948	3.52	4,070
1935	Oct. 24, 1934	2.76	3,120		Jan. 7, 1948	6.64	10,300
	Nov. 4, 1934	2.93	3,460		Feb. 22, 1948	4.43	5,720
	Nov. 25, 1934	2.98	3,550		Feb. 26, 1948	3.18	3,530
	Dec. 20, 1934	3.93	5,210	1949	Dec. 12, 1948	4.96	6,470
1936	Jan. 2, 1936	3.52	4,450		Feb. 18, 1949	3.18	3,300
	Jan. 4, 1936	3.86	5,210		May 2, 1949	5.27	7,390
	Jan. 11, 1936	4.46	6,350	1950	Nov. 27, 1949	3.79	4,410
1937	Apr. 14, 1937	4.35	5,660		Jan. 22, 1950	3.62	4,120
	May 13, 1937	2.90	4,730		Feb. 25, 1950	4.59	5,800
	June 20, 1937	3.40	3,880		Mar. 3, 1950	3.30	3,600
					Mar. 17, 1950	3.56	4,020
1938	Nov. 20, 1937	3.38	3,880		May 27, 1950	3.01	3,160
	Nov. 25, 1937	3.10	3,410		June 12, 1950	3.68	4,230
	Dec. 11, 1937	3.10	3,410	1951	Oct. 29, 1950	5.23	7,080
	Dec. 30, 1937	3.40	3,880		Nov. 1, 1950	5.71	8,040
	Jan. 22, 1938	4.64	6,060		Dec. 7, 1950	5.01	6,640
	Apr. 18, 1938	3.17	3,480		Jan. 14, 1951	3.05	3,220
1939	Dec. 2, 1938	2.74	2,900		Jan. 24, 1951	3.63	4,140

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1951	Feb. 7, 1951	4.45	5,540	1954	Mar. 9, 1954	2.82	3,240
1952	Oct. 23, 1951	4.12	4,630	1955	Dec. 31, 1954	2.78	3,020
	Dec. 1, 1951	3.91	4,280		May 20, 1955	2.90	3,200
	Feb. 4, 1952	3.43	3,500		June 9, 1955	3.39	3,950
1953	Jan. 9, 1953	4.11	4,960	1956	Nov. 19, 1955	4.16	5,250
	Jan. 12, 1953	4.13	4,990		Nov. 27, 1955	4.22	5,360
	Jan. 18, 1953	7.68	12,700		Dec. 12, 1955	5.30	7,470
	Feb. 3, 1953	4.85	6,320		Dec. 22, 1955	7.79	13,000
	Feb. 5, 1953	4.66	5,940		Jan. 15, 1956	5.05	6,970
1954	Nov. 22, 1953	5.19	7,000	Jan. 22, 1956	3.99	4,940	
	Dec. 9, 1953	3.87	4,880	May 18, 1956	3.47	4,080	
	Dec. 19, 1953	5.56	8,020	1957	Dec. 11, 1956	6.23	9,380
	Jan. 29, 1954	2.89	3,340		Feb. 26, 1957	4.9	6,600
	Feb. 13, 1954	2.78	3,180		Mar. 7, 1957	4.52	5,840
	Feb. 21, 1954	2.78	3,180		Apr. 5, 1957	3.21	3,540

1595. South Fork McKenzie River near Rainbow, Oreg.

Location.--Lat 44°08'10", long 122°14'40", in NE $\frac{1}{4}$  sec.31, T.16 S., R.5 E., on right bank 0.2 mile upstream from Cougar Creek, 2 miles south of Rainbow, and 5 miles southeast of town of Blue River.

Drainage area.--211 sq mi. Mean altitude, 3,840 ft; channel slope, 129 ft per mile; area of lakes and ponds, 0.6 sq mi.

Gage.--Nonrecording prior to Nov. 4, 1947, at site 40 ft upstream at datum 0.8 ft higher. Datum of gage is 1,236.42 ft above mean sea level (U.S. Public Roads Administration bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 8,100 cfs and extended by logarithmic plotting.

Remarks.--Base for partial-duration series, 5,000 cfs.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	Dec. 28, 1945	9.3	a24,500	1953	Feb. 3, 1953	5.83	7,390
					Feb. 6, 1953	5.57	6,660
1948	Jan. 7, 1948	6.70	10,400	1954	Nov. 23, 1953	7.91	14,600
	Feb. 22, 1948	6.29	8,920		Dec. 19, 1953	6.17	8,410
1949	Dec. 12, 1948	6.80	10,700	1955	Dec. 30, 1954	4.33	3,790
	May 2, 1949	6.14	8,470				
1950	Feb. 24, 1950	5.45	6,480	1956	Nov. 19, 1955	5.36	6,110
1951					Nov. 27, 1955	5.32	6,000
	Oct. 29, 1950	7.30	12,400	Dec. 12, 1955	6.23	8,590	
	Nov. 2, 1950	6.74	10,500	Dec. 22, 1955	b8.90	17,400	
	Dec. 7, 1950	5.66	7,030	Jan. 15, 1956	6.81	10,600	
	Feb. 7, 1951	5.13	5,730	Jan. 23, 1956	5.00	5,200	
1952	Oct. 23, 1951	5.02	5,480	1957	Dec. 11, 1956	8.66	17,600
1953	Jan. 9, 1953	5.22	5,840		Feb. 26, 1957	5.67	7,280
	Jan. 18, 1953	8.34	16,400		Mar. 7, 1957	4.87	5,310

a Maximum discharge known (gage height adjusted to present site and datum); annual peak only.

b Backwater from debris.

## 1610. Blue River above Quentin Creek, Oreg.

Location.--Lat 44°16'00", long 122°12'00", in T.15 S., R.5 E. (unsurveyed), on left bank 0.9 mile upstream from Quentin Creek, 7 miles north of town of McKenzie Bridge, and 11 miles northeast of town of Blue River.

Drainage area.--11.5 sq mi. Mean altitude, 3,490 ft; channel slope, 507 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. Altitude of gage is 1,960 ft (barometric levels by U.S. Forest Service).

Stage-discharge relation.--Defined by current-meter measurements below 530 cfs and extended by logarithmic plotting.

Remarks.--Only annual peaks since 1956, furnished by U.S. Forest Service. Base for partial-duration series, 400 cfs.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	Jan. 2, 1948	2.86	588	1952	Oct. 23, 1951	2.92	560
	Jan. 6, 1948	3.77	1,320		Dec. 1, 1951	2.80	505
	Feb. 22, 1948	2.91	616	1953	Jan. 9, 1953	3.55	1,040
1949	Dec. 12, 1948	3.04	698		Jan. 12, 1953	2.87	554
	Feb. 10, 1949	3.81	-		Jan. 18, 1953	4.54	1,630
	May 2, 1949	3.37	946		Feb. 3, 1953	2.88	559
1950	Nov. 27, 1949	2.71	510	Feb. 5, 1953	2.71	470	
		3.10	740	1954	Nov. 22, 1953	3.86	1,310
	Feb. 24, 1950	3.87	1,410		Dec. 9, 1953	2.60	434
	Mar. 3, 1950	2.65	408		Dec. 19, 1953	3.73	1,200
	Mar. 17, 1950	3.17	689	1955	June 8, 1955	2.18	267
1951	Oct. 29, 1950	3.60	1,090		1956	Dec. 21, 1955	4.63
	Nov. 1, 1950	4.70	1,060	1957		Dec. 11, 1956	4.40
	Dec. 4, 1950	2.69	490				
	Dec. 7, 1950	3.03	678				
Feb. 7, 1951	2.85	572					

a Backwater from ice.

## 1612. Lookout Creek tributary No. 3 near Blue River, Oreg.

Location.--Lat 44°13'10", long 122°14'30", in NE $\frac{1}{4}$  sec.31, T.15 S., R.5 E., at weir on Lookout Creek road, 0.1 mile upstream from mouth and 6 miles northeast of Blue River.

Drainage area.--0.34 sq mi. Mean altitude, 2,460 ft; channel slope, 1,500 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording gage and concrete weir. Altitude of gage is 1,520 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 11 cfs and extended on basis of computations of flow over weir.

Remarks.--Only annual peaks are shown.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	Jan. 18, 1953	2.80	47	1956	Jan. 15, 1956	2.57	36
1954	Nov. 22, 1953	2.53	35	1957	Dec. 11, 1956	2.73	44
1955	Dec. 30, 1954	2.62	39				

## WILLAMETTE RIVER BASIN

1615. Lookout Creek near Blue River, Oreg.

Location.--Lat 44°12'40", long 122°15'20", in T.15 or 16 S., R.5 E. (unsurveyed), on left bank 0.4 mile upstream from mouth and 6 miles north-east of town of Blue River.

Drainage area.--24.1 sq mi. Mean altitude, 3,380 ft; channel slope, 305 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. Altitude of gage is 1,370 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 700 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Only annual peaks since 1956, furnished by U.S. Forest Service. Base for partial-duration series, 1,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Nov. 27, 1949	5.19	1,180	1953	Jan. 18, 1953	7.18	3,620
	Jan. 22, 1950	5.17	1,170		Feb. 3, 1953	5.34	1,310
	Feb. 24, 1950	5.98	1,980		Feb. 5, 1953	5.22	1,210
	Mar. 17, 1950	5.08	1,090	1954	Nov. 22, 1953	6.39	2,490
1951	Oct. 29, 1950	5.83	1,800		Dec. 9, 1953	4.97	1,010
	Nov. 1, 1950	5.48	1,430		Dec. 19, 1953	5.78	1,750
	Dec. 7, 1950	5.32	1,290	1955	Dec. 30, 1954	5.15	1,150
	Feb. 7, 1951	5.03	1,050		1956	Dec. 22, 1955	6.44
1952	Oct. 23, 1951	5.36	1,320	Dec. 11, 1956		6.44	2,550
	1953	Jan. 9, 1953	5.31	1,280			

1620. Blue River near Blue River, Oreg.

Location.--Lat 44°10'55", long 122°16'45", in NW $\frac{1}{4}$  sec.13, T.16 S., R.4 E., on right bank 3 miles upstream from Quartz Creek and 3 $\frac{1}{2}$  miles northeast of town of Blue River.

Drainage area.--75 sq mi, approximately. Mean altitude, 3,170 ft; channel slope, 263 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. Altitude of gage is 1,220 ft (from river-profile map).

Stage-discharge relation.--Defined by current-meter measurements below 7,500 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Base for partial-duration series, 3,800 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1936	Jan. 2, 1936	5.45	5,280	1943	Nov. 26, 1942	7.55	7,060
	Jan. 4, 1936	5.53	5,500		Nov. 29, 1942	6.76	5,870
	Jan. 11, 1936	5.35	5,100		Dec. 27, 1942	6.35	5,280
1937	Apr. 14, 1937	5.90	4,900		Dec. 31, 1942	8.15	8,020
	1938	Nov. 19, 1937	5.27	4,000	1944	Nov. 4, 1943	5.34
Jan. 22, 1938		6.50	5,800	1945		Feb. 7, 1945	5.73
1939	Dec. 2, 1938	5.46	4,320		Feb. 13, 1945	5.24	3,850
	1940	Feb. 28, 1940	4.04	2,350	1946	Nov. 27, 1945	5.70
1941		Jan. 18, 1941	4.21	2,570		Dec. 28, 1945	9.80
	1942	Nov. 15, 1941	5.39	4,170	1947	Nov. 18, 1946	4.77
Dec. 18, 1941		5.49	4,310	Nov. 26, 1946		5.19	4,640
1943	Nov. 23, 1942	7.50	6,980	Dec. 14, 1946		6.70	7,360
				Jan. 26, 1947	5.72	5,600	
				1948	Jan. 2, 1948	5.16	4,490

## Peak stages and discharges of Blue River near Blue River, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	Jan. 7, 1948	7.44	8,740	1953	Feb. 3, 1953	5.01	4,300
	Feb. 22, 1948	6.34	6,650		Feb. 5, 1953	4.80	3,920
1949	Dec. 12, 1948	6.40	6,510	1954	Nov. 22, 1953	7.64	9,380
	Feb. 18, 1949	5.03	3,950		Dec. 9, 1953	4.90	4,100
	May 2, 1949	5.57	4,930		Dec. 19, 1953	6.60	7,320
1950	Feb. 24, 1950	5.90	5,560	1955	Dec. 31, 1954	4.86	4,030
	Mar. 17, 1950	5.38	4,580		1956	Nov. 19, 1955	5.80
1951	Oct. 28, 1950	6.08	5,900	Nov. 26, 1955		5.01	4,300
	Nov. 2, 1950	5.68	5,140	Dec. 12, 1955		6.07	6,310
	Dec. 7, 1950	5.00	3,900	Dec. 21, 1955		7.70	9,500
1952	Oct. 23, 1951	5.40	4,620	Jan. 15, 1956		6.50	7,130
	1953	Jan. 9, 1953	5.81	5,820	1957	Dec. 11, 1956	7.97
Jan. 18, 1953		8.38	10,900	Feb. 26, 1957		5.83	5,860
				Mar. 7, 1957		4.87	4,050

1625. McKenzie River near Vida, Oreg.  
(Published as "at Martin Rapids, near Vida" 1910-11)

Location.--Lat 44°07'30", long 122°28'10", in NE $\frac{1}{4}$  sec.5, T.17 S., R.3 E., on left bank 1 mile upstream from head of Martin Rapids, 5 miles east of Vida, and at mile 44.3 (river-profile survey).

Drainage area.--930 sq mi, approximately. At site used 1910-11, 940 sq mi, approximately. Mean altitude, 3,850 ft; channel slope, 67.7 ft per mile; area of lakes and ponds, 2.2 sq mi.

Gage.--Nonrecording prior to Nov. 16, 1928, at different sites and datums; recording thereafter. At site 3 miles downstream prior to Mar. 31, 1911; Sept. 22, 1924, to Nov. 16, 1928, at site 20 ft upstream at present datum. Datum of gage is 855.56 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 32,000 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Historical data.--Flood in January 1923 reached a stage of 17.2 ft, from flood-marks (discharge, 62,000 cfs).

Remarks.--Base for partial-duration series, 16,000 cfs. Only annual peaks are shown prior to 1930.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1911	Nov. 23, 1910	8.7	15,900	1936	Jan. 4, 1936	8.28	23,700
1923	January 1923	17.25	62,000		Jan. 11, 1936	8.25	23,400
	1925	Feb. 4, 1925	9.1	26,700	1937	Apr. 14, 1937	8.66
1926	Feb. 6, 1926	8.5	24,400	1938	Nov. 19, 1937	6.41	16,500
1927	Feb. 20, 1927	14.2	47,200		Jan. 22, 1938	9.39	28,000
1928	Nov. 28, 1927	9.6	28,600		Mar. 18, 1938	6.59	17,300
1929	Mar. 21, 1929	7.05	18,900	1939	Dec. 2, 1938	5.88	14,700
1930	Dec. 19, 1929	9.97	30,100		1940	Feb. 10, 1940	4.85
1931	Apr. 1, 1931	11.99	38,000	1941	Nov. 29, 1940	4.71	10,700
1932	Mar. 18, 1932	11.77	37,400		1942	Nov. 15, 1941	8.40
	Mar. 24, 1932	6.55	17,100	Dec. 18, 1941		7.53	20,800
1933	June 9, 1933	8.60	24,900	1943	Nov. 23, 1942	9.63	28,900
1934	Dec. 22, 1933	6.96	18,800		Nov. 27, 1942	10.94	33,900
	Jan. 23, 1934	8.80	25,600		Nov. 29, 1942	12.12	38,700
1935	Dec. 20, 1934	8.22	23,400		Dec. 27, 1942	8.46	24,300
	Jan. 2, 1936	7.42	20,300		Jan. 1, 1943	14.6	48,900
1936	Jan. 2, 1936	7.42	20,300	1944	Nov. 4, 1943	7.65	20,800

Peak stages and discharges of McKenzie River near Vida, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1945	Feb. 8, 1945	7.60	20,600	1951	Feb. 7, 1951	7.61	20,600
	Feb. 13, 1945	9.09	26,600		1952	Oct. 23, 1951	7.98
1946	Nov. 27, 1945	7.51	20,200	Dec. 1, 1951		6.39	16,100
	Dec. 28, 1945	17.70	64,400	Feb. 3, 1952		6.60	16,800
	Jan. 5, 1946	6.70	17,200	1953		Jan. 9, 1953	7.53
	Jan. 24, 1946	6.60	16,800		Jan. 12, 1953	6.41	16,100
1947	Nov. 18, 1946	6.48	16,400		Jan. 18, 1953	15.03	51,800
	Nov. 26, 1946	8.24	23,200		Feb. 3, 1953	9.33	27,500
	Dec. 14, 1946	12.20	39,400	Feb. 6, 1953	8.82	25,500	
	Jan. 26, 1947	7.36	19,600	1954	Nov. 23, 1953	12.22	39,400
1948	Jan. 2, 1948	6.94	18,000		Dec. 9, 1953	7.39	20,000
	Jan. 7, 1948	12.16	39,200		Dec. 20, 1953	10.03	30,300
	Feb. 22, 1948	10.30	31,400	1955	Dec. 31, 1954	7.08	18,500
1949	Dec. 12, 1948	11.47	36,300		1956	Nov. 19, 1955	-
	Feb. 18, 1949	7.10	18,600	Nov. 27, 1955		-	22,000
	May 2, 1949	9.38	27,700	Dec. 12, 1955		-	29,000
1950	Jan. 22, 1950	7.11	18,600	Dec. 22, 1955		15.00	51,700
	Feb. 24, 1950	8.85	25,600	Jan. 15, 1956	-	30,000	
	Mar. 17, 1950	7.53	20,300	Jan. 23, 1956	-	18,000	
	1951	Oct. 29, 1950	11.30	35,600	1957	Dec. 11, 1956	13.73
Nov. 2, 1950		10.38	31,800	Feb. 26, 1957		9.44	28,000
Dec. 7, 1950		8.62	24,700	Mar. 7, 1957		7.76	21,200
Jan. 24, 1951		7.00	18,200				

## 1630. Gate Creek at Vida, Oreg.

Location.--Lat 44°08'45", long 122°34'15", in sec.28, T.16 S., R.2 E., on right bank at Vida, 300 ft downstream from bridge on U.S. Highway 126 and 1,000 ft upstream from mouth.

Drainage area.--47.6 sq mi. Mean altitude, 2,150 ft; channel slope, 230 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. Datum of gage is 764.56 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 3,400 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Base for partial-duration series, 1,800 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1952	Oct. 23, 1951	6.88	1,860	1954	Dec. 9, 1953	7.01	2,100	
	Dec. 22, 1951	7.14	2,010		1955	Dec. 30, 1954	8.28	3,540
	Feb. 3, 1952	7.10	1,990	1956		Nov. 19, 1955	7.77	2,910
	Mar. 24, 1952	7.32	2,410			Dec. 12, 1955	7.26	2,350
1953	Jan. 18, 1953	9.38	5,510	Dec. 22, 1955		8.38	3,680	
	Feb. 3, 1953	-	(a)	Jan. 15, 1956	7.53	2,630		
	Feb. 5, 1953	-	(a)	1957	Dec. 11, 1956	9.63	6,070	
1954	Nov. 22, 1953	9.02	4,750		Dec. 6, 1953	6.78	1,890	
	Dec. 6, 1953	6.78	1,890					

a Probably exceeded base discharge.

1640. McKenzie River near Springfield, Oreg.  
(Published as "at Hendricks Bridge" 1918-34, in reports  
of U.S. Weather Bureau)

Location.--Lat 44°03'20", long 122°49'45", in NE $\frac{1}{4}$  sec.32, T.17 S., R.1 W., at  
Hendricks Bridge on U.S. Highway 28, 1.6 miles southwest of Walterville and  
8.0 miles east of Springfield.

Drainage area.--1,066 sq mi.

Gage.--Nonrecording. Sept. 12, 1905, to Mar. 31, 1915, at site 750 ft upstream  
from described gage at different datum. Datum of gage is 553.69 ft above  
mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 24,000  
cfs and extended by logarithmic plotting.

Flood stage.--13 ft, by U.S. Weather Bureau.

Remarks.--Diversion above station by Eugene power canal since Feb. 14, 1911;  
average diversion 1911-15, 250 cfs; 1926-32, 894 cfs. Only annual peak dis-  
charges are shown for 1906-15; annual peak stages thereafter (unpublished  
1944-54), furnished by U.S. Weather Bureau.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1906	Jan. 23, 1906	4.90	11,900	1928	Mar. 11, 1928	10.6	-
1907	Feb. 5, 1907	13.26	61,500	1929	Mar. 21, 1929	9.5	-
1908	Dec. 22, 1907	11.6	46,800	1930	Dec. 19, 1929	10.5	-
1909	Jan. 20, 1909	9.0	28,200				
1910	Nov. 22, 1909	14.53	73,800	1931	Apr. 1, 1931	12.2	-
				1932	Mar. 19, 1932	12.4	-
1911	Nov. 29, 1910	7.75	21,000	1933	June 9, 1933	9.4	-
1912	Jan. 12, 1912	12.1	50,900	1934	Feb. 23, 1934	11.0	-
1913	Mar. 30, 1913	9.5	31,200				
1914	Jan. 24, 1914	7.3	18,700	1944	Feb. 7, 1944	6.9	-
1915	Oct. 19, 1914	6.2	13,600	1945	Feb. 13, 1945	11.9	-
1918	Nov. 30, 1917	12.5	-	1946	Dec. 29, 1945	13.2	-
1919	Jan. 23, 1919	8.3	-	1947	Dec. 15, 1946	13.0	-
1920	Nov. 4, 1919	10.6	-	1948	Jan. 7, 1948	12.8	-
				1949	Dec. 12, 1948	13.1	-
1921	Dec. 30, 1920	11.8	-	1950	Feb. 25, 1950	11.0	-
1922	Nov. 21, 1921	15.0	-				
1923	Jan. 7, 1923	14.4	-	1951	Dec. 7, 1950	13.1	-
1924	Dec. 29, 1923	9.5	-	1952	Feb. 4, 1952	8.9	-
1925	Nov. 22, 1924	10.6	-	1953	Jan. 18, 1953	13.8	-
				1954	Nov. 23, 1953	14.9	-
1927	Feb. 21, 1927	13.0	-				

1650. Mohawk River near Springfield, Oreg.

Location.--Lat 44°06', long 122°57', in sec.17, T.17 S., R.2 W., on downstream  
side of bridge near midspan,  $\frac{1}{2}$  miles upstream from mouth and  $4\frac{1}{2}$  miles  
northeast of Springfield.

Drainage area.--180 sq mi, approximately. Mean altitude, 1,510 ft; channel  
slope, 109 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording. Altitude of gage is 455 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 6,000  
cfs and extended by logarithmic plotting. Flood peaks affected by backwater  
from McKenzie River at times.

Bankfull stage.--Not subject to overflow.

Remarks.--Base for partial-duration series, 3,500 cfs. Only annual peaks are  
shown prior to 1948, and for 1956.

Peak stages and discharges of Mohawk River near Springfield, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1936	Jan. 11, 1936	17.04	5,550	1949	Feb. 18, 1949	21.02	8,010
1937	Apr. 15, 1937	15.7	5,340		Feb. 22, 1949	16.04	5,530
1938	Mar. 18, 1938	18.0	6,480		May 2, 1949	13.36	4,250
1939	Feb. 15, 1939	13.59	4,400				
1940	Feb. 28, 1940	10.3	2,880	1950	Jan. 22, 1950	18.69	6,840
					Feb. 25, 1950	15.56	5,300
1941	Jan. 18, 1941	9.3	2,550				
1942	Nov. 15, 1941	16.3	5,850	1951	Oct. 29, 1950	18.60	6,790
1943	Jan. 1, 1943	21.3	8,160		Nov. 2, 1950	13.45	4,290
1944	Nov. 4, 1943	10.1	2,760		Nov. 18, 1950	15.9	5,460
1945	Feb. 13, 1945	13.87	3,840		Dec. 7, 1950	12.56	3,940
					Jan. 17, 1951	16.91	5,960
1946	Dec. 28, 1945	22.1	8,600		Jan. 24, 1951	13.16	4,200
1947	Dec. 15, 1946	18.0	6,490				
				1952	Nov. 30, 1951	12.13	3,750
1948	Oct. 16, 1947	11.8	3,530		Dec. 5, 1951	13.67	4,430
	Jan. 2, 1948	12.6	3,900		Feb. 4, 1952	13.37	4,300
	Jan. 7, 1948	20.78	7,890		Mar. 24, 1952	11.63	3,530
	Feb. 22, 1948	17.53	6,250				
1949	Dec. 12, 1948	18.67	6,820	1956	Dec. 22, 1955	a22.9	9,200

a From floodmark,

## 1655. McKenzie River near Coburg, Oreg.

Location.--Lat 44°06'45", long 123°02'45", in NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.9, T.17 S., R.3 W., on left bank at downstream side of Armitage Bridge, 2.0 miles southeast of Coburg and 4.2 miles upstream from mouth.

Drainage area.--1,310 sq mi, approximately. Mean altitude, 3,180 ft; channel slope, 42.7 ft per mile; area of lakes and ponds, 2.2 sq mi.

Gage.--Recording. Datum of gage is 396.32 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 59,000 cfs and extended by logarithmic plotting.

Bankfull stage.--12 ft.

Remarks.--Base for partial-duration series, 31,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1945	Feb. 14, 1945	12.61	37,900	1952	Feb. 4, 1952	10.7	29,800
1946	Dec. 29, 1945	17.36	88,200	1953	Jan. 19, 1953	16.87	78,500
					Feb. 3, 1953	11.87	42,200
1947	Nov. 26, 1946	11.84	34,700		Feb. 6, 1953	11.42	39,500
	Dec. 14, 1946	14.42	59,200	1954	Nov. 23, 1953	15.20	68,200
1948	Jan. 7, 1948	15.69	58,100		Dec. 10, 1953	10.10	32,400
	Feb. 22, 1948	13.54	46,000		Dec. 20, 1953	12.15	46,600
					Jan. 28, 1954	10.44	36,300
1949	Dec. 12, 1948	14.51	51,300	1955	Dec. 31, 1954	9.48	30,600
	Feb. 18, 1949	12.28	39,600				
	May 2, 1949	11.50	35,800	1956	Nov. 19, 1955	11.87	43,500
1950	Jan. 22, 1950	10.99	33,500		Dec. 12, 1955	12.21	44,400
	Feb. 25, 1950	11.87	37,600		Dec. 22, 1955	16.25	73,500
					Jan. 15, 1956	12.36	45,300
1951	Oct. 29, 1950	14.66	52,100	1957	Dec. 11, 1956	14.16	57,700
	Nov. 2, 1950	12.56	37,900		Feb. 26, 1957	11.49	39,900
	Dec. 7, 1950	11.18	31,800				

## 1660. Willamette River at Harrisburg, Oreg.

Location.--Lat 44°16'05", long 123°10'20", in SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.16, T.15 S., R.4 W., on right bank 10 ft downstream from bridge on U.S. Highway 99 at Harrisburg, and at mile 162.9.

Drainage area.--3,420 sq mi, approximately.

Gage.--Nonrecording prior to Nov. 15, 1944; recording thereafter. Prior to Oct. 31, 1912, at Southern Pacific Railroad bridge 1.4 miles upstream from present gage at different datum. From 1928 to Nov. 14, 1944, at bridge 10 ft upstream from present gage at datum 2.00 ft higher than present gage prior to Oct. 1, 1944, and at present datum thereafter. Gage heights herein since 1928 adjusted to present datum. Datum of present gage is 290.39 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 89,000 cfs and extended by logarithmic plotting.

Bankfull stage.--12 ft.

Historical data.--Maximum stage known, about 21 ft, Dec. 4, 1861 (present site and datum), from information by local residents.

Remarks.--Peak discharges partly regulated by Cottage Grove Reservoir (capacity, 32,940 acre-ft), since October 1942, Dorena Reservoir (capacity, 77,510 acre-ft) since October 1949, and Lookout Point Reservoir (capacity, 349,400 acre-ft) since November 1953. Annual peak stages prior to 1945 furnished by U.S. Weather Bureau. Only annual peak discharges are shown 1945-57.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1862	Dec. 4, 1861	21	-	1937	Apr. 16, 1937	17.0	-
				1938	Mar. 19, 1938	16.0	-
1897	Nov. 16, 1896	15.0	-	1939	Feb. 16, 1939	13.8	-
				1940	Feb. 29, 1940	-	-
1903	Jan. 25, 1903	16	-				
				1941	Jan. 19, 1941	10.2	-
1907	Feb. 5, 1907	14.6	-	1942	Nov. 16, 1941	17.6	-
1908	Dec. 26, 1907	14.3	-	1943	Jan. 1, 1943	19.1	-
1909	Jan. 16, 1909	11.5	-	1944	Nov. 6, 1943	-	-
1910	Nov. 23, 1909	14.8	-	1945	Feb. 14, 1945	15.6	82,600
1911	Nov. 29, 1910	10.9	-	1946	Dec. 29, 1945	19.69	210,000
1912	Jan. 13, 1912	12.9	-	1947	Dec. 14, 1946	17.86	134,000
				1948	Jan. 7, 1948	18.75	183,000
1928	Mar. 12, 1928	15.1	-	1949	Dec. 13, 1948	17.76	131,000
1929	Mar. 22, 1929	12.5	-	1950	Jan. 22, 1950	14.70	70,200
1930	Dec. 19, 1929	16.4	-				
				1951	Oct. 30, 1950	18.03	139,000
1931	Apr. 1, 1931	17.0	-	1952	Feb. 4, 1952	13.75	71,800
1932	Mar. 19, 1932	18.0	-	1953	Jan. 19, 1953	17.95	149,000
1933	Jan. 3, 1933	15.5	-	1954	Nov. 23, 1953	16.46	117,000
1934	Jan. 24, 1934	14.2	-	1955	Dec. 31, 1954	11.27	53,400
1935	Dec. 21, 1934	15.0	-				
				1956	Dec. 22, 1955	16.25	114,000
1936	Jan. 12, 1936	16.0	-	1957	Dec. 12, 1956	14.76	92,600

## 1665. Long Tom River near Notli, Oreg.

Location.--Lat 44°03'00", long 123°25'30", in sec.33, T.17 S., R.6 W., on left bank 0.2 mile upstream from Southern Pacific Railroad bridge, 0.9 mile downstream from Notli Creek, and 1.3 miles southeast of Notli.

Drainage area.--88 sq mi, approximately. Mean altitude, 740 ft; channel slope, 51 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording prior to Nov. 6, 1940; recording thereafter. Datum of gage is 388.76 ft above mean sea level (levels by U.S. Weather Bureau).

Stage-discharge relation.--Defined by current-meter measurements below 4,800 cfs and extended by logarithmic plotting.

Remarks.--Only annual peaks are shown prior to 1941. Base for partial-duration series, 1,600 cfs.

## WILLAMETTE RIVER BASIN

Peak stages and discharges of Long Tom River near Noti, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1936	Jan. 13, 1936	18.3	4,500	1949	Feb. 11, 1949	16.96	3,170
1937	Apr. 14, 1937	15.2	2,500		Feb. 18, 1949	18.62	4,930
1938	Mar. 19, 1938	17.5	3,530		Feb. 23, 1949	14.90	2,160
1939	Feb. 7, 1939	11.0	1,390	1950	Jan. 11, 1950	13.58	1,760
1940	Feb. 7, 1940	14.06	2,120		Jan. 22, 1950	16.22	2,720
1941	Jan. 19, 1941	12.52	1,700		Jan. 27, 1950	12.95	1,700
1942	Dec. 3, 1941	13.04	1,670		Feb. 9, 1950	13.21	1,660
	Dec. 20, 1941	14.64	2,060		Feb. 25, 1950	15.21	2,260
1943	Nov. 24, 1942	15.03	2,230	1951	Nov. 16, 1950	17.13	3,330
	Nov. 27, 1942	14.48	2,020		Jan. 18, 1951	16.42	3,020
	Nov. 30, 1942	13.94	1,850		Jan. 22, 1951	16.31	2,970
	Dec. 8, 1942	17.23	3,400	1952	Dec. 5, 1951	15.25	2,550
	Dec. 28, 1942	14.49	2,020		Feb. 4, 1952	14.27	2,160
	Jan. 1, 1943	18.28	4,500	1953	Jan. 19, 1953	17.69	3,790
	Feb. 7, 1943	14.61	2,100	1954	Nov. 23, 1953	15.2	2,530
	Apr. 1, 1943	15.93	2,640		Dec. 7, 1953	13.76	1,950
1944	Dec. 5, 1943	9.03	899		Dec. 20, 1953	16.78	3,550
1945	Feb. 8, 1945	14.20	1,920		Jan. 23, 1954	13.44	2,060
	Mar. 18, 1945	13.54	1,740		Jan. 28, 1954	18.56	5,400
1946	Nov. 28, 1945	15.36	2,340		Feb. 13, 1954	12.35	1,760
	Dec. 29, 1945	18.29	4,490		Feb. 21, 1954	13.03	1,940
	Jan. 5, 1946	13.58	1,760	1955	Dec. 31, 1954	11.54	1,560
	Feb. 7, 1946	14.58	2,040	1956	Nov. 19, 1955	12.67	1,840
1947	Nov. 27, 1946	13.82	1,820		Dec. 22, 1955	20.17	6,990
	Dec. 15, 1946	15.70	2,460		Dec. 26, 1955	15.76	3,230
	Feb. 2, 1947	13.58	1,760		Jan. 5, 1956	15.41	3,000
1948	Jan. 2, 1948	14.80	2,120		Jan. 16, 1956	15.00	2,750
	Jan. 7, 1948	18.43	4,670		Feb. 21, 1956	14.44	2,440
	Feb. 22, 1948	16.77	3,050		Mar. 4, 1956	13.10	1,960
1949	Dec. 12, 1948	16.18	2,700	1957	Feb. 26, 1957	13.85	2,260
					Mar. 8, 1957	14.24	2,400

1670. Coyote Creek near Crow, Oreg.

Location.--Lat 44°01'19", long 123°15'17", in NE<sup>1</sup>/<sub>4</sub> sec.11, T.18 S., R.5 W., on right bank just upstream from Fern Ridge Reservoir, 1.0 mile downstream from Spencer Creek and 5 miles northeast of Crow.

Drainage area.--94 sq mi, approximately. Mean altitude, 730 ft; channel slope, 48 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording gage and concrete control. Datum of gage is 374.0 ft above mean sea level (Corps of Engineers bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 4,700 cfs and extended by logarithmic plotting.

Bankfull stage.--10 ft.

Remarks.--Base for partial-duration series, 1,600 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1941	Dec. 21, 1940	10.61	1,550	1944	Feb. 9, 1944	9.02	623
1942	Nov. 15, 1941	11.06	2,010	1945	Feb. 8, 1945	11.38	2,030
	Dec. 3, 1941	12.89	5,200		Mar. 18, 1945	11.53	2,240
	Dec. 20, 1941	12.15	3,700	1946	Nov. 28, 1945	11.77	2,630
	Feb. 5, 1942	10.85	1,810		Dec. 28, 1945	14.13	9,260
1943	Dec. 8, 1942	13.60	7,370		Jan. 5, 1946	11.28	1,940
	Dec. 28, 1942	11.24	1,860		Mar. 13, 1946	11.13	1,780
	Jan. 1, 1943	13.21	6,110	1947	Nov. 27, 1946	11.26	1,920
	Jan. 22, 1943	11.44	2,120		Dec. 15, 1946	10.94	1,610
	Jan. 28, 1943	11.13	1,730				

Peak stages and discharges of Coyote Creek near Crow, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	Jan. 3, 1948	10.99	1,650	1953	Jan. 9, 1953	11.19	2,390
	Jan. 7, 1948	14.08	9,080		Jan. 18, 1953	12.89	5,460
	Feb. 22, 1948	12.33	3,820	1954	Nov. 23, 1953	11.45	3,040
1949	Dec. 12, 1948	11.70	2,770		Dec. 7, 1953	10.91	2,280
	Feb. 11, 1949	12.39	3,950		Dec. 20, 1953	11.84	3,670
	Feb. 18, 1949	13.01	5,520		Jan. 17, 1954	11.38	2,950
	Feb. 23, 1949	11.51	2,530		Jan. 28, 1954	13.72	8,120
1950	Jan. 10, 1950	11.53	2,560	1955	Apr. 13, 1955	9.78	1,280
	Jan. 22, 1950	12.58	4,380		1956	Nov. 19, 1955	11.1
	Jan. 27, 1950	11.81	2,320	Dec. 21, 1955		14.32	10,100
	Feb. 8, 1950	10.66	1,680	Dec. 26, 1955		14.21	9,690
1951	Oct. 29, 1950	12.98	5,690	Jan. 7, 1956		11.12	2,370
	Nov. 16, 1950	13.89	8,500	Jan. 16, 1956	11.88	3,400	
	Jan. 17, 1951	12.61	4,790	Feb. 21, 1956	12.67	4,930	
	Jan. 22, 1951	11.14	2,320	Mar. 4, 1956	10.74	1,970	
	Feb. 12, 1951	10.58	1,690	1957	Feb. 26, 1957	11.78	3,240
	1952	Nov. 30, 1951	10.81		1,930	Mar. 8, 1957	10.40
Dec. 5, 1951		11.73	3,160		Mar. 13, 1957	10.62	1,860
Dec. 30, 1951		10.90	2,030				
Jan. 10, 1952		10.76	1,880				

1690. Long Tom River below Fern Ridge Dam, near Smithfield, Oreg.  
(Published as "at Smithfield" prior to October 1943, and as "near Alvadore"  
for records subsequent to 1959)

Location.--Lat 44°07'25", long 123°17'55", in SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.4, T.17 S., R.5 W., on left bank in canalized river channel, 1,000 ft downstream from Fern Ridge Dam and 1.7 miles west of Alvadore.

Drainage area.--252 sq mi, not including Amazon Creek basin. At site used prior to October 1943, 263 sq mi.

Gage.--Recording. Masonry control since Oct. 1, 1943. Prior to Oct. 1, 1943, at site 2.5 miles downstream at datum 11.09 ft lower. Datum of gage is 332.00 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 8,200 cfs and extended by logarithmic plotting.

Bankfull stage.--10 ft at site used prior to 1943.

Historical data.--Floods of 1861 and 1890 reached stages of 26.6 and 26.1 ft respectively, former site and datum (determined by Corps of Engineers).

Remarks.--Flow regulated by Fern Ridge Reservoir since Nov. 13, 1941 (capacity, 101,200 acre-ft). Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1862	December 1861	26.6	-	1947	Dec. 17, 1946	6.28	3,200
				1948	Jan. 12, 1948	6.42	3,680
1890	February 1890	26.1	-	1949	Feb. 25, 1949	6.60	3,880
				1950	Feb. 1, 1950	7.33	4,510
1940	Feb. 8, 1940	13.69	4,360	1951	Nov. 22, 1950	6.83	3,520
1941	Jan. 20, 1941	13.26	2,970		Feb. 5, 1952	7.14	3,800
1942	Jan. 15, 1942	13.16	2,330	1953	Jan. 23, 1953	6.96	3,630
1943	Jan. 1, 1943	15.12	11,500	1954	Feb. 6, 1954	7.57	4,180
1944	Nov. 14, 1943	5.46	2,070	1955	Dec. 31, 1954	6.41	3,170
1945	Mar. 24, 1945	5.99	2,910		1956	Dec. 26, 1955	13.97
1946	Feb. 8, 1946	6.22	3,090	1957	Mar. 1, 1957	7.18	3,960

1700. Long Tom River at Monroe, Oreg.  
(Published as "near Monroe" prior to October 1930)

Location.--Lat 44°18'50", long 123°17'45", in NE $\frac{1}{4}$  sec.33, T.14 S., R.5 W., on left bank in canalized river channel at Monroe, just downstream from Shafer Creek and 800 ft upstream from a concrete drop structure.

Drainage area.--391 sq mi. At site used prior to October 1930, 394 sq mi.

Gage.--Nonrecording at different sites and datums within 1 $\frac{1}{2}$  miles downstream prior to Nov. 24, 1944; recording thereafter. Present site has concrete control. Datum of gage is 270.00 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 15,000 cfs and extended by logarithmic plotting.

Bankfull stage.--8 ft, 10 ft, at sites used 1931-44; 14 ft at present site.

Remarks.--Since Nov. 13, 1941, flow regulated by Fern Ridge Reservoir (capacity, 101,200 acre-ft). Peak discharges for extreme floods include overflow from Willamette River near Junction City. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1921	Dec. 12, 1920	11.1	6,900	1940	Feb. 29, 1940	13.04	5,790
1922	Nov. 22, 1921	10.9	6,500				
1923	Jan. 7, 1923	14.4	18,600	1941	Dec. 23, 1940	11.70	3,590
1924	Feb. 4, 1924	9.2	3,840	1942	Jan. 9, 1942	12.24	4,180
1925	Nov. 2, 1924	12.9	12,600	1943	Jan. 2, 1943	17.14	19,300
				1944	Nov. 5, 1943	10.78	2,610
1926	Feb. 7, 1926	14.4	17,300	1945	Mar. 22, 1945	7.65	3,950
1927	Feb. 21, 1927	14.2	14,400				
1928	Apr. 2, 1928	11.45	6,540	1946	Dec. 28, 1945	8.54	6,040
1929	Dec. 31, 1928	10.85	5,450	1947	Dec. 15, 1946	8.37	5,600
1930	Dec. 20, 1929	12.55	9,400	1948	Jan. 7, 1948	9.20	7,920
				1949	Feb. 17, 1949	9.04	7,440
1931	Apr. 3, 1931	12.40	4,910	1950	Jan. 10, 1950	8.72	6,530
1932	Dec. 29, 1931	12.86	5,740				
1933	Jan. 3, 1933	15.6	13,000	1951	Nov. 16, 1950	8.89	7,100
1934	Dec. 22, 1933	13.70	7,390	1952	Dec. 3, 1951	8.40	5,860
1935	Dec. 31, 1934	13.86	7,860	1953	Jan. 18, 1953	8.56	6,250
				1954	Jan. 28, 1954	8.69	6,580
1936	Jan. 13, 1936	16.10	15,300	1955	Jan. 1, 1955	7.74	4,670
1937	Feb. 4, 1937	15.30	11,800				
1938	Mar. 20, 1938	15.6	13,000	1956	Dec. 22, 1955	10.26	11,000
1939	Feb. 9, 1939	12.3	4,440	1957	Mar. 13, 1957	8.04	5,290

1705. Rock Creek near Philomath, Oreg.

Location.--Lat 44°30'05", long 123°26'20", in NE $\frac{1}{4}$  sec.29, T.12 S., R.6 W., on right bank 250 ft upstream from State Highway 34, 0.2 mile upstream from mouth, and 4 $\frac{1}{2}$  miles southwest of Philomath.

Drainage area.--14.6 sq mi. Mean altitude, 1,510 ft; channel slope, 314 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording at present site and datum prior to 1953; nonrecording thereafter. Station has concrete control. Datum of gage is 354.16 ft above mean sea level, datum of 1929 (Oregon State Highway Department bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 810 cfs and extended by slope-area measurement at 2,190 cfs.

Bankfull stage.--5.5 ft.

Remarks.--Only annual peaks are shown 1953-57. Base for partial-duration series, 500 cfs.

Peak stages and discharges of Rock Creek near Philomath, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1946	Nov. 27, 1945	4.80	1,090	1950	Jan. 8, 1950	4.56	1,010	
	Dec. 28, 1945	3.70	600		Feb. 8, 1950	3.51	544	
	Feb. 5, 1946	4.75	1,060		Feb. 24, 1950	3.59	576	
1947	Nov. 18, 1946	3.55	540	1951	Nov. 18, 1950	4.70	1,080	
	Dec. 15, 1946	4.09	760		Jan. 17, 1951	4.50	980	
	Feb. 1, 1947	3.75	620		Jan. 21, 1951	3.99	746	
1948	Oct. 17, 1947	3.66	584	1952	Dec. 4, 1951	5.20	1,350	
	Oct. 19, 1947	3.66	584		Feb. 3, 1952	3.48	532	
	Jan. 1, 1948	3.84	656	1953	Jan. 18, 1953	4.58	1,000	
	Jan. 6, 1948	5.78	1,650		Nov. 23, 1953	4.42	938	
	Feb. 21, 1948	3.66	584		1955	Dec. 30, 1954	3.73	662
	1949	Dec. 11, 1948	4.01		724	1956	Dec. 21, 1955	6.82
Feb. 10, 1949		5.30	1,360	1957	Feb. 24, 1957		3.81	694
Feb. 17, 1949		5.23	1,320					
Feb. 22, 1949		4.66	1,020					

## 1710. Marys River near Philomath, Oreg.

Location.--Lat 44°31'35", long 123°20'00", in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.18, T.12 S., R.5 W., near midspan on downstream side of bridge on Bellfountain Road, 0.6 mile downstream from Newton Creek and 2.0 miles southeast of Philomath.

Drainage area.--159 sq mi (including drainage area of Evergreen Creek above Bellfountain Road,  $\frac{1}{2}$  miles south of station). Mean altitude, 925 ft; channel slope, 51 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording. Altitude of gage is 218 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--17 ft.

Remarks.--Records include flow of Evergreen Creek at road crossing  $\frac{1}{2}$  miles south, with which overflow from Marys River is mingled. Base for partial-duration series, 3,200 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1941	Jan. 18, 1941	15.98	2,570	1950	Feb. 8, 1950	18.23	3,800
					Feb. 25, 1950	18.08	3,710
1942	Dec. 20, 1941	17.9	3,680	1951	Nov. 16, 1950	20.19	6,220
	Feb. 4, 1942	18.2	3,840		Jan. 17, 1951	20.3	6,480
1943	Nov. 23, 1942	18.2	3,780		Jan. 21, 1951	19.58	5,060
	Nov. 27, 1942	19.2	5,180		Mar. 15, 1951	17.97	3,440
	Dec. 8, 1942	19.27	5,300	1952	Dec. 5, 1951	20.1	6,010
	Jan. 1, 1943	20.46	7,720		Feb. 3, 1952	18.66	4,090
	Feb. 6, 1943	20.23	7,170	1953	Jan. 9, 1953	19.55	5,020
	Mar. 31, 1943	19.76	6,180		Jan. 18, 1953	20.8	7,920
1944	Dec. 4, 1943	15.67	2,430	1954	Nov. 23, 1953	19.6	5,090
1945	Feb. 8, 1945	19.2	4,500		Dec. 6, 1953	19.8	5,420
1946	Nov. 27, 1945	20.22	5,420	Dec. 10, 1953	18.54	4,000	
	Dec. 29, 1945	19.73	4,960	Dec. 19, 1953	18.0	3,670	
	Feb. 6, 1946	19.6	4,840	Jan. 22, 1954	19.7	5,250	
1947	Dec. 15, 1946	20.67	8,250	Jan. 27, 1954	20.0	5,800	
	Feb. 2, 1947	19.02	4,900	Feb. 13, 1954	19.9	5,600	
1948	Oct. 20, 1947	17.9	3,560	1955	Dec. 31, 1954	18.0	3,670
	Jan. 7, 1948	20.57	8,000		1956	Nov. 19, 1955	18.50
	Feb. 22, 1948	19.68	6,030	Dec. 21, 1955		20.83	8,660
1949	Dec. 12, 1948	20.12	6,060	Dec. 26, 1955	16.95	3,500	
	Feb. 10, 1949	20.61	7,330	Jan. 4, 1956	20.68	8,130	
	Feb. 17, 1949	20.55	7,160	Jan. 16, 1956	19.00	4,500	
	1950	Jan. 7, 1950	19.6	5,090	Feb. 21, 1956	18.30	3,960
Jan. 10, 1950		19.13	4,510	Mar. 4, 1956	18.93	4,440	
Jan. 23, 1950		19.29	4,680	1957	Dec. 11, 1956	17.89	3,740
			Feb. 26, 1957		17.85	3,720	

## WILLAMETTE RIVER BASIN

1715. Muddy Creek near Corvallis, Oreg.

Location.--Lat 44°29'50", long 123°19'45", in sec.29, T.12 S., R.5 W., near left bank on upstream side of bridge, 0.8 mile downstream from Bull Run Creek and 5 miles southwest of Corvallis.

Drainage area.--107 sq mi.

Gage.--Nonrecording prior to Dec. 18, 1925, at datum 1.00 ft higher; gage heights herein adjusted to described datum. Datum of gage is 218.47 ft above mean sea level, adjustment of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 1,700 cfs and extended by logarithmic plotting.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1921	Nov. 19, 1920	16.5	2,100	1926	Feb. 6, 1926	18.4	3,420
1922	Nov. 21, 1921	18.2	3,280	1927	Feb. 22, 1927	17.7	3,400
1923	Jan. 7, 1923	18.53	3,500				

1720. Calapooya River at Holley, Oreg.

Location.--Lat 44°21'05", long 122°47'10", in SE $\frac{1}{4}$  sec.15, T.14 S., R.1 W., on right bank 200 ft downstream from bridge on State Highway 288, 0.3 mile southwest of Holley, and 5.0 miles upstream from Brush Creek.

Drainage area.--105 sq mi. Mean altitude, 2,060 ft; channel slope, 93.2 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording. Datum of gage is 527.20 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 9,600 cfs and extended by logarithmic plotting.

Bankfull stage.--10.5 ft.

Remarks.--Base for partial-duration series, 3,400 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1936	Jan. 4, 1936	9.2	6,200	1945	Feb. 8, 1945	7.90	4,420
	Jan. 11, 1936	9.0	5,950		Feb. 13, 1945	7.40	3,990
1937	Apr. 14, 1937	8.2	5,030	1946	Nov. 18, 1945	6.75	3,410
1938	Nov. 20, 1937	6.8	3,540		Nov. 27, 1945	8.85	5,370
	Dec. 27, 1937	7.36	4,110		Dec. 28, 1945	14.1	12,200
	Dec. 30, 1937	7.55	4,320		Mar. 12, 1946	7.18	3,790
	Mar. 18, 1938	9.0	5,950	1947	Nov. 26, 1946	7.72	4,280
1939	Feb. 15, 1939	7.2	3,950		Dec. 14, 1946	9.48	6,150
1940	Feb. 6, 1940	5.6	2,400	1948	Jan. 2, 1948	6.89	3,530
1941	Jan. 18, 1941	5.7	2,560		Jan. 7, 1948	11.5	8,450
1942	Nov. 15, 1941	8.10	4,920		Feb. 22, 1948	9.9	6,540
	Dec. 2, 1941	7.7	4,480	1949	Dec. 12, 1948	11.1	7,930
	Dec. 18, 1941	7.5	4,260		Feb. 18, 1949	10.82	7,590
1943	Nov. 23, 1942	8.92	5,510		Feb. 22, 1949	8.09	4,670
	Nov. 27, 1942	8.8	5,380		May 2, 1949	7.60	4,180
	Nov. 29, 1942	8.90	5,490	1950	Jan. 22, 1950	9.0	5,580
	Dec. 27, 1942	7.40	3,920		Feb. 24, 1950	8.76	5,340
	Dec. 31, 1942	12.10	9,400		Mar. 17, 1950	7.10	3,720
	Mar. 31, 1943	7.30	3,820	1951	Oct. 29, 1950	9.27	5,870
1944	Nov. 4, 1943	6.85	3,420		Nov. 2, 1950	7.68	4,260
					Nov. 17, 1950	8.3	4,880
					Jan. 17, 1951	8.66	5,060

## Peak stages and discharges of Calapooya River at Holley, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1951	Jan. 24, 1951	7.34	3,770	1954	Jan. 28, 1954	9.70	7,040	
1952	Oct. 23, 1951	6.9	3,540	1955	Dec. 30, 1954	7.40	4,450	
	Dec. 5, 1951	6.76	3,410					
	Feb. 3, 1952	6.8	3,450		1956	Nov. 19, 1955	8.46	5,610
1953	Jan. 9, 1953	7.52	4,100	Dec. 12, 1955		7.76	4,840	
	Jan. 18, 1953	11.80	9,560	Dec. 21, 1955		12.67	10,700	
	Feb. 3, 1953	7.10	4,150	Dec. 26, 1955		6.35	3,470	
1954				Jan. 15, 1956		7.8	4,920	
	Nov. 22, 1953	12.16	9,990	1957	Dec. 11, 1956	9.10	7,030	
	Dec. 6, 1953	7.60	4,660		Feb. 26, 1957	8.22	5,960	
	Dec. 9, 1953	7.30	4,350		Mar. 7, 1957	6.63	4,060	
	Dec. 19, 1953	8.42	5,560					

## 1735. Calapooya River at Albany, Oreg.

Location.--Lat 44°37'15", long 123°07'40", in NW¼ sec.13, T.11 S., R.4 W., near right bank on upstream side of bridge on Riverside Drive at Albany, 0.6 mile downstream from Oak Creek and 3.0 miles upstream from mouth.

Drainage area.--372 sq mi. Mean altitude, 955 ft; channel slope, 40.3 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording. Datum of gage is 180.37 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 21,000 cfs and extended by logarithmic plotting. Affected by backwater from Willamette River at flood stages.

Bankfull stage.--15 ft.

Remarks.--Only annual peaks are shown.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1941	Dec. 22, 1940	14.75	5,250	1951	Oct. 30, 1950	a20.70	16,000
1942	Dec. 20, 1941	18.52	10,200	1952	Dec. 6, 1951	17.79	9,400
1943	Jan. 2, 1943	a25.5	18,400	1953	Jan. 19, 1953	-	15,400
1944	Nov. 6, 1943	11.0	2,920		Jan. 20, 1953	a22.66	-
1945	Mar. 22, 1945	15.07	5,460	1954	Jan. 28, 1954	20.38	19,900
				1955	Jan. 1, 1955	15.08	6,380
1946	Dec. 30, 1945	a25.0	14,500				
1947	Dec. 16, 1946	20.55	11,500	1956	Dec. 22, 1955	22.12	32,700
1948	Jan. 8, 1948	a23.83	24,900	1957	Feb. 27, 1957	17.62	9,740
1949	Feb. 19, 1949	a21.2	23,600				
1950	Jan. 23, 1950	18.53	11,400				

a Backwater from Willamette River.

## 1740. Willamette River at Albany, Oreg.

Location.--Lat 44°38'20", long 123°06'20", in SW $\frac{1}{4}$  sec.6, T.11 S., R.3 W., on right bank 5 ft upstream from bridge on U.S. Highway 20 (Ellsworth St.) at Albany, 0.25 mile downstream from Calapooya River, and at mile 120.0.

Drainage area.--4,840 sq mi, approximately. Mean altitude, 2,230 ft; channel slope, 40.3 ft per mile; area of lakes and ponds, 12.7 sq mi.

Gage.--Nonrecording prior to Nov. 14, 1934; recording thereafter. At site 0.2 mile upstream prior to Sept. 27, 1906. At site 300 ft upstream Sept. 27, 1906, to Nov. 14, 1934. Datum of gage is 172.18 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 220,000 cfs and extended by logarithmic plotting.

Bankfull stage.--20 ft.

Remarks.--Albany power canal diverts water from South Santiam River at Lebanon and discharges into Calapooya River near mouth; flow regulated by Fern Ridge Reservoir (capacity, 101,200 acre-ft) since November 1941, Cottage Grove Reservoir (capacity, 32,940 acre-ft) since October 1942, Dorena Reservoir (capacity, 77,510 acre-ft) since October 1949, and Lookout Point Reservoir (capacity, 349,400 acre-ft) since November 1953. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1862	Dec. 4, 1861	36.0	a340,000	1921	Jan. 1, 1921	23.5	118,000
1878	Nov. 27, 1877	17.0	63,700	1922	Nov. 23, 1921	23.2	122,000
1879	Mar. 27, 1879	23.2	114,000	1923	Jan. 8, 1923	30.0	206,000
1880	Dec. 7, 1879	23.5	116,000	1924	Feb. 3, 1924	13.2	52,000
1881	Jan. 14, 1881	32.8	266,000	1925	Feb. 6, 1925	23.5	130,000
1882	Mar. 2, 1882	24.8	127,000	1926	Feb. 8, 1926	24.7	143,000
1884	Feb. 22, 1884	21.5	101,000	1927	Feb. 22, 1927	29.2	191,000
1890	Feb. 4, 1890	33.9	291,000	1928	Mar. 13, 1928	17.6	74,000
1893	Feb. 13, 1893	18.4	79,700	1929	Mar. 23, 1929	13.8	50,800
1894	Jan. 16, 1894	28.2	173,000	1930	Dec. 21, 1929	20.4	91,500
1895	Jan. 14, 1895	19.4	86,400	1931	Apr. 3, 1931	22.9	109,000
1896	Jan. 23, 1896	25.0	128,000	1932	Mar. 21, 1932	25.5	134,000
1897	Nov. 18, 1896	28.5	178,000	1933	Mar. 4, 1933	20.8	94,500
1898	Dec. 15, 1897	19.2	85,100	1934	Jan. 25, 1934	18.2	76,300
1899	Mar. 3, 1899	23.0	112,000	1935	Dec. 23, 1934	17.72	73,200
1900	Jan. 15, 1900	25.1	130,000	1936	Jan. 13, 1936	24.3	125,000
1901	Jan. 15, 1901	31.2	231,000	1937	Apr. 16, 1937	24.5	127,000
1902	Dec. 10, 1901	19.2	85,100	1938	Mar. 20, 1938	21.24	96,800
1903	Jan. 26, 1903	31.3	233,000	1939	Feb. 17, 1939	15.55	61,000
1904	Feb. 17, 1904	24.7	126,000	1940	Mar. 1, 1940	15.56	59,000
1905	Dec. 31, 1904	18.5	80,400	1941	Dec. 28, 1940	11.86	41,200
1906	Feb. 25, 1906	15.1	59,200	1942	Nov. 18, 1941	19.97	86,000
1907	Feb. 6, 1907	30.7	220,000	1943	Jan. 2, 1943	30.6	218,000
1908	Dec. 27, 1907	28.7	182,000	1944	Nov. 6, 1943	12.97	46,300
1909	Jan. 22, 1909	23.8	119,000	1945	Feb. 15, 1945	18.96	71,100
1910	Nov. 24, 1909	31.0	226,000	1946	Dec. 30, 1945	30.0	206,000
1911	Jan. 20, 1911	19.4	78,000	1947	Dec. 16, 1946	25.82	138,000
1912	Jan. 14, 1912	26.2	145,000	1948	Jan. 8, 1948	28.87	185,000
1913	Apr. 1, 1913	21.2	91,500	1949	Dec. 14, 1948	25.75	137,000
1914	Jan. 26, 1914	17.6	67,100	1950	Jan. 24, 1950	22.00	99,000
1915	Jan. 15, 1915	14.9	53,000	1951	Oct. 31, 1950	26.01	146,000
1916	Feb. 8, 1916	27.7	165,000	1952	Dec. 6, 1951	18.62	81,900
1917	Apr. 9, 1917	14.2	49,500	1953	Jan. 20, 1953	28.03	174,000
1918	Dec. 25, 1917	20.5	91,200	1954	Nov. 25, 1953	22.42	112,000
1919	Jan. 24, 1919	20.0	87,500	1955	Jan. 1, 1955	14.62	62,200
1920	Jan. 28, 1920	17.1	69,000	1956	Dec. 23, 1955	26.70	155,000
				1957	Mar. 9, 1957	18.04	80,800

a Maximum stage and discharge known.

## 1741. Cox Creek at Albany, Oreg.

Location.--Lat 44°38'35", long 123°04'05", in SW $\frac{1}{4}$  sec.4, T.11 S., R.3 W., at dam under bridge on old U.S. Highway 99 at Albany.

Drainage area.--15.2 sq mi. Mean altitude, 261 ft; channel slope, 16.7 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording gage above concrete dam. Altitude of gage is 210 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 151 cfs and extended on basis of computations of flow over dam.

Remarks.--Only annual peaks are shown.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	Jan. 20, 1953	11.22	329	1956	Dec. 21, 1955	12.34	765
1954	Jan. 28, 1954	12.23	716	1957	Mar. 7, 1957	11.22	329
1955	Dec. 30, 1954	10.98	251				

1780. North Santiam River below Boulder Creek, near Detroit, Oreg.  
(Published as "at Detroit", prior to October 1952)

Location.--Lat 44°42'25", long 122°06'00", in SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.17, T.10 S., R.6 E., on right bank 0.5 mile downstream from Boulder Creek and 3.0 miles southeast of Detroit.

Drainage area.--216 sq mi. At measuring cable 2 $\frac{1}{2}$  miles downstream October 1928 to June 1932, 229 sq mi. At site used July 1932 to September 1952, 224 sq mi. Mean altitude, 3,720 ft; channel slope, 123 ft per mile; area of lakes and ponds, 1.0 sq mi.

Gage.--Nonrecording prior to July 1, 1932; recording thereafter. At site  $1\frac{1}{2}$  miles downstream at different datum prior to Oct. 31, 1909. At site 2 $\frac{1}{2}$  miles downstream at different datum Oct. 1, 1928, to June 30, 1932. July 1, 1932, to Sept. 30, 1952, at site 2 miles downstream at datum 114.39 ft lower. Datum of gage is 1,590.07 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 17,000 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Only annual peaks are shown prior to 1932. Base for partial-duration series, 3,700 cfs.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1907	Feb. 5, 1907	12.6	9,760	1938	Dec. 11, 1937	5.71	4,870
1908	Mar. 15, 1908	8.8	5,920		Dec. 30, 1937	5.78	5,040
1909	Jan. 20, 1909	8.7	5,820		Jan. 22, 1938	6.96	7,290
					Apr. 1, 1938	5.54	4,540
1929	Mar. 21, 1929	3.6	2,520				
1930	Dec. 18, 1929	7.1	8,550	1939	Dec. 5, 1938	4.56	3,170
1931	Mar. 31, 1931	10.0	15,000	1940	Feb. 6, 1940	5.67	4,820
1932	Mar. 19, 1932	7.2	8,740	1941	Nov. 29, 1940	4.30	2,850
	Mar. 24, 1932	4.4	3,840				
1933	Nov. 5, 1932	5.05	3,710	1942	Nov. 15, 1941	5.88	5,190
	June 9, 1933	7.26	7,580		Dec. 2, 1941	7.0	7,290
					Dec. 19, 1941	5.76	4,970
1934	Dec. 6, 1933	5.56	4,700	1943	Nov. 23, 1942	9.25	12,200
	Dec. 22, 1933	8.48	10,500		Nov. 27, 1942	7.77	8,880
	Jan. 23, 1934	7.37	8,100		Nov. 29, 1942	8.43	10,300
1935	Dec. 20, 1934	6.42	6,120		Dec. 1, 1942	6.00	5,390
					Dec. 27, 1942	6.23	5,800
1936	Jan. 2, 1936	5.06	3,920		Dec. 31, 1942	9.16	11,900
	Jan. 4, 1936	6.36	6,120		Mar. 31, 1943	5.23	4,120
	Jan. 11, 1936	6.62	6,500	1944	Nov. 4, 1943	5.05	3,840
1937	Apr. 14, 1937	7.05	7,290	1945	Feb. 8, 1945	7.41	7,850
	June 20, 1937	5.63	4,700		Feb. 13, 1945	6.22	5,580
1938	Nov. 20, 1937	5.09	3,920	1946	Nov. 27, 1945	6.26	5,630
	Nov. 25, 1937	5.10	3,920		Dec. 28, 1945	11.24	20,300

## WILLAMETTE RIVER BASIN

Peak stages and discharges of North Santiam River below Boulder Creek,  
near Detroit, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1947	Nov. 18, 1946	5.89	5,020	1952	Dec. 1, 1951	5.37	4,220	
	Nov. 27, 1946	5.82	4,910					
	Dec. 15, 1946	10.00	15,800					
	Jan. 26, 1947	5.04	3,760					
1948	Oct. 18, 1947	5.47	4,380	1953	Jan. 9, 1953	6.21	5,780	
	Jan. 7, 1948	10.31	16,900		Jan. 12, 1953	5.94	5,110	
	Feb. 22, 1948	5.98	5,170		Jan. 18, 1953	8.64	13,700	
					Feb. 3, 1953	6.26	5,750	
1949	Dec. 12, 1948	5.07	3,800	1954	Feb. 5, 1953	5.80	4,650	
	May 2, 1949	7.28	7,570		Nov. 23, 1953	7.30	8,600	
	May 13, 1949	5.13	3,880		Dec. 9, 1953	5.39	3,830	
					Dec. 19, 1953	7.74	10,100	
1950	Nov. 27, 1949	6.23	5,580	1955	June 9, 1955	5.71	4,470	
	Jan. 22, 1950	5.29	4,110		1956	Nov. 19, 1955	5.85	4,750
	Feb. 25, 1950	7.02	7,030			Nov. 26, 1955	6.42	6,150
	June 12, 1950	5.29	4,110			Dec. 12, 1955	6.73	6,920
1951	Oct. 29, 1950	6.78	6,560	Dec. 22, 1955		8.98	15,200	
	Nov. 2, 1950	8.00	9,360	Jan. 15, 1956	6.93	6,720		
	Dec. 7, 1950	6.72	6,450	1957	Dec. 11, 1956	7.89	10,600	
	Feb. 7, 1951	5.78	4,850		Feb. 26, 1957	7.03	7,690	
	Feb. 11, 1951	6.13	5,410		Mar. 7, 1957	6.13	5,310	
1952	Oct. 23, 1951	5.41	4,280					

1790. Breitenbush River above Canyon Creek, near Detroit, Oreg.  
(Prior to October 1952, published as "above French Creek, near Detroit")

Location.--Lat 44°45'10", long 122°07'40", in SE<sup>1</sup>NE<sup>1</sup> sec.36, T.9 S., R.5 E., on left bank 600 ft upstream from Canyon Creek and 1.5 miles northeast of Detroit.

Drainage area.--106 sq mi. At site prior to Oct. 1, 1952, 108 sq mi. Mean altitude, 3,720 ft; channel slope, 220 ft per mile; area of lakes and ponds, 0.1 sq mi.

Gage.--Recording. Prior to Oct. 1, 1952, at site 0.2 mile downstream at datum 13.46 ft lower. Datum of gage is 1,573.95 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--Not subject to overflow.

Remarks.--Base for partial-duration series, 4,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1932	Mar. 19, 1932	6.2	4,090	1943	Nov. 29, 1942	8.33	6,980
1933	Nov. 5, 1932	6.44	4,330		Dec. 27, 1942	6.60	4,620
	Nov. 15, 1932	6.32	4,210		Jan. 1, 1943	7.67	6,040
	June 9, 1933	6.70	4,690	1944	Nov. 4, 1943	6.24	4,150
1934	Dec. 6, 1933	7.00	5,080		1945	Feb. 1, 1945	7.60
	Dec. 22, 1933	9.08	8,100	Feb. 13, 1945		6.31	4,120
	Jan. 23, 1934	8.38	7,060	1946	Nov. 27, 1945	7.16	5,160
1935	Oct. 24, 1934	6.42	4,360		Dec. 28, 1945	11.86	11,600
	Dec. 20, 1934	8.4	7,060	1947	Nov. 18, 1946	6.56	4,420
1936	Jan. 2, 1936	6.79	4,880		Dec. 15, 1946	9.70	8,520
	Jan. 4, 1936	7.26	5,530	1948	Oct. 18, 1947	6.40	4,230
	Jan. 11, 1936	7.09	5,270		Jan. 7, 1948	10.53	9,680
Apr. 14, 1937	7.27	5,530	Feb. 22, 1948		7.36	5,420	
1938	Dec. 29, 1937	7.20	5,400	1949	May 2, 1949	7.3	5,340
	Jan. 22, 1938	7.72	6,080		1950	Nov. 27, 1949	6.68
1939	Dec. 5, 1938	5.18	2,920	Jan. 22, 1950		6.65	4,350
	Feb. 6, 1940	6.45	4,420	Feb. 25, 1950		7.86	5,920
1941	Nov. 29, 1940	6.09	3,970	1951	Oct. 29, 1950	6.92	4,700
1942	Dec. 2, 1941	7.39	5,650		Nov. 2, 1950	8.19	6,350
	Dec. 19, 1941	6.55	4,560		Dec. 6, 1950	6.43	4,150
1943	Nov. 23, 1942	10.56	9,710	Feb. 11, 1951	6.43	4,150	
	Nov. 27, 1942	7.82	6,210	1952	Oct. 23, 1951	5.97	3,630
			1953		Jan. 9, 1953	8.35	5,180

Peak stages and discharges of Breitenbush River above Canyon Creek,  
near Detroit, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	Jan. 18, 1953	10.95	9,490	1956	Nov. 26, 1955	8.69	5,680
	Feb. 3, 1953	7.55	4,080		Dec. 12, 1955	8.79	5,840
1954	Nov. 22, 1953	9.73	7,390	Dec. 22, 1955	10.80	9,220	
	Dec. 19, 1953	10.68	9,010	Jan. 15, 1956	10.07	7,970	
				1957	Dec. 11, 1956	10.10	8,020
1955	Dec. 30, 1954	6.72	3,070		Feb. 26, 1957	8.72	5,910

1815. North Santiam River at Niagara, Oreg.

(Published as North Fork Santiam River near Niagara 1908-12,  
and as "above Mayflower Creek, near Detroit" 1938-52)Location--Lat 44°45'10", long 122°17'50", in NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.34, T.9 S., R.4 E., on left bank 0.8 mile downstream from Big Cliff Dam and 2.1 miles east of Niagara.Drainage area--453 sq mi. At site used 1908-22, 467 sq mi. At site 1938-52, 438 sq mi. Mean altitude, 3,510 ft; channel slope, 99.3 ft per mile; area of lakes and ponds, 1.2 sq mi.Gage--Nonrecording prior to Oct. 1, 1938, at site below Bad Banks Creek 2.6 miles downstream at altitude 980 ft (from river-profile map). Non-recording or recording gage Oct. 1, 1938, to Sept. 30, 1952, at different sites and datums about 3.5 miles upstream. Datum of present recording gage is 1,093.78 ft above mean sea level (Bureau of Public Roads bench mark).Stage-discharge relation--Defined by current-meter measurements below 35,000 cfs and extended by logarithmic plotting.Bankfull stage--Not subject to overflow.Remarks--Flow regulated since January 1953 by Detroit Reservoir (usable capacity, 340,200 acre-ft), and by Big Cliff Reservoir (usable capacity for reregulating purposes, 2,930 acre-ft); peaks significantly affected. Only annual peaks are shown 1909-22 and 1953-57. Base for partial-duration series, 10,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1909	Jan. 20, 1909	10.0	21,500	1946	Nov. 27, 1945	11.75	17,000
1910	Nov. 22, 1909	16.4	63,200		Dec. 28, 1945	18.20	41,200
					Jan. 24, 1946	10.26	12,600
1912	Jan. 13, 1912	13.0	39,000	1947	Nov. 18, 1946	11.35	15,800
1913	Mar. 30, 1913	9.0	17,000		Nov. 27, 1946	11.01	14,700
1914	Jan. 22, 1914	8.4	14,600		Dec. 15, 1946	15.75	31,100
1915	Oct. 19, 1914	5.6	6,680	Jan. 26, 1947	10.57	13,400	
1916	Dec. 22, 1915	11.0	27,000	1948	Oct. 18, 1947	10.84	14,200
1917	Nov. 27, 1916	6.9	9,750		Jan. 2, 1948	10.29	12,700
1918	Dec. 19, 1917	12.7	37,200		Jan. 7, 1948	16.62	34,600
1919	Jan. 22, 1919	10.7	24,600		Feb. 22, 1948	12.17	18,300
1920	Nov. 4, 1919	14.1	46,700				
1922	Nov. 20, 1921	14.0	46,000	1949	Dec. 12, 1948	10.43	13,000
					May 2, 1949	12.06	18,000
1939	Dec. 5, 1938	11.1	10,800	1950	Nov. 27, 1949	10.95	10,500
1940	Feb. 6, 1940	10.52	13,600		Jan. 22, 1950	11.38	11,900
					Feb. 25, 1950	14.24	20,900
1941	Nov. 29, 1940	9.20	10,000		Mar. 17, 1950	11.17	10,400
1942	Nov. 15, 1941	9.82	11,700	1951	Oct. 29, 1950	13.30	16,800
	Dec. 2, 1941	11.86	17,400		Nov. 2, 1950	15.83	26,600
	Dec. 19, 1941	10.76	14,200		Dec. 7, 1950	12.14	13,100
			Feb. 8, 1951		-	11,000	
1943	Nov. 23, 1942	15.17	28,800	Feb. 11, 1951	12.24	13,400	
	Nov. 27, 1942	12.76	20,200	1952	Oct. 23, 1951	11.25	12,000
	Nov. 29, 1942	13.56	22,900		Dec. 1, 1951	11.10	11,600
	Dec. 1, 1942	10.16	12,500		Feb. 4, 1952	10.52	11,700
	Dec. 27, 1942	11.25	15,600				
	Jan. 1, 1943	14.10	24,900	1953	Feb. 10, 1953	8.36	12,700
	Feb. 6, 1943	9.40	10,500		Dec. 24, 1953	9.36	15,900
Mar. 31, 1943	10.40	13,200	June 11, 1955		7.62	9,810	
1944	Nov. 4, 1943	9.53	10,900	1956	Jan. 11, 1956	9.15	15,100
1945	Feb. 8, 1945	12.37	18,900		Dec. 15, 1956	8.64	13,200
	Feb. 13, 1945	-	13,000				

## 1817. North Santiam River tributary near Gates, Oreg.

Location.--Lat 44°45'20", long 122°23'25", in SW $\frac{1}{4}$  sec.25, T.9 S., R.3 E., at culvert on State Highway 22, 0.1 mile upstream from mouth and 1.3 miles east of Gates.

Drainage area.--1.97 sq mi. Mean altitude, 2,140 ft; channel slope, 708 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording. Altitude of gage is 1,030 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 38 cfs and extended on basis of computations of flow through culvert.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Dec. 22, 1951	16.25	47	1956	Dec. 21, 1955	17.28	81
1953	Jan. 9, 1953	17.44	86	1957	Mar. 7, 1957	15.83	32
1954	Nov. 23, 1953	16.96	71				
1955	Feb. 8, 1955	17.29	81				

## 1825. Little North Santiam River near Mehama, Oreg.

Location.--Lat 44°47'30", long 122°34'40", in NW $\frac{1}{4}$  sec.16, T.9 S., R.2 E., on left bank 2.0 miles east of Mehama and 2.0 miles upstream from mouth.

Drainage area.--110 sq mi. Mean altitude, 2,640 ft; channel slope, 130 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording prior to June 10, 1948; recording thereafter. Datum of gage is 655.41 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 13,000 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Only annual peaks are shown prior to 1949. Base for partial-duration series, 8,200 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1932	Mar. 18, 1932	12.46	13,900	1950	Feb. 25, 1950	10.4	8,860
1933	June 8, 1933	11.09	10,600				
1934	Dec. 22, 1933	14.7	18,900	1951	Nov. 2, 1950	11.18	10,800
1935	Oct. 24, 1934	10.96	10,400				
1936	Jan. 4, 1936	11.8	12,200	1952	Oct. 23, 1951	9.80	7,850
1937	Apr. 14, 1937	10.0	8,200				
1938	Dec. 30, 1937	13.7	16,500	1953	Jan. 9, 1953	-	-
1939	Dec. 2, 1938	10.17	8,570		Jan. 18, 1953	12.61	14,600
1940	Feb. 6, 1940	10.0	8,200		Feb. 3, 1953	10.00	9,080
1941	Nov. 29, 1940	10.06	8,330	1954	Nov. 22, 1953	13.10	15,700
1942	Nov. 15, 1941	10.5	9,300		Dec. 9, 1953	10.52	10,100
1943	Nov. 23, 1942	14.90	19,400		Dec. 20, 1953	-	11,000
1944	Nov. 4, 1943	9.9	7,990	1955	Dec. 30, 1954	11.88	13,000
1945	Feb. 8, 1945	11.6	11,700				
1946	Dec. 28, 1945	15.20	19,900	1956	Oct. 10, 1955	9.61	8,300
1947	Dec. 13, 1946	13.5	15,300		Nov. 19, 1955	10.38	9,840
1948	Jan. 7, 1948	13.0	14,800		Nov. 26, 1955	11.49	12,200
1949	May 1, 1949	10.52	9,120		Dec. 12, 1955	11.74	12,700
					Dec. 21, 1955	11.16	11,500
					Jan. 15, 1956	12.16	13,700
1950	Jan. 22, 1950	10.14	8,290	1957	Dec. 11, 1956	11.99	13,400

1830. North Santiam River at Mehama, Oreg.

(Published as "North Fork of Santiam River at Mehama" 1905-7, 1911-13)

Location.--Lat 44°47'20", long 122°37'00", in NW¼ sec.18, T.9 S., R.2 E., on right bank 300 ft downstream from highway bridge at Mehama and 0.5 mile downstream from Little North Santiam River.

Drainage area.--665 sq mi. Mean altitude, 3,350 ft; channel slope, 79.3 ft per mile; area of lakes and ponds, 1.2 sq mi.

Gage.--Nonrecording prior to June 15, 1933, at site 100 ft upstream at same datum; recording thereafter. Datum of gage is 602.49 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 52,000 cfs and extended on basis of slope-area measurement at 76,600 cfs.

Bankfull stage.--15 ft.

Remarks.--Flow regulated since January 1953 by Detroit Reservoir (usable capacity, 340,200 acre-ft), and by Big Cliff Reservoir (usable capacity for reregulating purposes, 2,930 acre-ft); peaks significantly affected. Only annual peaks are shown prior to 1934, and 1953-57. Base for partial-duration series, 19,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1906	Jan. 24, 1906	9.3	20,700	1943	Nov. 27, 1942	11.22	37,900
1907	Feb. 5, 1907	15.0	50,900		Nov. 29, 1942	11.52	40,200
					Dec. 27, 1942	9.30	24,300
1911	Nov. 23, 1910	10.5	26,700		Jan. 1, 1943	12.69	49,500
1912	Jan. 12, 1912	14.7	49,200		Feb. 6, 1943	9.32	24,400
1913	Mar. 30, 1913	12.0	34,200		Mar. 31, 1943	9.37	24,800
1914	Oct. 7, 1913	8.8	18,400	1944	Nov. 4, 1943	8.58	18,200
1922	Nov. 20, 1921	17.5	62,900				
1923	Jan. 6, 1923	17.5	62,900	1945	Feb. 8, 1945	10.62	33,400
1924	Dec. 6, 1923	11.5	31,500		Feb. 13, 1945	9.76	27,400
1925	Jan. 29, 1925	11.5	31,500	1946	Nov. 27, 1945	10.81	34,800
1926	Feb. 5, 1926	12.0	34,000		Dec. 28, 1945	15.37	76,600
1927	Feb. 20, 1927	14.8	48,000		Jan. 24, 1946	8.25	20,100
1928	Nov. 25, 1927	13.7	42,500	1947	Nov. 18, 1946	9.10	25,400
1929	Mar. 21, 1929	7.5	13,800		Nov. 27, 1946	8.88	24,000
1930	Dec. 18, 1929	11.0	29,000		Dec. 15, 1946	12.60	52,400
1931	Mar. 31, 1931	16.0	54,000		Jan. 26, 1947	8.05	19,000
1932	Mar. 18, 1932	14.5	47,000	1948	Oct. 18, 1947	8.52	21,700
1933	June 9, 1933	10.4	26,300		Jan. 2, 1948	8.42	21,100
					Jan. 7, 1948	13.50	60,200
1934	Dec. 6, 1933	10.67	29,000		Feb. 22, 1948	10.30	33,900
	Dec. 22, 1933	12.70	39,200	1949	Dec. 12, 1948	9.31	26,800
	Jan. 23, 1934	11.17	31,400		Feb. 17, 1949	8.45	21,300
1935	Oct. 24, 1934	9.04	22,600		May 2, 1949	10.63	36,400
	Dec. 20, 1934	11.7	34,100	1950	Nov. 27, 1949	8.47	21,400
1936	Jan. 2, 1936	9.20	21,900		Jan. 22, 1950	9.49	28,000
	Jan. 4, 1936	10.98	30,600		Feb. 25, 1950	10.99	39,100
	Jan. 11, 1936	10.5	28,200		Mar. 17, 1950	8.24	20,000
1937	Apr. 14, 1937	10.89	30,100	1951	Oct. 29, 1950	9.75	29,800
1938	Nov. 25, 1937	8.80	19,800		Nov. 2, 1950	11.51	43,300
	Dec. 30, 1937	10.59	28,300		Dec. 6, 1950	8.85	23,800
	Jan. 22, 1938	11.17	31,600		Feb. 7, 1951	8.14	19,500
					Feb. 11, 1951	8.68	22,700
1939	Dec. 2, 1938	8.24	17,600	1952	Oct. 23, 1951	8.89	23,300
1940	Feb. 6, 1940	8.76	19,900		Feb. 3, 1952	8.16	19,100
1941	Nov. 29, 1940	8.43	18,400	1953	Jan. 18, 1953	8.97	23,800
1942	Nov. 15, 1941	8.88	20,400	1954	Nov. 22, 1953	9.62	26,500
	Dec. 2, 1941	10.18	26,600	1955	Dec. 30, 1954	8.09	17,600
	Dec. 19, 1941	8.98	20,900	1956	Jan. 15, 1956	9.51	25,300
1943	Nov. 23, 1942	13.56	56,700	1957	Dec. 11, 1956	8.85	21,500

1849. Sheek Creek near Cascadia, Oreg.  
(Previously published as South Santiam River tributary near Cascadia)

Location.--Lat 44°23'25", long 122°30'25", in SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.36, T.13 S., R.2 E., at culvert on U.S. Highway 20 at Cascadia ranger station, 0.1 mile upstream from mouth and 1.7 miles west of Cascadia.

Drainage area.--0.94 sq mi. Mean altitude, 1,780 ft; channel slope, 724 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording. Altitude of gage is 800 ft above mean sea level (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 7.7 cfs and extended on basis of computations of flow through culvert.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	Dec. 7, 1952	13.28	47	1956	Dec. 21, 1955	13.21	44
1954	Dec. 4, 1953	14.90	72	1957	Dec. 11, 1956	13.54	51
1955	Dec. 30, 1954	12.67	33				

1850. South Santiam River below Cascadia, Oreg.

Location.--Lat 44°23'35", long 122°30'35", in SE $\frac{1}{4}$  sec.36, T.13 S., R.2 E., on right bank 100 ft downstream from bridge at Cascadia ranger station, 0.5 mile downstream from Mouse Creek, 0.5 mile upstream from Deer Creek, and 1.5 miles southwest of Cascadia.

Drainage area.--174 sq mi at gaging cable. Mean altitude, 2,870 ft; channel slope, 161 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. Datum of gage is 759.88 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 14,000 cfs and extended by logarithmic plotting. All records computed are for site at gaging cable 0.7 mile upstream above Mouse Creek.

Bankfull stage.--Not subject to overflow.

Remarks.--Base for partial-duration series, 5,700 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1936	Jan. 2, 1936	9.03	5,720	1944	Nov. 4, 1943	9.10	5,850
	Jan. 4, 1936	11.45	9,200	1945	Feb. 8, 1945	10.85	8,320
	Jan. 11, 1936	11.24	8,870		Feb. 13, 1945	11.02	8,570
1937	Apr. 14, 1937	11.40	9,200	1946	Nov. 27, 1945	10.15	7,420
1938	Dec. 31, 1937	9.17	5,980		Dec. 28, 1945	18.65	23,400
	Jan. 22, 1938	12.31	10,700	1947	Nov. 18, 1946	9.91	7,180
	Mar. 18, 1938	10.06	7,200		Nov. 26, 1946	10.90	8,710
1939	Feb. 15, 1939	9.04	5,720	Dec. 14, 1946	13.93	13,900	
				Jan. 26, 1947	8.97	5,890	
1940	Feb. 28, 1940	8.04	4,550	1948	Oct. 16, 1947	10.29	7,770
1941	Nov. 29, 1940	8.25	4,800		Jan. 2, 1948	9.32	6,330
					Jan. 7, 1948	15.87	17,600
1942	Nov. 15, 1941	11.41	9,220	Feb. 22, 1948	13.34	12,900	
	Dec. 2, 1941	10.09	7,180	1949	Dec. 12, 1948	13.4	12,900
	Dec. 18, 1941	9.78	6,740		Feb. 18, 1949	11.37	9,460
1943	Nov. 23, 1942	13.89	13,500		Feb. 22, 1949	9.61	6,730
	Nov. 27, 1942	13.00	11,900		May 2, 1949	11.92	10,400
	Nov. 29, 1942	13.50	12,800		1950	Nov. 27, 1949	9.53
	Dec. 31, 1942	15.75	17,000				

Peak stages and discharges of South Santiam River below Cascadia, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1950	Jan. 22, 1950	11.71	10,000	1954	Nov. 22, 1953	15.63	18,900	
	Feb. 25, 1950	11.68	9,970		Dec. 3, 1953	8.49	5,740	
	Mar. 17, 1950	9.74	6,930		Dec. 6, 1953	9.42	7,170	
1951	Oct. 29, 1950	12.71	11,700	Dec. 9, 1953	10.34	8,680		
	Nov. 2, 1950	14.55	15,000	Dec. 19, 1953	12.00	11,800		
	Nov. 17, 1950	9.00	5,890	Jan. 28, 1954	10.37	8,730		
	Dec. 7, 1950	9.37	6,410	1955	Dec. 30, 1954	11.78	11,400	
	Jan. 17, 1951	9.12	6,060		1956	Nov. 19, 1955	12.36	12,500
	Jan. 23, 1951	10.32	7,810			Nov. 26, 1955	9.20	6,820
1952	Oct. 23, 1951	10.28	7,750	Dec. 12, 1955	12.26	12,300		
	Dec. 1, 1951	9.16	6,110	Dec. 21, 1955	16.64	20,900		
	Feb. 3, 1952	9.50	6,720	Jan. 15, 1956	11.73	11,300		
1953	Jan. 9, 1953	11.18	9,150	1957	Dec. 11, 1956	19.35	26,800	
	Jan. 18, 1953	14.94	17,500		Feb. 26, 1957	12.06	12,000	
	Feb. 3, 1953	11.72	11,300		Mar. 7, 1957	9.13	6,710	
	Feb. 5, 1953	11.90	11,600					

1860. Middle Santiam River near Foster, Oreg.

Location.--Lat 44°27'35", long 122°31'25", in SE<sup>1</sup> sec.2, T.13 S., R.2 E., 0.5 mile upstream from Green Peter Creek and 8 miles northeast of Foster.

Drainage area.--271 sq mi. Mean altitude, 2,970 ft; channel slope, 102 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. Datum of gage is 733.44 ft above mean sea level (Northern Pacific Railway bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 24,000 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Base for partial-duration series, 15,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1932	Mar. 16, 1932	17.84	29,500	1940	Feb. 6, 1940	11.26	11,300
1933	Nov. 4, 1932	12.86	15,100	1941	Nov. 29, 1940	12.03	13,200
	June 9, 1933	14.36	19,300		1942	Dec. 2, 1941	12.81
1934	Dec. 6, 1933	14.73	20,300	1943		Nov. 23, 1942	18.07
	Dec. 18, 1933	13.08	15,900		Nov. 26, 1942	17.16	28,300
	Dec. 22, 1933	16.70	26,100		Nov. 29, 1942	16.33	25,600
	Jan. 23, 1934	14.3	19,100		Dec. 27, 1942	13.89	17,900
1935	Oct. 24, 1934	13.1	15,900	Dec. 31, 1942	18.70	33,500	
	Dec. 20, 1934	15.2	21,700	Mar. 31, 1943	13.44	16,600	
1936	Jan. 2, 1936	14.42	19,400	1944	Nov. 4, 1943	12.79	14,800
	Jan. 4, 1936	16.08	24,300		1945	Feb. 8, 1945	14.45
	Jan. 11, 1936	14.80	20,500	Feb. 13, 1945		14.11	18,500
1937	Apr. 14, 1937	14.45	19,400	1946	Nov. 27, 1945	15.05	21,500
1938	Dec. 30, 1937	13.42	16,700		Dec. 28, 1945	21.60	41,800
	Jan. 22, 1938	16.12	24,300	1947	Nov. 27, 1946	12.93	15,200
1939	Feb. 15, 1939	12.90	15,400		Dec. 15, 1946	17.6	28,600

## WILLAMETTE RIVER BASIN

1865. Middle Santiam River at mouth, near Foster, Oreg.

Location.--Lat 44°25'25", long 122°37'25", in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.24, T.13 S., R.1 E., on right bank 0.7 mile upstream from mouth and 2.7 miles northeast of Foster.

Drainage area.--287 sq mi.

Gage.--Nonrecording prior to Oct. 24, 1952, at same site and datum; recording thereafter. Datum of gage is 562.14 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 34,000 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Base for partial-duration series, 16,000 cfs. Records herein, 1950-57, adjusted on basis of drainage-area ratio, are combined with those for station near Foster (see preceding station) for use in the analysis.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1951	Nov. 2, 1950	-	29,000	1955	Dec. 30, 1954	16.47	24,500
1952	Oct. 23, 1951	14.3	16,900	1956	Nov. 19, 1955	16.27	23,700
1953	Jan. 9, 1953	14.95	19,000	Nov. 26, 1955	15.71	21,600	
	Jan. 18, 1953	19.23	36,400	Dec. 12, 1955	17.10	27,000	
	Feb. 3, 1953	15.09	19,500	Dec. 21, 1955	18.35	32,500	
	Feb. 5, 1953	14.65	18,000	Jan. 15, 1956	18.25	32,000	
1954	Nov. 22, 1953	19.67	38,400	1957	Dec. 11, 1956	20.25	41,000
	Dec. 9, 1953	15.47	20,800	Feb. 26, 1957	16.25	23,500	
	Dec. 19, 1953	18.50	33,200				

1870. Wiley Creek near Foster, Oreg.

Location.--Lat 44°22'20", long 122°37'20", in NE $\frac{1}{4}$  sec.12, T.14 S., R.1 E., on right bank 0.4 mile downstream from Little Wiley Creek and 3.5 miles southeast of Foster.

Drainage area.--51.7 sq mi. Mean altitude, 2,480 ft; channel slope, 252 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. Datum of gage is 718.08 ft above mean sea level (Corps of Engineers bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 4,300 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Base for partial-duration series, 2,300 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	Jan. 7, 1948	7.52	5,410	1953	Jan. 9, 1953	a6.29	3,200
	Feb. 22, 1948	6.15	3,560	Jan. 18, 1953	a7.80	4,320	
1949	Dec. 12, 1948	6.72	4,300	1954	Nov. 22, 1953	7.37	5,200
	Feb. 18, 1949	6.45	3,920	Dec. 6, 1953	5.19	2,490	
	Feb. 22, 1949	5.29	2,540	Dec. 19, 1953	5.37	2,670	
1950	Jan. 21, 1950	a6.89	4,000	Jan. 28, 1954	6.41	3,890	
	Feb. 25, 1950	5.46	2,730	1955	Dec. 30, 1954	5.01	2,310
1951	Oct. 29, 1950	6.21	3,630	1956	Nov. 19, 1955	5.71	2,920
	Nov. 2, 1950	5.10	2,340	Dec. 12, 1955	5.04	2,340	
	Nov. 17, 1950	5.49	2,760	Dec. 21, 1955	a8.42	6,290	
	Jan. 17, 1951	5.53	2,800	1957	Dec. 11, 1956	5.20	2,840
1952	Dec. 4, 1951	4.82	2,060	Feb. 26, 1957	5.52	3,190	

a Backwater from debris.

## 1875. South Santiam River at Waterloo, Oreg.

Location.--Lat 44°29'55", long 122°49'20", in SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.28, T.12 S., R.1 W., on left bank 600 ft downstream from highway bridge at Waterloo and 2.0 miles upstream from Hamilton Creek.

Drainage area.--640 sq mi, approximately. Mean altitude, 2,560 ft; channel slope, 84 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording prior to Nov. 12, 1934; recording thereafter. July 1905 to March 1907, at site 0.5 mile downstream at datum about 5.0 ft lower. Datum of gage is 370.39 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 60,000 cfs and extended by logarithmic plotting.

Bankfull stage.--20 ft.

Remarks.--Peak discharges not affected by diurnal fluctuation caused by numerous log ponds above station. Base for partial-duration series, 24,000 cfs. Only annual peaks are shown prior to 1935.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1906	Jan. 24, 1906	7.1	14,000	1946	Nov. 27, 1945	13.70	32,600
1907	Feb. 5, 1907	14.7	41,500		Dec. 28, 1945	22.85	74,200
1924	Dec. 6, 1923	14.0	36,000	1947	Nov. 19, 1946	11.67	24,200
1925	Nov. 22, 1924	12.4	29,100		Nov. 26, 1946	13.00	29,600
1926	Feb. 6, 1926	13.5	33,800		Dec. 14, 1946	17.30	48,100
1927	Feb. 21, 1927	19.4	60,000	1948	Jan. 7, 1948	19.68	58,800
1928	Nov. 25, 1927	15.0	38,400		Feb. 22, 1948	17.29	48,100
1929	Mar. 21, 1929	10.7	21,000	1949	Dec. 12, 1948	16.74	45,700
1930	Dec. 18, 1929	15.0	38,800		Feb. 18, 1949	15.67	41,000
1931	Mar. 31, 1931	22.0	70,000		Feb. 22, 1949	11.64	24,100
1932	Mar. 18, 1932	17.4	47,800		May 2, 1949	14.03	33,900
1933	June 9, 1933	11.6	25,800	1950	Jan. 22, 1950	14.49	35,900
1934	Dec. 22, 1933	11.8	24,600		Feb. 25, 1950	15.71	41,200
1935	Dec. 20, 1934	13.25	29,900		Mar. 17, 1950	11.89	25,100
1936	Jan. 2, 1936	11.84	24,600	1951	Oct. 29, 1950	14.83	37,400
	Jan. 4, 1936	15.00	37,200		Nov. 2, 1950	16.71	45,500
	Jan. 11, 1936	14.27	34,300		Jan. 17, 1951	11.71	24,400
1937	Apr. 15, 1937	14.34	34,300		Jan. 24, 1951	11.74	24,500
1938	Dec. 30, 1937	12.1	25,700	1952	Oct. 23, 1951	12.45	27,900
	Jan. 22, 1938	15.14	37,600		Feb. 4, 1952	11.77	25,300
	Mar. 18, 1938	12.60	27,600	1953	Jan. 9, 1953	13.40	31,600
1939	Feb. 15, 1939	11.63	23,800		Jan. 18, 1953	19.43	57,700
1940	Feb. 6, 1940	9.55	16,600		Feb. 3, 1953	13.76	32,800
1941	Nov. 29, 1940	10.40	19,500		Feb. 6, 1953	13.07	29,900
1942	Nov. 15, 1941	13.31	30,300	1954	Nov. 22, 1953	20.21	61,300
	Dec. 2, 1941	12.90	28,700		Dec. 6, 1953	11.79	24,700
	Dec. 19, 1941	11.94	25,100		Dec. 9, 1953	13.47	31,600
1943	Nov. 23, 1942	18.35	52,200		Dec. 19, 1953	17.23	47,800
	Nov. 27, 1942	17.00	46,000		Jan. 28, 1954	13.58	32,000
	Dec. 29, 1942	16.53	43,900	1955	Dec. 31, 1954	14.71	36,900
	Dec. 27, 1942	12.73	28,100	1956	Nov. 19, 1955	15.55	40,600
	Jan. 1, 1943	20.09	60,700		Nov. 27, 1955	12.69	28,500
	Mar. 31, 1943	11.98	25,800		Dec. 12, 1955	15.47	40,300
1944	Nov. 4, 1943	11.78	24,600		Dec. 21, 1955	19.95	62,800
1945	Feb. 8, 1945	13.70	32,500		Jan. 15, 1956	16.28	44,000
	Feb. 13, 1945	13.65	32,300	1957	Dec. 11, 1956	21.10	69,300
					Feb. 26, 1957	14.85	37,500

1890. Santiam River at Jefferson, Oreg.

Location.--Lat 44°42'55", long 123°00'40", in SE $\frac{1}{4}$  sec.11, T.10 S., R.3 W., on right bank 350 ft upstream from Southern Pacific Railroad bridge at Jefferson, 2.0 miles downstream from confluence of North and South Santiam Rivers, and 9.5 miles upstream from mouth.

Drainage area.--1,790 sq mi, approximately. Mean altitude, 2,470 ft; channel slope, 58.7 ft per mile; area of lakes and ponds, 1.3 sq mi.

Gage.--Nonrecording prior to Sept. 22, 1940; recording thereafter. Prior to May 15, 1908, and July 1, 1914, to Sept. 21, 1940, at site 350 ft downstream, and May 15, 1908, to June 30, 1914, at site 150 ft downstream from present gage at datum 3.00 ft higher; gage heights herein adjusted to present datum. Datum of present gage is 199.63 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 133,000 cfs and extended by logarithmic plotting.

Bankfull stage.--13 ft.

Historical data. Maximum discharge known, about 202,000 cfs Nov. 21, 1921 (gage height, 22.5 ft, present datum, at railroad bridge 350 ft downstream; corresponding gage height at present site, 24.4 ft, from curve of relation).

Remarks.--Flow regulated since January 1953 by Detroit Reservoir (usable capacity, 340,200 acre-ft), and by Big Cliff Reservoir (usable capacity for reregulating purposes, 2,930 acre-ft); peaks significantly affected. Base for partial-duration series, 45,000 cfs. Only annual peaks are shown prior to 1942, and 1953-57. Only annual peak stages furnished by U.S. Weather Bureau are shown 1894-1901, 1907, 1917-21, and 1923-39.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1894	Jan. 16, 1894	21.0	-	1936	Jan. 5, 1936	17.0	-
1895	Jan. 14, 1895	16.4	-	1937	Apr. 15, 1937	17.5	-
				1938	Jan. 22, 1938	17.5	-
1896	Apr. 13, 1896	14.2	-	1939	Feb. 15, 1939	14.1	-
1897	Nov. 16, 1896	18.5	-	1940	Feb. 6, 1940	14.5	52,700
1898	Nov. 19, 1897	13.0	-				
1899	Mar. 1, 1899	13.0	-	1941	Nov. 29, 1940	14.15	40,200
1900	Jan. 13, 1900	15.5	-				
				1942	Nov. 16, 1941	16.54	59,000
1901	Jan. 14, 1901	17.2	-		Dec. 3, 1941	17.24	65,100
					Dec. 20, 1941	16.25	55,500
1907	Feb. 5, 1907	21.4	-				
1908	Mar. 15, 1908	19.2	113,000	1943	Nov. 24, 1942	20.76	94,600
1909	Jan. 20, 1909	15.6	65,000		Nov. 27, 1942	19.74	85,000
1910	Nov. 22, 1909	21.2	161,000		Nov. 30, 1942	19.59	83,600
					Dec. 28, 1942	16.25	55,400
1911	Jan. 18, 1911	13.1	45,500		Jan. 1, 1943	21.24	118,000
1912	Jan. 13, 1912	19.5	120,000		Feb. 7, 1943	17.27	63,700
1913	Mar. 31, 1913	14.0	51,800		Apr. 1, 1943	16.88	60,500
1914	Feb. 25, 1914	12.1	38,700				
1915	Jan. 14, 1915	11.6	35,700	1944	Nov. 4, 1943	14.10	39,400
1916	Feb. 7, 1916	18.4	96,700	1945	Feb. 8, 1945	17.28	63,800
1917	Apr. 8, 1917	10.8	-		Feb. 15, 1945	17.24	63,500
1918	Dec. 19, 1917	19.0	-				
1919	Jan. 22, 1919	16.0	-	1946	Nov. 28, 1945	18.40	73,800
1920	Nov. 4, 1919	18.0	-		Dec. 29, 1945	22.55	149,000
					Jan. 24, 1946	15.49	49,500
1921	Dec. 30, 1920	16.0	-				
1922	Nov. 21, 1921	22.5	202,000	1947	Nov. 19, 1946	15.38	48,600
1923	Jan. 7, 1923	22.0	-		Nov. 2, 1946	16.41	56,000
1924	Dec. 29, 1923	15.0	-		Dec. 15, 1946	21.15	116,000
1925	Nov. 22, 1924	16.8	-		Jan. 26, 1947	15.71	51,200
1926	Feb. 7, 1926	15.5	-	1948	Oct. 18, 1947	16.08	54,100
1927	Feb. 21, 1927	19.0	-		Jan. 2, 1948	15.88	52,500
1928	Nov. 25, 1927	18.0	-		Jan. 7, 1948	21.76	130,000
1929	Mar. 21, 1929	12.0	-		Feb. 22, 1948	19.98	93,800
1930	Dec. 19, 1929	16.8	-				
				1949	Dec. 12, 1948	19.13	82,000
1931	Apr. 1, 1931	20.5	-		Feb. 18, 1949	19.95	93,300
1932	Mar. 19, 1932	18.5	-		Feb. 23, 1949	16.42	56,800
1933	June 9, 1933	15.0	-		May 2, 1949	18.42	74,000
1934	Dec. 22, 1933	18.4	-				
1935	Dec. 20, 1934	15.5	-	1950	Jan. 22, 1950	18.55	75,400

Peak stages and discharges of Santiam River at Jefferson, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1950	Feb. 25, 1950	20.07	95,200	1952	Oct. 23, 1951	15.75	52,000	
	Mar. 17, 1950	15.75	51,500		Feb. 4, 1952	16.08	54,600	
1951	Oct. 29, 1950	18.89	79,100	1953	Jan. 18, 1953	20.54	105,000	
	Nov. 2, 1950	19.88	92,200	1954	Nov. 23, 1953	20.89	111,000	
	Nov. 18, 1950	15.92	52,900	1955	Dec. 31, 1954	17.40	65,200	
	Dec. 6, 1950	16.15	54,700	1956	Dec. 22, 1955	21.11	115,000	
	Jan. 17, 1951	15.47	49,300		Dec. 11, 1956	20.50	104,000	
	Jan. 24, 1951	15.94	53,000					
	Feb. 12, 1951	15.17	47,100					

1895. Lucklamute River near Hoskins, Oreg.

Location.--Lat 44°43'10", long 123°30'10", in NE $\frac{1}{4}$  sec.11, T.10 S., R.7 W., on right bank 0.25 mile downstream from Benton County line and 3.5 miles northwest of Hoskins.

Drainage area.--34 sq mi, approximately. Mean altitude, 1,310 ft; channel slope, 148 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. Datum of gage is 378.7 ft above mean sea level (river-profile survey).

Stage-discharge relation.--Defined by current-meter measurements below 4,100 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Base for partial-duration series, 2,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1935	Dec. 20, 1934	7.50	2,000	1947	Feb. 2, 1947	7.67	2,280
1936	Jan. 4, 1936	9.00	3,290	1948	Jan. 7, 1948	7.71	2,300
	Jan. 12, 1936	9.90	3,950		Feb. 22, 1948	9.34	3,220
1937	Feb. 17, 1937	7.85	2,520	1949	Dec. 11, 1948	9.03	3,020
	Apr. 14, 1937	7.66	2,460		Feb. 10, 1949	9.56	3,360
1938	Nov. 25, 1937	8.22	2,760		Feb. 17, 1949	12.58	5,560
	Dec. 27, 1937	11.00	4,820	1950	Nov. 27, 1949	7.35	2,120
	Dec. 29, 1937	11.30	5,080		Feb. 24, 1950	7.49	2,300
1939	Feb. 12, 1939	7.37	2,280	1951	Nov. 17, 1950	7.26	2,190
	Feb. 14, 1939	7.05	2,080		Dec. 22, 1950	7.19	2,160
1940	Dec. 16, 1939	7.20	2,180		Jan. 17, 1951	8.42	2,770
	Feb. 6, 1940	7.63	2,420	1952	Dec. 4, 1951	7.08	2,100
1941	Jan. 18, 1941	6.08	1,640		Feb. 3, 1952	8.16	2,640
1942	Dec. 19, 1941	8.36	2,860	1953	Jan. 18, 1953	10.77	4,250
1943	Nov. 23, 1942	11.65	4,380	1954	Nov. 22, 1953	8.92	3,060
	Nov. 26, 1942	9.17	2,620		Dec. 9, 1953	7.40	2,260
	Dec. 27, 1942	9.28	2,690		Dec. 19, 1953	7.63	2,380
	Jan. 1, 1943	8.52	2,240		Feb. 21, 1954	6.98	2,050
	Feb. 6, 1943	9.42	2,770	1955	Dec. 30, 1954	8.44	2,780
	Mar. 31, 1943	10.32	3,380		1956	Nov. 26, 1955	8.59
1944	Dec. 2, 1943	7.41	1,950	Dec. 11, 1955		8.85	2,870
	Feb. 7, 1945	8.76	2,520	Dec. 21, 1955		9.35	3,170
1946	Nov. 27, 1945	9.84	3,410	Jan. 4, 1956		10.35	3,780
	Dec. 28, 1945	9.90	3,440	Jan. 15, 1956	7.49	2,120	
1947	Dec. 14, 1946	13.22	5,560	Mar. 2, 1956	7.42	2,090	
				1957	Dec. 11, 1956	9.50	3,260
			Mar. 7, 1957		7.47	2,120	

## 1900. Luckiamute River at Pedee, Oreg.

Location.--Lat 44°44'35", long 123°25'25", in SE $\frac{1}{4}$  sec.33, T.9 S., R.6 W., on left bank 0.5 mile downstream from Pedee Creek and 1.0 mile southwest of Pedee.

Drainage area.--115 sq mi. Mean altitude, 1,010 ft; channel slope, 87 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording prior to July 1, 1949, at site 1,700 ft downstream at datum 1.85 ft lower; recording thereafter. Datum of gage is 245.47 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 7,800 cfs and extended by logarithmic plotting.

Bankfull stage.--16 ft.

Remarks.--Only annual peaks are shown prior to 1948. Base for partial-duration series, 4,200 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1941	Jan. 18, 1941	9.98	3,500	1952	Dec. 5, 1951	11.93	5,300
1942	Dec. 19, 1941	11.60	4,770		Feb. 3, 1952	12.1	5,430
1943	Nov. 23, 1942	14.44	7,010				
1944	Dec. 4, 1943	10.76	3,960	1953	Jan. 18, 1953	15.43	8,810
1945	Feb. 7, 1945	11.6	4,330				
				1954	Nov. 23, 1953	13.26	6,360
1946	Nov. 27, 1945	15.0	7,100		Dec. 6, 1953	10.68	4,230
1947	Dec. 14, 1946	17.99	12,000		Dec. 9, 1953	11.73	4,980
					Dec. 19, 1953	12.18	5,360
1948	Jan. 7, 1948	14.1	6,710		Jan. 27, 1954	10.83	4,330
	Feb. 22, 1948	14.5	7,150				
				1955	Dec. 31, 1954	12.30	5,590
1949	Dec. 2, 1948	11.6	4,430				
	Dec. 12, 1948	14.3	6,930	1956	Nov. 19, 1955	10.44	4,260
	Feb. 10, 1949	15.5	8,250		Nov. 26, 1955	12.91	6,080
	Feb. 17, 1949	18.78	13,500		Dec. 12, 1955	12.45	5,710
	Feb. 22, 1949	12.8	5,420		Dec. 21, 1955	15.96	9,540
					Jan. 4, 1956	15.90	9,460
1950	Jan. 6, 1950	11.03	4,670		Jan. 15, 1956	11.33	4,880
	Jan. 22, 1950	10.80	4,510		Mar. 2, 1956	10.71	4,450
	Feb. 25, 1950	11.53	5,020				
				1957	Dec. 11, 1956	13.23	6,360
1951	Nov. 17, 1950	12.54	5,780		Mar. 7, 1957	10.68	4,430
	Jan. 17, 1951	13.62	6,720				
	Jan. 21, 1951	11.30	4,860				

## 1905. Luckiamute River near Suver, Oreg.

Location.--Lat 44°47'00", long 123°14'00", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.18, T.9 S., R.4 W., on right bank 10 ft upstream from highway bridge at Helmick State Park, 3.0 miles northwest of Suver, and 4.5 miles downstream from Little Luckiamute River.

Drainage area.--240 sq mi. Mean altitude, 910 ft; channel slope, 59 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording prior to Oct. 15, 1940; recording thereafter. Prior to Oct. 31, 1911, at different datum. Datum of gage is 171.92 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 14,000 cfs and extended by logarithmic plotting.

Bankfull stage.--22 ft.

Historical data.--Maximum stage known, 33.5 ft, present site and datum, probably on Dec. 29, 1937, from information by local residents (discharge, 25,000 cfs).

Remarks.--Only annual peaks are shown prior to 1941. Base for partial-duration series, 6,600 cfs.

Peak stages and discharges of Luckiamute River near Suver, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1906	Feb. 25, 1906	25.9	8,070	1948	Feb. 22, 1948	28.77	11,200
1907	Jan. 4, 1907	30.0	22,000				
1908	Dec. 26, 1907	27.7	16,200	1949	Dec. 12, 1948	29.31	12,800
1909	Jan. 19, 1909	28.4	18,000		Feb. 11, 1949	30.10	15,100
1910	Nov. 23, 1909	28.8	19,000		Feb. 18, 1949	35.10	25,800
					Feb. 23, 1949	27.93	9,650
1911	Jan. 18, 1911	29.1	19,800				
	Jan. 19, 1911	a32.2	-	1950	Jan. 7, 1950	26.91	7,450
1938	Dec. 29, 1937	33.5	b25,000		Jan. 23, 1950	27.70	9,130
					Feb. 25, 1950	27.72	9,170
1941	Jan. 19, 1941	26.49	6,620	1951	Nov. 18, 1950	28.37	10,700
1942	Dec. 20, 1941	27.73	8,060		Jan. 18, 1951	28.42	10,800
	Feb. 5, 1942	26.78	6,940		Jan. 22, 1951	27.42	8,510
1943	Nov. 24, 1942	28.38	10,400	1952	Dec. 5, 1951	27.55	8,800
	Nov. 27, 1942	28.51	10,800		Feb. 4, 1952	27.76	9,260
	Dec. 9, 1942	27.34	7,580	1953	Jan. 19, 1953	28.89	14,600
	Dec. 28, 1942	27.72	8,460				
	Jan. 1, 1943	28.55	11,000	1954	Nov. 23, 1953	27.83	9,420
	Feb. 7, 1943	29.30	14,000		Dec. 10, 1953	27.29	8,240
	Apr. 1, 1943	29.40	14,400		Dec. 20, 1953	27.85	9,460
1944	Dec. 5, 1943	26.23	5,900		Jan. 23, 1954	26.53	6,780
1945	Feb. 8, 1945	27.87	8,720		Jan. 28, 1954	26.82	7,280
					Feb. 14, 1954	27.20	8,050
1946	Nov. 27, 1945	29.05	12,000	1955	Feb. 21, 1954	26.97	7,570
	Dec. 29, 1945	29.05	12,000				
	Feb. 7, 1946	27.27	7,440	1956	Nov. 27, 1955	28.06	9,040
1947	Nov. 28, 1946	26.75	6,620		Dec. 12, 1955	27.23	7,350
	Dec. 15, 1946	31.86	20,200		Dec. 22, 1955	30.19	15,400
	Feb. 2, 1947	28.04	9,160		Jan. 4, 1956	30.46	16,200
					Jan. 15, 1956	-	12,000
1948	Jan. 7, 1948	29.42	13,100	1957	Mar. 8, 1957	26.50	6,810

a Backwater from ice.

b Maximum stage and discharge known.

1906. Soap Creek tributary near Suver, Oreg.

Location.--Lat 44°42'00", long 123°13'10", in SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.18, T.10 S., R.4 W., at culvert on U.S. Highway 99W, and 3.0 miles south of Suver.

Drainage area.--0.57 sq mi. Mean altitude, 356 ft; channel slope, 83.3 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording gage. Altitude of gage is 220 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 5.5 cfs and extended on basis of computations through culvert.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	Feb. 17, 1953	4.10	63	1956	Dec. 21, 1955	4.53	80
1954	Jan. 27, 1954	3.79	51	1957	Mar. 7, 1957	2.85	21
1955	Dec. 30, 1954	3.04	26				

1910. Willamette River at Salem, Oreg.

Location.--Lat 44°56'40", long 123°02'30", in SW $\frac{1}{4}$  sec.22, T.7 S., R.3 W., on right bank 300 ft upstream from Center Street Bridge (State Highway 22), 0.6 mile upstream from Mill Creek, and at mile 85.1.

Drainage area.--7,280 sq mi, approximately. Mean altitude, 2,150 ft; channel slope, 32.8 ft per mile; area of lakes and ponds, 14.5 sq mi.

Gage.--Nonrecording prior to Nov. 26, 1934; recording thereafter. Prior to Dec. 31, 1922, at site 0.5 mile upstream at about present datum. Jan. 1, 1923, to Nov. 26, 1934, at Center Street Bridge at present datum. Datum of gage is 114.14 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 350,000 cfs and extended by logarithmic plotting.

Bankfull stage.--20 ft.

Remarks.--Peak discharges partly regulated by Fern Ridge Reservoir (capacity, 101,200 acre-ft) since November 1941, Cottage Grove Reservoir (capacity, 32,940 acre-ft) since October 1942, Dorena Reservoir (capacity, 77,510 acre-ft) since October 1949, Detroit Reservoir (capacity, 340,200 acre-ft) since January 1953, and Lookout Point Reservoir (capacity, 349,400 acre-ft) since November 1953. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1862	Dec. 4, 1861	39	a500,000	1923	Jan. 8, 1923	30.3	348,000
				1924	Dec. 8, 1923	15.4	89,200
1881	Jan. 16, 1881	36.3	b428,000	1925	Feb. 6, 1925	20.7	178,000
1890	Feb. 5, 1890	37.1	b448,000	1926	Feb. 8, 1926	20.3	172,000
1893	Dec. 28, 1892	17.6	136,000	1927	Feb. 23, 1927	24.7	243,000
1894	Dec. 2, 1893	26.9	252,000	1928	Nov. 26, 1927	16.7	125,000
1895	Jan. 14, 1895	20.4	165,000	1929	Dec. 31, 1928	11.6	73,600
				1930	Dec. 21, 1929	15.8	115,000
1896	Jan. 23, 1896	21.3	176,000	1931	Apr. 2, 1931	23.5	220,000
1897	Feb. 17, 1897	17.6	136,000	1932	Mar. 21, 1932	20.55	172,000
1898	Dec. 15, 1897	17.7	137,000	1933	Jan. 5, 1933	16.3	115,000
1899	Mar. 3, 1899	20.4	165,000	1934	Dec. 23, 1933	20.8	175,000
1900	Jan. 16, 1900	21.5	178,000	1935	Dec. 23, 1934	16.56	119,000
1901	Jan. 15, 1901	31.5	329,000	1936	Jan. 14, 1936	23.8	225,000
1902	Feb. 12, 1902	16.2	122,000	1937	Apr. 16, 1937	22.4	201,000
1903	Jan. 27, 1903	28.6	283,000	1938	Dec. 31, 1937	21.5	186,000
1904	Feb. 18, 1904	19.5	155,000	1939	Feb. 16, 1939	14.30	95,700
1905	Dec. 31, 1904	15.3	113,000	1940	Feb. 29, 1940	14.79	100,000
1906	Feb. 26, 1906	13.2	92,000	1941	Jan. 19, 1941	11.70	74,400
1907	Feb. 6, 1907	31.3	325,000	1942	Dec. 21, 1941	19.12	132,000
1908	Dec. 27, 1907	24.8	224,000	1943	Jan. 2, 1943	30.6	291,000
1909	Jan. 22, 1909	22.0	185,000	1944	Nov. 6, 1943	10.24	63,700
1910	Nov. 25, 1909	30.5	315,000	1945	Feb. 9, 1945	15.56	104,000
1911	Jan. 20, 1911	19.5	155,000	1946	Dec. 30, 1945	28.35	255,000
1912	Jan. 15, 1912	24.5	221,000	1947	Dec. 16, 1946	26.72	240,000
1913	Apr. 1, 1913	19.4	158,000	1948	Jan. 9, 1948	27.47	242,000
1914	Jan. 25, 1914	16.3	123,000	1949	Feb. 19, 1949	23.24	184,000
1915	Jan. 15, 1915	13.8	98,000	1950	Jan. 24, 1950	20.57	153,000
1916	Feb. 9, 1916	26.0	242,000	1951	Nov. 1, 1950	21.10	159,000
1917	Mar. 30, 1917	12.5	90,500	1952	Feb. 5, 1952	18.27	143,000
1918	Dec. 20, 1917	24.0	217,000	1953	Jan. 20, 1953	26.17	251,000
1919	Jan. 24, 1919	21.0	172,000	1954	Jan. 30, 1954	19.20	153,000
1920	Jan. 27, 1920	15.8	118,000	1955	Jan. 1, 1955	14.64	107,000
1921	Dec. 31, 1920	19.8	158,000	1956	Dec. 23, 1955	25.46	240,000
1922	Nov. 22, 1921	24.6	219,000	1957	Mar. 10, 1957	16.93	129,000

a Maximum stage and discharge known.

b From U.S. Corps of Engineers.

1915. Mill Creek at penitentiary annex, near Salem, Oreg.

Location.--Lat 44°52'55", long 122°58'35", in NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.18, T.8 S., R.2 W., on left bank at bridge on Turner Road at State penitentiary annex, 3.0 miles downstream from Battle Creek, 5 miles southeast of Salem, and 7 miles upstream from mouth.

Drainage area.--104 sq mi. Mean altitude, 606 ft; channel slope, 86 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. Datum of gage is 231.96 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 4,200 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Records for 1938-40, furnished by the State engineer of Oregon. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938	Dec. 29, 1937	-	8,320	1948	Jan. 7, 1948	7.43	4,860
1939	Feb. 14, 1939	-	1,670	1949	Feb. 18, 1949	7.67	5,140
1940	Mar. 27, 1940	-	2,470	1950	Jan. 10, 1950	6.29	3,330
1941	Dec. 20, 1940	4.69	1,980	1951	Nov. 17, 1950	7.23	4,370
1942	Dec. 20, 1941	5.64	2,800	1952	Dec. 5, 1951	5.73	2,850
1943	Feb. 7, 1943	6.95	3,880	1953	Jan. 18, 1953	6.61	3,870
1944	Jan. 23, 1944	4.08	1,410	1954	Jan. 27, 1954	7.34	3,840
1945	Mar. 20, 1945	4.86	1,850	1955	Apr. 12, 1955	4.75	1,750
1946	Nov. 27, 1945	5.85	2,960	1956	Dec. 21, 1955	6.28	4,810
1947	Dec. 15, 1946	6.56	3,830				

a Maximum discharge known, computed by velocity-area method on basis of discharge measurement of 7,300 cfs made that day.

1920. Mill Creek at Salem, Oreg.

Location.--Lat 44°56'05", long 123°01'00", in NE $\frac{1}{4}$  sec.26, T.7 S., R.3 W., on left bank at State Street Bridge in Salem, 220 ft downstream from 19th Street diversion.

Drainage area.--110 sq mi.

Gage.--Recording. July 21, 1938, to Oct. 9, 1940, at site below dam about 200 ft upstream at different datum. Datum of gage is 166.12 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 1,100 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Records for 1940 furnished by State engineer of Oregon. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1940	Mar. 26, 1940	-	776	1949	Feb. 19, 1949	6.38	1,230
1941	Jan. 18, 1941	3.83	676	1950	Jan. 7, 1950	5.80	1,110
1942	Dec. 3, 1941	4.88	951	1951	Nov. 17, 1950	4.72	894
1943	Feb. 7, 1943	5.53	1,110	1952	Dec. 4, 1951	4.51	842
1944	Jan. 24, 1944	3.48	587	1953	Jan. 18, 1953	5.71	1,110
1945	Mar. 14, 1945	3.92	708	1954	Jan. 28, 1954	7.07	1,460
1946	Nov. 27, 1945	4.98	950	1955	Apr. 13, 1955	4.16	766
1947	Dec. 15, 1946	5.63	1,080	1956	Dec. 22, 1955	6.53	1,310
1948	Jan. 7, 1948	5.46	1,040	1957	Mar. 9, 1957	3.80	601

## 1921. Glenn Creek near Salem, Oreg.

Location.--Lat 44°57'05", long 123°05'00", in SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.20, T.7 S., R.3 W., at culvert on Glenn Creek road 1.5 miles northwest of Salem.

Drainage area.--2.72 sq mi.

Gage.--Nonrecording. Altitude of gage is 250 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 40 cfs and extended on basis of computations of flow through culvert.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Dec. 4, 1951	11.96	64	1956	Dec. 21, 1955	14.26	172
1953	Jan. 20, 1953	13.28	156	1957	Mar. 7, 1957	16.55	42
1954	Jan. 27, 1954	12.81	121				
1955	Feb. 8, 1955	11.25	24				

## 1922. Gibson Creek near Salem, Oreg.

(Published as Glenn Creek tributary, near Salem)

Location.--Lat 44°58'20", long 123°04'30", in S $\frac{1}{2}$ SE $\frac{1}{4}$  sec.8, T.7 S., R.3 W., at culverts on Gibson Road 2.5 miles northwest of Salem.

Drainage area.--4.83 sq mi. Mean altitude, 595 ft; channel slope, 189 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording. Altitude of gage is 140 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 76 cfs and extended on basis of flow through culverts and over road.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Dec. 3, 1951	13.39	102	1956	Jan. 4, 1956	16.40	190
1953	Jan. 20, 1953	16.53	238	1957	Mar. 7, 1957	14.17	126
1954	Jan. 27, 1954	15.65	162				
1955	Apr. 12, 1955	12.21	53				

## 1925. South Yamhill River near Willamina, Oreg.

Location.--Lat 45°02'50", long 123°30'10", in sec.14, T.6 S., R.7 W., on left bank 2.3 miles southwest of Willamina and 3.2 miles upstream from Willamina Creek.

Drainage area.--133 sq mi. Mean altitude, 950 ft; channel slope, 88 ft per mile; area of lakes and ponds, 0.1 sq mi.

Gage.--Recording. Datum of gage is 235.55 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 13,000 cfs and extended by logarithmic plotting.

Bankfull stage.--8 ft.

Remarks.--Base for partial-duration series, 5,700 cfs.

Peak stages and discharges of South Yamhill River near Willamina, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1931	Mar. 31, 1931	15	a15,000	1948	Jan. 1, 1948	8.60	6,170
					Jan. 7, 1948	11.43	10,000
1934	Dec. 22, 1933	14	a14,000		Feb. 22, 1948	10.54	8,780
					Mar. 22, 1948	8.71	6,310
1935	Nov. 6, 1934	8.40	5,830	1949	Dec. 12, 1948	10.61	8,880
	Dec. 21, 1934	8.30	5,710		Feb. 10, 1949	14.80	15,200
1936	Jan. 2, 1936	8.67	6,300		Feb. 17, 1949	13.73	13,500
	Jan. 4, 1936	11.33	9,850		Feb. 22, 1949	10.79	9,130
	Jan. 12, 1936	13.36	12,900	1950	Nov. 27, 1949	8.58	6,140
1937	Feb. 17, 1937	9.76	7,760		Jan. 22, 1950	8.57	6,210
	Apr. 14, 1937	10.15	8,310		Feb. 25, 1950	8.55	6,180
1938	Dec. 27, 1937	14.08	14,000	1951	Jan. 17, 1951	10.81	9,370
	Mar. 18, 1938	9.58	7,580		Jan. 21, 1951	8.40	5,990
1939	Dec. 2, 1938	8.76	6,430	1952	Dec. 5, 1951	9.54	7,560
	Feb. 15, 1939	9.56	7,490		Dec. 22, 1951	8.51	6,130
1940	Dec. 16, 1939	9.78	7,740		Feb. 1, 1952	8.30	5,860
	Feb. 6, 1940	11.20	9,680		Feb. 3, 1952	8.50	6,120
1941	Jan. 18, 1941	8.24	5,720	1953	Jan. 8, 1953	8.91	6,670
					Jan. 19, 1953	11.07	9,760
1942	Dec. 19, 1941	10.93	9,340	1954	Nov. 22, 1953	10.13	8,390
1943	Nov. 23, 1942	10.97	9,380		Dec. 6, 1953	8.87	6,620
	Nov. 26, 1942	8.98	6,660		Dec. 9, 1953	10.16	8,430
	Dec. 27, 1942	10.53	8,770		Dec. 19, 1953	8.77	6,480
	Dec. 29, 1942	9.07	6,760		Jan. 4, 1954	8.50	6,120
	Feb. 6, 1943	10.64	8,920		Jan. 22, 1954	11.14	9,860
	Mar. 31, 1943	10.85	9,210		Feb. 12, 1954	9.13	6,980
					Feb. 21, 1954	8.78	6,490
1944	Oct. 24, 1943	7.58	4,930	1955	Dec. 31, 1954	9.23	7,120
1945	Feb. 7, 1945	12.04	10,900	1956	Nov. 18, 1955	8.67	6,340
1946	Nov. 26, 1945	11.15	9,640		Nov. 26, 1955	9.17	7,040
	Dec. 28, 1945	10.30	8,450		Dec. 12, 1955	8.34	5,910
	Feb. 6, 1946	11.87	10,700		Dec. 21, 1955	14.44	15,000
1947	Nov. 18, 1946	8.46	5,990		Jan. 4, 1956	11.99	11,100
	Nov. 22, 1946	8.53	6,080		Jan. 16, 1956	8.61	6,260
	Dec. 13, 1946	9.42	7,250		Mar. 3, 1956	8.30	5,860
	Dec. 15, 1946	11.52	10,200	1957	Dec. 11, 1956	9.22	7,110
	Jan. 26, 1947	8.40	5,910		Feb. 26, 1957	10.13	8,390
	Feb. 2, 1947	9.69	7,860				

a Annual peaks only; estimated.

1930. Willamina Creek near Willamina, Oreg.

Location.--Lat 45°08'30", long 123°29'35", in W $\frac{1}{2}$ NE $\frac{1}{4}$  sec.13, T.5 S., R.7 W., on left bank 4.5 miles north of Willamina and 7.0 miles upstream from mouth.

Drainage area.--65 sq mi, approximately. Mean altitude, 1,060 ft; channel slope, 135 ft per mile; area of lakes and ponds, 0.1 sq mi.

Gage.--Recording. Prior to Oct. 1, 1939, at datum 1.00 ft higher; gage heights herein adjusted to present datum. Datum of gage is 315.1 ft above mean sea level (river-profile survey).

Stage-discharge relation.--Defined by current-meter measurements below 3,400 cfs and extended on basis of slope-area measurement at 7,760 cfs.

Bankfull stage.--11 ft.

Remarks.--Base for partial-duration series, 2,300 cfs.

Peak stages and discharges of Willamina Creek near Willamina, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1931	Mar. 31, 1931	12	a8,200	1947	Feb. 2, 1947	7.10	2,500	
1935	Dec. 20, 1934	7.43	2,780	1948	Jan. 7, 1948	7.71	3,110	
1936	Jan. 2, 1936	7.18	2,570	1949	Feb. 22, 1948	7.99	3,420	
	Jan. 4, 1936	7.71	3,100		Dec. 11, 1948	9.01	4,650	
	Jan. 12, 1936	8.36	3,900		Feb. 10, 1949	8.10	3,540	
1937	Apr. 14, 1937	6.88	2,320	1949	Feb. 17, 1949	10.25	6,380	
					Feb. 22, 1949	8.87	4,470	
1938	Dec. 27, 1937	9.83	5,720	1950	Feb. 24, 1950	7.90	3,320	
	Dec. 29, 1937	8.55	4,130		1951	Jan. 17, 1951	8.32	3,790
	Mar. 18, 1938	7.55	3,010			1952	Dec. 4, 1951	8.12
1939	Feb. 15, 1939	7.75	3,160	1952	Feb. 1, 1952		7.25	2,650
					Feb. 3, 1952	7.26	2,660	
1940	Feb. 6, 1940	8.62	4,150	1953	Jan. 18, 1953	8.63	4,170	
1941	Jan. 18, 1941	7.09	2,530		1954	Nov. 23, 1953	7.74	3,140
1942	Dec. 19, 1941	7.74	3,150	Dec. 6, 1953		-	3,000	
1943	Nov. 23, 1942	8.24	3,700	Dec. 9, 1953	-	3,800		
	Dec. 27, 1942	7.84	3,250	Jan. 4, 1954	-	2,800		
	Dec. 29, 1942	7.47	2,880	Jan. 22, 1954	-	4,500		
	Dec. 31, 1942	7.47	2,880	Feb. 12, 1954	-	3,200		
	Feb. 6, 1943	8.12	3,560	Feb. 21, 1954	-	3,000		
	Mar. 31, 1943	8.49	4,000	1955	Dec. 30, 1954	7.56	2,960	
1944	Dec. 2, 1943	6.48	2,020		1956	Nov. 26, 1955	8.85	4,140
1945	Feb. 7, 1945	7.80	3,210	Dec. 21, 1955		11.65	7,760	
				Jan. 4, 1956		8.90	4,190	
1946	Nov. 26, 1945	6.92	2,380	Mar. 2, 1956	7.07	2,440		
	Dec. 28, 1945	8.4	3,890	1957	Dec. 11, 1956	7.63	2,930	
	Feb. 6, 1946	7.02	2,430		Feb. 26, 1957	6.97	2,360	
1947	Dec. 14, 1946	8.46	3,960					

a From information by local residents.

#### 1940. South Yamhill River near Whiteson, Oreg.

Location.--Lat 45°10'08", long 123°12'25", in NW<sup>1</sup>/<sub>4</sub> sec. 5, T.5 S., R.4 W., near left bank on downstream side of Whiteson Bridge on U.S. Highway 99W, 1.3 miles northwest of Whiteson and 1.4 miles downstream from Salt Creek.

Drainage area.--502 sq mi. Mean altitude, 750 ft; channel slope, 38 ft per mile; area of lakes and ponds, 0.5 sq mi.

Gage.--Recording. Datum of gage is 82.30 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 27,000 cfs and extended by logarithmic plotting. Subject to frequent shifts in rating.

Bankfull stage.--38 ft.

Remarks.--Base for partial-duration series, 13,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1941	Jan. 19, 1941	37.54	12,800	1946	Nov. 27, 1945	41.59	22,800
					Dec. 30, 1945	39.77	17,600
					Jan. 6, 1946	37.78	13,700
1942	Dec. 20, 1941	41.54	21,700	1947	Feb. 6, 1946	41.66	23,000
					Nov. 24, 1942	39.50	14,800
					Dec. 28, 1942	39.72	15,400
					Dec. 30, 1942	40.86	18,700
					Feb. 7, 1943	41.42	20,600
1943	Apr. 1, 1943	41.91	22,300	1948	Jan. 27, 1948	42.12	24,500
					Feb. 23, 1948	40.00	18,200
1944	Dec. 5, 1943	32.16	8,370	1949	Dec. 13, 1948	41.60	22,900
1945	Feb. 8, 1945	40.9	20,700		Feb. 11, 1949	43.39	28,900

Peak stages and discharges of South Yamhill River near Whiteson, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	Feb. 18, 1949	43.22	28,300	1954	Jan. 6, 1954	37.68	13,200
	Feb. 23, 1949	41.81	23,500		Jan. 23, 1954	40.90	20,200
1950	Jan. 23, 1950	39.95	18,100		Feb. 13, 1954	40.39	18,700
	Feb. 26, 1950	37.89	13,800	Feb. 22, 1954	37.90	13,400	
1951	Nov. 18, 1950	39.40	16,200	1955	Jan. 1, 1955	37.35	12,800
	Jan. 17, 1951	41.49	22,000		1956	Nov. 27, 1955	41.27
	Jan. 22, 1951	38.69	14,800	Dec. 22, 1955		45.25	36,800
1952	Dec. 5, 1951	40.86	20,100	Jan. 4, 1956		44.24	32,500
	Feb. 2, 1952	39.24	15,800	Jan. 17, 1956	38.09	13,800	
1953	Jan. 10, 1953	37.99	13,600	1957	Mar. 4, 1956	38.78	14,900
	Jan. 19, 1953	41.41	21,700		Feb. 26, 1957	39.47	16,300

1950. Haskins Creek near McMinnville, Oreg.

Location.--Lat 45°18'50", long 123°21'55", in NE $\frac{1}{4}$  sec.13, T.3 S., R.6 W., 150 ft downstream from Idlewild Creek and 11 miles northwest of McMinnville.

Drainage area.--6.7 sq mi, approximately. Mean altitude, 2,320 ft; channel slope, 362 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording gage and wooden control. Prior to Oct. 1, 1930, at datum 1.00 ft higher; gage heights herein adjusted to described datum. Altitude of gage is 815 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements. Frequent large shifts in rating prior to construction of wooden control in September 1936.

Bankfull stage.--Not subject to overflow.

Remarks.--Base for partial-duration series, 180 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1929	Apr. 14, 1929	3.16	154	1941	Jan. 17, 1941	2.72	174
1930	Feb. 7, 1930	3.40	210	1942	Dec. 18, 1941	3.10	264
1931	Mar. 31, 1931	4.00	610	1943	Nov. 23, 1942	3.10	264
1932	Nov. 19, 1931	2.66	221		Dec. 27, 1942	2.82	199
	Jan. 18, 1932	2.95	285	Jan. 1, 1943	2.82	199	
1933	Dec. 2, 1932	2.62	212	Feb. 6, 1943	3.16	280	
	Dec. 19, 1932	2.68	225	Feb. 11, 1943	2.85	206	
	Jan. 2, 1933	2.62	212	Mar. 31, 1943	3.05	252	
1934	Dec. 6, 1933	3.00	303	1944	Dec. 2, 1943	2.72	179
	Dec. 22, 1933	3.75	486		Feb. 7, 1945	2.90	217
	Jan. 22, 1934	2.44	222	Mar. 20, 1945	2.87	210	
1935	Nov. 5, 1934	2.33	198	1946	Nov. 26, 1945	2.91	219
	Dec. 21, 1934	2.38	211		Dec. 28, 1945	3.04	250
	Mar. 12, 1935	2.45	226	Feb. 5, 1946	3.85	475	
1936	Jan. 12, 1936	3.35	440	1948	Jan. 7, 1948	2.90	245
	Feb. 22, 1936	2.12	187		Feb. 21, 1948	3.06	285
	Feb. 27, 1936	2.15	194		Mar. 22, 1948	2.95	268
1937	Feb. 17, 1937	2.83	199	1949	Dec. 2, 1948	2.91	248
	Apr. 14, 1937	3.14	274		Dec. 11, 1948	3.26	335
1938	Nov. 25, 1937	2.97	232		Feb. 10, 1949	2.97	262
	Dec. 27, 1937	4.00	520		Feb. 17, 1949	3.75	465
	Mar. 18, 1938	3.10	264		Feb. 22, 1949	3.54	405
1939	Feb. 12, 1939	2.90	215	1950	Nov. 27, 1949	2.90	245
	Feb. 15, 1939	3.15	277		Feb. 24, 1950	3.34	355
1940	Dec. 16, 1939	2.95	227		Mar. 4, 1950	2.68	240
	Feb. 6, 1940	3.20	290	1951	Jan. 17, 1951	2.94	316
					Jan. 21, 1951	2.63	217
			Jan. 25, 1951		2.60	208	

1960. Haskins Creek below reservoir, near McMinnville, Oreg.

Location.--Lat 45°18'40", long 123°20'55", in NE $\frac{1}{4}$  sec.18, T.3 S., R.5 W., on right bank 800 ft downstream from dam of McMinnville water-supply reservoir and 11 miles northwest of McMinnville.

Drainage area.--7.1 sq mi, approximately.

Gage.--Recording gage and concrete control. Prior to Aug. 5, 1952, at site 600 ft upstream at different datum. Altitude of gage is 707 ft above mean sea level (topographic survey of 1955).

Stage-discharge relation.--Defined by current-meter measurements below 360 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Records herein include flow in pipeline which diverts 600 ft above station for McMinnville city water supply. Flow regulated by Haskins Creek Reservoir (capacity, 733 acre-ft), but during winter months reservoir is empty except when inflow exceeds the capacity of outlet tunnel. Only annual peaks are shown. Records for 1950-57 adjusted on basis of drainage-area ratio, are combined with those for station near McMinnville (see preceding station) for use in the analysis.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Apr. 9, 1952	-	558	1956	Dec. 21, 1955	-	446
1953	Jan. 19, 1953	-	387	1957	Dec. 10, 1956	-	1,410
1954	Feb. 12, 1954	-	352				
1955	Apr. 29, 1955	-	474				

1965. North Yamhill River near Pike, Oreg.

Location.--Lat 45°22'15", long 123°17'10", in NE $\frac{1}{4}$  sec.27, T.2 S., R.5 W., 1.3 miles west of Pike, 2.3 miles downstream from Haskins Creek, and 5.2 miles northwest of Yamhill.

Drainage area.--48.8 sq mi. Mean altitude, 1,400 ft; channel slope, 45 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. Datum of gage is 249.22 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 2,500 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Base for partial-duration series, 1,800 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1941	Jan. 17, 1941	5.88	1,970	1947	Dec. 14, 1946	6.94	2,740
					Jan. 25, 1947	6.29	2,250
1942	Dec. 18, 1941	8.24	3,830		Feb. 2, 1947	6.83	2,650
1943	Nov. 23, 1942	6.86	2,680	1948	Jan. 7, 1948	6.39	2,320
	Dec. 27, 1942	6.90	2,710		Feb. 21, 1948	6.27	2,240
	Dec. 31, 1942	5.90	1,980		Mar. 21, 1948	6.57	2,450
	Feb. 6, 1943	6.67	2,520				
	Feb. 10, 1943	6.08	2,110	1949	Dec. 2, 1948	5.63	1,800
	Mar. 31, 1943	6.73	2,570		Dec. 9, 1948	6.11	2,130
					Dec. 11, 1948	6.63	2,490
1944	Dec. 2, 1943	5.44	1,680		Feb. 10, 1949	9.28	4,780
					Feb. 17, 1949	9.22	4,720
1945	Feb. 7, 1945	7.59	3,260		Feb. 22, 1949	7.60	3,270
	Mar. 20, 1945	6.03	2,070	1950	Nov. 27, 1949	5.67	1,820
1946	Nov. 26, 1945	7.14	2,900		Feb. 24, 1950	6.95	2,750
	Dec. 28, 1945	5.78	1,900				
	Feb. 6, 1946	7.43	3,130	1951	Jan. 17, 1951	6.66	2,640
1947	Dec. 12, 1946	5.85	1,940		Jan. 21, 1951	5.80	2,020

1970. North Yamhill River at Pike, Oreg.

Location.--Lat 45°22'10", long 123°15'15", in NW $\frac{1}{4}$  sec.25, T.2 S., R.5 W., on right bank 500 ft downstream from Turner Creek, 0.5 mile southeast of Pike, and 4.0 miles northwest of Yamhill.

Drainage area.--66.8 sq mi. Mean altitude, 1,270 ft; channel slope, 34 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. Prior to Aug. 21, 1950, at datum 1.02 ft higher; gage heights herein corrected to present datum. Datum of gage is 192.66 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 4,400 cfs and extended on basis of slope-area measurement at 9,510 cfs.

Bankfull stage.--Not subject to overflow.

Remarks.--Base for partial-duration series, 2,900 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	Dec. 11, 1948	7.62	3,050	1954	Dec. 9, 1953	7.94	3,750
	Feb. 10, 1949	11.0	6,280		Jan. 22, 1954	7.21	3,090
	Feb. 17, 1949	10.56	6,240		Feb. 12, 1954	8.59	4,390
	Feb. 22, 1949	8.55	4,230	1955	Dec. 30, 1954	6.18	2,240
1950	Feb. 24, 1950	7.57	3,260		1956	Nov. 26, 1955	9.34
1951	Jan. 17, 1951	7.34	3,400	Dec. 21, 1955		12.42	9,530
	1952	Dec. 4, 1951	7.54	3,600		Jan. 4, 1956	8.43
1952	Feb. 1, 1952	6.94	3,000	1957	Feb. 25, 1957	7.78	3,600
	1953	Jan. 18, 1953	7.13		3,190		

1973. Panther Creek near Carlton, Oreg.

Location.--Lat 45°18'20", long 123°21'00", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.18, T.3 S., R.5 W., at diversion dam, 1.6 miles upstream from Fall Creek and 9 miles west of Carlton.

Drainage area.--3.19 sq mi. Mean altitude, 1,400 ft; channel slope, 468 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording gage above concrete dam. Altitude of gage is 560 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 124 cfs and extended on basis of computations of flow over dam.

Remarks.--Peak discharges not affected by small diversion at station for town of Carlton water supply. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	Jan. 19, 1953	13.55	184	1956	Dec. 21, 1955	14.72	492
1954	Feb. 12, 1954	13.77	212	1957	Mar. 7, 1957	13.55	208
1955	Dec. 30, 1954	13.03	113				

## 1980. Willamette River at Wilsonville, Oreg.

Location.--Lat 45°17'31", long 122°46'05", in SE $\frac{1}{4}$  sec.23, T.3 S., R.1 W., in upstream side of pier of bridge on U.S. Highway 99 at Wilsonville, 1.3 miles downstream from Corral Creek and 2.8 miles upstream from Molalla River.

Drainage area.--8,400 sq mi, approximately.

Gage.--Nonrecording gage prior to Oct. 1, 1954; recording gage thereafter. Prior to Oct. 1, 1954, at Butterville 4.5 miles upstream at same datum. Datum of gage is 50.00 ft above mean sea level. Gage heights herein have been adjusted to elevations above mean sea level.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--86 ft (by U.S. Weather Bureau).

Historical data.--Maximum stage known, 105 ft Dec. 4, 1861, at Oregon Electric Railway bridge 0.4 mile upstream from present gage.

Remarks.--Peak discharges partly regulated by Lookout Point, Cottage Grove, Dorena, Fern Ridge, and Detroit reservoirs (combined usable capacity, 901,250 acre-ft). Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1862	Dec. 4, 1861	105	-	1953	Jan. 21, 1953	90.00	248,000
				1954	Jan. 31, 1954	79.2	154,000
1949	Feb. 20, 1949	85.20	196,000	1955	Jan. 2, 1955	71.78	114,000
1950	Jan. 25, 1950	81.03	162,000				
1951	Nov. 2, 1950	79.05	147,000	1956	Dec. 24, 1955	85.95	235,000
1952	Feb. 6, 1952	78.20	146,000	1957	Mar. 10, 1957	75.41	142,000

## 1985. Molalla River above Pine Creek, near Wilhoit, Oreg.

Location.--Lat 45°00'45", long 122°29'00", in SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.30, T.6 S., R.3 E., on right bank 1,700 ft upstream from Pine Creek and 5.0 miles southeast of Wilhoit.

Drainage area.--96 sq mi, approximately. Mean altitude, 2,910 ft; channel slope, 180 ft per mile; area of lakes and ponds, 0.1 sq mi.

Gage.--Recording. Prior to Oct. 1, 1945, at datum 2.02 ft higher. Altitude of gage is 780 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 7,100 cfs and extended by logarithmic plotting. Many large shifts since 1944 caused by highway construction.

Bankfull stage.--Not subject to overflow.

Remarks.--Base for partial-duration series, 3,600 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1936	Jan. 2, 1936	6.10	4,680	1940	Dec. 15, 1939	6.20	4,890
	Jan. 4, 1936	7.15	6,700		Feb. 6, 1940	6.59	5,620
	Jan. 12, 1936	6.90	6,120				
1937	Apr. 13, 1937	7.30	6,900	1941	Nov. 29, 1940	5.40	3,550
1938	Nov. 20, 1937	5.52	3,740	1942	Nov. 15, 1941	6.05	4,620
	Nov. 25, 1937	6.20	4,890		Dec. 2, 1941	7.45	7,360
	Dec. 26, 1937	6.62	5,680		Dec. 19, 1941	5.84	4,260
	Dec. 29, 1937	8.95	10,800	1943	Nov. 23, 1942	9.30	11,600
	Jan. 14, 1938	5.49	3,690		Nov. 27, 1942	6.70	5,850
	Jan. 22, 1938	6.40	5,260		Dec. 27, 1942	6.78	5,990
	Mar. 18, 1938	6.08	4,670		Dec. 31, 1942	7.85	8,210
	Apr. 18, 1938	5.56	3,810		Feb. 6, 1943	6.86	6,150
1939	Dec. 2, 1938	6.46	5,360		Mar. 31, 1943	7.50	7,460
	Feb. 15, 1939	6.06	4,640	1944	Oct. 24, 1943	5.30	3,400

Peak stages and discharges of Molalla River above Pine Creek,  
near Wilhoit, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1945	Jan. 7, 1945	6.85	3,980	1951	Dec. 6, 1950	10.22	4,190
	Feb. 7, 1945	9.54	7,620		Jan. 21, 1951	11.35	5,200
	Feb. 13, 1945	7.00	4,160		Jan. 24, 1951	9.65	3,720
1946	Nov. 27, 1945	12.4	8,920	1952	Oct. 23, 1951	10.03	4,030
	Dec. 6, 1945	7.99	3,730		Feb. 4, 1952	10.40	5,010
	Dec. 28, 1945	12.86	11,400	1953	Jan. 9, 1953	14.92	9,520
	Jan. 24, 1946	7.84	4,110		Jan. 12, 1953	10.04	4,690
1947	Nov. 18, 1946	10.17	7,200	Jan. 18, 1953	14.88	9,470	
	Nov. 27, 1946	9.29	5,950	Feb. 3, 1953	9.83	4,440	
	Dec. 15, 1946	11.87	10,000	1954	Nov. 22, 1953	13.0	7,500
	Jan. 26, 1947	7.68	4,130		Dec. 6, 1953	10.37	4,950
1948	Oct. 18, 1947	8.88	5,620	Dec. 9, 1953	13.80	8,340	
	Jan. 2, 1948	8.52	5,160	Dec. 19, 1953	12.49	6,990	
	Jan. 7, 1948	13.17	12,200	Jan. 4, 1954	9.15	3,820	
	Feb. 22, 1948	13.41	9,590	Jan. 22, 1954	10.85	5,410	
	Dec. 12, 1948	13.34	6,390	Jan. 27, 1954	9.00	3,680	
1949	Feb. 10, 1949	10.42	3,830	Feb. 21, 1954	9.15	3,820	
	Feb. 17, 1949	13.95	6,800	1955	Dec. 30, 1954	10.22	4,810
	Feb. 22, 1949	11.82	5,860		1956	Oct. 9, 1955	10.46
	May 2, 1949	12.79	6,760	Nov. 19, 1955		12.98	8,210
	Nov. 27, 1949	10.77	4,780	Nov. 26, 1955		11.17	6,380
1950	Jan. 22, 1950	12.60	6,400	Dec. 12, 1955	13.42	7,940	
	Feb. 25, 1950	13.80	7,600	Dec. 21, 1955	16.04	10,700	
	Mar. 17, 1950	10.36	4,320	Jan. 4, 1956	10.32	7,010	
	Oct. 28, 1950	10.84	4,740	Jan. 15, 1956	10.92	7,910	
1951	Nov. 1, 1950	12.14	5,940	1957	Dec. 11, 1956	9.46	5,760
	Nov. 17, 1950	9.89	3,910		Feb. 26, 1957	10.47	7,180
	Nov. 24, 1950	10.00	4,000		Mar. 7, 1957	9.01	4,910

1990. Molalla River near Molalla, Oreg.

Location (revised).--Lat 45°07'08", long 122°32'03", in SW<sup>1</sup> sec.23, T.5 S., R.2 E., 1.7 miles downstream from Little Cedar Creek and 2.8 miles southeast of Molalla.

Drainage area.--201 sq mi.

Gage.--Nonrecording prior to Oct. 14, 1946; recording thereafter. At site about 1 mile downstream at different datum Nov. 1, 1905, to July 12, 1909. Oct. 14, 1946, to Sept. 30, 1947, at present site at datum 2.13 ft higher.

Stage-discharge relation.--Defined by current-meter measurements below 14,000 cfs and extended by logarithmic plotting. Some shifts at flood stages. Gage heights herein adjusted to described datum.

Remarks.--Only annual peaks are shown 1906-9. Base for partial-duration series, 5,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1906	Feb. 20, 1906	6.1	3,960	1949	Feb. 22, 1949	9.23	10,300
1907	Feb. 5, 1907	11.0	9,800		May 2, 1949	9.35	10,700
1908	Mar. 15, 1908	10.3	8,920	1950	Nov. 27, 1949	6.97	6,090
1909	Jan. 19, 1909	10.1	8,680		Dec. 23, 1949	6.53	5,130
	Nov. 18, 1946	9.18	9,740		Jan. 22, 1950	8.68	10,400
	Nov. 27, 1946	8.52	7,710		Feb. 16, 1950	6.53	5,130
	Dec. 12, 1946	8.89	8,830		Feb. 24, 1950	9.37	12,600
1947	Dec. 15, 1946	10.54	14,400	Mar. 17, 1950	7.23	5,700	
	Jan. 26, 1947	7.93	6,640	1951	Oct. 29, 1950	7.97	7,920
	Oct. 18, 1947	8.83	9,250		Nov. 2, 1950	8.40	9,050
	Jan. 2, 1948	8.04	6,940		Nov. 17, 1950	8.11	8,280
	Jan. 7, 1948	12.87	23,700		Nov. 24, 1950	7.35	5,940
Feb. 22, 1948	9.63	11,500	Dec. 6, 1950		7.50	6,360	
Feb. 26, 1948	7.09	5,330	Jan. 17, 1951		7.57	6,540	
1948	Oct. 18, 1947	8.83	9,250		Jan. 21, 1951	8.28	8,390
	Jan. 2, 1948	8.04	6,940	Jan. 24, 1951	7.65	6,740	
	Jan. 7, 1948	12.87	23,700	Feb. 11, 1951	-	5,500	
	Feb. 22, 1948	9.63	11,500	Mar. 15, 1951	8.11	7,920	
1949	Feb. 26, 1948	7.09	5,330				
	Dec. 12, 1948	9.32	10,600				
	Feb. 10, 1949	7.93	7,010				
	Feb. 17, 1949	10.53	14,500				

## 2000. Molalla River near Canby, Oreg.

Location--Lat 45°14'40", long 122°41'33", in NW¼ sec.9, T.4 S., R.1 E., on right bank 0.3 mile downstream from Goods Bridge on Marquam-Canby road, 1.3 miles south of Canby, and 2.4 miles downstream from Milk Creek.

Drainage area--323 sq mi. Mean altitude, 1,910 ft; channel slope, 86 ft per mile; area of lakes and ponds, 0.2 sq mi.

Gage--Nonrecording prior to Oct. 24, 1933; recording thereafter. Oct. 24, 1933, to Sept. 26, 1955, at site 0.3 mile upstream at datum 2.98 ft higher. Sept. 27, 1955, to June 3, 1956, at site 145 ft downstream from Goods Bridge at datum 1.98 ft higher. Datum of gage is 102.02 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation--Defined by current-meter measurements below 24,000 cfs. Subject to shifts.

Bankfull stage--12 ft (by U.S. Weather Bureau).

Remarks--Only annual peaks are shown prior to 1934. Base for partial-duration series, 7,200 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1929	Apr. 14, 1929	6.26	5,720	1947	Nov. 27, 1946	8.85	9,100
1930	Dec. 14, 1929	9.8	12,100		Dec. 15, 1946	11.99	16,200
					Jan. 26, 1947	8.38	8,310
1931	Mar. 31, 1931	14.7	22,300	1948	Oct. 18, 1947	9.9	11,400
1932	Mar. 19, 1932	10.3	12,400		Jan. 2, 1948	8.1	7,780
1933	Jan. 2, 1933	8.30	8,390		Jan. 7, 1948	14.9	25,100
					Feb. 22, 1948	11.1	14,000
1934	Dec. 6, 1933	10.88	13,300	1949	Dec. 12, 1948	11.2	14,200
	Dec. 22, 1933	11.74	15,000		Feb. 10, 1949	9.1	9,600
	Dec. 26, 1933	8.35	8,410		Feb. 18, 1949	13.5	20,600
	Jan. 23, 1934	8.00	7,780		Feb. 22, 1949	11.0	14,600
1935	Dec. 20, 1934	7.35	6,750		May 2, 1949	9.7	12,500
1936	Jan. 4, 1936	10.2	11,900	1950	Jan. 22, 1950	11.15	15,000
	Jan. 13, 1936	9.6	10,700		Feb. 25, 1950	11.7	16,400
1937	Apr. 15, 1937	10.60	12,700	1951	Oct. 29, 1950	8.67	9,540
1938	Nov. 23, 1937	8.25	8,170		Nov. 2, 1950	9.30	10,800
	Nov. 25, 1937	8.20	8,080		Nov. 17, 1950	10.79	14,100
	Dec. 27, 1937	9.40	10,400		Nov. 24, 1950	7.65	7,620
	Dec. 30, 1937	13.2	18,400		Dec. 6, 1950	8.07	8,380
	Jan. 22, 1938	8.30	8,260		Jan. 17, 1951	8.80	9,800
	Mar. 19, 1938	9.25	10,100		Jan. 21, 1951	9.67	11,600
	Apr. 18, 1938	8.88	9,360		Jan. 24, 1951	8.66	9,520
					Mar. 15, 1951	9.07	10,300
1939	Feb. 15, 1939	8.80	9,020	1952	Feb. 2, 1952	8.56	9,040
1940	Dec. 16, 1939	7.71	7,200		June 29, 1952	7.89	7,710
	Feb. 6, 1940	8.20	8,080	1953	Jan. 9, 1953	11.07	15,700
1941	Nov. 29, 1940	7.92	7,580		Jan. 18, 1953	12.50	21,000
1942	Nov. 15, 1941	9.25	10,200		Feb. 3, 1953	8.31	8,540
	Dec. 3, 1941	11.1	14,200	1954	Nov. 23, 1953	11.95	18,800
	Dec. 20, 1941	8.90	9,540		Dec. 6, 1953	10.00	12,500
1943	Nov. 23, 1942	13.65	19,900		Dec. 9, 1953	11.35	16,700
	Nov. 27, 1942	11.25	14,500		Dec. 20, 1953	9.97	12,700
	Nov. 29, 1942	8.55	8,840		Jan. 4, 1954	7.77	7,800
	Dec. 27, 1942	10.05	11,900		Jan. 22, 1954	8.00	8,220
	Jan. 1, 1943	12.20	16,600		Jan. 28, 1954	9.73	12,100
	Feb. 6, 1943	11.50	15,000	1955	Dec. 31, 1954	8.37	8,940
	Mar. 31, 1943	11.75	15,600	1956	Oct. 10, 1955	9.97	10,200
1944	Oct. 24, 1943	7.2	6,300		Nov. 19, 1955	12.56	15,600
1945	Feb. 7, 1945	8.7	9,140		Nov. 27, 1955	11.75	13,800
	Feb. 13, 1945	7.75	7,320		Dec. 12, 1955	12.60	15,700
1946	Oct. 27, 1945	11.3	14,600		Dec. 22, 1955	14.42	20,200
	Dec. 28, 1945	12.25	16,700		Jan. 4, 1956	12.40	15,200
	Jan. 24, 1946	7.87	7,230	1957	Jan. 15, 1956	11.92	14,100
1947	Nov. 19, 1946	9.37	10,100		Dec. 11, 1956	9.54	8,980
					Feb. 26, 1957	10.31	10,500
					Mar. 7, 1957	10.46	10,800

## 2010. Pudding River near Mount Angel, Oreg.

Location.--Lat 45°03'47", long 122°49'44", in SE $\frac{1}{4}$  sec.8, T.6 S., R.1 W., on left bank on downstream side of Cline Bridge, 1.5 miles west of Mount Angel, and 3.6 miles upstream from Little Pudding River.

Drainage area.--204 sq mi. Mean altitude, 1,280 ft; channel slope, 92.2 ft per mile; area of lakes and ponds, 0.2 sq mi.

Gage.--Nonrecording prior to Sept. 22, 1945; recording thereafter. Datum of gage is 119.76 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 10,000 cfs and extended by logarithmic plotting. Discharge computed by using rate of change in stage as a factor.

Bankfull stage.--18 ft.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1940	Dec. 17, 1939	20.8	3,590	1949	Feb. 18, 1949	30.88	-
				1950	Feb. 25, 1950	26.00	5,320
1941	Nov. 30, 1940	16.27	2,180	1951	Nov. 18, 1950	28.47	8,970
1942	Dec. 20, 1941	22.44	4,610	1952	Feb. 4, 1952	24.89	5,260
1943	Jan. 1, 1943	28.85	8,040	1953	Jan. 19, 1953	29.80	10,500
1944	Dec. 4, 1943	15.90	1,870	1954	Jan. 28, 1954	25.03	5,500
1945	Dec. 21, 1944	-	3,000	1955	Dec. 31, 1954	22.17	4,170
1946	Dec. 29, 1945	25.16	5,000	1956	Dec. 22, 1955	27.83	7,620
1947	Dec. 15, 1946	29.99	10,700	1957	Mar. 9, 1957	23.38	4,650
1948	Jan. 7, 1948	29.71	10,000				
1949	Feb. 17, 1949	29.85	15,000				

## 2015. Butte Creek at Monitor, Oreg.

Location (revised).--Lat 45°06'06", long 122°44'50", in SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.25, T.5 S., R.1 W., on left downstream abutment of highway bridge at Monitor, 8.2 miles upstream from mouth.

Drainage area.--57.4 sq mi. Mean altitude, 1,670 ft; channel slope, 134 ft per mile; area of lakes and ponds, 0.1 sq mi.

Gage.--Nonrecording. Datum of gage is 151.35 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 4,300 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1941	Nov. 29, 1940	5.34	1,020	1947	Dec. 15, 1946	13.09	4,620
1942	Dec. 2, 1941	9.2	2,400	1948	Jan. 7, 1948	13.20	4,830
1943	Nov. 23, 1942	12.70	4,410	1949	Feb. 17, 1949	13.5	5,600
1944	Dec. 4, 1943	6.60	1,380	1950	Jan. 22, 1950	9.1	2,840
1945	Feb. 7, 1945	8.7	2,190				
				1951	Nov. 17, 1950	9.26	2,990
1946	Dec. 28, 1945	10.9	3,260	1952	Feb. 2, 1952	7.9	2,170

## 2020. Pudding River at Aurora, Oreg.

Location.--Lat 45°14'00", long 122°44'56", in SE $\frac{1}{4}$  sec.12, T.4 S., R.1 W., on upstream side of bridge on U.S. Highway 99E at Aurora, 1.0 mile upstream from Mill Creek.

Drainage area.--479 sq mi. Mean altitude, 859 ft; channel slope, 49 ft per mile; area of lakes and ponds, 0.3 sq mi.

Gage.--Nonrecording prior to Oct. 2, 1934; recording thereafter. Datum of gage is 77.23 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 16,000 cfs and extended by logarithmic plotting.

Bankfull stage.--18 ft.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1923	Jan. 7, 1923	a25.0	a27,900	1943	Nov. 27, 1942	21.1	12,100
1929	Dec. 31, 1928	16.56	5,020	1944	Dec. 6, 1943	12.02	3,240
1930	Feb. 9, 1930	16.04	5,200	1945	Mar. 23, 1945	14.69	4,500
1931	Apr. 1, 1931	21.4	13,000	1946	Nov. 29, 1945	17.74	6,520
1932	Jan. 20, 1932	16.5	5,500	1947	Dec. 16, 1946	20.97	10,700
1933	Jan. 3, 1933	19.27	7,780	1948	Jan. 7, 1948	21.84	14,600
1934	Dec. 23, 1933	21.64	13,900	1949	Feb. 19, 1949	23.82	22,200
1935	Dec. 30, 1934	18.85	7,320	1950	Jan. 24, 1950	19.23	7,980
1936	Jan. 13, 1936	20.26	9,750	1951	Nov. 18, 1950	20.65	10,800
1937	Apr. 15, 1937	19.47	7,990	1952	Feb. 5, 1952	18.55	7,250
1938	Dec. 30, 1937	24.5	25,400	1953	Jan. 20, 1953	22.12	15,600
1939	Feb. 16, 1939	15.69	5,020	1954	Jan. 30, 1954	-	8,000
1940	Feb. 29, 1940	16.31	5,380	1955	Jan. 2, 1955	15.30	4,850
1941	Dec. 22, 1940	14.18	4,230	1956	Dec. 22, 1955	21.18	12,300
1942	Dec. 21, 1941	17.81	6,480	1957	Mar. 9, 1957	18.70	7,320

a Maximum known.

## 2025. Tualatin River at Gaston, Oreg.

Location.--Lat 45°26'11", long 123°10'07", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.34, T.1 S., R.4 W., on right bank 1.5 miles west of Gaston.

Drainage area.--51 sq mi, approximately, at measuring section at Gaston. Mean altitude, 1,260 ft; channel slope, 108 ft per mile; area of lakes and ponds, 0.02 sq mi.

Gage.--Recording prior to May 20, 1942; nonrecording thereafter. At site 1.5 miles downstream at datum 164.18 ft above mean sea level, datum of 1929, prior to May 20, 1942. May 20, 1942, to Aug. 24, 1949, at present site at datum 1.00 ft higher. Altitude of gage is 175 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 5,000 cfs and extended by logarithmic plotting. Gage heights herein adjusted to present datum.

Bankfull stage.--9 ft.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1941	Jan. 18, 1941	13.04	2,300	1950	Feb. 24, 1950	12.02	4,300
1942	Dec. 19, 1941	13.88	3,540	1951	Jan. 17, 1951	11.19	2,670
1943	Feb. 6, 1943	11.4	2,670	1952	Dec. 4, 1951	11.7	3,500
1944	Dec. 3, 1943	9.9	1,800	1953	Jan. 23, 1953	10.8	2,260
1945	Feb. 7, 1945	11.2	2,540	1954	Dec. 9, 1953	11.9	4,120
1946	Feb. 6, 1946	10.92	2,350	1955	Feb. 8, 1955	10.65	2,340
1947	Feb. 2, 1947	10.90	2,330				
1948	Jan. 7, 1948	11.2	2,540	1956	Dec. 21, 1955	12.18	8,170
1949	Feb. 17, 1949	12.23	4,820				

## 2030. Scoggin Creek near Gaston, Oreg.

Location.--Lat 45°27'32", long 123°09'16", on line between secs.26 and 27, T.1 S., R.4 W., on left bank 100 ft upstream from bridge, on State Highway 47 (Tualatin Valley Road), 1.7 miles upstream from mouth, and 1.7 miles north-west of Gaston.

Drainage area.--44.0 sq mi. Mean altitude, 1,090 ft; channel slope, 108 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording at site 150 ft upstream at present datum Oct. 1, 1947, to June 7, 1950; recording at site 300 ft upstream prior to Oct. 1, 1947, and at present site since June 7, 1950. Datum of gage is 168.92 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 3,400 cfs and extended by logarithmic plotting. Affected by backwater from Tualatin River at high stages.

Bankfull stage.--14 ft.

Remarks.--Base for partial-duration series, 1,100 cfs.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1941	Jan. 18, 1941	14.31	1,610	1949	Feb. 17, 1949	15.53	3,460
					Feb. 22, 1949	15.03	2,560
1942	Dec. 19, 1941	14.20	1,590				
	Feb. 4, 1942	11.76	1,180	1950	Nov. 27, 1949	11.9	1,390
					Feb. 24, 1950	13.4	1,590
1943	Nov. 23, 1942	14.11	1,530		Mar. 4, 1950	11.2	1,130
	Dec. 27, 1942	13.37	1,400				
	Jan. 1, 1943	12.42	1,240	1951	Jan. 17, 1951	11.91	1,550
	Feb. 6, 1943	13.9	1,500		Jan. 21, 1951	11.29	1,390
	Feb. 11, 1943	13.71	1,460				
	Apr. 1, 1943	13.95	1,510	1952	Dec. 5, 1951	12.59	1,760
					Feb. 4, 1952	11.76	1,510
1944	Dec. 3, 1943	10.47	941				
				1953	Jan. 9, 1953	10.28	1,160
1945	Feb. 7, 1945	14.45	1,600		Jan. 20, 1953	11.12	1,240
	Mar. 20, 1945	13.95	1,510		Jan. 23, 1953	11.80	1,370
1946	Nov. 27, 1945	14.01	1,530	1954	Dec. 9, 1953	12.83	1,800
	Dec. 29, 1945	12.42	1,260		Dec. 20, 1953	10.16	1,130
	Feb. 6, 1946	14.44	1,590		Jan. 5, 1954	11.45	1,390
					Jan. 22, 1954	11.81	1,470
1947	Dec. 15, 1946	13.09	1,370		Feb. 12, 1954	13.30	1,980
	Jan. 25, 1947	-	(a)		Feb. 21, 1954	11.86	1,490
	Feb. 2, 1947	-	(a)				
				1955	Feb. 8, 1955	10.28	1,130
1948	Jan. 2, 1948	10.80	1,120				
	Jan. 7, 1948	12.76	1,530	1956	Nov. 27, 1955	13.38	2,250
	Feb. 22, 1948	11.75	1,310		Dec. 12, 1955	10.16	1,100
	Mar. 22, 1948	10.80	1,120		Dec. 21, 1955	15.94	5,320
					Jan. 4, 1956	13.59	2,440
1949	Dec. 2, 1948	11.1	1,230				
	Dec. 12, 1948	12.7	1,560	1957	Dec. 10, 1956	10.68	1,220
	Feb. 10, 1949	14.7	2,300		Feb. 26, 1957	11.60	1,450

a Above base discharge.

## 2035. Tualatin River near Dilley, Oreg.

Location.--Lat 45°28'30", long 123°07'23", in NE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.24, T.1 S., R.4 W., on left bank 5 ft upstream from highway bridge, 1.0 mile south of Dilley, and 1.5 miles downstream from Scoggin Creek.

Drainage area.--133 sq mi. Mean altitude, 976 ft; channel slope, 84.9 ft per mile; area of lakes and ponds, 0.02 sq mi.

Gage.--Nonrecording prior to June 16, 1950, at several sites within 200 ft of present site at same datum; recording thereafter. Datum of gage is 151.57 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 6,200 cfs and extended by logarithmic plotting.

Bankfull stage.--2 ft.

Remarks.--Only annual peaks are shown prior to 1951. Base for partial-duration series, 4,000 cfs.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1940	Feb. 6, 1940	12.35	4,400	1952	Dec. 5, 1951 Feb. 4, 1952	12.91 12.61	4,980 4,090
1941	Jan. 18, 1941	12.20	3,990				
1942	Dec. 19, 1941	12.90	5,360	1953	Jan. 23, 1953	12.60	3,560
1943	Apr. 1, 1943	12.7	4,590				
1944	Dec. 3, 1943	11.7	2,430	1954	Jan. 22, 1954 Feb. 13, 1954	12.73 13.24	4,060 6,210
1945	Feb. 8, 1945	12.71	4,780				
1946	Feb. 6, 1946	12.84	5,210	1955	Dec. 31, 1954	12.28	2,620
1947	Dec. 15, 1946	12.62	4,520				
1948	Feb. 22, 1948	12.09	3,800	1956	Nov. 27, 1955 Dec. 22, 1955 Jan. 4, 1956	13.78 14.78 13.65	7,360 13,200 6,710
1949	Feb. 17, 1949	13.89	9,460				
1950	Feb. 24, 1950	12.83	4,480				
1951	Jan. 17, 1951	12.65	4,200	1957	Feb. 26, 1957	12.81	3,840

## 2038. Beaver Creek near Glenwood, Oreg.

Location.--Lat 45°40'20", long 123°17'25", in NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.10, T.2 N., R.5 W., at culvert, 1.7 miles northwest of Glenwood and 2 $\frac{1}{2}$  miles upstream from mouth.

Drainage area.--4.70 sq mi. Mean altitude, 939 ft; channel slope, 60.9 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording. Altitude of gage is 550 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 101 cfs and extended on basis of computations of flow through culvert.

Remarks.--Only annual peaks are shown.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Dec. 4, 1951	16.20	182	1956	Jan. 4, 1956	17.17	265
1953	Jan. 8, 1953	15.97	170	1957	Mar. 7, 1957	15.29	155
1954	Dec. 9, 1953	17.04	229				
1955	Feb. 8, 1955	14.64	106				

## 2040. Gales Creek near Gales Creek, Oreg.

Location.--Lat 45°38'30", long 123°16'00", in NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.23, T.2 N., R.5 W., 0.5 mile downstream from Beaver Creek and 4.8 miles northwest of village of Gales Creek.

Drainage area.--33 sq mi, approximately.

Gage.--Nonrecording. Datum of gage is 449.31 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 2,600 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Peak discharges not affected by diurnal fluctuation caused by log pond 3 miles above station. Only annual peaks are shown.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1936	Jan. 12, 1936	6.8	2,590	1941	Jan. 18, 1941	5.3	1,520
1937	Feb. 17, 1937	4.96	1,390	1942	Dec. 19, 1941	5.60	1,720
1938	Dec. 27, 1937	8.10	3,540	1943	Nov. 23, 1942	5.85	1,890
1939	Feb. 12, 1939	4.98	1,330	1944	Dec. 3, 1943	3.72	565
1940	Feb. 6, 1940	5.55	1,690	1945	Feb. 7, 1945	7.1	2,780

## 2041. Bateman Creek near Glenwood, Oreg.

(Published as Gales Creek tributary near Gales Creek)

Location.--Lat 45°37'30", long 123°15'40", in SE $\frac{1}{4}$  sec.26, T.2 N., R.5 W., at culvert on State Highway 6, 1.5 miles south of Glenwood and 3.5 miles northwest of Gales Creek.

Drainage area.--1.34 sq mi. Mean altitude, 1,140 ft; channel slope, 318 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 410 ft (from topographic map).

Stage discharge relation.--Defined by current-meter measurements below 35 cfs and extended on basis of computations of flow through culvert.

Remarks.--Only annual peaks are shown.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Dec. 4, 1951	11.11	40	1956	Dec. 21, 1955	16.0	145
1953	Jan. 8, 1953	12.44	77	1957	Mar. 7, 1957	11.32	44
1954	Feb. 12, 1954	13.88	115				
1955	Feb. 8, 1955	10.67	31				

## WILLAMETTE RIVER BASIN

2045. Gales Creek near Forest Grove, Oreg.

Location.--Lat 45°33'20", long 123°11'10", in S $\frac{1}{2}$  sec.21, T.1 N., R.4 W., on upstream side of bridge 2.5 miles southeast of village of Gales Creek and 4.7 miles northwest of Forest Grove.

Drainage.--66 sq mi, approximately; 69 sq mi, approximately, at site used prior to Sept. 13, 1941. Mean altitude, 1,080 ft; channel slope, 105 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording October 1940 to Jan. 3, 1956; nonrecording thereafter. Prior to Sept. 13, 1941, at site 1.4 miles downstream at datum 15.33 ft lower. Sept. 13, 1941, to June 19, 1952, at downstream side of bridge at datum 0.44 ft higher. Datum of gage is 202.81 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--Not subject to overflow.

Remarks.--Peak discharges not affected by diurnal fluctuation caused by log ponds upstream or small diversions for irrigation. Base for partial-duration series, 1,600 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1941	Jan. 18, 1941	10.07	a3,110	1949	Feb. 17, 1949	10.90	6,410
					Feb. 22, 1949	8.07	3,590
1942	Dec. 19, 1941	6.24	2,900				
	Feb. 4, 1942	5.10	1,650	1950	Nov. 27, 1949	7.02	2,650
					Feb. 24, 1950	7.88	3,410
1943	Nov. 23, 1942	6.45	2,730		Mar. 4, 1950	5.67	1,730
	Dec. 27, 1942	5.49	1,960				
	Dec. 29, 1942	5.56	2,020	1951	Dec. 23, 1950	5.32	1,610
	Feb. 6, 1943	6.03	2,490		Jan. 17, 1951	5.90	2,070
	Feb. 11, 1943	5.80	2,280		Jan. 21, 1951	5.27	1,670
	Apr. 1, 1943	6.06	2,520		Feb. 9, 1951	5.13	1,760
1944	Dec. 4, 1943	4.51	1,060	1952	Dec. 4, 1951	6.39	2,920
					Feb. 2, 1952	5.57	2,370
1945	Feb. 7, 1945	8.38	4,040		Feb. 4, 1952	5.72	2,470
	Mar. 20, 1945	6.54	2,540				
				1953	Jan. 8, 1953	5.64	2,090
1946	Nov. 26, 1945	7.36	3,200		Jan. 11, 1953	5.77	2,170
	Dec. 28, 1945	6.01	2,150		Jan. 16, 1953	4.98	1,730
	Feb. 6, 1946	7.26	3,120		Jan. 20, 1953	5.56	2,050
1947	Dec. 15, 1946	6.25	2,330	1954	Dec. 9, 1953	6.80	2,790
	Jan. 25, 1947	6.04	1,890		Dec. 20, 1953	4.92	1,700
	Feb. 2, 1947	7.46	3,120		Jan. 5, 1954	6.58	2,660
					Jan. 22, 1954	6.02	2,320
1948	Jan. 1, 1948	6.28	2,080	1955	Nov. 18, 1954	5.10	1,670
	Jan. 7, 1948	6.45	2,220				
	Feb. 22, 1948	6.25	2,060				
	Mar. 22, 1948	6.16	1,990	1956	Nov. 19, 1955	5.66	2,010
					Nov. 26, 1955	7.13	2,900
1949	Dec. 2, 1948	6.03	1,880		Dec. 12, 1955	5.44	1,870
	Dec. 9, 1948	7.24	2,940		Dec. 21, 1955	11.86	6,300
	Dec. 11, 1948	6.40	2,180		Jan. 4, 1956	6.50	3,860
	Feb. 10, 1949	(a)	(a)		Jan. 16, 1956	5.47	1,820

a Annual peak only.

2055. East Fork Dairy Creek at Mountaindale, Oreg.

Location.--Lat 45°38'10", long 123°02'35", in NE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.27, T.2 N., R.3 W., on left bank at dam site 0.7 mile northwest of village of Mountaindale.

Drainage area.--43.0 sq mi, including two small streams on left bank which enter creek below station. Mean altitude, 1,120 ft; channel slope, 85.9 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. Datum of gage is 183.04 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--10 ft.

Remarks.--Peak discharges not affected by pumping for irrigation above station or diurnal fluctuation caused by log pond upstream. Base for partial-duration series, 700 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1941	Jan. 18, 1941	11.85	890	1947	Feb. 2, 1947	12.34	1,300
1942	Dec. 19, 1941	12.38	1,100	1948	Jan. 2, 1948	10.60	704
	Feb. 4, 1942	12.11	979		Jan. 7, 1948	11.98	1,110
1943	Dec. 30, 1942	10.95	702		Feb. 22, 1948	11.41	878
	Feb. 6, 1943	11.85	890	Mar. 22, 1948	10.58	701	
	Feb. 11, 1943	11.15	731	1949	Dec. 9, 1948	12.04	1,140
	Mar. 31, 1943	12.48	1,140		Feb. 10, 1949	12.20	1,220
1944	Dec. 4, 1943	7.29	349		Feb. 17, 1949	12.54	1,420
	1945	Feb. 7, 1945	12.09	1,160	Feb. 22, 1949	12.49	1,390
Mar. 20, 1945		11.86	1,050	1950	Feb. 15, 1950	12.02	1,080
1946	Nov. 27, 1945	11.42	880		Feb. 25, 1950	12.38	1,270
	Jan. 5, 1946	10.57	710		Mar. 5, 1950	11.52	682
	Feb. 6, 1946	12.46	1,380	1951	Jan. 21, 1951	11.94	857
1947	Dec. 15, 1946	12.08	1,160		Jan. 26, 1951	11.37	752
					Feb. 11, 1951	11.46	896

2060. McKay Creek near North Plains, Oreg.

Location.--Lat 45°37'32", long 122°58'25", in SE $\frac{1}{4}$  sec.30, T.2 N., R.2 W., on downstream end of left bent of bridge on Shadybrook Road, 2.0 miles upstream from Jackson Creek and 2.3 miles northeast of North Plains.

Drainage area.--27.6 sq mi. Mean altitude, 1,080 ft; channel slope, 132 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. Oct. 1, 1940, to Sept. 3, 1943, at datum 0.25 ft higher; gage heights herein adjusted to described datum. Datum of gage is 172.57 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Peak discharges not affected by diurnal fluctuation caused by pumping for irrigation. Base for partial-duration series, 600 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1941	Jan. 18, 1941	8.95	759	1949	Dec. 9, 1948	10.25	1,080
1942	Dec. 19, 1941	9.85	1,000		Feb. 10, 1949	11.08	1,860
	Feb. 4, 1942	9.19	706		Feb. 17, 1949	11.23	2,100
1943	Nov. 23, 1942	9.55	855	Feb. 22, 1949	10.60	1,330	
	Dec. 27, 1942	9.36	774	1950	Feb. 13, 1950	10.29	1,090
	Dec. 30, 1942	9.06	656		Feb. 24, 1950	10.40	1,170
	Feb. 6, 1943	9.75	950	1951	Jan. 21, 1951	10.50	782
	Feb. 11, 1943	9.33	762		Mar. 15, 1951	9.44	682
	Mar. 31, 1943	10.05	1,100				

## WILLAMETTE RIVER BASIN

Peak stages and discharges of McKay Creek near North Plains, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Dec. 5, 1951	10.67	884	1954	Feb. 20, 1954	10.96	777
	Feb. 1, 1952	10.36	734		1955	Feb. 8, 1955	10.48
1953	Jan. 20, 1953	10.71	800	1956		Nov. 25, 1955	10.94
1954	Dec. 10, 1953	11.01	648		Dec. 12, 1955	10.35	622
	Jan. 5, 1954	10.69	689		Dec. 21, 1955	11.35	1,000
	Jan. 22, 1954	11.13	862		Jan. 4, 1956	11.12	870
	Feb. 12, 1954	11.16	878				

2065. Tualatin River at Farmington, Oreg.

Location.--Lat 45°27'00", long 122°56'58", in SE<sup>1</sup> sec.29, T.1 S., R.2 W., on upstream side of bridge on State Highway 208 (Farmington Road) at Farmington and 5.3 miles southeast of Hillsboro.

Drainage area.--568 sq mi.

Gage.--Nonrecording. October 1939 to Oct. 1, 1940, at datum 2.00 ft higher. Gage heights herein adjusted to present datum. Datum of gage is 100.42 ft above mean sea level, datum of 1929. Auxiliary staff gage at bridge on State Highway 210 at Scholls, 6.5 miles downstream at same datum.

Stage-discharge relation.--Defined by current-meter measurements below 15,000 cfs and extended by logarithmic plotting. Discharge computed using, as a factor, fall determined from auxiliary gage.

Bankfull stage.--29 ft.

Historical data.--Maximum stage known, about 37 ft at Farmington and 33.4 ft at auxiliary gage at Scholls, Dec. 22, 1933.

Remarks.--Peak discharges not affected by regulation by log ponds and dam below Gaston or diversions by pumping for irrigation above station. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1934	Dec. 22, 1933	37	-	1947	Dec. 16, 1946	32.58	11,000
1940	Feb. 8, 1940	-	8,890	1948	Jan. 9, 1948	32.76	11,800
	Feb. 9, 1940	31.2	-	1949	Feb. 18, 1949	34.5	17,400
1941	Jan. 21, 1941	28.38	6,960	1950	Feb. 26, 1950	33.5	13,500
	Dec. 20, 1941	-	14,500	1951	Jan. 23, 1951	33.0	11,100
Dec. 21, 1941	33.45	-	1952		Dec. 6, 1951	33.4	12,700
1943	Apr. 2, 1943	33.04	12,100		1953	Jan. 21, 1953	33.30
1944	Feb. 8, 1944	-	3,520	1954	Feb. 15, 1954	33.30	13,200
	Feb. 9, 1944	19.18	-	1955	Jan. 4, 1955	23.00	4,230
1945	Mar. 22, 1945	-	8,180	1956	Dec. 22, 1955	36.03	24,200
	Mar. 23, 1945	30.30	-	1957	Mar. 1, 1957	29.20	7,900
1946	Feb. 8, 1946	32.81	12,300				

2075. Tualatin River near Willamette, Oreg.

Location.--Lat 45°21'03", long 122°40'30", in SW $\frac{1}{4}$  sec.34, T.2 S., R.1 E., on left bank 300 ft upstream from bridge on State Highway 212, 1.2 miles northwest of Willamette, and 1.8 miles upstream from mouth.

Drainage area.--710 sq mi. Mean altitude, 655 ft; channel slope, 28 ft per mile; area of lakes and ponds, 0.1 sq mi.

Gage.--Nonrecording July 1928 to June 12, 1941; recording thereafter. Prior to June 12, 1941, at datum 1.02 ft higher. Gage heights herein adjusted to present datum. Datum of gage is 85.61 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 24,000 cfs and extended by logarithmic plotting.

Bankfull stage.--12 ft.

Remarks.--Records herein include flow in Oswego Canal, which diverts an average of 70 cfs at point 5.0 miles above station for recreational use in Oswego Lake and development of power between outlet of that lake and Willamette River. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet) <sub>a</sub>	Discharge (cfs)	Water year	Date	Gage height (feet) <sub>a</sub>	Discharge (cfs)
1929	Jan. 3, 1929	9.60	5,920	1944	Feb. 9, 1944	7.36	3,380
1930	Feb. 11, 1930	8.86	4,930	1945	Mar. 24, 1945	10.40	7,480
1931	Apr. 5, 1931	10.78	7,530	1946	Feb. 9, 1946	11.77	10,100
1932	Jan. 23, 1932	11.47	8,440	1947	Dec. 18, 1946	11.53	9,300
1933	Jan. 2, 1933	11.06	8,570	1948	Jan. 10, 1948	12.32	10,500
1934	Dec. 23, 1933	17.72	29,300	1949	Feb. 20, 1949	14.36	15,100
1935	Dec. 30, 1934	11.86	9,870	1950	Feb. 28, 1950	12.68	11,500
1936	Jan. 24, 1936	15.3	17,700	1951	Jan. 24, 1951	12.53	10,900
1937	Apr. 19, 1937	10.62	7,840	1952	Dec. 8, 1951	12.10	10,400
1938	Dec. 30, 1937	17.29	26,300	1953	Jan. 23, 1953	13.25	11,900
1939	Feb. 18, 1939	10.36	7,180	1954	Feb. 23, 1954	13.03	11,900
1940	Feb. 11, 1940	10.93	8,170	1955	Jan. 5, 1955	8.50	4,510
1941	Jan. 22, 1941	9.76	6,200	1956	Dec. 23, 1955	16.27	21,400
1942	Dec. 22, 1941	12.69	11,900	1957	Mar. 15, 1957	9.96	6,690
1943	Jan. 3, 1943	12.62	11,900				

a Gage height in river channel.

2080. Clackamas River at Big Bottom, Oreg.

Location.--Lat 45°01'00", long 121°55'00", in SE $\frac{1}{4}$  sec.26, T.6 S., R.7 E., on right bank at lower end of Big Bottom, 0.3 mile downstream from Pot Creek, 0.5 mile upstream from site of proposed dam, and 28 miles southeast of Estacada.

Drainage area.--136 sq mi, at cableway 2,000 ft downstream where all discharge measurements are made. Mean altitude, 3,900 ft; channel slope, 124 ft per mile; area of lakes and ponds, 0.2 sq mi.

Gage.--Recording. Datum of gage is 2,057.56 ft above mean sea level, datum of 1929 (Bureau of Public Roads bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 3,500 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Base for partial-duration series, 1,200 cfs. Inflow between gage and measuring section 2,000 ft downstream is included in records.

Peak stages and discharges of Clackamas River at Big Bottom, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1921	Oct. 3, 1920	3.91	1,330	1938	Nov. 20, 1937	4.22	1,580	
	Nov. 19, 1920	44.60	1,850		Nov. 23, 1937	3.87	1,300	
	Nov. 26, 1920	4.13	1,620		Nov. 25, 1937	4.80	2,100	
	Dec. 30, 1920	6.10	3,640		Dec. 11, 1937	4.10	1,480	
	Jan. 3, 1921	6.20	3,760		Dec. 30, 1937	5.87	3,310	
	Feb. 13, 1921	3.71	1,340		Jan. 14, 1938	3.89	1,310	
	Mar. 18, 1921	5.20	2,620		Jan. 22, 1938	5.40	2,730	
	Apr. 22, 1921	3.50	1,210		Apr. 18, 1938	4.27	1,620	
1922	Nov. 21, 1921	6.00	3,520	1939	Dec. 5, 1938	3.60	1,100	
	Nov. 30, 1921	6.14	3,690		1940	Feb. 6, 1940	4.95	2,250
	May 18, 1922	3.87	1,430			Feb. 25, 1940	4.13	1,490
	June 2, 1922	3.70	1,330	Mar. 26, 1940		4.00	1,390	
	June 9, 1922	3.61	1,280	1941	Nov. 29, 1940	3.94	1,340	
1923	Dec. 27, 1922	4.60	2,010		1942	Nov. 15, 1941	4.42	1,750
	Dec. 31, 1922	3.94	1,480			Dec. 2, 1941	5.70	3,070
	Jan. 3, 1923	3.55	1,240			Dec. 19, 1941	5.00	2,300
	Jan. 7, 1923	8.15	6,600		1943	Nov. 23, 1942	6.90	4,520
	May 9, 1923	3.92	1,380	Nov. 27, 1942		5.46	2,710	
1924	Dec. 6, 1923	4.90	2,240	Nov. 29, 1942		5.23	2,450	
	Dec. 28, 1923	4.40	1,600	Dec. 27, 1942		4.97	2,190	
	Feb. 1, 1924	4.14	1,420	Jan. 1, 1943		5.78	3,080	
	Feb. 5, 1924	4.17	1,440	Feb. 6, 1943	3.87	1,280		
1925	Nov. 2, 1924	4.13	1,410	Mar. 31, 1943	4.76	1,990		
	Nov. 21, 1924	6.15	3,300	Apr. 21, 1943	4.55	1,800		
	Feb. 3, 1925	6.55	3,740	1944	Nov. 4, 1943	3.68	1,160	
	May 20, 1925	4.38	1,590		1945	Feb. 8, 1945	5.55	2,800
1926	Feb. 6, 1926	5.70	3,160			Feb. 13, 1945	4.66	1,900
	1927	Nov. 29, 1926	6.73			4,430	May 16, 1945	3.91
		Jan. 2, 1927	3.72		1,220	1946	Nov. 27, 1945	4.78
		Feb. 20, 1927	6.38	3,990	Dec. 28, 1945		7.60	5,280
May 17, 1927	3.93	1,350	Jan. 5, 1946	4.23	1,500			
June 8, 1927	4.38	1,690	Jan. 24, 1946	-	-			
1928	Nov. 16, 1927	4.33	1,590	1947	Nov. 18, 1946		5.41	2,530
	Nov. 25, 1927	6.65	4,240		Nov. 27, 1946	4.61	1,790	
	Nov. 28, 1927	4.97	2,250		Dec. 15, 1946	8.58	6,750	
	Jan. 13, 1928	4.22	1,500		Jan. 26, 1947	4.23	1,500	
	Mar. 11, 1928	5.25	2,570		1948	Oct. 18, 1947	5.06	2,180
	Mar. 31, 1928	3.88	1,280	Oct. 20, 1947		3.92	1,250	
1929	May 24, 1929	3.72	1,110	Jan. 2, 1948		4.41	1,610	
	1930	Dec. 19, 1929	3.80	1,170		Jan. 7, 1948	8.49	6,620
		Mar. 21, 1931	3.58	1,210		Feb. 22, 1948	5.17	2,290
1931	Mar. 31, 1931	8.28	6,750	Feb. 26, 1948	4.00	1,310		
	1932	Mar. 18, 1932	4.87	2,150	May 28, 1948	4.21	1,460	
		Mar. 24, 1932	-	-	1949	Dec. 12, 1948	4.03	1,270
Mar. 28, 1932		-	-	May 2, 1949		6.34	3,300	
May 13, 1949	5.01	1,890						
1933	Nov. 5, 1932	4.05	1,470	1950	Nov. 27, 1949	4.65	1,590	
	Nov. 15, 1932	4.17	1,570		Jan. 22, 1950	4.95	1,620	
	May 30, 1933	3.80	1,290		Feb. 25, 1950	6.16	2,750	
	June 9, 1933	5.64	2,940		Mar. 17, 1950	4.84	1,540	
1934	Dec. 6, 1933	5.30	2,700		June 12, 1950	4.90	1,580	
	Dec. 22, 1933	7.35	5,410	1951	Oct. 29, 1950	6.07	2,830	
	Jan. 3, 1934	4.17	1,640		Nov. 2, 1950	6.43	3,290	
	Jan. 14, 1934	3.61	1,220		Nov. 24, 1950	4.37	1,360	
	Jan. 23, 1934	6.20	3,760		Dec. 7, 1950	5.69	2,470	
	Mar. 29, 1934	3.66	1,250		Dec. 23, 1950	4.37	1,370	
1935	Dec. 21, 1934	4.62	1,910	Jan. 26, 1951	4.34	1,330		
	1936	Jan. 2, 1936	4.47	1,790	Feb. 11, 1951	6.05	2,840	
		Jan. 4, 1936	5.34	2,680	May 11, 1951	4.25	1,290	
Jan. 11, 1936		5.26	2,580	1952	Oct. 23, 1951	4.72	1,600	
May 5, 1936		3.85	1,280		Dec. 1, 1951	5.65	2,410	
May 15, 1936	3.85	1,280	Feb. 4, 1952		4.33	1,340		
1937	Apr. 14, 1937	5.56	2,900	May 19, 1952	4.22	1,200		
	May 11, 1937	4.13	1,500	1953	Jan. 9, 1953	6.12	2,920	
	May 25, 1937	4.00	1,400		Jan. 13, 1953	6.10	2,900	
	June 21, 1937	4.19	1,550		Jan. 18, 1953	8.63	6,340	

a Backwater from debris.

Peak stages and discharges of Clackamas River at Big Bottom, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1953	Feb. 3, 1953	5.48	2,250	1956	Nov. 26, 1955	6.60	3,230	
	Feb. 7, 1953	5.08	1,910		Dec. 12, 1955	6.69	3,410	
1954	Nov. 22, 1953	5.93	2,710		Dec. 21, 1955	8.96	5,650	
	Dec. 9, 1953	5.37	2,150		Jan. 4, 1956	-	1,900	
	Dec. 19, 1953	7.81	5,050		Jan. 15, 1956	-	2,900	
	Feb. 13, 1954	4.11	1,250		May 22, 1956	-	-	
	Feb. 21, 1954	4.09	1,230		1957	Dec. 11, 1956	5.48	2,180
	Mar. 9, 1954	4.05	1,210			Feb. 26, 1957	5.88	2,490
1955	June 10, 1955	5.80	2,160			Mar. 9, 1957	5.22	1,990
						May 8, 1957	4.16	1,320
1956	Nov. 19, 1955	5.64	2,100					

2085. Oak Grove Fork at Timothy Meadows, Oreg.  
(Published as Oak Grove Fork of Clackamas River,  
at Timothy Meadow, near Cazadero prior to 1922)

Location.--Lat 45°07'00", long 121°48'00", in SW $\frac{1}{4}$  sec.23, T.5 S., R.8 E.,  
0.1 mile upstream from Timothy Meadows damsite, 0.7 mile upstream from Anvil  
Creek, 10 miles upstream from Portland General Electric Co. diversion dam,  
and 26 $\frac{1}{2}$  miles southeast of Cazadero.

Drainage area.--54 sq mi, approximately.

Gage.--Recording. Datum of gage is 3,140 ft above mean sea level (from levels  
to approximate gage datum).

Stage-discharge relation.--Defined by current-meter measurements below 460 cfs  
and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Slight natural regulation by Clackamas Lake and meadows. Only annual  
peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1913	May 27, 1913	2.15	496	1922	Nov. 30, 1921	3.16	954
1914	Apr. 15, 1914	1.58	328	1923	Jan. 7, 1923	3.20	970
1915	Apr. 3, 1915	1.24	245	1924	Dec. 6, 1923	1.37	309
				1925	Feb. 4, 1925	2.38	670
1916	June 17, 1916	2.37	584	1926	Feb. 7, 1926	1.31	325
1917	June 8, 1917	2.46	710		1927	Nov. 29, 1926	1.83
1919	Jan. 23, 1919	2.00	540	1928	Nov. 25, 1927	2.34	665
1920	May 10, 1920	1.36	339	1929	May 24, 1929	1.59	404
1921	Jan. 3, 1921	2.4	670				

. 2090. Oak Grove Fork above powerplant intake, Oreg.  
(Published as Oak Grove Fork of Clackamas River at intake, near Cazadero  
1909-21, and Oak Grove Fork at Portland Electric Power Co. intake 1922-29)

Location.--Lat 45°04'20", long 121°57'00", on line between secs. 3 and 4, T.6 S., R.7 E., on right bank 0.2 mile upstream from Spring Creek, 0.7 mile upstream from Kink Creek, 1.1 miles upstream from Portland General Electric Co. diversion dam, and 24 miles southeast of Estacada. Records include flow of Spring Creek.

Drainage area.--126 sq mi, includes that of Spring Creek; 131 sq mi, at site used prior to Dec. 13, 1923. Mean altitude, 3,750 ft; channel slope, 106 ft per mile; area of lakes and ponds, 1.1 sq mi.

Gage.--Nonrecording gage May 1909 to November 1911; recording gage thereafter. Prior to Oct. 1, 1923, at various sites below Kink Creek 0.7 mile downstream at different datum. Datum of gage is 2,052.31 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 2,300 cfs and extended on basis of peak discharge at other stations in the basin.

Bankfull stage.--Not subject to overflow.

Remarks.--Flow regulated by Timothy Lake (usable capacity, 61,650 acre-ft) beginning May 28, 1956. Base for partial-duration series, 940 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1910	Nov. 22, 1909	3.7	a3,030	1928	Nov. 25, 1927	3.91	2,000
1911	May 19, 1911	2.2	a1,360		Jan. 13, 1928	2.73	1,030
					Mar. 11, 1928	3.40	1,550
1913	May 25, 1913	-	a1,500		Mar. 31, 1928	2.77	1,030
1914	Apr. 15, 1914	1.92	1,030	1929	Mar. 21, 1929	2.70	995
1915	Apr. 3, 1915	1.60	860		May 24, 1929	2.88	1,150
1916	Nov. 23, 1915	1.87	1,080	1930	Feb. 19, 1930	2.71	948
	Dec. 22, 1915	2.51	1,670	1931	Mar. 31, 1931	5.18	3,280
	Feb. 11, 1916	2.06	1,230	1932	Mar. 19, 1932	3.40	1,510
	Mar. 26, 1916	2.00	1,180		May 12, 1932	2.90	1,070
	May 6, 1916	2.27	1,430	1933	Nov. 15, 1932	2.84	960
	June 17, 1916	2.32	1,430		June 9, 1933	3.73	1,760
1917	June 8, 1917	2.48	1,600	1934	Dec. 6, 1933	3.22	1,250
	June 15, 1917	2.55	1,650		Dec. 22, 1933	4.83	2,840
1921	Dec. 30, 1920	2.42	1,440		Jan. 23, 1934	4.00	2,010
	Jan. 2, 1921	3.25	2,320	1935	Dec. 21, 1934	3.46	1,420
	Feb. 10, 1921	2.23	1,270	1936	Jan. 4, 1936	3.69	1,650
	Mar. 18, 1921	2.47	1,480		Jan. 12, 1936	3.17	1,170
	Apr. 29, 1921	2.32	1,350		May 5, 1936	3.20	1,190
1922	Nov. 21, 1921	3.26	2,330	1937	Apr. 14, 1937	3.82	1,720
	Nov. 30, 1921	3.60	2,740		May 14, 1937	3.17	1,140
	Dec. 13, 1921	1.90	990	1938	Dec. 29, 1937	4.22	2,120
	May 17, 1922	2.33	1,360		Jan. 22, 1938	3.65	1,580
	June 3, 1922	2.30	1,320		Apr. 18, 1938	3.29	1,310
1923	Dec. 27, 1922	1.95	1,030	1939	Apr. 29, 1939	2.73	866
	Jan. 7, 1923	5.45	5,000	1940	Feb. 6, 1940	2.90	990
	May 9, 1923	2.84	1,380		Mar. 26, 1940	2.98	1,050
1924	Dec. 6, 1923	-	-	1941	Nov. 29, 1940	2.93	1,010
	Dec. 28, 1923	3.03	1,230	1942	Dec. 2, 1941	3.30	1,320
1925	Nov. 21, 1924	3.28	1,440		Dec. 19, 1941	2.99	1,010
	Feb. 4, 1925	4.03	2,080	1943	Nov. 23, 1942	3.69	1,660
	Apr. 16, 1925	2.88	1,120		Nov. 27, 1942	3.28	1,260
	May 20, 1925	2.97	1,180		Nov. 29, 1942	3.60	1,570
1926	Feb. 6, 1926	3.04	1,340		Dec. 28, 1942	3.18	1,170
	Feb. 24, 1926	2.56	940		Dec. 31, 1942	3.19	1,180
1927	Nov. 29, 1926	3.76	1,800		Apr. 1, 1943	3.18	1,170
	Feb. 20, 1927	3.48	1,600		Apr. 21, 1943	3.55	1,520
	May 17, 1927	2.91	1,120				
	June 7, 1927	3.17	1,360				
1928	Nov. 16, 1927	2.64	958				

a Annual peak only.

## Peak stages and discharges of Oak Grove Fork above powerplant intake, Ore.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1943	May 27, 1943	3.21	1,200	1951	Dec. 23, 1950	3.17	1,040
1944	Nov. 4, 1943	2.58	713		Jan. 14, 1951	3.07	948
1945	Feb. 13, 1945	3.26	1,240		Jan. 26, 1951	3.11	964
	Apr. 24, 1945	3.00	1,020		Feb. 11, 1951	3.78	1,570
	May 16, 1945	3.20	1,190		May 10, 1951	3.57	1,390
1946	Nov. 27, 1945	2.96	988	1952	Oct. 23, 1951	3.23	1,090
	Dec. 28, 1945	4.24	2,140		Dec. 1, 1951	3.37	1,210
	Jan. 5, 1946	3.25	1,140		Apr. 28, 1952	3.21	1,070
	Jan. 24, 1946	2.98	964		May 21, 1952	3.42	1,260
	May 29, 1946	3.08	1,040	1953	Jan. 9, 1953	3.11	1,040
1947	Nov. 19, 1946	3.38	1,350		Jan. 12, 1953	3.15	1,080
	Nov. 28, 1946	3.00	950		Jan. 18, 1953	5.54	3,390
	Dec. 15, 1946	5.91	4,220		Feb. 3, 1953	3.59	1,660
	Jan. 26, 1947	2.94	978		May 27, 1953	3.10	1,110
1948	Jan. 7, 1948	4.95	2,730	1954	Nov. 22, 1953	3.62	1,580
	Feb. 22, 1948	3.69	1,310		Dec. 9, 1953	3.43	1,360
	Feb. 26, 1948	3.34	1,020		Dec. 19, 1953	3.82	1,840
	May 28, 1948	3.52	1,170		May 18, 1954	2.92	1,040
1949	May 2, 1949	4.41	2,050	1955	June 10, 1955	3.29	1,380
	May 14, 1949	4.01	1,620	1956	Nov. 27, 1955	4.15	2,000
1950	Feb. 25, 1950	3.68	1,340		Dec. 12, 1955	3.65	1,480
	June 5, 1950	3.67	1,370		Dec. 22, 1955	4.46	2,280
1951	Nov. 2, 1950	3.58	1,400		Jan. 15, 1956	3.76	1,570
	Dec. 7, 1950	3.29	1,140		May 19, 1956	3.63	1,440
				1957	Dec. 11, 1956	3.88	1,690

a Annual peak only.

## 2095. Clackamas River above Three Lynx Creek, Ore.

Location.--Lat 45°07'30", long 122°04'20", in NE<sup>1</sup> sec. 21, T.5 S., R.6 E., on right bank 500 ft upstream from Three Lynx Creek, 1,300 ft downstream from powerplant, and 17 miles southeast of Estacada.

Drainage area.--479 sq mi. Mean altitude, 3,570 ft; channel slope, 97.4 ft per mile; area of lakes and ponds, 1.6 sq mi.

Gage.--Nonrecording April 1909 to January 1914; recording since October 1921. Datum of gage is 1,091.69 ft above mean sea level, datum of 1929, supplementary adjustment of 1947 (levels by Portland General Electric Co.).

Stage-discharge relation.--Defined by current-meter measurements below 11,000 cfs and extended on basis of slope-area measurement at 34,100 cfs.

Bankfull stage.--Not subject to overflow.

Remarks.--Peak discharges not affected by diurnal fluctuation caused by powerplant. Slight regulation since May 28, 1956, by Timothy Lake. (usable capacity, 61,650 acre-ft). Base for partial-duration series, 8,100 cfs. Only annual peaks are shown 1910-13.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1910	Nov. 22, 1909	14.5	30,600	1925	Nov. 2, 1924	7.80	10,600
1911	Nov. 23, 1910	7.2	9,850		Nov. 21, 1924	10.73	18,800
1912	Jan. 12, 1912	9.4	15,600		Feb. 3, 1925	10.28	17,600
1913	Nov. 12, 1912	8.6	13,400	1926	Feb. 6, 1926	10.2	17,300
1922	Nov. 21, 1921	12.00	25,800	1927	Nov. 15, 1926	6.78	8,270
	Nov. 30, 1921	9.73	19,000		Nov. 29, 1926	11.8	22,300
1923	Dec. 24, 1922	7.91	11,600		Jan. 2, 1927	7.22	9,210
	Dec. 26, 1922	8.86	14,200		Feb. 20, 1927	11.9	22,600
	Dec. 31, 1922	7.11	9,550	1928	Nov. 16, 1927	7.35	9,700
	Jan. 6, 1923	15.2	33,700		Nov. 25, 1927	10.94	19,400
1924	Dec. 6, 1923	9.58	16,200		Nov. 28, 1927	7.84	10,700
	Dec. 28, 1923	7.70	10,500		Jan. 13, 1928	6.88	8,500
	Feb. 1, 1924	7.29	9,320		Mar. 11, 1928	9.78	16,100

Peak stages and discharges of Clackamas River above Three Lynx Creek, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1929	Mar. 21, 1929	5.74	6,000	1947	Nov. 18, 1946	9.34	14,400
					Nov. 27, 1946	8.57	12,300
1930	Dec. 14, 1929	7.30	9,450		Dec. 15, 1946	13.92	28,900
	Dec. 18, 1929	6.88	8,500		Jan. 26, 1947	7.41	9,290
1931	Mar. 31, 1931	15.5	34,800	1948	Oct. 18, 1947	8.36	11,900
1932	Mar. 18, 1932	9.86	16,400		Jan. 2, 1948	7.92	10,800
1933	Nov. 5, 1932	8.16	11,800		Jan. 7, 1948	14.79	32,200
	Nov. 16, 1932	6.90	8,500		Feb. 22, 1948	9.38	14,800
	June 9, 1933	9.60	15,600	1949	Dec. 12, 1948	7.70	10,200
1934	Dec. 6, 1933	11.0	19,700		Feb. 17, 1949	7.24	9,120
	Dec. 22, 1933	12.98	26,200		May 2, 1949	9.87	16,200
	Jan. 23, 1934	10.0	16,700	1950	Nov. 27, 1949	8.25	11,600
1935	Dec. 20, 1934	7.90	11,000		Jan. 22, 1950	8.20	11,500
1936	Jan. 2, 1936	8.48	12,500		Feb. 25, 1950	9.56	15,300
	Jan. 4, 1936	10.2	17,300		Mar. 17, 1950	7.06	8,700
	Jan. 11, 1936	9.22	14,500	1951	Oct. 29, 1950	8.24	11,900
1937	Apr. 14, 1937	9.96	16,700		Nov. 2, 1950	9.98	17,100
1938	Nov. 20, 1937	7.45	9,820		Dec. 6, 1950	7.81	10,800
	Nov. 25, 1937	7.48	9,950		Feb. 8, 1951	7.36	9,620
	Dec. 30, 1937	11.13	20,000		Feb. 11, 1951	8.22	11,900
	Jan. 22, 1938	9.07	14,100	1952	Oct. 23, 1951	7.65	10,400
	Apr. 18, 1938	7.20	9,210		Dec. 1, 1951	7.85	10,900
1939	Dec. 2, 1938	6.57	7,690		Feb. 4, 1952	6.77	8,190
1940	Feb. 6, 1940	9.26	14,600	1953	Jan. 9, 1953	11.26	21,500
1941	Nov. 29, 1940	6.69	8,010		Jan. 12, 1953	8.18	11,700
1942	Nov. 15, 1941	7.00	8,730		Jan. 18, 1953	13.41	29,900
	Dec. 2, 1941	9.72	15,900		Feb. 1, 1953	6.82	8,310
	Dec. 19, 1941	8.08	11,400		Feb. 3, 1953	8.39	12,300
1943	Nov. 23, 1942	13.26	26,700		Feb. 7, 1953	7.30	9,470
	Nov. 27, 1942	9.17	13,900	1954	Nov. 22, 1953	10.59	19,200
	Nov. 29, 1942	8.75	12,800		Dec. 9, 1953	9.49	15,600
	Dec. 1, 1942	7.10	8,570		Dec. 19, 1953	12.38	25,700
	Dec. 27, 1942	8.91	13,200		Jan. 22, 1954	6.95	8,620
	Jan. 1, 1943	10.38	17,500		Feb. 13, 1954	7.41	9,740
	Feb. 6, 1943	-	-	1955	Dec. 31, 1954	7.04	8,840
	Mar. 31, 1943	9.05	13,600		June 9, 1955	6.79	8,240
1944	Nov. 4, 1943	6.05	6,360	1956	Oct. 10, 1955	7.09	8,790
1945	Feb. 8, 1945	10.0	16,300		Nov. 19, 1955	9.93	16,100
	Feb. 13, 1945	7.57	9,680		Nov. 26, 1955	11.25	20,200
1946	Nov. 27, 1945	10.02	16,400		Dec. 12, 1955	10.79	18,700
	Dec. 28, 1945	14.0	29,200		Dec. 21, 1955	15.06	34,100
	Jan. 24, 1946	7.28	8,980		Jan. 4, 1956	7.50	9,710
					Jan. 15, 1956	10.55	18,000
				1957	Dec. 11, 1956	10.67	18,400
					Feb. 26, 1957	10.38	17,500
					Mar. 7, 1957	8.30	11,600

## 2100. Clackamas River near Cazadero, Oreg.

Location.--Lat 45°15'30", long 122°16'10", on line between secs. 11 and 12, R.4 E., on right bank 2.5 miles upstream from Cazadero Dam, 2.6 miles southeast of Cazadero railroad station (abandoned), and 4.5 miles southeast of Estacada.

Drainage area.--657 sq mi. Mean altitude, 3,500 ft; channel slope, 78.9 ft per mile; area of lakes and ponds, 2.0 sq mi.

Gage.--Nonrecording prior to Nov. 20, 1909; recording thereafter. Jan. 1, 1909, to Oct. 9, 1922, at site 0.5 mile downstream and Oct. 10, 1922, to Sept. 30, 1954, at present site at datum 532.0 ft lower. Datum of gage is 533.3 ft above mean sea level, datum of 1929 (Bureau of Public Roads bench mark). Gage heights herein since October 1922 adjusted to present datum.

Stage-discharge relation.--Defined by current-meter measurements below 24,000 cfs and extended on basis of computation of flow over dam at 60,800 cfs (from data furnished by Portland General Electric Co.).

Bankfull stage.--Not subject to overflow.

Remarks.--Peak discharges not affected by diversion or diurnal fluctuation caused by powerplant. Slight regulation since May 28, 1956, by Timothy Lake (usable capacity, 61,650 acre-ft). Base for partial-duration series, 15,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1909	Jan. 20, 1909	538.0	a27,900	1928	Nov. 25, 1927	15.8	29,900
1910	Nov. 22, 1909	543.7	a43,100		Mar. 11, 1928	13.48	22,700
1911	Nov. 23, 1910	534.1	a13,400				
1912	Jan. 12, 1912	537.93	a23,900	1929	Mar. 21, 1929	8.43	10,200
1913	Mar. 30, 1913	536.8	20,700	1930	Dec. 14, 1929	10.60	15,000
1914	Jan. 5, 1914	534.6	14,400	1931	Mar. 31, 1931	24.5	60,800
1915	Jan. 14, 1915	530.45	6,590	1932	Mar. 18, 1932	14.34	25,100
1916	Nov. 17, 1915	534.59	16,000	1933	June 9, 1933	11.90	18,300
	Nov. 23, 1915	535.29	17,800				
	Nov. 25, 1915	535.29	17,800	1934	Dec. 22, 1933	18.65	a38,700
	Dec. 22, 1915	539.2	28,300				
	Feb. 7, 1916	536.81	21,800	1935	Dec. 20, 1934	10.56	15,600
	Mar. 26, 1916	534.56	16,000				
1917	June 9, 1917	531.77	9,260	1936	Jan. 2, 1936	11.16	17,100
					Jan. 4, 1936	13.9	24,200
1918	Dec. 19, 1917	-	a44,800		Jan. 11, 1936	12.29	19,800
1919	Jan. 17, 1919	536.55	22,400	1937	Apr. 14, 1937	13.65	23,400
	Jan. 23, 1919	537.02	23,800	1938	Dec. 30, 1937	17.24	34,300
1920	Nov. 4, 1919	540.5	35,800		Jan. 22, 1938	12.58	20,600
	Jan. 26, 1920	537.55	25,300	1939	Feb. 15, 1939	9.15	12,000
1921	Dec. 30, 1920	539.00	29,900	1940	Feb. 6, 1940	12.03	19,000
	Jan. 4, 1921	-	-				
	Feb. 10, 1921	-	-	1941	Nov. 29, 1940	10.18	14,400
	Mar. 17, 1921	536.35	21,600				
1922	Nov. 20, 1921	546.0	a44,300	1942	Dec. 2, 1941	13.48	23,000
					Dec. 19, 1941	10.50	15,200
1923	Dec. 24, 1922	10.7	15,700	1943	Nov. 23, 1942	19.79	42,600
	Dec. 27, 1922	11.1	16,700		Nov. 27, 1942	13.49	22,800
	Jan. 6, 1923	24.2	60,000		Nov. 29, 1942	11.95	18,600
1924	Dec. 6, 1923	13.65	23,800		Dec. 27, 1942	12.09	18,900
	Dec. 28, 1923	11.35	17,400		Jan. 1, 1943	15.03	27,300
1925	Nov. 2, 1924	10.73	15,700	1944	Mar. 31, 1943	12.78	20,800
	Nov. 21, 1924	15.25	28,500				
	Jan. 29, 1925	11.61	16,000	1945	Nov. 4, 1943	8.07	9,150
	Feb. 3, 1925	13.18	20,400		Feb. 8, 1945	12.60	20,300
1926	Feb. 6, 1926	13.70	21,900		Feb. 13, 1945	10.61	15,100
1927	Nov. 29, 1926	15.90	28,300	1946	Nov. 27, 1945	13.36	22,400
	Feb. 20, 1927	15.90	28,300		Dec. 28, 1945	21.5	48,400
				1947	Nov. 27, 1946	11.38	17,100

a Annual peak only.

Peak stages and discharges of Clackamas River near Cazadero, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1947	Dec. 15, 1946	20.8	46,000	1953	Jan. 9, 1953	16.26	29,100
	Jan. 26, 1947	10.80	15,600		Jan. 13, 1953	11.01	15,100
1948	Oct. 18, 1947	11.6	17,700	Jan. 18, 1953	20.16	40,700	
	Jan. 7, 1948	22.9	53,400	Feb. 3, 1953	12.44	18,400	
	Feb. 22, 1948	14.72	26,400	1954	Nov. 22, 1953	16.93	30,500
1949	Dec. 12, 1948	12.01	18,600		Dec. 9, 1953	14.15	22,700
	Feb. 17, 1949	10.92	15,700		Dec. 20, 1953	18.00	33,700
	May 2, 1949	14.24	24,900	1955	Dec. 31, 1954	10.83	14,400
1950	Nov. 27, 1949	10.67	15,000		1956	Nov. 19, 1955	14.90
	Jan. 22, 1950	11.20	16,400	Nov. 26, 1955		18.80	36,300
	Feb. 25, 1950	14.01	23,600	Dec. 12, 1955		16.77	26,200
1951	Oct. 29, 1950	11.28	16,300	Dec. 21, 1955		22.62	42,600
	Nov. 2, 1950	13.96	23,500	Jan. 15, 1956	16.41	25,300	
	Feb. 11, 1951	10.92	15,400	1957	Dec. 11, 1956	16.05	24,400
1952	Oct. 23, 1951	10.74	14,500		Feb. 26, 1957	16.80	26,300
					Mar. 7, 1957	14.90	21,600

## 2115. Johnson Creek at Sycamore, Oreg.

Location.--Lat 45°28'40", long 122°30'24", in lot 2, SW $\frac{1}{4}$  sec.13, T.1 S., R.2 E., on right bank 0.3 mile southwest of Sycamore station and 2.5 miles east of city limits of Portland.

Drainage area.--28.2 sq mi. Mean altitude, 520 ft; channel slope, 38 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording gage and V-notch sharp-crested weir. Datum of gage is 228.47 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--10 ft.

Remarks.--Base for partial-duration series, 600 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1941	Jan. 18, 1941	5.90	499	1950	Jan. 10, 1950	8.99	839	
	Dec. 2, 1941	7.39	709		Jan. 23, 1950	8.69	805	
1942	Dec. 19, 1941	8.51	937		Feb. 25, 1950	7.32	678	
	1943	Nov. 23, 1942	11.76	1,770	1951	Nov. 17, 1950	10.62	1,160
Nov. 27, 1942		9.62	1,180	Dec. 6, 1950		7.69	617	
Nov. 29, 1942		7.13	640	Jan. 2, 1951		7.80	632	
Dec. 8, 1942		7.11	637	Jan. 14, 1951		8.44	722	
Dec. 27, 1942		10.20	1,350	Jan. 21, 1951		9.14	848	
Dec. 29, 1942		7.88	787	Mar. 12, 1951	7.64	610		
Jan. 1, 1943		8.01	814	1952	Dec. 1, 1951	8.39	714	
Feb. 6, 1943		10.37	1,380		1953	Jan. 9, 1953	8.67	760
Mar. 31, 1943		10.21	1,340	Jan. 18, 1953		10.0	1,020	
1944	Feb. 6, 1944	4.79	260	1954	Dec. 6, 1953	8.37	656	
1945	Feb. 7, 1945	6.33	529		Dec. 9, 1953	8.24	673	
	1946	Nov. 27, 1945	8.70		888	Dec. 19, 1953	8.56	729
Dec. 28, 1945		7.25	635		Jan. 4, 1954	8.57	730	
1947	Dec. 12, 1946	11.25	1,420	Jan. 22, 1954	12.23	1,590		
	Dec. 15, 1946	8.17	819	Jan. 27, 1954	10.38	1,100		
1948	Jan. 7, 1948	13.06	1,900	1955	Apr. 12, 1955	7.44	506	
	Feb. 21, 1948	8.01	792		1956	Nov. 19, 1955	11.38	1,240
	Mar. 22, 1948	7.48	704			Nov. 27, 1955	10.59	1,050
1949	Dec. 2, 1948	7.73	680			Dec. 21, 1955	12.07	1,430
	Dec. 12, 1948	8.21	758	Jan. 4, 1956		13.23	1,820	
	Feb. 10, 1949	13.77	2,110	Jan. 6, 1956	8.17	604		
	Feb. 17, 1949	13.27	1,960	Jan. 15, 1956	12.30	1,510		
	Feb. 22, 1949	8.98	957	Feb. 21, 1956	8.24	614		
1950	Jan. 7, 1950	7.53	600	Mar. 4, 1956	8.42	659		
				1957	Mar. 7, 1957	11.69	1,560	

## 2117. Willamette River at Portland, Oreg.

Location.--Lat 45°31'01", long 122°40'09", in NE $\frac{1}{4}$  sec.3, T.1 S., R.1 E., at upstream end of draw rest of former Morrison Street Bridge in Portland and at mile 13.0.

Drainage area.--11,200 sq mi, approximately.

Gage.--Nonrecording gage. Auxiliary recording gage since Oct. 25, 1917, on left bank at seawall 800 ft downstream at same datum. Datum of gage is 1.55 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Not rated; subject to tidal effect and backwater from Columbia River.

Flood stage.--18 ft.

Remarks.--Records herein furnished by U.S. Weather Bureau. Peak stages due to flood runoff in Willamette River basin, generally during period October to April, and those due to backwater from Columbia River during spring runoff period, are shown for each year.

Peak stages (winter floods)

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1879	Mar. 30, 1879	18.7	-	1919	Jan. 24, 1919	18.0	-
1880	Jan. 9, 1880	15.8	-	1920	Jan. 29, 1920	11.3	-
1881	Feb. 7, 1881	23.6	-	1921	Jan. 6, 1921	18.9	-
1882	Mar. 3, 1882	15.0	-	1922	Nov. 23, 1921	17.0	-
1883	Dec. 16, 1882	18.5	-	1923	Jan. 9, 1923	25.3	-
1884	Feb. 25, 1884	12.0	-	1924	Feb. 6, 1924	10.8	-
1885	Jan. 9, 1885	15.9	-	1925	Feb. 8, 1925	19.5	-
1886	Feb. 4, 1886	17.1	-	1926	Feb. 10, 1926	13.8	-
1887	Feb. 1, 1887	15.8	-	1927	Feb. 24, 1927	18.1	-
1888	Feb. 1, 1888	16.6	-	1928	Nov. 29, 1927	17.4	-
1889	Dec. 19, 1888	5.7	-	1929	Jan. 1, 1929	6.9	-
1890	Feb. 6, 1890	28.7	-	1930	Feb. 14, 1930	8.0	-
1891	Mar. 28, 1891	6.0	-	1931	Apr. 2, 1931	17.1	-
1892	Dec. 30, 1891	12.8	-	1932	Mar. 23, 1932	16.2	-
1893	Dec. 29, 1892	11.2	-	1933	Jan. 6, 1933	20.2	-
1894	Jan. 18, 1894	19.5	-	1934	Dec. 24, 1933	13.6	-
1895	Jan. 14, 1895	15.9	-	1935	Jan. 1, 1935	8.2	-
1896	Jan. 24, 1896	14.1	-	1936	Jan. 15, 1936	14.6	-
1897	Nov. 19, 1896	20.2	-	1937	Apr. 18, 1937	14.9	-
1898	Dec. 14, 1897	15.1	-	1938	Dec. 30, 1937	19.0	-
1899	Jan. 22, 1899	14.1	-	1939	Mar. 25, 1939	8.7	-
1900	Jan. 17, 1900	16.7	-	1940	Mar. 3, 1940	12.8	-
1901	Jan. 17, 1901	20.9	-	1941	Jan. 19, 1941	7.8	-
1902	Feb. 12, 1902	10.8	-	1942	Dec. 21, 1941	15.3	-
1903	Jan. 28, 1903	19.3	-	1943	Jan. 3, 1943	20.2	-
1904	Mar. 11, 1904	15.5	-	1944	Feb. 8, 1944	7.0	-
1905	Jan. 1, 1905	10.7	-	1945	Feb. 13, 1945	10.0	-
1906	Feb. 27, 1906	10.6	-	1946	Jan. 1, 1946	17.8	-
1907	Feb. 8, 1907	22.5	-	1947	Dec. 17, 1946	21.3	-
1908	Dec. 28, 1907	17.2	-	1948	Jan. 10, 1948	19.4	-
1909	Jan. 22, 1909	20.5	-	1949	Feb. 20, 1949	15.5	-
1910	Nov. 26, 1909	22.3	-	1950	Feb. 28, 1950	15.1	-
1911	Jan. 20, 1911	15.0	-	1951	Feb. 13, 1951	17.4	-
1912	Jan. 16, 1912	17.3	-	1952	Feb. 5, 1952	14.5	-
1913	Nov. 14, 1912	11.0	-	1953	Jan. 21, 1953	20.2	-
1914	Jan. 27, 1914	12.8	-	1954	Jan. 31, 1954	11.5	-
1915	Jan. 16, 1915	8.9	-	1955	Jan. 2, 1955	9.2	-
1916	Feb. 12, 1916	20.0	-	1956	Dec. 24, 1955	22.3	-
1917	Jan. 7, 1917	6.7	-	1957	Mar. 9, 1957	14.0	-
1918	Dec. 20, 1917	19.7	-				

Peak stages of Willamette River at Portland, Oreg. (spring, backwater from Columbia River)

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1876	June 24, 1876	28.2	-	1917	June 22, 1917	23.8	-
1877	June 16, 1877	14.1	-	1918	June 25, 1918	19.2	-
1878	June 15, 1878	14.7	-	1919	June 1, 1919	18.6	-
1879	June 9, 1879	20.5	-	1920	June 21, 1920	14.8	-
1880	July 1, 1880	27.3	-				
				1921	June 12, 1921	24.3	-
1881	June 16, 1881	19.7	-	1922	June 11, 1922	22.4	-
1882	June 15, 1882	26.2	-	1923	June 16, 1923	19.8	-
1883	June 14, 1883	17.8	-	1924	May 28, 1924	14.7	-
1884	June 14, 1884	20.2	-	1925	May 26, 1925	21.7	-
1885	June 23, 1885	14.5	-				
				1926	May 10, 1926	9.7	-
1886	June 9, 1886	20.0	-	1927	June 19, 1927	23.0	-
1887	June 21, 1887	25.7	-	1928	May 31, 1928	24.4	-
1888	June 20, 1888	18.2	-	1929	June 20, 1929	17.0	-
1889	May 21, 1889	10.0	-	1930	June 15, 1930	11.2	-
1890	May 20, 1890	20.1	-				
				1931	May 20, 1931	10.0	-
1891	June 7, 1891	14.1	-	1932	May 25, 1932	20.6	-
1892	June 24, 1892	19.3	-	1933	June 13, 1933	24.8	-
1893	June 15, 1893	22.0	-	1934	May 8, 1934	16.5	-
1894	June 7, 1894	33.0	-	1935	June 11, 1935	17.2	-
1895	May 31, 1895	16.3	-				
				1936	June 11, 1936	19.7	-
1896	June 24, 1896	23.8	-	1937	June 24, 1937	16.8	-
1897	May 24, 1897	23.7	-	1938	June 10, 1938	20.8	-
1898	June 21, 1898	20.7	-	1939	May 22, 1939	13.9	-
1899	June 23, 1899	24.2	-	1940	June 6, 1940	12.8	-
1900	May 20, 1900	17.8	-				
				1941	June 11, 1941	9.6	-
1901	June 3, 1901	20.8	-	1942	May 30, 1942	16.5	-
1902	June 4, 1902	20.8	-	1943	June 24, 1943	19.8	-
1903	June 18, 1903	24.0	-	1944	June 20, 1944	11.2	-
1904	May 27, 1904	20.8	-	1945	June 10, 1945	18.1	-
1905	June 16, 1905	13.6	-				
				1946	June 1, 1946	20.9	-
1906	June 9, 1906	13.4	-	1947	June 13, 1947	18.7	-
1907	June 6, 1907	19.2	-	1948	June 13, 1948	30.0	-
1908	June 20, 1908	21.2	-	1949	May 19, 1949	22.2	-
1909	June 21, 1909	21.6	-	1950	June 26, 1950	24.8	-
1910	May 15, 1910	19.1	-				
				1951	May 27, 1951	21.1	-
1911	June 20, 1911	19.2	-	1952	May 24, 1952	20.2	-
1912	June 2, 1912	19.7	-	1953	June 17, 1953	21.5	-
1913	June 8, 1913	24.0	-	1954	June 19, 1954	19.8	-
1914	May 29, 1914	16.8	-	1955	June 27, 1955	19.3	-
1915	May 31, 1915	12.6	-				
				1956	June 4, 1956	26.4	-
1916	July 4, 1916	23.9	-	1957	May 23, 1957	23.0	-

2118. Saltzman Creek at Portland, Oreg.  
(Formerly published as Willamette River tributary at Portland)

Location.--Lat 45°33'55", long 122°44'40", in SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.13, T.1 N., R.1 W., at culvert at intersection of N.W. Balboa and Culebra Streets in Portland, 430 ft downstream from U.S. Highway 30 and 0.3 mile upstream from mouth.

Drainage area.--1.46 sq mi. Mean altitude, 818 ft; channel slope, 538 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 60 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 65 cfs and extended on basis of slope-area measurements and computations of flow through culverts.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Dec. 3, 1951	37.86	76	1956	Dec. 21, 1955	13.33	306
1953	Jan. 20, 1953	9.13	80	1957	Mar. 7, 1957	12.86	200
1954	Jan. 22, 1954	-	223				
1955	Apr. 12, 1955	11.95	73				

## 2119. Burntbridge Creek at Vancouver, Wash.

Location.--Lat 45°39'10", long 122°39'20", in SW<sup>1</sup> sec.14, T.2 N., R.1 E., at P Street, 0.7 mile east of U.S. Highway 99 and at the north city limits of Vancouver.

Drainage area.--22.2 sq mi. Area of lakes and ponds, 0 sq mi; mean altitude, 240 ft.

Gage.--Crest-stage gage. Datum of gage is 3.36 ft below upstream invert of culvert.

Stage-discharge relation.--Defined by computations of discharge through a 5-foot concrete pipe culvert.

Remarks.--Only annual peaks are shown.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	Feb. 10, 1949	7.58	99.0	1954	Jan. 22, 1954	7.30	88.0
1950	Feb. 24, 1950	7.02	77.0	1955	Dec. 30, 1954	5.03	16.7
1951	Dec. 23, 1950	7.22	83.0	1956	Dec. 11, 1955	9.38	176
1952	Feb. 4, 1952	6.46	56.0	1957	Feb. 27, 1957	6.43	55
1953	Jan. 18, 1953	7.08	78.0				

## 2120. Salmon Creek near Battle Ground, Wash.

Location.--Lat 45°46'25", long 122°26'35", in NE<sup>1</sup>SW<sup>1</sup> sec.4, T.3 N., R.3 E., on left bank 100 ft upstream from highway bridge, 150 ft downstream from Rock Creek, and 4 miles east of Battle Ground.

Drainage area.--18.3 sq mi. Area of lakes and ponds, 0 sq mi; mean elevation, 1,000 ft.

Gage.--Nonrecording prior to June 24, 1953; recording thereafter. At datum 1.0 ft higher prior to Oct. 1, 1950. Datum of gage is 354.88 ft above mean sea level (river-profile survey).

Stage-discharge relation.--Defined by current-meter measurements below 540 cfs and extended by logarithmic plotting.

Bankfull stage.--11 ft.

Remarks.--Peaks for period of nonrecording gage are from graphs based on readings or crest-stage indicator. Base for partial-duration series, 470 cfs.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1944	Feb. 6, 1944	1.66	330	1951	Jan. 2, 1951	3.02	720
					Mar. 15, 1951	2.88	594
1945	Feb. 7, 1945	1.80	395	1952	Oct. 23, 1951	3.15	855
1946	Nov. 27, 1945	2.60	980		Dec. 22, 1951	2.78	516
	Dec. 28, 1945	2.70	1,050		Feb. 4, 1952	2.72	474
	Jan. 24, 1946	1.85	498		Mar. 24, 1952	2.79	523
	Feb. 6, 1946	2.10	646	1953	Jan. 9, 1953	-	-
1947	Nov. 18, 1946	2.40	841		Jan. 18, 1953	3.25	925
	Dec. 11, 1946	2.80	1,200		Jan. 23, 1953	2.94	616
	Feb. 2, 1947	2.20	760	1954	Dec. 6, 1953	3.21	688
1948	Nov. 7, 1947	1.80	510		Dec. 9, 1953	3.51	1,000
	Jan. 7, 1948	2.17	728		Jan. 4, 1954	3.10	640
	Feb. 21, 1948	1.85	540		Jan. 22, 1954	4.02	1,500
	Mar. 21, 1948	2.15	728		Jan. 27, 1954	2.88	488
1949	Dec. 2, 1948	2.10	695	1955	Dec. 30, 1954	3.11	699
	Dec. 9, 1948	2.00	630		Feb. 8, 1955	3.12	708
	Feb. 10, 1949	2.70	1,120	1956	Nov. 19, 1955	3.14	726
	Feb. 17, 1949	3.10	1,440		Nov. 26, 1955	3.42	990
1950	Jan. 6, 1950	1.95	556		Dec. 12, 1955	2.94	567
	Jan. 21, 1950	2.20	709		Dec. 21, 1955	3.27	843
	Feb. 24, 1950	2.10	646		Jan. 4, 1956	3.51	1,080
1951	Nov. 16, 1950	3.00	700	1957	Mar. 7, 1957	2.97	588
	Dec. 23, 1950	3.14	844				

2135. Big Creek below Skookum Meadow, near Trout Lake, Wash.  
(Published as "below Skookum Meadow" prior to September 1955)

Location.--Lat 46°05'30", long 121°51'30", in NE $\frac{1}{4}$  sec.13, T.7 N., R.7 E., on left bank just downstream from Skookum Meadow, 3 miles upstream from Lewis River and 17 miles northwest of Trout Lake.

Drainage area.--13.2 sq mi.

Gage.--Recording. Prior to September 1955, at site 100 ft upstream at different datum. Datum of gage is 3,213.00 ft above mean sea level (levels by Pacific Power & Light Co.).

Stage-discharge relation.--Defined by current-meter measurements below 250 cfs.

Bankfull stage.--6 ft.

Remarks.--Base for partial-duration series, 360 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1928 a/	Nov. 25, 1927	-	-	1956	Oct. 29, 1955	3.67	382
	Mar. 10, 1928	4.00	425		Nov. 4, 1955	3.79	406
1929	May 20, 1929	3.37	271	1957	Nov. 26, 1955	4.19	489
					Dec. 22, 1955	3.77	402
					May 19, 1956	3.74	396
1930	Feb. 19, 1930	3.6	349	1956	May 30, 1956	3.61	370
					1931	Mar. 31, 1931	5.10

a Maximum for year not determined.

2145. Meadow Creek below Lone Butte Meadow, near Trout Lake, Wash.  
(Published as "below Lone Butte Meadow" prior to September 1955)

Location.--Lat 46°02'50", long 121°51'20", in E $\frac{1}{2}$  sec.36, T.7 N., R.7 E., on right bank just downstream from Lone Butte Meadow, half a mile upstream from mouth and 16 miles northwest of Trout Lake.

Drainage area.--11.7 sq mi.

Gage.--Recording. Altitude of gage is 3,200 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 210 cfs.

Bankfull stage.--10 ft.

Remarks.--Base for partial-duration series, 230 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1929	June 15, 1929	1.77	185	1956	Nov. 4, 1955	1.86	249
					Nov. 27, 1955	1.84	245
1930	Feb. 20, 1930	1.78	197	1957	Dec. 22, 1955	1.97	273
					1931	Mar. 31, 1931	1.95
1956	Oct. 10, 1955	1.84	245				

2150. Rush Creek above falls, near Cougar, Wash.  
(Published as "Rush Creek above falls" prior to 1956)

Location.--Lat 46°03'20", long 121°54'20", on line between secs. 27 and 34, T.7 N., R.7 E., on right bank 500 ft upstream from falls, 2 miles upstream from mouth, and 18 miles east of Cougar.

Drainage area.--26.0 sq mi.

Gage.--Recording. At different datum December 1927 to September 1931. Datum of gage is 2,260.51 ft above mean sea level (levels by Pacific Power & Light Co.).

Stage-discharge relation.--Defined by current-meter measurements below 340 cfs prior to 1956 and below 700 cfs thereafter.

Bankfull stage.--Not subject to overflow.

Remarks.--Base for partial-duration series, 500 cfs.

## Peak stages and discharges of Rush Creek above falls, near Cougar, Wash.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1929	Nov. 9, 1928	2.55	578	1956	Oct. 29, 1955	3.29	686
	June 15, 1929	2.66	555		Nov. 4, 1955	3.19	646
1930	Feb. 20, 1930	2.40	515	1957	Nov. 10, 1955	3.13	626
					Dec. 22, 1955	3.09	612
					Dec. 11, 1956	3.69	846
1931	Apr. 1, 1931	2.56	578				
1956	Oct. 9, 1955	3.48	762				

2160. Lewis River above Muddy River, near Cougar, Wash.

Location.--Lat 46°03'30", long 121°58'50", in SE $\frac{1}{4}$  sec.30, T.7 N., R.7 E., on right bank 1 mile upstream from Pepper Creek, 2 miles upstream from Muddy River, and 15 miles east of Cougar.

Drainage area.--227 sq mi. Area of lakes and ponds, 0.3 sq mi; mean elevation, 3,540 ft.

Gage.--Recording. August 1927 to September 1934, at present site at different datum. Altitude of gage is 1,080 ft (from river-profile map).

Stage-discharge relation.--Defined by current-meter measurements below 6,000 cfs.

Bankfull stage.--Not subject to overflow.

Remarks.--Base for partial-duration series, 4,000 cfs.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1928	Nov. 17, 1927	5.58	5,920	1934	Jan. 3, 1934	-	-
	Nov. 25, 1927	8.97	14,500		Jan. 23, 1934	-	-
	Jan. 13, 1928	5.83	5,920	1955	Nov. 18, 1954	6.80	6,250
	Mar. 11, 1928	5.82	5,920		June 10, 1955	6.87	6,390
	Mar. 22, 1928	4.78	4,250				
1929	May 22, 1929	4.42	3,630	1956	Oct. 9, 1955	6.62	5,900
1930	Feb. 20, 1930	5.72	6,120		Oct. 29, 1955	6.78	6,210
					Nov. 4, 1955	7.59	7,950
					Nov. 10, 1955	5.57	4,060
1931	Mar. 21, 1931	4.80	4,380		Nov. 27, 1955	8.13	9,500
	Mar. 31, 1931	7.87	11,600		Dec. 12, 1955	7.94	9,020
					Dec. 22, 1955	7.68	8,380
1932	Feb. 26, 1932	6.10	7,100		Apr. 22, 1956	5.54	4,160
	Mar. 19, 1932	5.90	6,650		May 19, 1956	6.68	6,190
					May 31, 1956	6.27	5,280
1933	June 9, 1933	7.42	10,300	1957	Dec. 11, 1956	7.12	6,900
1934	Dec. 6, 1933	7.04	9,290		Dec. 18, 1956	5.57	4,060
	Dec. 9, 1933	8.98	14,600		Feb. 26, 1957	6.66	5,970
	Dec. 21, 1933	13.2	27,000		May 1, 1957	5.62	4,140

2165. Muddy River below Clear Creek, near Cougar, Wash.  
(Published as Muddy River near Cougar 1928-34)

Location.--Lat 46°06'50", long 122°00'30", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.1, T.7 N., R.6 E., on right bank a quarter of a mile downstream from Clear Creek, 3 $\frac{1}{2}$  miles upstream from mouth, and 14 miles east of Cougar.

Drainage area.--131 sq mi. At site "near Cougar" prior to 1955, 136 sq mi. Area of lakes and ponds, 0.2 sq mi; mean elevation, 3,181 ft.

Gage.--Recording. August 1927 to September 1934 at site 3 miles downstream at different datum. Altitude of gage is 1,200 ft above mean sea level (from river-profile map).

Stage-discharge relation.--Defined by current-meter measurements below 4,700 cfs and extended by logarithmic plotting.

Bankfull stage.--9 ft.

Remarks.--Base for partial-duration series, 3,500 cfs.

## LEWIS RIVER BASIN

Peak stages and discharges of Muddy River below Clear Creek near Cougar, Wash.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1928	Nov. 25, 1927	8.40	7,240	1934 <sup>b</sup> /	Nov. 2, 1933	5.51	3,750
1929	Dec. 10, 1928	4.78	2,780		Dec. 21, 1933	14.0	17,500
1930	Dec. 14, 1929	5.47	3,740	1955	Nov. 19, 1954	6.10	4,660
	Feb. 20, 1930	6.08	4,570		June 10, 1955	5.48	3,650
1931	Mar. 31, 1931	6.4	5,000	1956	Nov. 4, 1955	6.16	4,760
					Nov. 27, 1955	6.82	5,990
1932	Feb. 26, 1932	6.51	5,150		Dec. 12, 1955	6.99	6,330
	Mar. 19, 1932	5.85	4,150		Dec. 22, 1955	7.52	7,550
1933 <sup>a</sup> /	Nov. 6, 1932	5.40	3,620	May 19, 1956	6.12	4,690	
	Nov. 13, 1932	5.36	3,620	1957	Feb. 26, 1957	7.56	7,650
	Dec. 2, 1932	5.36	3,620		Mar. 9, 1957	5.41	3,560
	June 9, 1933	-	-				

a Maximum for year not determined.

b Partial year.

c From high-water mark.

2175. Swift Creek near Cougar, Wash.

Location.--Lat 46°03'50", long 122°11'30", in SW 1/4 sec. 28, T.7 N., R.5 E., on left bank 5 ft downstream from logging road bridge, 0.1 mile upstream from mouth, and 5 miles east of Cougar.

Drainage area.--26 sq mi, approximately. Area of lakes and ponds, 0.01 sq mi; mean elevation, 3,140 ft.

Gage.--Recording (discontinued July 1956). Sept. 9, 1924, to Dec. 21, 1933, at site 200 ft upstream at different datum. Datum of gage is 652.55 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 800 cfs.

Remarks.--Base for partial-duration series, 800 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1925	Feb. 3, 1925	2.98	1,470	1933	Nov. 13, 1932	2.68	1,130
1926	Dec. 23, 1925	2.46	1,060		Dec. 2, 1932	2.33	851
					Jan. 8, 1933	2.36	872
1927	Oct. 16, 1926	3.10	1,380	June 8, 1933	2.46	942	
1928	Nov. 16, 1927	2.75	1,130	1934 <sup>a</sup> /	Oct. 28, 1933	2.28	817
	Nov. 24, 1927	3.7	1,900		Nov. 2, 1933	3.13	1,490
	Mar. 10, 1928	2.35	865	1955	Nov. 18, 1954	2.23	919
1929	Dec. 10, 1928	1.97	537		Dec. 30, 1954	2.12	842
					Feb. 8, 1955	2.35	1,100
1930	Dec. 14, 1929	2.1	620	1956	Oct. 9, 1955	2.30	919
1931	Mar. 31, 1931	3.10	1,450		Oct. 29, 1955	2.63	1,290
					Nov. 4, 1955	2.86	1,570
1932	Feb. 26, 1932	2.54	965	Nov. 26, 1955	2.94	1,670	
	Mar. 18, 1932	2.52	930	Dec. 11, 1955	2.98	1,710	
1933	Nov. 5, 1932	2.44	888	Dec. 21, 1955	2.52	1,260	

a Maximum for year not determined; partial year.

## 2180. Lewis River near Cougar, Wash.

Location.--Lat 46°03'30", long 122°12'40", in SE $\frac{1}{4}$  sec.29, T.7 N., R.5 E., on left bank 1 mile downstream from Swift Creek and 4 miles east of Cougar.

Drainage area.--481 sq mi. Area of lakes and ponds, 0.1 sq mi; mean elevation, 3,120 ft.

Gage.--Recording. Aug. 26, 1924, to Dec. 27, 1934, at present site at datum 2.0 ft higher. Datum of gage is 576.4 ft above mean sea level (river-profile survey).

Stage-discharge relation.--Defined by current-meter measurements below 17,000 cfs and extended by logarithmic plotting.

Bankfull stage.--12 ft.

Historical data.--Flood of Dec. 17 or 18, 1917, reached a stage of 14.0 ft (discharge, 45,000 cfs).

Remarks.--Base for partial-duration series, 9,000 cfs.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1918	Dec. 17 or 18, 1917	14.0	45,000	1938	Nov. 14, 1937	8.15	9,370	
					Nov. 25, 1937	9.17	12,600	
1925	Nov. 22, 1924	6.03	10,500	1939	Dec. 29, 1937	12.96	30,200	
	Feb. 3, 1925	10.3	26,500		Apr. 18, 1938	10.18	17,800	
1926	Dec. 23, 1925	6.07	10,800	1940	Jan. 2, 1939	7.90	9,440	
	Feb. 7, 1926	6.25	11,100		Dec. 15, 1939	10.78	20,200	
1927	Nov. 29, 1926	-	-	Feb. 6, 1940	10.00	17,000		
	Jan. 2, 1927	7.00	13,300	Mar. 2, 1940	9.18	12,400		
	Feb. 20, 1927	6.20	11,100	1941	Nov. 29, 1940	9.00	11,800	
	1928	Nov. 17, 1927	6.28		10,900	Dec. 3, 1941	9.29	12,800
Nov. 25, 1927		11.3	31,500	Dec. 19, 1941	11.35	22,700		
1928	Jan. 13, 1928	6.65	12,900	1943	Nov. 23, 1942	12.56	30,300	
	Mar. 11, 1928	7.10	14,400		Mar. 28, 1943	10.19	18,800	
	Mar. 23, 1928	5.55	9,980	1944	Dec. 3, 1943	7.61	8,690	
	Mar. 31, 1928	6.0	10,500		1945	Jan. 13, 1945	9.35	15,400
	1929	Dec. 10, 1928	5.1	8,200		Feb. 7, 1945	11.42	24,300
1930	Feb. 7, 1930	6.15	11,100	1947	Nov. 27, 1946	9.82	15,200	
	Feb. 20, 1930	-	-		Dec. 13, 1946	12.98	32,300	
1931	Feb. 19, 1931	5.54	9,200		Jan. 26, 1947	7.93	9,710	
	Mar. 31, 1931	9.50	22,700		Feb. 14, 1947	8.05	10,000	
1932	Jan. 11, 1932	5.53	9,050	1948	Oct. 17, 1947	9.30	15,000	
	Feb. 26, 1932	7.84	15,000		Jan. 2, 1948	7.91	9,710	
	Mar. 5, 1932	5.71	9,100		Jan. 7, 1948	9.13	14,200	
	Mar. 18, 1932	7.55	14,400	1949	May 2, 1949	8.57	12,200	
1933	Nov. 5, 1932	6.62	11,600		May 13, 1949	8.17	10,800	
	Nov. 13, 1932	6.90	12,400	1950	Nov. 27, 1949	11.88	26,800	
	Dec. 2, 1932	6.04	9,880		Jan. 22, 1950	7.73	9,160	
	Jan. 9, 1933	5.80	9,360		Feb. 25, 1950	9.31	15,000	
	June 9, 1933	8.44	17,900		Mar. 5, 1950	9.71	16,700	
1934	Oct. 28, 1933	6.41	11,000	1951	Oct. 28, 1950	8.01	9,950	
	Nov. 3, 1933	6.88	12,400		Nov. 1, 1950	7.88	9,610	
	Dec. 9, 1933	10.65	28,000		Nov. 24, 1950	8.82	12,900	
	Dec. 21, 1933	15.7	54,400		Nov. 27, 1950	8.92	13,300	
	Jan. 23, 1934	10.64	28,000		Dec. 7, 1950	7.84	9,280	
	Mar. 2, 1934	5.80	9,040		Dec. 17, 1950	7.83	9,280	
	Mar. 5, 1934	5.87	9,320		Dec. 23, 1950	10.74	21,800	
1935	Oct. 25, 1934	7.26	13,700		Feb. 11, 1951	11.43	25,800	
	Nov. 5, 1934	9.33	21,800		1952	Oct. 23, 1951	8.33	11,100
	Dec. 21, 1934	6.62	11,300			Dec. 1, 1951	10.12	18,800
1936	Jan. 4, 1936	9.01	11,600			Feb. 4, 1952	9.13	14,200
	Jan. 12, 1936	9.24	12,300	1953	Jan. 9, 1953	10.48	20,600	
1937	Dec. 22, 1936	10.55	17,200		Jan. 11, 1953	10.68	21,700	
	Apr. 14, 1937	12.08	24,400		Jan. 18, 1953	11.08	23,900	
	June 21, 1937	8.53	10,300		Jan. 23, 1953	9.19	14,500	

Peak stages and discharges of Lewis River near Cougar, Wash.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	Jan. 31, 1953	10.01	18,200	1956	Oct. 10, 1955	8.28	10,900
	Feb. 7, 1953	7.85	9,410		Oct. 29, 1955	8.34	11,200
1954	Nov. 22, 1953	8.06	10,200		Nov. 4, 1955	9.70	16,800
	Dec. 6, 1953	7.73	9,060		Nov. 27, 1955	10.63	21,400
	Dec. 9, 1953	10.63	21,400		Dec. 12, 1955	10.32	19,800
	Dec. 20, 1953	9.23	14,600		Dec. 22, 1955	10.26	19,500
	Feb. 21, 1954	8.77	12,800		Mar. 25, 1956	7.91	10,100
	Mar. 9, 1954	7.83	9,380		May 19, 1956	8.47	12,100
1955	Nov. 18, 1954	8.79	12,900		May 31, 1956	7.73	9,540
	Feb. 8, 1955	8.20	10,600		1957	Dec. 11, 1956	8.91
	June 11, 1955	8.20	11,200	Feb. 26, 1957		9.82	17,300
			Mar. 9, 1957	8.16		10,500	

## 2190. Canyon Creek near Amboy, Wash.

Location.--Lat 45°56'30", long 122°19'15", in SW $\frac{1}{4}$  sec.4, T.5 N., R.4 E., on left bank just downstream from county road bridge, a quarter of a mile downstream from Fly Creek, 2 miles upstream from mouth, and 6 miles northeast of Amboy.

Drainage area.--63.8 sq mi. Area of lakes and ponds, 0.01 sq mi; mean elevation, 2,410 ft.

Gage.--Nonrecording prior to Sept. 26, 1924; recording thereafter (discontinued September 1934). Altitude of gage is 520 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 7,000 cfs.

Remarks.--Base for partial-duration series, 3,500 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1923	Dec. 24, 1922	11.3	9,500	1929	Apr. 14, 1929	6.10	3,140
	Jan. 7, 1923	9.9	7,430		1930	Feb. 1, 1930	6.65
1924	Dec. 6, 1923	7.2	4,350	Feb. 7, 1930		7.16	4,350
				Feb. 13, 1930		6.84	3,910
1925	Dec. 11, 1924	-	-	1931	Mar. 31, 1931	11.18	9,370
	Feb. 3, 1925	8.3	5,560		1932	Jan. 11, 1932	7.08
1926	Feb. 6, 1926	7.93	5,120	Feb. 26, 1932		8.06	5,340
				Mar. 18, 1932		7.97	5,230
1927	Nov. 29, 1926	6.87	4,020	1933	Dec. 2, 1932	6.50	3,580
	Jan. 2, 1927	7.05	4,130		Dec. 26, 1932	6.55	3,690
	Feb. 1, 1927	8.55	5,890		June 8, 1933	6.60	3,690
	Feb. 20, 1927	6.75	3,910	1934	Oct. 29, 1933	6.76	3,910
1928	Nov. 25, 1927	11.6	10,000		Dec. 21, 1933	12.6	11,700
	Jan. 13, 1928	7.73	4,900		Jan. 23, 1934	8.74	6,000
	Mar. 10, 1928	7.17	4,350				
	Mar. 31, 1928	7.28	4,460				

## 2195. Lewis River near Amboy, Wash.

Location.--Lat 45°57'50", long 122°23'00", in NW $\frac{1}{4}$  sec.36, T.6 N., R.3 E., on left bank at abandoned Cresap Ferry, 2 miles downstream from Canyon Creek and 5 miles northeast of Amboy.

Drainage area.--665 sq mi. Area of lakes and ponds, 0.11 sq mi; mean elevation, 2,830 ft.

Gage.--Nonrecording (discontinued April 1931). Altitude of gage is 180 ft (from river-profile map).

Stage-discharge relation.--Defined by current-meter measurements below 40,000 cfs.

Remarks.--All peaks are from graphs based on gage readings, except as noted. Base for partial-duration series, 14,000 cfs.

Peak stages and discharges of Lewis River near Amboy, Wash.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1912	Nov. 14, 1911	7.0	18,500	1921	Apr. 22, 1921	6.3	16,000	
	Nov. 19, 1911	6.3	15,200		1922	Oct. 28, 1921	6.1	15,200
	Jan. 13, 1912	10.0	35,600			Nov. 21, 1921	6.7	17,600
	Jan. 30, 1912	6.1	14,400			Nov. 30, 1921	9.7	33,800
	Feb. 17, 1912	6.4	15,600			Dec. 12, 1921	10.2	36,800
1913	Nov. 13, 1912	9.2	30,800	1923		Dec. 24, 1922	8.4	26,100
	Jan. 3, 1913	6.75	17,500		Dec. 27, 1922	9.2	30,800	
1914	Nov. 24, 1913	6.7	17,000		Jan. 7, 1923	13.2	55,000	
	Jan. 5, 1914	12.0	47,600	1924	Dec. 6, 1923	8.3	25,600	
	Jan. 22, 1914	6.5	16,000		Jan. 31, 1924	8.5	26,700	
1915	Oct. 19, 1914	6.1	14,400		Feb. 12, 1924	8.0	23,900	
	Nov. 3, 1914	6.0	14,000	1925	Nov. 21, 1924	6.8	18,000	
	Apr. 2, 1915	7.4	20,500		Feb. 3, 1925	10.9	41,000	
1916	Nov. 19, 1915	7.1	19,000	1926	Dec. 24, 1925	7.1	19,400	
	Nov. 23, 1915	6.3	15,200		Feb. 6, 1926	7.5	21,300	
	Dec. 21, 1915	12.5	50,600	1927	Oct. 16, 1926	8.2	25,000	
	Feb. 10, 1916	8.0	23,600		Nov. 29, 1926	7.5	21,300	
	Mar. 26, 1916	9.0	29,600		Jan. 2, 1927	8.0	23,900	
1917	Nov. 29, 1916	5.6	12,400	Feb. 2, 1927	7.0	18,900		
	1918	Dec. 18, 1917	16.4	79,300	1928	Nov. 25, 1927	14.0	60,600
Dec. 29, 1917		11.9	47,000	Jan. 13, 1928		8.3	25,600	
Feb. 6, 1918		7.1	19,400	Mar. 11, 1928		7.7	22,300	
1919	Dec. 14, 1918	9.6	33,200	Mar. 31, 1928		7.0	18,900	
	Jan. 23, 1919	12.7	51,800	1929	Dec. 10, 1928	5.6	13,000	
1920	Dec. 24, 1919	8.1	24,500		1930	Dec. 14, 1929	6.4	16,200
	Jan. 26, 1920	8.80	28,400	Feb. 7, 1930		7.1	19,400	
	Mar. 13, 1920	7.0	18,900	Feb. 19, 1930		6.5	16,600	
1921	Nov. 19, 1920	7.4	20,800	1931	Mar. 21, 1931	6.0	14,600	
	Dec. 30, 1920	11.0	41,600		Mar. 31, 1931	11.0	41,600	
	Jan. 2, 1921	9.7	33,800					
	Mar. 17, 1921	9.0	29,600					

2205. Lewis River at Ariel, Wash.  
(Published as "near Ariel" prior to 1930)

Location.--Lat 45°57'10", long 122°33'45", in NW<sup>1</sup>NE<sup>1</sup> sec. 4, T.5 N., R.2 E., on right bank at Ariel, half a mile downstream from Ariel Dam and powerplant and 3 miles upstream from Cedar Creek.

Drainage area.--731 sq mi.

Gage.--Nonrecording prior to Apr. 20, 1930; recording thereafter. At site half a mile downstream at datum 0.90 ft higher July 31, 1923, to Apr. 20, 1930. Datum of gage is 44.0 ft above mean sea level, unadjusted (levels by Pacific Power & Light Co.).

Stage-discharge relation.--Defined by current-meter measurements below 56,000 cfs and extended on basis of computation of peak flow over dam.

Bankfull stage.--Not subject to overflow.

Remarks.--Flow regulated by Lake Merwin and Yale Reservoir. Peak discharges are affected since 1931. Peaks for period of nonrecording gage are from graphs based on gage readings. Gage-height record collected in cooperation with Pacific Power & Light Co. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1924	Dec. 6, 1923	10.9	29,800	1931	Apr. 1, 1931	14.20	30,600
1925	Feb. 3, 1925	15.2	44,000	1932	Feb. 26, 1932	16.92	41,700
				1933	Jan. 8, 1933	15.25	34,700
				1934	Dec. 22, 1933	35.0	129,000
1926	Feb. 6, 1926	9.9	26,500	1935	Nov. 6, 1934	16.13	38,000
1927	Nov. 29, 1926	10.3	27,800				
1928	Nov. 25, 1927	20.5	62,600	1936	Jan. 12, 1936	15.65	34,100
1929	Nov. 10, 1928	6.8	16,400	1937	Apr. 14, 1937	18.56	49,100
1930	Feb. 14, 1930	8.8	21,500				

Peak stages and discharges of Lewis River at Ariel, Wash.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938	Dec. 30, 1937	21.3	61,500	1948	Jan. 7, 1948	14.75	30,800
1939	Feb. 14, 1939	12.7	24,600	1949	Feb. 23, 1949	13.55	26,600
1940	Feb. 6, 1940	15.80	36,900	1950	Nov. 27, 1949	19.5	49,000
1941	Nov. 29, 1940	13.90	29,300	1951	Dec. 23, 1950	17.50	40,200
1942	Dec. 19, 1941	17.40	40,600	1952	Oct. 23, 1951	12.96	24,900
1943	Nov. 23, 1942	21.66	57,600	1953	Jan. 17, 1953	19.20	47,800
1944	Feb. 6, 1944	10.93	18,700	1954	Dec. 9, 1953	17.67	41,700
1945	Feb. 7, 1945	18.08	42,800	1955	June 11, 1955	11.58	20,200
1946	Dec. 28, 1945	17.23	39,500	1956	Dec. 12, 1955	19.50	49,100
1947	Dec. 13, 1946	24.04	67,300	1957	Mar. 9, 1957	13.70	27,100

2225. East Fork Lewis River near Heisson, Wash.

Location.--Lat 45°50'10", long 122°27'50", in N $\frac{1}{2}$  sec.17, T.4 N., R.3 E., on right bank 60 ft downstream from Basket Creek,  $\frac{1}{2}$  miles northeast of Heisson, and 20 miles upstream from mouth.

Drainage area.--125 sq mi. Area of lakes and ponds, 0.01 sq mi; mean elevation, 1,940 ft.

Gage.--Recording. Datum of gage is 366.8 ft above mean sea level (from river-profile survey).

Stage-discharge relation.--Defined by current-meter measurements below 12,000 cfs.

Remarks.--Base for partial-duration series, 6,100 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1930	Dec. 14, 1929	7.96	6,000	1946	Nov. 27, 1945	9.7	9,500
1931	Mar. 31, 1931	12.2	15,500	1947	Nov. 28, 1946	10.03	10,100
1932	Jan. 11, 1932	8.70	7,430	Dec. 11, 1946	10.84	11,900	
	Feb. 26, 1932	8.24	6,400	Dec. 14, 1946	9.98	10,400	
	Mar. 5, 1932	9.3	8,740	Feb. 2, 1947	9.32	8,680	
	Mar. 18, 1932	9.3	8,740	1948	Jan. 7, 1948	8.65	7,320
				Feb. 26, 1948	7.96	6,230	
1933	Jan. 8, 1933	8.9	7,860	Mar. 22, 1948	8.18	6,590	
	Oct. 28, 1933	8.80	7,480	1949	Dec. 9, 1948	8.08	6,340
	Dec. 6, 1933	11.95	14,800	Feb. 17, 1949	11.72	14,000	
1934	Dec. 22, 1933	12.3	15,600	1950	Nov. 24, 1949	8.09	6,340
	Jan. 22, 1934	8.52	6,880	Jan. 21, 1950	8.35	6,870	
	Nov. 7, 1934	8.11	6,300	Feb. 24, 1950	9.53	8,990	
1935	Dec. 21, 1934	10.18	10,500	1951	Dec. 23, 1950	8.31	6,690
	Jan. 4, 1936	8.05	6,200	1952	Oct. 23, 1951	8.44	6,940
1936	Jan. 12, 1936	8.85	7,670	Feb. 4, 1952	8.68	7,380	
	Dec. 23, 1936	9.56	9,260	1953	Jan. 18, 1953	9.67	9,350
1937	Apr. 14, 1937	9.30	8,650	Jan. 23, 1953	8.45	6,960	
	Nov. 8, 1937	9.50	9,050	1954	Dec. 6, 1953	8.49	6,800
	Dec. 29, 1937	10.60	11,400	Dec. 9, 1953	11.03	12,400	
1938	Apr. 18, 1938	8.68	7,480	Jan. 22, 1954	8.88	7,560	
	Feb. 14, 1939	9.22	8,450	Feb. 21, 1954	8.12	6,140	
	Dec. 15, 1939	8.80	7,670	1955	Dec. 20, 1954	9.06	7,930
1940	Feb. 6, 1940	8.57	7,290	Feb. 8, 1955	8.77	7,340	
	Nov. 29, 1940	8.81	7,670	1956	Nov. 26, 1955	9.95	9,860
1941	Dec. 19, 1941	9.89	9,920	Dec. 11, 1955	10.10	10,200	
	Nov. 23, 1942	11.17	12,800	Dec. 21, 1955	9.09	7,990	
	Feb. 6, 1943	8.00	6,230	Jan. 4, 1956	8.92	7,640	
1942	Mar. 31, 1943	8.94	7,890	1957	Dec. 11, 1956	8.43	6,690
	Feb. 6, 1944	7.09	4,730	Feb. 26, 1957	8.35	6,550	
	Feb. 7, 1945	9.76	9,710	Mar. 7, 1957	8.52	6,860	

2227. East Fork Lewis River tributary near Woodland, Wash.

Location.--Lat 45°51'30", long 122°42'15", in SE $\frac{1}{4}$  sec.5, T.4 N., R.1 E., at U.S. Highway 99, 3.7 miles southeast of Woodland.

Drainage area.--0.53 sq mi. Area of lakes and ponds, 0 sq mi; mean altitude, 250 ft.

Gage.--Crest-stage gage. Datum of gage is 5.58 ft below upstream invert of culvert.

Stage-discharge relation.--Defined by computations of discharge through a 4-foot concrete pipe culvert.

Historical data.--Peak of Dec. 11, 1955, is the highest in at least 20 years.

Remarks.--Some pondage of lower peaks at another road crossing three-quarters of a mile upstream from gage. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Dec. 28, 1949	8.54	50.6	1954	Jan. 22, 1954	8.44	44.8
				1955	Dec. 30, 1954	8.62	55.8
1951	Dec. 23, 1950	8.01	36.2				
1952	-	< 7.51	< 20	1956	Dec. 11, 1955	12.12	192
1953	Jan. 22, 1953	7.19	14.1	1957	Feb. 26, 1957	7.80	31.5

## KALAMA RIVER BASIN

2230. Kalama River near Kalama, Wash.

Location.--Lat 46°01'10", long 122°43'50", in N $\frac{1}{2}$  sec.7, T.6 N., R.1 E., on right bank 150 ft downstream from powerplant of Puget Sound Power & Light Co., 0.7 mile upstream from Italian Creek, and 5 miles east of Kalama.

Drainage area.--179 sq mi. Area of lakes and ponds, 0.5 mi; mean elevation, 2,100 ft.

Gage.--Nonrecording (publication discontinued December 1932). July 6 to Dec. 31, 1911, at datum 2.0 ft lower, and Jan. 1, 1912, to Sept. 30, 1913, at datum 3.0 ft lower. All gage heights corrected to described datum. Altitude of gage is 150 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements.

Historical data.--Flood of December 1933 reportedly reached a stage of about 21 ft, from information furnished by powerhouse superintendent and Harza Engineering Co. (discharge, about 42,000 cfs, from rating curve extended above 12,000 cfs by logarithmic plotting).

Remarks.--Peaks prior to 1934, are from graphs based on gage readings or are observed. Only annual peaks are shown for 1936-45, 1947, which have been graphed from daily log sheets of Puget Sound Power & Light Co. Base for partial-duration series, 5,200 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1912	Nov. 19, 1911	6.6	5,210	1920	Dec. 24, 1919	7.0	5,770
					Mar. 13, 1920	6.6	5,210
1913	Nov. 13, 1912	-	-	1921	Dec. 30, 1920	10.2	11,500
	Dec. 29, 1912 to Jan. 1, 1913	7.00	5,770		Jan. 2, 1921	9.7	10,500
	Jan. 26, 1913	6.75	5,490		Feb. 10, 1921	7.4	6,560
					Mar. 17, 1921	10.0	11,100
1917	Jan. 5, 1917	6.02	4,430	1922	Nov. 21, 1921	7.9	7,110
1918	Dec. 13, 1917	9.6	10,300		Dec. 2, 1921	7.8	6,960
	Dec. 18, 1917	10.3	11,700		Dec. 12, 1921	8.6	8,370
	Dec. 28, 1917	8.1	7,470	1923	Dec. 27, 1922	a10.2	11,500
	Feb. 6, 1918	7.4	6,360		Jan. 6, 1923	a10.6	12,300
1919	Dec. 14, 1918	9.4	9,900	1924	Dec. 6, 1923	7.8	6,960
	Jan. 17, 1919	9.2	9,500		Jan. 31, 1924	8.1	7,470
	Jan. 23, 1919	9.8	10,700				

a From curve of relation with wheel pit gage.

## KALAMA RIVER BASIN

Peak stages and discharges of Kalama River near Kalama, Wash.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1925	Oct. 30, 1924	7.1	6,130	1932	Jan. 18, 1932	7.85	6,960	
	Dec. 11, 1924	7.10	6,130		Feb. 26, 1932	8.75	8,730	
	Feb. 3, 1925	8.9	9,200		Mar. 5, 1932	8.1	7,470	
			Mar. 18, 1932		7.9	7,110		
1926	Dec. 21, 1925	7.0	5,980	1933	Nov. 13, 1932	8.0	7,290	
	Feb. 6, 1926	6.9	5,840		Dec. 2, 1932	8.2	7,650	
1927	Oct. 16, 1926	7.2	6,280	1934	December 1933	b21	42,000	
	Jan. 2, 1927	7.3	6,450					
	Feb. 1, 1927	7.42	6,580					
	Feb. 20, 1927	6.7	5,560					
1928	Oct. 3, 1927	7.2	6,280	1936	Jan. 12, 1936	9.6	10,300	
	Nov. 25, 1927	11.0	13,200	1937	Jan. 14, 1937	9.5	10,100	
	Mar. 10, 1928	7.1	5,910	1938	Dec. 29, 1937	9.0	9,100	
	Mar. 31, 1928	7.5	6,510	1939	Feb. 15, 1939	6.4	4,930	
				1940	Dec. 15, 1939	7.3	6,210	
1929	Dec. 10, 1928	6.80	5,490	1941	Jan. 18, 1941	6.0	4,400	
				1942	Dec. 19, 1941	8.8	8,730	
1930	Dec. 14, 1929	7.50	6,510	1943	Nov. 23, 1942	8.25	7,740	
				1944	Dec. 3, 1942	7.3	6,210	
				1945	Feb. 7, 1945	8.5	8,190	
1931	Feb. 18, 1931	7.9	7,110	1947	Dec. 11, 1946	9.6	10,300	
	Mar. 31, 1931	9.88	10,900					

b About.

2235. Kalama River below Italian Creek, near Kalama, Wash.

Location.--Lat 46°02'40", long 122°48'50", in NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.33, T.7 N., R.1 W., on right bank 2 $\frac{1}{2}$  miles northeast of Kalama, 3 miles upstream from mouth, and 5 miles downstream from Italian Creek.

Drainage area.--201 sq mi. Area of lakes and ponds, 0.02 sq mi; mean elevation, 1,880 ft.

Gage.--Nonrecording. Prior to Oct. 7, 1952, at site 70 ft downstream at same datum. Altitude of gage is 20 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--13 ft.

Remarks.--Peaks for period of nonrecording gage are from graphs based on gage readings or crest-stage indicator. Base for partial-duration series, 6,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1947	Nov. 18, 1946	11.90	11,700	1952	Dec. 1, 1951	8.76	6,640
	Nov. 27, 1946	9.40	9,170		Dec. 4, 1951	9.27	7,400
	Dec. 13, 1946	13.40	14,400		Feb. 4, 1952	10.40	9,140
	Jan. 26, 1947	8.90	6,860	1953	Jan. 9, 1953	8.56	6,280
	Feb. 2, 1947	10.40	9,170		Jan. 11, 1953	8.60	6,330
			Jan. 18, 1953		10.94	9,660	
			Jan. 23, 1953		10.91	9,620	
1948	Oct. 19, 1947	8.30	6,010	Jan. 31, 1953	8.97	6,810	
	Jan. 7, 1948	9.30	7,460				
	Feb. 22, 1948	8.70	6,570				
	Feb. 26, 1948	8.30	6,010				
1949	Dec. 9, 1948	9.54	7,750	1954	Dec. 6, 1953	9.99	8,240
	Feb. 17, 1949	10.50	9,300		Dec. 9, 1953	14.93	16,000
	Feb. 23, 1949	10.40	9,140		Jan. 6, 1954	9.58	7,470
1950				Feb. 13, 1954	8.68	6,240	
	Nov. 27, 1949	10.90	9,940	Feb. 21, 1954	9.65	7,570	
	Dec. 28, 1949	8.30	6,000				
	Feb. 16, 1950	8.30	6,000	1955	Nov. 18, 1954	8.71	6,280
	Feb. 24, 1950	11.90	11,600		Dec. 30, 1954	10.10	8,200
Mar. 5, 1950	10.00	8,500	Feb. 8, 1955		10.76	9,140	
1951				1956	Nov. 27, 1955	11.77	10,700
	Nov. 24, 1950	8.93	6,850		Dec. 11, 1955	12.70	12,100
	Nov. 27, 1950	8.34	6,000		Dec. 22, 1955	11.89	10,900
	Dec. 23, 1950	9.01	7,000		Jan. 4, 1956	9.76	7,990
	Feb. 11, 1951	10.12	8,660		Mar. 25, 1956	8.72	6,640
1952	Oct. 2, 1951	8.59	6,410	1957	Dec. 10, 1956	8.35	6,160
	Oct. 23, 1951	8.72	6,590		Feb. 26, 1957	10.01	8,310

2238. Columbia River tributary at Carrols, Wash.

Location.--Lat 46°04'20", long 122°51'40", in SW $\frac{1}{4}$  sec.19, T.7 N., R.1 W., at old U.S. Highway 99 at Carrols.

Drainage area.--1.06 sq mi. Area of lakes and ponds, 0 sq mi; mean altitude, 580 ft.

Gage.--Crest-stage gage. Datum of gage is 14.58 ft below upstream invert of culvert.

Stage-discharge relation.--Defined by computations of discharge through a 4- by 4-foot concrete box culvert.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Dec. 28, 1949	17.42	55.0	1954	Dec. 9, 1953	18.26	80.4
1951	Dec. 23, 1950	17.56	58.5	1955	Feb. 8, 1955	17.30	50.6
1952	Feb. 3, 1952	17.46	54.8	1956	Dec. 11, 1955	19.09	112
1953	Jan. 18, 1953	16.68	34.0	1957	Dec. 9, 1956	16.51	29

## COWLITZ RIVER BASIN

2240. Ohanapecosh River near Lewis, Wash.

Location.--Lat 46°40'30", long 121°35'10", in N $\frac{1}{2}$  sec.29, T.14 N., R.10 E., on left bank 900 ft upstream from confluence with Clear Fork Cowlitz River and 7 miles northeast of Lewis (now Packwood).

Drainage area.--103 sq mi.

Gage.--Nonrecording (discontinued September 1917). Altitude of gage is 1,250 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 3,100 cfs and extended by logarithmic plotting.

Remarks.--All peak discharges are observed. Gage-height record furnished by Valley Development Co. (fragmentary records, 1914-17; peaks not determined). Base for partial-duration series, 2,200 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1908	Mar. 15-16, 1908	6.0	3,730	1910	Nov. 29, 1909	7.0	4,750
	Apr. 20, 1908	4.4	2,300		Apr. 26, 1910	4.9	2,700
	June 10-11, 1908	4.8	2,620		May 10, 1910	5.2	2,970
	July 1, 1908	4.6	2,460		May 24, 1910	4.5	2,380
1909	June 2, 1909	5.3	3,060	1911	Nov. 7, 1910	5.15	2,930
1910	Nov. 3, 1909	7.8	5,630	1912	May 15, 1912	4.40	2,300
	Nov. 19, 1909	6.6	4,330		1913b/	June 3, 1913	4.7
	Nov. 23, 1909	-	(a)				

a Maximum discharge for year not determined; gage height above 8 ft.

b Partial year.

2245. Clear Fork Cowlitz River near Packwood, Wash.  
(Published as "near Lewis" prior to 1912, and as Clear Fork near Lewis 1913-17)

Location.--Lat 46°40'50", long 121°34'30", in NE $\frac{1}{4}$  sec.29, T.14 N., R.10 E., on left bank three-quarters of a mile upstream from confluence with Ohanapecosh River and 7 miles northeast of Packwood.

Drainage area.--55.7 sq mi. Area of lakes and ponds, 0.01 sq mi; mean elevation, 4,330 ft.

Gage.--Nonrecording prior to Sept. 30, 1917; recording thereafter (discontinued October 1950). Aug. 20, 1907, to Sept. 30, 1917, at sites within a quarter of a mile downstream at different datums. Altitude of gage is 1,290 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,200 cfs and extended by logarithmic plotting.

Remarks.--Peaks for period of nonrecording gage are observed. Base for partial-duration series, 1,100 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1908	Mar. 15, 16, 1908	5.0	1,840	1934	Oct. 19, 1933	6.21	1,740
1909	June 2, 1909	3.5	958		Oct. 23, 1933	5.73	1,380
1910	Nov. 3, 1909	5.0	1,840		Oct. 28, 1933	6.07	1,620
	Nov. 19, 1909	4.5	1,520		Nov. 2, 1933	6.24	1,780
	Nov. 23, 1909	7.3	3,740		Dec. 9, 1933	9.22	4,760
	Nov. 29, 1909	6.3	2,830		Dec. 22, 1933	11.7	8,030
	Mar. 2, 1910	-	-		Jan. 23, 1934	8.12	3,500
	May 10, 1910	3.9	1,170	1935	Mar. 5, 1934	5.70	1,290
1911	Nov. 22, 1910	-	-		Oct. 25, 1934	7.53	2,900
	June 15, 1911	3.95	1,220	1936	Nov. 5, 1934	7.17	2,600
1913	May 28, 1913	4.0	1,220	1937	June 8, 1936	5.81	1,290
	June 2, 1913	-	-		Apr. 14, 1937	5.96	1,410
1914	Jan. 5, 1914	4.9	1,680		June 3, 1937	5.55	1,120
1915	Nov. 3, 1914	4.33	1,320	1938	June 21, 1937	5.77	1,270
1916	June 15, 1916	4.58	1,330		Nov. 8, 1937	5.84	1,320
1917	June 16, 1917	4.60	1,330		Nov. 25, 1937	6.08	1,520
1931	Mar. 31, 1931	5.38	1,050	1939	Nov. 27, 1937	5.69	1,220
1932	Feb. 26, 1932	6.8	2,270		Apr. 18, 1938	7.11	2,600
1933	Nov. 13, 1932	7.44	2,830	1940	May 29, 1939	5.43	1,160
	Nov. 16, 1932	6.34	1,860		Dec. 15, 1939	5.80	1,410
	Dec. 2, 1932	6.24	1,780	1941	Nov. 29, 1940	6.02	1,610
	Jan. 8, 1933	5.40	1,280	1943	Nov. 23, 1942	8.50	4,020
	June 8, 1933	5.99	1,580	1950	June 29, 1950	5.42	1,350

2255, Lake Creek near Packwood, Wash.  
(Published as "at outlet of Packwood Lake, near Lewis" 1911-24)

Location.--Lat 46°35'45", long 121°34'05", in SW $\frac{1}{4}$  sec.21, T.13 N., R.10 E. (unsurveyed), on left bank 500 ft downstream from outlet of Packwood Lake and 5 miles east of Packwood.

Drainage area.--18.8 sq mi. Area of lakes and ponds, 0.8 sq mi; mean elevation, 4,700 ft.

Gage.--Nonrecording prior to Aug. 3, 1918; recording thereafter. Prior to Dec. 18, 1917, a sharp-crested weir with end contractions at site at various datums. Aug. 3, 1918, to Sept. 30, 1924, wooden control at site 110 ft upstream at different datum. Altitude of gage is 2,850 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 390 cfs.

Historical data.--Maximum stage, estimated by observer, 6.0 ft Dec. 18, 1917, datum then in use (discharge not determined).

Remarks.--Peak discharges for period of nonrecording gage are observed and are practically equivalent to instantaneous peaks because of slowly changing stage. Base for partial-duration series, 240 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1912	Nov. 25, 1911	2.5	304	1934	Jan. 23, 1934	4.27	630
	May 21, 1912	2.30	265		Mar. 30, 1934	3.07	242
	June 8, 1912	2.6	324	1935	Oct. 26, 1934	-	-
	June 26, 1912	2.5	304		(c)	3.87	517
1913	June 3, 1913	3.26	465	Dec. 21, 1934	3.36	302	
	June 23, 1913	3.01	408	June 8, 1935	3.42	320	
	July 23, 1913	2.4	284	1936	May 5, 1936	3.28	280
1914	Jan. 7, 1914	2.12	229		May 14, 1936	3.57	381
	Nov. 14, 1914	2.20	247		June 8, 1936	3.94	512
1915	Nov. 14, 1914	2.20	247	1937	June 3, 1937	3.35	317
	May 7, 1916	2.25	244		June 21, 1937	3.81	529
	June 18, 1916	4.00	582	1938	Nov. 28, 1937	3.12	255
July 3, 1916	3.35	462	Apr. 19, 1938		3.60	423	
1917	June 17, 1917	3.62	506		May 28, 1938	3.48	354
	1918	Dec. 18, 1917	a6.0	-	1939	May 16, 1939	3.51
June 14, 1918		2.45	403	May 29, 1939		3.81	365
1919	Dec. 14, 1918	-	-	1940	Dec. 17, 1939	2.94	234
	Jan. 23, 1919	3.22	419		1941	May 25, 1941	2.67
	May 28, 1919	2.76	322	1942		Dec. 3, 1941	3.20
1920	June 15, 1920	2.42	252		Dec. 20, 1941	3.22	308
	July 5, 1920	2.51	272		May 22, 1942	3.35	269
1921	Nov. 20, 1920	2.72	312	June 16, 1942	3.27	295	
	Dec. 21, 1920	2.56	282	1950	Nov. 27, 1949	4.14	548
	June 8, 1921 <sup>b</sup>	3.1	452		June 5, 1950	3.63	385
1922	Dec. 1, 1921	3.5	543		June 21, 1950	4.02	495
	Dec. 12, 1921	3.88	631		July 1, 1950	3.95	478
	May 18, 1922	2.17	262		1951	Oct. 10, 1950	3.17
	June 3, 1922	2.84	368	Nov. 27, 1950		3.48	334
1923	Jan. 9, 1923	3.55	521	Dec. 7, 1950	3.16	351	
	May 10, 1923	2.48	298	Dec. 23, 1950	3.74	415	
	June 10, 1923	2.52	298	Feb. 13, 1951	4.15	548	
	July 7, 1923	2.48	298	May 12, 1951	3.37	304	
	1924	Feb. 13, 1924	2.35	268	May 25, 1951	3.50	350
May 14, 1924		2.42	278	June 16, 1951	3.19	259	
1931	Mar. 14, 1931	3.23	241	1952	Oct. 3, 1951	3.21	264
1932	June 15, 1932	3.44	366		May 20, 1952	3.29	276
		3.44	366		June 6, 1952	3.25	268
		3.44	366		July 1, 1952	3.15	242
1933	Nov. 17, 1932	4.62	815	1953	Jan. 19, 1953	3.51	343
	Dec. 3, 1932	3.36	342		Feb. 1, 1953	3.86	448
	June 15, 1933	3.93	541		May 7, 1953	3.14	242
1934	Oct. 23, 1933	3.40	331		June 13, 1953	3.41	314
	Dec. 10, 1933	5.66	1,280		July 9, 1953	3.57	361
	Dec. 22, 1933	5.9	1,400	1954 <sup>d</sup>	Dec. 20, 1953	3.63	379

a Estimated.

b Corrected.

c Between Nov. 5 and 8, 1934.

d Partial year.

2260. Lake Creek at mouth, near Lewis, Wash.

Location.--Lat 46°38'00", long 121°38'20", in NE $\frac{1}{4}$  sec.11, T.13 N., R.9 E., on right bank a quarter of a mile upstream from mouth and 2 $\frac{1}{2}$  miles northeast of Lewis (now Packwood), Wash.

Drainage area.--26.0 sq mi.

Gage.--Nonrecording (discontinued September 1915). Altitude of gage is 1,120 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 420 cfs.

Remarks.--All peak discharges are observed. Gage-height record furnished by Valley Development Co. Base for partial-duration series, 340 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)		
1908	Mar. 15-16, 1908	4.0	1,440	1911	Nov. 11, 1910	1.8	393		
	June 11-12, 1908	1.8	393		Nov. 22-23, 1910	1.8	393		
	July 13, 1908	1.9	428		June 15-14, 1911	1.8	393		
1909	June 2-3, 1909	1.9	428	1912	Nov. 19, 1911	2.0	464		
1910	Nov. 3, 1909	2.0	464	1912	June 10, 1912	1.68	351		
	Nov. 24, 1909	3.0	905		1913	June 3, 1913	2.1	502	
	Dec. 11, 1909	1.85	410	1914		Jan. 7, 1914	1.7	358	
	Mar. 2, 1910	2.6	714			1915	Nov. 14, 1914	1.70	358
	Mar. 20, 1910	1.65	341						
	Apr. 26, 1910	1.7	358						
	May 11, 1910	1.75	376						

2265. Cowlitz River at Packwood, Wash.  
(Published as "at Lewis" prior to 1930)

Location.--Lat 46°36'40", long 121°40'45", in SE $\frac{1}{4}$  sec.16, T.13 N., R.9 E., on right bank 100 ft upstream from Forest Service bridge, half a mile upstream from Skate Creek, and half a mile northwest of Packwood.

Drainage area.--287 sq mi. Area of lakes and ponds, 1.3 sq mi; mean elevation, 4,230 ft.

Gage.--Nonrecording prior to Dec. 31, 1919; recording thereafter. July 1, 1911, to Dec. 31, 1919, at sites about 1 mile upstream at different datums. Datum of gage is 1,048.0 ft above mean sea level (Bureau of Public Roads bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 14,000 cfs.

Remarks.--Peaks for period of nonrecording gage are observed. Base for partial-duration series, 8,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1912	Nov. 19, 1911	7.35	14,000	1930	Feb. 20, 1930	6.07	5,070
1913	June 3, 1913	4.8	6,520	1931	Jan. 28, 1931	6.88	7,440
1914	Jan. 5, 1914	7.0	13,100	1932	Feb. 26, 1932	9.88	16,100
1915	Nov. 3, 1914	7.1	13,400	1933	Nov. 13, 1932	9.87	20,500
1916	June 17, 1916	6.28	9,640		Nov. 17, 1932	8.00	11,900
	July 2, 1916	7.7	13,000		Dec. 2, 1932	8.21	12,700
1917	June 17, 1917	6.2	9,400	1934	June 14, 1933	7.70	10,700
	1918	Dec. 14, 1917	6.55		10,700	Oct. 19, 1933	7.40
Dec. 18, 1917		11.9	28,800		Oct. 23, 1933	8.18	12,700
Dec. 29, 1917		10.1	22,400		Oct. 28, 1933	7.56	10,400
1919	Jan. 22, 1919	8.0	16,100		Nov. 2, 1933	8.63	14,400
		10.92	25,500		Dec. 9, 1933	10.92	36,600
		13.0	36,600		Dec. 21, 1933	13.0	36,600
1920	Dec. 24, 1919	5.56	8,380	Jan. 23, 1934	9.52	18,800	
				Mar. 2, 1934	6.97	8,790	
				Mar. 29, 1934	7.18	9,430	

## Peak stages and discharges of Cowlitz River at Packwood, Wash.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1935	Oct. 25, 1934	10.72	24,500	1948	Nov. 7, 1947	8.38	8,690
	Nov. 5, 1934	11.08	26,500		May 27, 1948	9.12	12,000
1936	June 7, 1936	8.45	9,560	1949	May 13, 1949	8.48	9,850
1937	Apr. 14, 1937	8.30	9,220	1950	June 6, 1949	8.27	9,270
	June 21, 1937	8.63	8,640		Nov. 24, 1949	9.97	14,600
1938	Nov. 25, 1937	8.63	8,640	1951	Nov. 27, 1949	11.98	22,900
	Apr. 18, 1938	10.49	15,700		Oct. 10, 1950	8.80	8,210
1939	Nov. 25, 1937	8.63	8,640	Nov. 25, 1950	9.30	9,290	
	Apr. 18, 1938	10.49	15,700	Dec. 23, 1950	9.50	11,500	
1940	May 29, 1939	9.03	11,700	Feb. 9, 1951	9.98	12,400	
1941	Dec. 15, 1939	8.72	9,420	1952	June 4, 1952	7.62	6,410
1942	Nov. 29, 1940	8.58	9,150	1953	Jan. 11, 1953	9.40	11,200
1943	Dec. 2, 1941	8.87	10,100	Jan. 31, 1953	9.82	12,500	
1944	Nov. 23, 1942	11.26	20,300	1954	Dec. 9, 1953	9.30	10,900
1945	Dec. 3, 1943	10.04	14,100	1955	June 10, 1955	8.62	10,100
1945	Jan. 7, 1945	10.31	14,100	1956	Oct. 25, 1955	8.22	10,500
	Jan. 13, 1945	9.03	10,000		Oct. 29, 1955	8.73	12,000
	Feb. 7, 1945	9.50	12,200		Nov. 4, 1955	8.84	12,000
1946	Dec. 28, 1945	10.04	14,900	Nov. 10, 1955	9.38	14,500	
	Oct. 25, 1946	9.02	10,400	Dec. 11, 1955	10.81	15,900	
	Nov. 18, 1946	-	-	May 20, 1956	8.43	8,640	
1947	Dec. 11, 1946	10.77	19,000	May 31, 1956	8.27	8,260	
	Dec. 13, 1946	10.04	13,100	1957	Dec. 10, 1956	8.97	9,940
	Oct. 19, 1947	11.19	18,800		Dec. 13, 1956	8.59	8,880

a Corrected.

2300. Johnson Creek near Packwood, Wash.  
(Published as "near Lewis" 1907-11 and as "at mouth, near Lewis" 1912-14, 1918-24)

Location.--Lat 46°34'30", long 121°42'00", in NE<sup>1</sup> sec.32, T.13 N., R.9 E., on left bank at highway crossing, 400 ft upstream from mouth and 3 miles southwest of Packwood.

Drainage area.--49.6 sq mi. At site 1907-14, 1918-24, 49.1 sq mi. Area of lakes and ponds, 0.01 sq mi; mean altitude, 4,010 ft.

Gage.--Nonrecording prior to Sept. 23, 1941; recording thereafter. Oct. 1, 1918, to Sept. 30, 1924, at site 1 mile upstream at different datums. Altitude of gage is 1,000 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 2,500 cfs.

Remarks.--Peak discharges for period of nonrecording gage are observed. Base for partial-duration series, 800 cfs.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1908	Mar. 15, 1908	2.7	1,510	1921	Dec. 31, 1920	3.25	1,560
1909	June 2, 1909	1.9	770	1922	Nov. 30, 1921	4.00	2,540
1910	Nov. 22, 1909	3.0	1,830	Dec. 12, 1921	-	-	-
	Mar. 2, 1910	2.5	1,310	May 17, 1922	2.51	812	
	Apr. 25, 1910	1.95	810	June 3, 1922	-	-	
1911	Nov. 10, 1910	2.2	1,030	1923	Dec. 26, 1922	2.70	804
	May 20, 1912	1.95	810	Jan. 6, 1923	4.07	2,610	
1913	Jan. 3, 1913	2.0	850	1924	Dec. 6, 1923	2.58	884
	June 2, 1913	2.3	1,120		Jan. 31, 1924	2.68	969
1914	Jan. 7, 1914	-	820	1947	Oct. 25, 1946	5.58	1,230
	Jan. 18, 1919	2.89	1,440		Nov. 18, 1946	5.84	1,150
	Jan. 23, 1919	3.75	2,500		Dec. 11, 1946	7.69	2,990
1919	Jan. 18, 1919	2.89	1,440	1948	Oct. 19, 1947	5.49	970
	Jan. 23, 1919	3.75	2,500		Nov. 7, 1947	5.60	1,040
	Dec. 24, 1919	2.22	760		May 27, 1948	5.98	1,270
1920	Dec. 24, 1919	2.22	760	June 11, 1948	5.52	1,000	

## 2311. Mill Creek at Randle, Wash.

Location.--Lat 46°32'10", long 121°57'20", in SE $\frac{1}{4}$  sec.8, T.12 N., R.7 E., at State Highway 5 at Randle.

Drainage area.--2.95 sq mi. Area of lakes and ponds, 0 sq mi; mean altitude, 2,460 ft.

Gage.--Crest-stage gage. Datum of gage is 12.44 ft below upstream invert of culvert.

Stage-discharge relation.--Defined by computations of discharge through an 8- by 5-foot concrete box culvert.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Feb. 24, 1950	14.66	89.4	1954	Dec. 9, 1953	14.95	105
				1955	Feb. 8, 1955	14.35	69.0
1951	Feb. 10, 1951	14.60	82.7				
1952	Mar. 25, 1952	14.55	79.2	1956	Dec. 11, 1955	14.94	105
1953	Jan. 23, 1953	14.60	82.7	1957	Dec. 9, 1956	14.36	69.9

## 2320. Niggerhead Creek near Randle, Wash.

Location.--Lat 46°25'45", long 121°50'00", in SE $\frac{1}{4}$  sec.20, T.11 N., R.8 E., on left bank 1 mile upstream from mouth and 8 $\frac{1}{2}$  miles southeast of Randle.

Drainage area.--66.3 sq mi. Area of lakes and ponds, 0 sq mi; mean elevation, 3,740 ft.

Gage.--Recording prior to October 1953; nonrecording thereafter. Altitude of gage is 1,390 ft (from river-profile map).

Stage-discharge relation.--Defined by current-meter measurements below 2,900 cfs and extended by logarithmic plotting.

Remarks.--Since 1953, only annual peaks, which are from high-water marks in well or crest-stage indicator. Base for partial-duration series, 1,600 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1951	Nov. 27, 1950	4.30	1,920	1953	Jan. 19, 1953	-	-
	Dec. 23, 1950	4.30	1,920				
	Feb. 9, 1951	5.14	2,940	1954	Dec. 9, 1953	4.80	2,500
				1955	Nov. 19, 1954	4.10	1,730
1952	Dec. 1, 1951	5.28	3,080				
				1956	Dec. 22, 1955	5.06	2,820
1953	Jan. 12, 1953	6.00	4,150	1957	Feb. 26, 1957	5.45	3,340

## 2325. Cispus River near Randle, Wash.

Location.--Lat 46°26'50", long 121°51'35", in NW $\frac{1}{4}$  sec.18, T.11 N., R.8 E., (unsurveyed), on left bank 60 ft upstream from bridge to Tower Rock ranger station, 4 miles downstream from North Fork, and 8 miles southeast of Randle.

Drainage area.--321 sq mi. Area of lakes and ponds, 0.48 sq mi; mean elevation, 4,130 ft.

Gage.--Nonrecording prior to Nov. 1, 1929; recording thereafter. Prior to Mar. 1, 1912, at site 1 mile upstream at different datum. Nov. 1, 1929, to Nov. 26, 1949, at site 450 ft upstream at datum 0.26 ft higher. Datum of gage is 1,221.60 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 8,000 cfs and extended by logarithmic plotting.

Remarks.--Peak discharges Nov. 21, 1910, to Jan. 25, 1912, are observed. Base for partial-duration series, 3,400 cfs.

Peak stages and discharges of Cispus River near Randle, Wash.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1911	Nov. 10, 1910	6.0	6,400	1943	Mar. 28, 1943	-	-	
	Nov. 21, 1910	5.2	4,700		May 26, 1943	6.25	3,980	
1912	Jan. 25, 1912	4.6	4,110	1944	Dec. 3, 1943	5.29	2,460	
1930	Feb. 20, 1930	5.75	4,820	1945	Feb. 8, 1945	8.26	8,240	
1931	Mar. 31, 1931	6.58	6,610		May 17, 1945	-	-	
1932	Feb. 26, 1932	6.11	5,260	1946	Dec. 29, 1945	7.69	6,870	
	Mar. 19, 1932	5.91	4,840		May 19, 1946	6.73	4,810	
	May 10, 1932	5.73	4,530	1947	Nov. 18, 1946	8.56	8,960	
1933	Nov. 5, 1932	6.09	5,070		Nov. 27, 1946	6.74	4,810	
	Nov. 13, 1932	7.20	7,240		Dec. 11, 1946	9.33	10,700	
	Nov. 17, 1932	7.03	6,840		Dec. 14, 1946	9.65	11,500	
1934	May 30, 1933	6.08	5,070	Feb. 14, 1947	6.69	4,910		
	June 9, 1933	7.64	8,080	1948	Oct. 19, 1947	7.49	5,800	
	June 14, 1933	7.09	7,040		May 27, 1948	7.91	6,650	
1934	Oct. 29, 1933	6.04	4,880	1949	May 13, 1949	8.13	7,790	
	Nov. 3, 1933	6.20	5,260		June 7, 1949	6.73	4,500	
	Dec. 6, 1933	6.32	5,450	1950	Nov. 27, 1949	7.95	6,850	
	Dec. 10, 1933	9.45	12,100		Feb. 25, 1950	6.84	4,930	
	Dec. 22, 1933	12.7	20,000		Mar. 5, 1950	7.18	5,480	
	Dec. 29, 1933	6.48	5,500		May 14, 1950	7.10	5,110	
	Jan. 3, 1934	6.90	6,380		June 5, 1940	7.24	5,290	
	Jan. 20, 1934	7.56	7,980		June 21, 1950	7.00	4,930	
	Jan. 23, 1934	9.19	11,700		1951	Nov. 27, 1950	7.44	5,670
	1935	Oct. 25, 1934	6.65			5,720	Dec. 23, 1950	-
Nov. 5, 1934		9.30	11,900	Feb. 11, 1951		8.77	8,570	
Dec. 21, 1934		6.51	5,500	1952	Dec. 1, 1951	8.28	7,440	
1936	Apr. 18, 1936	6.71	5,500		1953	Jan. 9, 1953	7.64	6,130
	May 5, 1936	6.67	4,920	Jan. 11, 1953		8.10	7,060	
	May 14, 1936	6.89	5,250	Jan. 18, 1953		7.97	6,790	
	May 27, 1936	6.46	4,600	1954	Dec. 9, 1953	7.61	5,980	
	June 7, 1936	7.36	6,190		Dec. 20, 1953	7.34	5,430	
1937	Dec. 22, 1936	7.76	6,600		May 19, 1954	7.29	5,330	
	Apr. 14, 1937	9.29	11,400	1955	June 11, 1955	8.22	7,100	
	May 4, 1937	6.78	5,600		1956	Oct. 30, 1955	-	-
	June 21, 1937	7.05	5,300	Nov. 3, 1955		6.92	4,620	
1938	Nov. 28, 1937	6.71	4,600	Nov. 10, 1955		6.88	4,640	
	Dec. 29, 1937	9.36	10,900	Nov. 27, 1955		7.25	5,350	
	Jan. 15, 1938	6.88	4,990	Dec. 12, 1955		8.44	8,080	
	Apr. 18, 1938	7.87	7,170	Dec. 22, 1955	8.69	8,660		
1939	May 15, 1939	6.1	3,640	Apr. 22, 1956	7.10	5,250		
	1940	Dec. 16, 1939	7.88	7,120	May 20, 1956	8.33	7,840	
Feb. 6, 1940		7.02	5,170	May 31, 1956	7.67	6,510		
1941	Nov. 29, 1940	5.82	3,110	1957	Feb. 26, 1957	8.35	7,880	
1943	Nov. 23, 1942	10.20	13,200		May 9, 1957	6.76	4,600	

## 2335. Cowlitz River near Kosmos, Wash.

Location.--Lat 46°28'00", long 122°07'20", in SE $\frac{1}{4}$  sec. 1, T.11 N., R.5 E., on bank half a mile downstream from Tumwater Creek,  $\frac{1}{2}$  miles downstream from Cispus River, and 4 miles southeast of Kosmos.

Drainage area.--1,040 sq mi, approximately.

Gage.--Nonrecording at site half a mile upstream at different datum prior to Sept. 3, 1948; recording thereafter. Datum of gage is 759.29 ft above mean sea level (levels by city of Tacoma).

Stage-discharge relation.--Defined by current-meter measurements below 24,000 cfs and extended by logarithmic plotting.

Remarks.--Base for partial-duration series, 16,000 cfs.

Peak stages and discharges of Cowlitz River near Kosmos, Wash.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948a/	Oct. 20, 1947	-	-	1953	Jan. 19, 1953	14.15	24,000
	Nov. 8, 1947	-	-		Jan. 24, 1953	12.52	18,000
	May 27, 1948	12.1	17,700		Feb. 1, 1953	14.56	25,600
	June 8, 1948	-	-				
1949	May 13, 1949	14.10	24,100	1954	Dec. 10, 1953	14.35	34,800
	June 7, 1949	11.92	16,000		Dec. 20, 1953	13.03	19,800
					May 19, 1954	12.42	17,600
1950	Nov. 27, 1949	15.06	27,600	1955	June 11, 1955	14.22	24,300
	Feb. 26, 1950	12.52	18,000				
	Mar. 5, 1950	13.30	20,700	1956	Oct. 30, 1955	12.96	20,400
	June 5, 1950	12.23	17,000		Nov. 5, 1955	13.38	21,800
	June 21, 1950	12.39	17,500		Nov. 10, 1955	13.55	22,400
1951	Nov. 27, 1950	13.54	21,600	Nov. 27, 1955	13.04	20,600	
	Dec. 23, 1950	14.51	25,400	Dec. 12, 1955	16.31	33,200	
	Feb. 11, 1951	16.60	33,800	Dec. 22, 1955	14.47	24,900	
1952	Dec. 1, 1951	12.54	18,000	Apr. 22, 1956	12.40	18,400	
				May 20, 1956	14.45	25,800	
1953	Jan. 9, 1953	12.09	16,500	June 1, 1956	13.11	20,900	
	Jan. 12, 1953	14.06	23,600	1957	Dec. 12, 1956	13.51	22,300
				Feb. 26, 1957	12.19	17,700	

a Maximum for year not determined.

## 2350. Cowlitz River at Mossyrock, Wash.

Location.--Lat 46°33'00", long 122°29'30", in SE $\frac{1}{4}$  sec. 1, T.12 N., R.2 E., on left bank 200 ft upstream from Harmony Bridge and  $\frac{1}{2}$  miles north of Mossyrock.

Drainage area.--1,170 sq mi, approximately. Area of lakes and ponds, 2.1 sq mi; mean elevation, 3,430 ft.

Gage.--Nonrecording prior to Sept. 30, 1935; recording thereafter. Jan. 1, 1912, to Sept. 30, 1917, and Mar. 12, 1926, to Sept. 30, 1935, within 200 ft of present site at different datums. Datum of gage is 357.31 ft above mean sea level (levels by city of Tacoma).

Stage-discharge relation.--Defined by current-meter measurements below 33,000 cfs.

Historical data.--Flood in November 1906 reached a stage of 29.4 ft, datum in use 1913-34 (discharge, 61,300 cfs).

Remarks.--Peaks for periods of nonrecording gage are from graphs based on gage readings. Base for partial-duration series, 16,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1907	November 1906	29.4	61,300	1928	Oct. 4, 1927	12.0	c18,700
1912a/	Jan. 14, 1912	13.0	13,900		Nov. 25, 1927	19.8	35,100
					Jan. 4, 1928	11.4	c17,000
1913b/	June 4, 1913	12.5	19,000		Jan. 13, 1928	17.2	29,300
1914	Jan. 6-8, 1914	18.0	c30,300	1929	May 24, 1929	10.8	17,300
1915	Nov. 3, 1914	11.6	17,200	1930	Feb. 20, 1930	12.2	20,100
	Nov. 11, 1914	11.1	16,200	1931	Apr. 1, 1931	17.0	31,600
	Apr. 3, 1915	12.0	17,900				
1916	Dec. 22, 1915	13.8	22,000	1932	Feb. 27, 28, 1932	17.8	31,600
	Mar. 10, 1916	11.0	c16,700	1933a/	May 30, 1933	10.9	16,000
	June 18, 1916	14.6	23,500		June 9, 1933	14.3	23,400
	July 3, 1916	15.0	23,700		June 15, 1933	14.2	23,200
1917	June 19, 1917	12.4	16,200	1934	Oct. 23, 1933	11.9	18,100
1927	Oct. 16, 1926	13.7	22,100		Oct. 29, 1933	12.4	19,200
	Dec. 2, 1926	13.6	21,900		Nov. 3, 1933	14.6	24,100
	Jan. 3, 1927	10.9	c16,500		Dec. 11, 1933	28.9	59,900
	May 17, 1927	11.6	c17,900		Dec. 23, 1933	d37.5	83,500
	June 8, 1927	12.5	19,700	Jan. 23, 1934	31.6	41,000	

a Partial year; maximum for year not determined.

b Partial year.

c Observed discharge.

d From high-water marks.

Peak stages and discharges of Cowlitz River at Mossyrock, Wash.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1935	Oct. 25, 1934	16.4	28,100	1951	Feb. 11, 1951	21.35	37,300	
	Nov. 6, 1934	18.1	32,200		1952	Dec. 1, 1951	14.55	20,800
	Dec. 22, 1934	13.2	20,500	Feb. 5, 1952		12.60	16,700	
	Jan. 25, 1935	12.0	17,700	1953	Jan. 12, 1953	17.60	27,700	
1947e/	Nov. 19, 1946	16.64	24,000		Jan. 19, 1953	17.78	28,100	
	Nov. 28, 1946	12.86	17,400		Feb. 1, 1953	-	-	
	Dec. 13, 1946	-	-		1954	Dec. 10, 1953	18.45	29,800
	Jan. 26, 1947	13.40	18,300	Dec. 20, 1953		15.46	23,200	
1948	Oct. 19, 1947	16.0	24,200	May 19, 1954	13.57	19,100		
	Nov. 8, 1947	13.52	19,500	1955	Nov. 19, 1954	12.04	16,100	
	Jan. 8, 1948	11.69	16,000		Feb. 8, 1955	12.81	17,600	
	May 27, 1948	15.72	22,800		May 20, 1955	-	-	
	June 8, 1948	13.12	17,800		June 11, 1955	17.1	26,800	
1949	May 13, 1949	16.30	24,700		1956	Oct. 30, 1955	14.97	22,100
	June 7, 1949	12.74	17,900	Nov. 5, 1955		15.45	23,200	
1950	Nov. 27, 1949	18.87	30,700	Dec. 20, 1955		15.68	23,700	
	Jan. 22, 1950	13.00	17,600	Nov. 10, 1955		15.68	23,700	
	Feb. 26, 1950	15.84	23,600	Nov. 27, 1955		16.05	24,500	
	Mar. 5, 1950	16.57	25,700	Dec. 13, 1955		20.58	34,800	
	May 14, 1950	12.81	17,600	Dec. 22, 1955	17.65	28,000		
	June 5, 1950	13.66	18,000	Apr. 22, 1956	13.36	18,800		
	June 17, 1950	13.12	16,700	May 20, 1956	17.15	26,900		
	June 21, 1950	-	18,000	June 1, 1956	14.45	21,000		
	1951	Nov. 22, 1950	16.50	25,500	1957	Dec. 12, 1956	17.78	28,300
		Dec. 7, 1950	13.26	18,000		Feb. 26, 1957	14.95	22,100
Dec. 24, 1950		18.05	29,200	Mar. 8, 1957		12.58	17,100	

e Maximum for year not determined.

2353. Tilton River near Mineral, Wash.  
(Formerly published as "Tilton River tributary")

Location.--Lat 46°39'40", long 122°11'55", in N $\frac{1}{2}$  sec.32, T.14 N., R.5 E., at State Highway 5, 4.1 miles south of Mineral.

Drainage area.--0.79 sq mi. Area of lakes and ponds, 0 sq mi; mean altitude, 2,580 ft.

Gage.--Crest-stage gage. Datum of gage is 17.56 ft below upstream invert of culvert.

Stage-discharge relation.--Defined by computations of discharge through a 5- by 3-foot concrete box culvert.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Nov. 26, 1949	20.94	99.0	1954	Dec. 9, 1953	21.96	145
				1955	Feb. 8, 1955	20.35	74.3
1951	Feb. 10, 1951	20.72	88.8	1957	Dec. 11, 1955	23.34	142
1952	Apr. 27, 1952	20.39	76.4		Dec. 9, 1956	21.84	134
1953	Jan. 31, 1953	20.15	67.0				

2355. West Fork Tilton River near Morton, Wash.

Location.--Lat 46°36'45", long 122°14'45", in NE $\frac{1}{4}$  sec.13, T.13 N., R.4 E., on left bank three-quarters of a mile upstream from mouth and 4 miles northeast of Morton.

Drainage area.--16.4 sq mi. Area of lakes and ponds, 0.02 sq mi; mean elevation, 2,450 ft.

Gage.--Recording. Altitude of gage is 1,150 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,800 cfs.

Remarks.--Base for partial-duration series, 800 cfs.

## COWLITZ RIVER BASIN

Peak stages and discharges of West Fork Tilton River near Morton, Wash.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1951	Oct. 10, 1950	4.55	810	1954	Feb. 21, 1954	-	cl.170
	Nov. 24, 1950	5.11	1,230		1955	Nov. 18, 1954	-
	Dec. 22, 1950	4.70	910	Dec. 20, 1954		4.94	1,300
	Jan. 22, 1951	4.60	840	Feb. 8, 1955		5.55	2,340
Feb. 9, 1951	a6.05	2,460	Apr. 9, 1955	4.39		992	
1952	Oct. 2 or 3, 1951	-	-	1956	Oct. 9, 1955	4.43	1,030
	Jan. 30, 1952	4.83	1,250		Oct. 29, 1955	4.82	1,400
	Feb. 4, 1952	5.45	1,820		Nov. 2, 1955	4.44	1,040
1953	Dec. 12, 1952	4.25	854	Nov. 26, 1955	4.49	1,080	
	Jan. 2, 1953	4.18	807	Dec. 11, 1955	a7.55	6,620	
	Jan. 11, 1953	4.99	1,450	Dec. 21, 1955	5.52	2,300	
	Jan. 18, 1953	4.44	1,020	Mar. 25, 1956	4.37	976	
	Jan. 22, 1953	5.12	1,570	1957	Nov. 16, 1956	4.81	1,390
	Jan. 31, 1953	4.89	1,360		Dec. 9, 1956	5.94	2,980
	Feb. 3, 1953	4.13	813		Dec. 12, 1956	4.46	1,050
	1954	Dec. 6, 1953	4.38		976	Dec. 16, 1956	4.18
Dec. 9, 1953		6.56	b3,240		Dec. 18, 1956	4.26	878
Dec. 11, 1953		4.75	1,120		Feb. 26, 1957	4.77	1,350
Dec. 20, 1953		4.68	1,060	Mar. 7, 1957	4.79	1,370	
Jan. 6, 1954		4.57	976				

a From high-water mark.

b Caused by release of water upstream, result of slide.

c Estimated.

## 2365. Tilton River near Cinebar, Wash.

Location.--Lat 46°34'35", long 122°31'15", in SW $\frac{1}{4}$  sec.26, T.13 N., R.2 E., on left bank 1,000 ft downstream from Cinnabar Creek, 2 miles southeast of Cinebar, and 2 $\frac{1}{2}$  miles upstream from mouth.

Drainage area.--158 sq mi. Area of lakes and ponds, 0.02 sq mi; mean elevation, 1,990 ft.

Gage.--Recording. Datum of gage is 397.6 ft above mean sea level (river-profile survey).

Stage-discharge relation.--Defined by current-meter measurements below 9,200 cfs and extended by logarithmic plotting.

Remarks.--Base for partial-duration series, 7,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1942	Dec. 19, 1941	11.32	8,090	1951	Nov. 22, 1950	10.47	7,000
					Nov. 24, 1950	10.89	7,870
1943	Nov. 23, 1942	12.21	9,850	Feb. 9, 1951	12.59	12,200	
				Feb. 11, 1951	11.92	10,300	
1944	Dec. 3, 1943	11.68	9,050	1952	Feb. 4, 1952	11.69	9,780
1945	Jan. 7, 1945	11.55	8,660		1953	Jan. 23, 1953	11.76
	Feb. 7, 1945	11.12	7,710	Jan. 31, 1953		12.23	11,700
1946	Dec. 28, 1945	11.89	9,250	1954	Dec. 9, 1953	15.00	22,500
1947	Dec. 11 or 14, 1946	a14.36	14,500		Dec. 12, 1953	11.15	8,690
	Jan. 25, 1947	11.47	8,470	1955	Dec. 30, 1954	12.01	11,100
1948	Nov. 7, 1947	10.56	6,800		Feb. 8, 1955	12.86	13,700
	1949	Feb. 17, 1949	10.60	7,210	1956	Oct. 29, 1955	11.11
1950		Nov. 27, 1949	11.16	8,570		Nov. 27, 1955	10.56
	Dec. 28, 1949	11.75	10,100	Dec. 11, 1955		15.13	23,200
	Jan. 21, 1950	10.54	7,000	Dec. 22, 1955	11.15	8,690	
	Feb. 24, 1950	12.63	12,200	1957	Dec. 9, 1956	12.53	12,700
	Mar. 4, 1950	11.63	9,550		Mar. 7, 1957	10.78	7,770

a From high-water mark.

2370. Klickitat Creek at Mossyrock, Wash.

Location.--Lat 46°31'15", long 122°28'05", on line between secs. 17 and 18, T.12 N., R.3 E., near left bank at upstream side of highway bridge, 1 mile southeast of Mossyrock and 4¼ miles upstream from mouth.

Drainage area.--3.45 sq mi. Area of lakes and ponds, 0 sq mi; mean elevation, 985 ft.

Gage.--Recording. Datum of gage is 668.41 ft above mean sea level (levels by city of Tacoma).

Stage-discharge relation.--Defined by current-meter measurements below 42 cfs and extended by logarithmic plotting.

Remarks.--Base for partial-duration series, 60 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	Nov. 28, 1948	2.52	68	1954	Dec. 12, 1953	3.23	124
	Dec. 2, 1948	2.85	92		Jan. 4, 1954	2.50	69
	Dec. 9, 1948	2.99	102		Jan. 22, 1954	2.58	75
	Feb. 10, 1949	2.63	81	1955	Feb. 8, 1955	2.81	95
	Feb. 17, 1949	3.62	165		1956	Nov. 2, 1955	2.47
1950	Dec. 27, 1949	2.41	66	Nov. 9, 1955		2.38	64
	Jan. 22, 1950	2.52	73	Nov. 19, 1955		2.67	84
	Feb. 24, 1950	2.81	95	Nov. 26, 1955		2.94	105
	Mar. 4, 1950	2.62	80	Dec. 11, 1955		3.19	127
1951	Dec. 6, 1950	2.38	64	Dec. 21, 1955	3.02	114	
	Dec. 22, 1950	2.35	62	Jan. 6, 1956	2.51	76	
	Jan. 2, 1951	2.65	82	1957	Dec. 11, 1956	2.29	62
1952	Dec. 5, 1951	2.41	64		Dec. 17, 1956	2.32	64
	1953	Jan. 31, 1953	2.35		60	Feb. 24, 1957	2.27
1954		Dec. 6, 1953	2.64		73	Mar. 7, 1957	2.57
		Dec. 9, 1953	3.55	148	Mar. 9, 1957	2.36	66
				Apr. 5, 1957	2.42	70	

2375. Winston Creek near Mayfield, Wash.

Location.--Lat 46°29'00", long 122°31'15", about center of sec.35, T.12 N., R.2 E., on left bank 100 ft downstream from bridge, 3 miles southeast of Mayfield, and 3¼ miles upstream from mouth.

Drainage area.--40.0 sq mi. Area of lakes and ponds, 0 sq mi; mean elevation, 1,640 ft.

Gage.--Recording. Altitude of gage is 470 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,200 cfs.

Remarks.--Slight regulation by Long Bell Lumber Co. for millpond. Flood peaks not affected. Base for partial-duration series, 900 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Dec. 27, 1949	5.39	900	1954	Dec. 9, 1953	8.58	3,510
	Jan. 22, 1950	6.05	1,280		Dec. 12, 1953	5.72	1,070
	Feb. 24, 1950	6.94	1,900	1955	Feb. 8, 1955	6.61	1,200
1951	Jan. 2, 1951	5.58	1,010		1956	Nov. 26, 1955	6.95
1952	Feb. 4, 1952	5.15	780	Dec. 11, 1955		7.62	1,740
1953	Jan. 19, 1953	5.50	955	1957	Mar. 7, 1957	5.93	849

2380. Cowlitz River near Mayfield, Wash.  
(Published as "at Mayfield" prior to 1934)

Location.--Lat 46°30'40", long 122°36'50", in NE $\frac{1}{4}$  sec.24, T.12 N., R.1 E., on right bank 1 mile upstream from Mill Creek, 2 miles downstream from Winston Creek, and 2 $\frac{1}{2}$  miles west of Mayfield.

Drainage area.--1,400 sq mi. Area of lakes and ponds, 2.12 sq mi; mean elevation, 3,150 ft.

Gage.--Nonrecording prior to November 1911; recording thereafter. August 1910 to November 1911 at site 2 $\frac{1}{2}$  miles upstream at different datum. Datum of gage is 226.6 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 50,000 cfs.

Historical data.--Flood in December 1933 is known to have exceeded that of Dec. 13, 1946.

Remarks.--Base for partial-duration series, 16,000 cfs.

Peak stages and discharges							
Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1912	Nov. 19, 1911	35.0	35,000	1948	May 28, 1948	16.57	23,000
1934	December 1933	-	(a)	1949	Nov. 24, 1948	15.38	18,800
1935	Oct. 25-26, 1934	18.73	31,400	Dec. 9, 1948	14.89	17,200	
	Nov. 6, 1934	20.1	36,900	Feb. 23, 1949	14.50	16,000	
	Dec. 22, 1934	17.12	25,300	May 2, 1949	15.30	18,600	
	Jan. 26, 1935	16.15	22,000	May 13, 1949	16.97	25,400	
1936	Jan. 4, 1936	15.09	18,100	June 7, 1949	14.61	16,300	
	Jan. 12, 1936	15.30	18,800	1950	Nov. 28, 1949	19.52	36,300
	Apr. 18, 1936	14.73	16,800	Dec. 28, 1949	15.02	17,600	
	May 5, 1936	15.32	18,800	Jan. 22, 1950	16.58	23,800	
	May 14, 1936	15.06	18,100	Feb. 25, 1950	18.20	30,400	
	June 8, 1936	16.57	23,400	Mar. 5, 1950	18.70	32,600	
1937	Dec. 23, 1936	16.21	22,000	May 14, 1950	15.03	17,500	
	Apr. 15, 1937	18.32	29,900	June 5, 1950	15.23	18,400	
	May 4, 1937	14.71	16,900	June 21, 1950	15.30	18,700	
	June 3, 1937	14.47	16,100	1951	Nov. 27, 1950	17.53	27,600
	June 22, 1937	15.85	20,700	Dec. 7, 1950	16.16	22,100	
1938	Nov. 9, 1937	15.52	19,600	Dec. 23, 1950	21.33	45,200	
	Nov. 28, 1937	17.07	25,200	Feb. 11, 1951	22.5	51,200	
	Dec. 30, 1937	19.91	36,100	May 12, 1951	14.73	16,400	
	Jan. 15, 1938	16.74	23,900	1952	Dec. 1, 1951	16.14	21,500
Apr. 18, 1938	19.42	34,200	Feb. 4, 1952	16.39	22,500		
1939	Jan. 2, 1939	14.64	16,700	1953	Jan. 10, 1953	15.88	22,100
	Feb. 15, 1939	15.45	19,400	Jan. 12, 1953	17.90	31,000	
1940	Dec. 17, 1939	17.26	25,900	Jan. 19, 1953	18.96	36,200	
	Feb. 7, 1940	16.17	21,900	Jan. 23, 1953	17.36	28,600	
1941	Nov. 29, 1940	14.96	17,700	Feb. 1, 1953	19.14	37,100	
	1942	Dec. 3, 1941	15.64	20,000	1954	Dec. 6, 1953	14.65
1942	Dec. 20, 1941	19.26	33,600	Dec. 10, 1953	21.09	47,600	
	1943	Nov. 24, 1942	21.50	42,600	Dec. 20, 1953	17.64	29,300
1943	Mar. 28, 1943	16.90	24,200	Jan. 6, 1954	15.02	18,100	
	1944	Dec. 4, 1943	16.42	22,500	Feb. 13, 1954	14.90	17,600
1944	Jan. 8, 1944	16.25	21,900	Feb. 21, 1954	15.34	19,400	
	Jan. 14, 1945	16.36	22,300	May 19, 1954	15.32	19,300	
	Feb. 8, 1945	18.22	29,200	1955	Nov. 19, 1954	15.56	20,200
	May 4, 1945	15.12	17,900	Dec. 31, 1954	15.12	18,500	
1946	Dec. 29, 1945	20.33	37,600	Feb. 8, 1955	17.06	26,700	
	1947	Oct. 26, 1946	14.78	16,400	May 20, 1955	14.88	17,500
1947	Nov. 19, 1946	17.87	27,300	June 11, 1955	17.47	28,600	
	Nov. 28, 1946	15.51	18,700	June 22, 1955	14.60	16,500	
	Dec. 13, 1946	24.75	58,000	1956	Oct. 10, 1955	14.56	16,400
	Jan. 26, 1947	17.89	27,900	Oct. 30, 1955	17.33	26,400	
	Feb. 14, 1947	14.88	17,100	Nov. 5, 1955	17.33	26,400	
	1948	Oct. 20, 1947	17.70	27,100	Nov. 11, 1955	17.11	25,400
	Nov. 8, 1947	16.76	23,700	Nov. 27, 1955	18.66	32,400	
	Jan. 8, 1948	15.75	20,100	Dec. 12, 1955	22.05	49,900	
Feb. 26, 1948	15.78	20,200	Dec. 22, 1955	19.65	37,200		
May 7, 1948	15.30	18,600	Mar. 26, 1956	14.66	16,200		
1948	Oct. 20, 1947	17.70	27,100	Apr. 22, 1956	15.92	20,600	
	Nov. 8, 1947	16.76	23,700	May 20, 1956	17.35	26,500	
	Jan. 8, 1948	15.75	20,100	June 1, 1956	15.83	20,300	
1948	Feb. 26, 1948	15.78	20,200	1957	Dec. 11, 1956	18.28	30,700
	May 7, 1948	15.30	18,600	Feb. 26, 1957	17.52	27,200	
				Mar. 8, 1957	16.18	21,600	

a Exceeds that of Dec. 13, 1946.

2391. North Fork Lacamas Creek near Ethel, Wash.

Location.--Lat 46°33'05", long 122°43'05", in SE $\frac{1}{4}$  sec.6, T.12 N., R.1 E., at county road 1.5 miles northeast of Ethel.

Drainage area.--0.36 sq mi. Area of lakes and ponds, 0 sq mi; mean altitude, 650 ft.

Gage.--Crest-stage gage. Datum of gage is 16.70 ft below upstream invert of culvert.

Stage-discharge relation.--Defined by computations of discharge through a 2-foot concrete pipe culvert.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Feb. 24, 1950	21.50	29.2	1954	Dec. 9, 1953	22.49	33.2
				1955	Feb. 8, 1955	20.29	23.3
1951	Jan. 1, 1951	19.62	19.4				
1952	Feb. 4, 1952	19.19	16.4	1956	Dec. 11, 1955	22.82	34.3
1953	Jan. 23, 1953	18.86	14.1	1957	Dec. 9, 1956	19.48	18.6

2397. Olequa Creek tributary near Winlock, Wash.

Location.--Lat 46°27'50", long 122°57'25", in SE $\frac{1}{4}$  sec.5, T.11 N., R.2 W., at county road 2.4 miles south of Winlock.

Drainage area.--0.38 sq mi. Area of lakes and ponds, 0 sq mi; mean altitude, 470 ft.

Gage.--Crest-stage gage. Datum of gage is 14.92 ft below upstream invert of culvert.

Stage-discharge relation.--Defined by computations of discharge through a 2 $\frac{1}{2}$ -foot concrete pipe culvert.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Nov. 26, 1949	18.31	37.0	1954	Dec. 9, 1953	17.17	19.8
				1955	Feb. 8, 1955	16.74	15.1
1951	Feb. 9, 1951	17.71	28.5				
1952	Feb. 3, 1952	16.68	14.0	1956	Jan. 5, 1956	18.15	37.1
1953	Jan. 18, 1953	16.78	15.1	1957	Dec. 9, 1956	17.42	25.0

2415. South Fork Toutle River at Toutle, Wash.

Location.--Lat 46°19'20", long 122°41'45", in SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.28, T.10 N., R.1 E., on left bank half a mile southwest of Toutle, 1 $\frac{1}{2}$  miles upstream from mouth, and 3 miles downstream from Johnson Creek.

Drainage area.--118 sq mi. Area of lakes and ponds, 0.2 sq mi; mean elevation, 2,150 ft.

Gage.--Recording. Datum of gage is at mean sea level (from river-profile survey).

Stage-discharge relation.--Defined by current-meter measurements below 4,500 cfs.

Remarks.--Base for partial-duration series, 4,200 cfs.

Peak stages and discharges of South Fork Toutle River at Toutle, Wash.

Water year	Date	Gage height (feet) <sup>a</sup>	Discharge (cfs)	Water year	Date	Gage height (feet) <sup>a</sup>	Discharge (cfs)
1940	Dec. 15, 1939	56.47	5,820	1950	Nov. 27, 1949	57.06	6,650
	Feb. 6, 1940	55.78	4,560		Jan. 21, 1950	56.30	4,620
1941	Jan. 18, 1941	55.39	3,880		Feb. 24, 1950	57.13	7,150
					Mar. 5, 1950	57.30	7,670
1942	Dec. 19, 1941	56.99	6,770	1951	Nov. 24, 1950	56.17	4,250
1943	Nov. 23, 1942	57.32	6,490		Nov. 27, 1950	56.36	4,750
	Mar. 28, 1943	56.55	5,070		Feb. 11, 1951	56.83	6,180
1944	Dec. 3, 1943	56.34	4,560	1952	Dec. 1, 1951	56.16	4,270
					Feb. 4, 1952	56.29	4,600
1945	Feb. 7, 1945	57.84	7,290	1953	Jan. 9, 1953	56.42	4,990
1946	Nov. 27, 1945	56.49	4,900		Jan. 11, 1953	56.28	4,620
	Dec. 28, 1945	57.20	6,140		Jan. 19, 1953	57.11	7,080
	Jan. 4, 1946	36.52	4,900		Jan. 23, 1953	56.48	5,150
1947	Nov. 18, 1946	58.26	8,290	1954	Dec. 9, 1953	58.91	14,300
	Nov. 27, 1946	56.21	4,380		Jan. 6, 1954	56.66	5,610
	Dec. 11, 1946	58.54	8,710		Feb. 13, 1954	56.42	4,940
	Dec. 14, 1946	58.07	6,710		Feb. 21, 1954	56.40	4,890
	Jan. 25, 1947	56.79	4,550	1955	Nov. 18, 1954	56.19	4,360
	Feb. 2, 1947	56.86	4,890		Feb. 8, 1955	56.90	6,340
	1948	Nov. 8, 1947	56.45		4,210	1956	Nov. 26, 1955
Jan. 7, 1948		56.71	4,720	Dec. 11, 1955	57.80		9,580
Mar. 22, 1948		56.78	4,720	Dec. 22, 1955	57.50		8,410
			Jan. 4, 1956	56.37	4,810		
1949	Dec. 2, 1948	56.28	4,210	1957	Dec. 9, 1956	56.02	4,500
	Dec. 9, 1948	56.92	5,240		Feb. 26, 1957	56.49	5,520
	Feb. 17, 1949	57.23	5,600				
	Feb. 22, 1949	56.73	4,590				

<sup>a</sup> Add 400 ft to obtain elevation above mean sea level.

2425. Toutle River near Silver Lake, Wash.  
(Published as "near Castle Rock" 1909-12)

Location.--Lat 46°20'10", long 122°43'30", in SE $\frac{1}{4}$  sec.19, T.10 N., R.1 E., on right bank just downstream from highway bridge, half a mile downstream from confluence of North and South Forks and 5 miles northeast of Silver Lake.

Drainage area.--474 sq mi. Area of lakes and ponds, 4.4 sq mi; mean elevation, 2,310 ft.

Gage.--Nonrecording prior to Oct. 9, 1919, recording thereafter. Prior to Aug. 4, 1912, at site 2 miles downstream at datum 307.3 ft above mean sea level (unadjusted). Oct. 9, 1919, to Dec. 14, 1923, at site 300 ft downstream at different datum. Nov. 11, 1929, to Oct. 5, 1938, and Oct. 4, 1950, to Apr. 16, 1952, at site 50 ft upstream at present datum. Oct. 6, 1938, to Oct. 3, 1950, and since Apr. 17, 1952, at present site and datum. Datum of gage is 407.3 ft above mean sea level (from river-profile survey).

Stage-discharge relation.--Defined by current-meter measurements below 17,000 cfs.

Remarks.--Peaks for period of nonrecording gage are from graphs based on gage readings. Base for partial-duration series, 9,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1910	Nov. 3, 1909	7.6	16,100	1921	Jan. 5, 1921	16.72	13,700	
	Nov. 19, 1909	7.1	13,800		Feb. 12, 1921	12.84	9,500	
	Nov. 22, 1909	9.6	27,000		Mar. 17, 1921	16.85	13,800	
	Mar. 2, 1910	11.3	37,600	1922	Dec. 12, 1921	16.85	13,800	
1911	Nov. 10, 1910	9.2	23,500		1923	Jan. 6, 1923	18.9	16,500
	Nov. 21, 1910	-	-					
1912	Nov. 19, 1911	6.5	11,400	1930	Dec. 14, 1929	9.30	10,800	
	Jan. 14, 1912	7.3	14,700		1931	Mar. 31, 1931	14.73	20,000
1920	Dec. 24, 1919	-	-	1932		Jan. 18, 1932	8.98	10,300
	Jan. 26, 1920	13.0	9,700			Feb. 26, 1932	10.40	12,700
1921	Dec. 20, 1920	17.6	14,700		Mar. 5, 1932	12.12	15,600	

## Peak stages and discharges of Toutle River near Silver Lake, Wash.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1933	Nov. 6, 1932	8.45	9,380	1948	Jan. 2, 1948	7.45	9,820	
	Nov. 13, 1932	9.90	11,800		Jan. 7, 1948	9.77	13,900	
	Dec. 2, 1932	10.77	13,300		Feb. 22, 1948	7.22	9,460	
	Jan. 9, 1933	9.64	11,300		Feb. 26, 1948	8.78	12,200	
	June 9, 1933	9.27	10,800		Mar. 21, 1948	8.78	12,300	
1934	Nov. 3, 1933	10.50	12,800	1949	May 6, 1948	7.26	9,640	
	Dec. 5, 1933	13.81	18,400		Dec. 2, 1948	-	-	
	Dec. 10, 1933	19.88	29,200		Dec. 9, 1948	-	-	
	Dec. 23, 1933	22.7	34,300		Feb. 10, 1949	7.71	10,400	
	Jan. 3, 1934	8.31	9,220		Feb. 17, 1949	11.56	17,300	
	Jan. 23, 1934	14.77	20,100	Feb. 23, 1949	9.03	12,600		
1935	Oct. 25, 1934	11.33	14,200	1950	Nov. 27, 1949	9.98	14,500	
	Nov. 5, 1934	14.38	19,500		Dec. 27, 1949	-	-	
	Dec. 21, 1934	9.61	11,300		Jan. 20, 1950	9.88	14,300	
	Jan. 22, 1935	10.20	12,300		Feb. 24, 1950	11.53	17,200	
1936	Jan. 4, 1936	10.77	13,300	1951	Mar. 4, 1950	11.37	17,000	
	Jan. 12, 1936	12.15	15,700		Nov. 24, 1950	9.28	10,900	
	June 7, 1936	8.58	9,700		Nov. 27, 1950	9.61	11,400	
1937	Dec. 22, 1936	13.18	17,400		Dec. 23, 1950	9.06	10,600	
	Apr. 14, 1937	12.30	15,900	Jan. 2, 1951	8.57	9,820		
1938	Nov. 25, 1937	9.31	10,800	1952	Feb. 11, 1951	11.30	14,100	
	Dec. 28, 1937	14.87	20,300		Oct. 23, 1951	8.57	9,770	
	Jan. 14, 1938	9.66	11,500		Dec. 1, 1951	9.17	10,700	
	Apr. 18, 1938	9.34	10,800	Feb. 4, 1952	9.87	11,900		
1939	Feb. 15, 1939	11.3	15,400	1953	Jan. 9, 1953	9.25	11,300	
1940	Dec. 15, 1939	9.86	12,800		Jan. 11, 1953	9.25	11,300	
	Feb. 6, 1940	9.34	11,700		Jan. 19, 1953	11.86	15,600	
	Feb. 10, 1940	8.73	10,800		Jan. 23, 1953	9.51	11,700	
1941	Nov. 29, 1940	7.90	9,410	Feb. 1, 1953	9.62	11,900		
	1942	Dec. 19, 1941	14.26	21,400	1954	Dec. 6, 1953	9.13	16,200
1943		Nov. 23, 1942	13.94	20,500		Dec. 9, 1953	17.50	25,200
		Mar. 28, 1943	10.91	14,200		Dec. 20, 1953	8.16	9,660
Apr. 1, 1943	8.82	10,700	Jan. 6, 1954	10.34		13,100		
1944	Dec. 3, 1943	9.80	12,300	Jan. 22, 1954		8.42	10,100	
	1945	Feb. 7, 1945	11.28	14,900		Feb. 13, 1954	9.28	11,400
1946		Nov. 27, 1945	9.2	11,400	Feb. 21, 1954	9.84	12,300	
		Dec. 28, 1945	12.6	17,400	1955	Nov. 18, 1954	8.29	9,860
Jan. 4, 1946	11.4	15,100	Dec. 31, 1954	8.24		9,780		
1947	Nov. 18, 1946	14.10	20,500	Feb. 8, 1955		12.24	16,200	
	Dec. 11, 1946	17.56	29,800	1956		Oct. 10, 1955	8.04	9,460
	Dec. 15, 1946	14.48	23,200		Nov. 19, 1955	7.85	9,160	
	Jan. 26, 1947	10.02	14,300		Nov. 27, 1955	13.90	18,800	
Feb. 2, 1947	9.09	12,700	Dec. 12, 1955		14.86	20,400		
1948	Oct. 19, 1947	7.70	10,300		Dec. 22, 1955	14.48	19,800	
	Nov. 8, 1947	9.92	14,100		Jan. 4, 1956	13.62	18,400	
				Jan. 16, 1956	10.58	13,500		
			Mar. 25, 1956	9.36	11,600			
			1957	Dec. 11, 1956	10.14	12,700		
				Feb. 26, 1957	10.2	12,800		
				Mar. 7, 1957	9.7	12,000		

2426. Toutle River tributary near Castle Rock, Wash.

Location.--Lat 46°19'25", long 122°51'30", in NW $\frac{1}{4}$  sec.30, T.10 N., R.1 W., at Tower Road, 4 miles northeast of Castle Rock.

Drainage area.--0.64 sq mi. Area of lakes and ponds, 0 sq mi; mean altitude of basin, 540 ft.

Gage.--Crest-stage gage. Datum of gage is 16.25 ft below upstream invert of culvert.

Stage-discharge relation.--Defined by computations of discharge through a 3-foot concrete pipe culvert.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Nov. 26, 1949	19.79	58	1954	Dec. 9, 1953	19.92	62.2
1951	Feb. 11, 1951	18.57	28.0	1955	Feb. 8, 1955	19.10	41.5
1952	Feb. 4, 1952	18.73	31.7	1956	Dec. 22, 1955	19.96	63.9
1953	Jan. 23, 1953	18.20	20.4	1957	Dec. 9, 1956	20.14	68.2

2430. Cowlitz River at Castle Rock, Wash.

Location.--Lat 46°16'30", long 122°54'50", in SE $\frac{1}{4}$  sec.10, T.9 N., R.2 W., on right bank at highway bridge in Castle Rock,  $2\frac{1}{2}$  miles downstream from Toutle River and 14 miles upstream from mouth.

Drainage area.--2,238 sq mi. Area of lakes and ponds, 5.8 sq mi; mean elevation, 2,540 ft.

Gage.--Nonrecording prior to June 13, 1934; recording thereafter. Prior to Dec. 18, 1933, at site 2 miles upstream at datum 14.93 ft higher. Dec. 18, 1933, to June 13, 1934, at present site at datum 5 ft higher (peak stages corrected to present datum). Datum of gage is 19.73 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Peaks for period of nonrecording gage are from graphs based on gage readings. Base for partial-duration series, 32,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1927	Jan. 3, 1927	10.15	41,100	1935	Jan. 22, 1935	18.48	50,000
1928	Oct. 4, 1927	9.6	36,700	1936	Jan. 4, 1936	16.75	40,700
	Nov. 25, 1927	13.85	74,000		Jan. 12, 1936	18.13	48,200
	Jan. 13, 1928	10.80	46,400		Feb. 27, 1936	15.42	33,300
	Mar. 31, 1928	9.1	33,000		June 8, 1936	15.74	34,800
1929	May 25, 1929	7.31	21,800	1937	Dec. 23, 1936	16.85	40,700
1930	Feb. 8, 1930	8.72	30,200	1938	Apr. 15, 1937	18.23	49,000
					Nov. 26, 1937	16.19	37,600
1931	Apr. 1, 1931	13.1	65,900	1940	Dec. 30, 1937	20.38	62,900
					Jan. 15, 1938	15.82	35,600
1932	Feb. 26, 1932	11.3	49,200	1939	Apr. 19, 1938	17.43	44,200
					Mar. 6, 1932	11.52	50,800
1933	Nov. 14, 1932	11.80	53,000	1941	Nov. 29, 1940	14.07	26,400
	Dec. 3, 1932	10.8	45,500		Dec. 16, 1939	17.00	41,900
	Jan. 9, 1933	11.6	51,500		Feb. 7, 1940	16.19	37,600
	June 9, 1933	9.6	37,100		Dec. 20, 1941	19.73	58,100
1934	Nov. 3, 1933	10.4	42,700	1943	Nov. 24, 1942	20.10	60,500
	Dec. 10, 1933	23.00	111,000		Mar. 28, 1943	17.07	41,800
	Dec. 23, 1933	31.6	139,000		Dec. 4, 1943	16.24	37,100
1935	Jan. 23, 1934	22.65	73,100	1944	Dec. 4, 1943	16.24	37,100
	Oct. 26, 1934	18.34	48,800				
	Nov. 6, 1934	20.39	61,800				
	Dec. 23, 1934	17.26	42,800				

## Peak stages and discharges of Cowlitz River at Castle Rock, Wash.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1945	Feb. 8, 1945	17.67	45,300	1952	Dec. 1, 1951	16.69	35,200
1946	Dec. 29, 1945	19.91	54,700		Feb. 4, 1952	17.78	41,400
1947	Nov. 18, 1946	18.89	48,500	1953	Jan. 10, 1953	16.30	33,700
	Dec. 13, 1946	24.40	85,100		Jan. 12, 1953	-	-
	Jan. 26, 1947	19.37	46,100		Feb. 1, 1953	20.72	60,000
	Feb. 2, 1947	16.83	32,800	1954	Dec. 6, 1953	16.58	35,100
1948	Oct. 20, 1947	17.18	38,500		Dec. 9, 1953	22.63	73,000
	Nov. 8, 1947	17.16	38,400		Dec. 20, 1953	17.50	39,700
	Jan. 7, 1948	17.08	37,900		Jan. 6, 1954	17.33	38,800
	Feb. 26, 1948	16.91	37,000		Feb. 13, 1954	16.27	33,600
					Feb. 21, 1954	16.93	36,800
1949	Dec. 2, 1948	16.99	37,400	1955	Nov. 19, 1954	16.33	33,800
	Feb. 17, 1949	19.39	51,500		Dec. 31, 1954	16.06	32,500
	Feb. 23, 1949	16.54	35,000		Feb. 8, 1955	19.24	50,100
1950	Nov. 28, 1949	19.20	50,400	1956	Oct. 30, 1955	16.69	35,600
	Dec. 28, 1949	16.83	36,600		Nov. 5, 1955	16.58	35,100
	Jan. 22, 1950	18.33	45,200		Nov. 27, 1955	20.04	54,900
	Feb. 25, 1950	19.94	54,800		Dec. 12, 1955	21.85	67,400
	Mar. 6, 1950	19.59	51,600		Dec. 22, 1955	20.64	59,100
1951	Nov. 27, 1950	17.85	41,800		Jan. 4, 1956	16.36	34,000
	Dec. 7, 1950	16.34	33,400	1957	Dec. 11, 1956	18.00	43,200
	Dec. 23, 1950	18.58	46,200		Feb. 26, 1957	17.37	40,000
	Jan. 3, 1951	16.60	34,700		Mar. 9, 1957	16.74	36,900
	Feb. 12, 1951	21.80	67,200				

## 2435. Arkansas Creek near Castle Rock, Wash.

Location.--Lat 46°15'50", long 122°58'00", in W $\frac{1}{2}$  sec.17, T.9 N., R.2 W., on right bank 3 miles upstream from mouth and 3 miles west of Castle Rock.

Drainage area.--19.4 sq mi. Area of lakes and ponds, 0 sq mi; mean elevation, 906 ft.

Gage.--Recording. Altitude of gage is 75 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 700 cfs and extended on basis of summation of culvert determinations on two main tributaries a quarter of a mile above station.

Remarks.--Base for partial-duration series, 1,000 cfs.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Nov. 27, 1949	4.80	1,040	1955	Dec. 30, 1954	4.30	1,020
	Dec. 27, 1949	5.34	1,400		Feb. 8, 1955	4.36	1,070
	Feb. 24, 1950	5.77	1,790	1956	Nov. 2, 1955	4.76	1,230
1951	Dec. 22, 1950	4.67	950		Dec. 11, 1955	5.00	1,390
					Dec. 21, 1955	4.66	1,170
1952	Feb. 4, 1952	4.34	772	1957	Dec. 9, 1956	6.15	2,200
1953	Jan. 22, 1953	4.95	1,250				
1954	Dec. 9, 1953	6.26	2,270				

## 2450. Coweman River near Kelso, Wash.

Location.--Lat 46°07'40", long 122°50'10", in S $\frac{1}{2}$  sec.32, T.8 N., R.1 W., on right bank 3 miles downstream from Goble Creek, 3.8 miles southeast of Kelso, and 7 miles upstream from mouth.

Drainage area.--119 sq mi. Area of lakes and ponds, 0.1 sq mi; mean elevation, 1,390 ft.

Gage.--Recording. Altitude of gage is 100 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 3,900 cfs and extended on basis of slope-area measurement at 7,730 cfs.

Bankfull stage.--Not subject to overflow.

Historical data.--Peak of Feb. 24, 1950, reached a stage of 12.8 ft, from floodmarks (discharge, 7,730 cfs).

Remarks.--Base for partial-duration series, 2,600 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Feb. 24, 1950	12.8	7,730	1954	Dec. 12, 1953 Feb. 21, 1954	9.13 9.22	2,620 2,890
1951	Nov. 16, 1950 Dec. 23, 1950 Jan. 2, 1951 Jan. 17, 1951 Mar. 15, 1951	9.41 9.18 9.90 9.21 9.32	2,860 2,680 3,390 2,680 2,770	1955	Nov. 18, 1954 Dec. 30, 1954 Feb. 8, 1955	8.97 10.76 10.26	2,640 4,680 4,050
1952	Dec. 4, 1951 Feb. 4, 1952	10.31 9.23	3,840 2,710	1956	Oct. 29, 1955 Nov. 27, 1955 Dec. 11, 1955 Dec. 21, 1955 Jan. 4, 1956	9.30 10.91 11.19 10.99 10.18	2,970 4,870 5,260 4,980 3,970
1953	Jan. 19, 1953 Jan. 22, 1953	9.76 11.15	3,240 4,910	1957	Dec. 10, 1956 Feb. 24, 1957	10.03 9.13	3,790 2,890

## 2452. Cowlitz River at Kelso, Wash.

Location.--Lat 46°08'44", long 122°54'45", in SE $\frac{1}{4}$  sec.27, T.8 N., R.2 W., on left pier of Main Street Bridge (U.S. Highway 830) in Kelso, and at mile 5.0.

Drainage area.--2,338 sq mi.

Gage.--Nonrecording. Prior to Jan. 1, 1929, at datum 2.24 ft higher than present gage; gage heights herein adjusted to present datum. Datum of gage is 0.56 ft below mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Not determined; affected by backwater from Columbia River.

Bankfull stage.--23 ft.

Historical data.--Maximum stage known, 24.7 ft June 7, 1894.

Remarks.--Records herein furnished by U.S. Weather Bureau. Only annual peak stages are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1894	June 7, 1894	a24.7	-	1932	Mar. 6, 1932	17.5	-
1924	Feb. 1, 1924	15.7	-	1933	June 14, 1933	a19.2	-
1925	Feb. 4, 1925	16.9	-	1934	Dec. 23, 1933	27.4	-
1926	Dec. 24, 1925	12.7	-	1935	Nov. 7, 1934	17.2	-
1927	June 18, 1927	a16.7	-	1936	June 8, 1936	a16.3	-
1928	Nov. 25, 1927	19.2	-	1937	Apr. 15, 1937	15.9	-
1929	June 20, 1929	a12.8	-	1938	Dec. 30, 1937	19.0	-
1930	Feb. 14, 1930	11.9	-	1939	Feb. 15, 1939	14.4	-
1931	Apr. 1, 1931	18.4	-	1940	Dec. 17, 1939	14.8	-
				1941	Jan. 19, 1941	10.8	-

a Backwater from Columbia River.

## Peak stages and discharges of Cowlitz River at Kelso, Wash.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1942	Dec. 20, 1941	18.3	-	1951	Feb. 12, 1951	19.4	-
1943	Nov. 24, 1942	17.6	-	1952	Feb. 4, 1952	15.4	-
1944	Dec. 4, 1943	14.2	-	1953	Jan. 19, 1953	18.5	-
1945	Feb. 8, 1945	15.6	-	1954	Dec. 11, 1953	20.0	-
				1955	Feb. 8, 1955	16.3	-
1946	Dec. 29, 1945	17.5	-				
1947	Dec. 15, 1946	21.9	-	1956	Jan. 8, 1956	19.7	-
1948	June 10, 1948	a22.8	-	1957	May 23, 1957	a16.5	-
1949	May 18, 1949	a16.4	-				
1950	June 26, 1950	a18.0	-				

a Backwater from Columbia River.

## ABERNATHY CREEK BASIN

2460. Abernathy Creek near Longview, Wash.

Location.--Lat 46°12'10", long 123°09'15", in SE $\frac{1}{4}$  sec.3, T.8 N., R.4 W., on left bank 1 mile upstream from mouth and 11 miles northwest of Longview.

Drainage area.--20.3 sq mi. Area of lakes and ponds, 0 sq mi; mean elevation, 1,120 ft.

Gage.--Recording. Altitude of gage is 70 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 650 cfs and extended on basis of slope-area measurement at 2,600 cfs.

Remarks.--Minor diversion for domestic use. Possible slight regulation. Flood peak not affected. Base for partial-duration series, 1,100 cfs.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Dec. 27, 1949	5.40	1,320	1954	Dec. 11, 1953	4.98	1,200
	Feb. 24, 1950	6.66	2,080				
	Mar. 4, 1950	4.92	1,140	1955	Dec. 30, 1954	5.15	1,190
1951	Dec. 22, 1950	5.19	1,350	1956	Oct. 29, 1955	4.97	1,100
					Nov. 2, 1955	5.10	1,160
1952	Feb. 4, 1952	5.01	1,220		Dec. 11, 1955	5.90	1,610
					Dec. 21, 1955	5.35	1,300
1953	Jan. 22, 1953	5.57	1,420				
1954	Dec. 9, 1953	6.28	1,840	1957	Dec. 9, 1956	7.30	2,530

## MILL CREEK BASIN

2465. Mill Creek near Cathlamet, Wash.

Location.--Lat 46°11'40", long 123°11'25", in NW $\frac{1}{4}$  sec.9, T.8 N., R.4 W., on left bank 40 ft downstream from small tributary, 50 ft downstream from bridge, three-quarters of a mile upstream from mouth, and 9 $\frac{1}{2}$  miles east of Cathlamet.

Drainage area.--27.6 sq mi. Area of lakes and ponds, 0 sq mi; mean elevation, 904 ft.

Gage.--Recording (discontinued January 1956). Altitude of gage is 70 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 590 cfs and extended by logarithmic plotting.

Remarks.--Base for partial-duration series, 1,000 cfs.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Feb. 24, 1950	6.23	4,460	1954	Dec. 9, 1953	5.02	2,090
	Mar. 4, 1950	4.41	1,150				
1951	Dec. 23, 1950	4.5	1,230	1955	Dec. 30, 1954	4.35	1,240
1952	Feb. 4, 1952	4.39	1,170	1956a/	Dec. 12, 1955	4.42	1,360
					Dec. 21, 1955	4.89	1,940
1953	Jan. 22, 1953	4.90	1,710				

a Partial year.

## CLATSKANIE RIVER BASIN

2470. Clatskanie River near Clatskanie, Oreg.

Location.--Lat 46°02'55", long 123°07'05", in E½ sec.36, T.7 N., R.4 W., on left bank 110 ft upstream from highway bridge, 0.6 mile northwest of Swedetown, 2.1 miles downstream from Carcus Creek, and 5.5 miles southeast of Clatskanie.

Drainage area.--53.0 sq mi. Mean altitude, 1,090 ft; channel slope, 59.2 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. Prior to Apr. 25, 1951, at site 700 ft downstream at different datum. Altitude of gage is 240 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements.

Historical data.--Maximum stage known since at least 1928, 5.6 ft (present site and datum) about Feb. 10, 1949, from information by local residents.

Remarks.--Peak discharges not affected by occasional slight regulation by log ponds. Base for partial-duration series, 700 cfs.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	Feb. 10, 1949	5.6	-	1952	Dec. 5, 1951	4.39	1,460
1950	Jan. 22, 1950	3.19	795	1953	Feb. 1, 1952	3.32	920
	Feb. 15, 1950	3.82	1,110		Jan. 20, 1953	3.26	948
	Feb. 24, 1950	5.29	2,000	1954	Dec. 6, 1953	3.62	1,130
	Mar. 5, 1950	3.25	725		Dec. 9, 1953	4.66	1,840
1951	Nov. 17, 1950	3.67	935	Jan. 5, 1954	4.27	1,600	
	Jan. 16, 1951	(a)	(a)	Feb. 13, 1954	4.26	1,600	
	Jan. 25, 1951	3.30	750				
	Mar. 15, 1951	3.82	970				

a Probably above base; gage height and discharge unknown.

## ELOKOMIN RIVER BASIN

2475. Elokomin River near Cathlamet, Wash.

Location.--Lat 46°13'10", long 123°20'30", in SE¼ sec.31, T.9 N., R.5 W., on right bank 125 ft upstream from railroad bridge, 2½ miles northeast of Cathlamet, and 4½ miles upstream from mouth.

Drainage area.--65.8 sq mi. Area of lakes and ponds, 0.01 sq mi; mean elevation, 1,190 ft.

Gage.--Nonrecording prior to June 25, 1941; recording thereafter. Datum of gage is 29.60 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 2,100 cfs and extended on basis of slope-area measurement at 7,300 cfs.

Historical data.--Maximum stage known, 17.2 ft in December 1933, from information by local residents.

Remarks.--Minor diversions for irrigation. Flood peaks not affected. Base for partial-duration series, 3,600 cfs.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1934	December 1933	17.2	-	1946	Dec. 28, 1945	10.56	5,230
1941	Jan. 17 or 18, 1941	8.0	3,400	1947	Jan. 25, 1947	10.76	5,410
				1948	Jan. 1, 1948	9.34	3,900
1942	Dec. 19, 1941	9.15	3,970	1949	Dec. 2, 1948	9.82	4,350
1943	Nov. 23, 1942	9.81	4,510		Dec. 9, 1948	10.79	5,320
	Feb. 6, 1943	9.17	3,970		Feb. 10, 1949	9.34	3,900
1944	Dec. 3, 1943	9.82	4,510		Feb. 17, 1949	12.66	7,300
				Feb. 22, 1949	9.74	4,260	
1945	Jan. 7, 1945	9.11	3,880	1950	Nov. 27, 1949	10.22	4,820
	Feb. 7, 1945	10.6	5,140		Dec. 27, 1949	10.02	4,620

Peak stages and discharges of Elokomín River near Cathlamet, Wash.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Feb. 24, 1950	12.51	7,020	1954	Dec. 12, 1953	8.75	3,880
	Mar. 4, 1950	9.05	3,920				
1951	Dec. 22, 1950	10.38	5,310	1955	Nov. 18, 1954	8.58	3,740
	Feb. 9, 1951	11.2	6,030		Dec. 30, 1954	8.69	3,830
					Feb. 8, 1955	8.48	3,660
1952	Feb. 4, 1952	8.95	4,040	1956	Nov. 2, 1955	9.13	4,180
1953	Jan. 22, 1953	10.10	5,040		Dec. 11, 1955	11.35	6,040
					Dec. 21, 1955	9.14	4,270
1954	Dec. 9, 1953	11.41	6,220	1957	Dec. 9, 1956	12.49	7,190

SKAMOKAWA CREEK BASIN

2479. Risk Creek near Skamokawa, Wash.

Location.--Lat 46°15'05", long 123°23'50", in NW $\frac{1}{4}$  sec.23, T.9 N., R.6 W., at U.S. Highway 830, 3.0 miles southeast of Skamokawa.

Drainage area.--1.13 sq mi. Area of lakes and ponds, 0 sq mi; mean altitude of basin, 280 ft.

Gage.--Crest-stage gage. Datum of gage is 5.70 ft below upstream invert of culvert.

Stage-discharge relation.--Defined by computations of discharge through a 4-foot concrete pipe culvert.

Remarks.--In 1956, creek was diverted to an artificial channel. Peak for 1957 computed at culvert under private driveway. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	Feb. 17, 1949	10.82	94.0	1954	Dec. 9, 1953	9.68	72.0
1950	Feb. 24, 1950	10.91	103	1955	Dec. 30, 1954	10.00	77.7
1951	Dec. 22, 1950	10.76	102	1956	Dec. 11, 1955	11.02	102
1952	Feb. 4, 1952	9.07	55.0	1957	Dec. 9, 1956	-	131
1953	Jan. 22, 1953	11.29	125				

a Includes 18 cfs (estimated) bypass flow.

BIG CREEK BASIN

2485. Big Creek near Knappa, Oreg.

Location.--Lat 46°09'00", long 123°35'00", in NW $\frac{1}{4}$  sec.29, T.8 N., R.7 W., on left bank 0.3 mile downstream from Tillusqua Fish Hatchery and 2.5 miles south of Knappa.

Drainage area.--31.9 sq mi. Mean altitude, 1,350 ft; channel slope, 160 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. Altitude of gage is 100 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 1,800 cfs and extended by logarithmic plotting.

Historical data.--Maximum stage known since at least 1928, 4.85 ft Feb. 10, 1949, from Floodmarks (discharge, about 3,100 cfs).

Remarks.--Peak discharges not affected by small diurnal fluctuation at times caused by fish hatchery above station. Base for partial-duration series, 900 cfs.

Peak stages and discharges of Big Creek near Knappa, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	Feb. 10, 1949	4.85	a3,100	1952	Feb. 4, 1952	2.76	1,190
1950	Nov. 27, 1949	2.97	1,190	1953	Jan. 9, 1953	2.66	1,220
	Jan. 22, 1950	2.76	1,030		Jan. 18, 1953	2.50	1,080
	Feb. 24, 1950	4.01	2,130		Jan. 22, 1953	2.52	1,100
	Mar. 5, 1950	2.57	900	1954	Dec. 5, 1953	2.51	1,090
1951	Jan. 2, 1951	2.63	941		Dec. 9, 1953	3.69	1,790
	Jan. 16, 1951	3.06	1,420		Jan. 4, 1954	3.04	1,330
Jan. 21, 1951	2.44	932	Jan. 22, 1954		2.62	1,030	
Feb. 9, 1951	2.63	1,080	Feb. 19, 1954		2.74	1,120	
Mar. 15, 1951	2.58	1,040	1955		Dec. 30, 1954	2.93	1,250
1952	Jan. 30, 1952	2.69		1,130	Feb. 8, 1955	2.44	916

a Annual peak only; estimated.

## GRAYS RIVER BASIN

2505. West Branch Grays River near Grays River, Wash.

Location.--Lat 46°23'10", long 123°33'30", on line between sec.33, T.11 N., R.7 W., and sec.4, T.10 N., R.7 W., on right bank 1 mile upstream from mouth and 3¼ miles northeast of town of Grays River.

Drainage area.--16.3 sq mi. Area of lakes and ponds, 0 sq mi; mean elevation, 1,180 ft.

Gage.--Recording. Altitude of gage is 71 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 1,000 cfs and extended on basis of slope-area measurement at 3,700 cfs.

Historical data.--Flood of Feb. 22, 1949, reached a stage of 6.89 ft, from floodmarks (discharge, 3,700 cfs).

Remarks.--Base for partial-duration series, 1,500 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1949	Feb. 22, 1949	a6.89	3,700	1952	Feb. 4, 1952	5.44	1,690	
1950	Nov. 12, 1949	6.26	2,830	1953	Jan. 22, 1953	5.83	2,190	
	Nov. 27, 1949	5.75	2,240		1954	Dec. 9, 1953	5.29	1,760
	Dec. 27, 1949	5.58	1,820	1955		Nov. 18, 1954	5.48	1,790
	Jan. 21, 1950	5.28	1,500			1956	Dec. 11, 1955	5.74
	Feb. 24, 1950	5.76	2,000	1957			Dec. 9, 1956	5.94
	Mar. 4, 1950	5.33	1,550					
1951	Dec. 22, 1950	5.29	1,500					
	Feb. 9, 1951	6.45	2,970					
1952	Jan. 30, 1952	5.77	2,070					

a From floodmarks; annual peak only.

2515. Youngs River near Astoria, Oreg.

Location.--Lat 46°04'02", long 123°47'20", in NW $\frac{1}{4}$  sec.27, T.7 N., R.9 W., on left bank 50 ft upstream from crest of Youngs River Falls, 2.7 miles southwest of Olney, and 9 miles south of Astoria.

Drainage area.--40.1 sq mi. 38.7 sq mi, at site used September 1927 to December 1933. Mean altitude, 930 ft; channel slope, 157 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. August 1927 to Jan. 1, 1934, at site 1.2 miles upstream at different datum. Datum of gage is 63.27 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 3,500 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Peak discharges not affected by diversion about 4 miles above station by Youngs River-Lewis and Clark Water District. Base for partial-duration series, 2,100 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1928	Oct. 3, 1927	5.49	3,290	1944	Dec. 2, 1943	10.50	2,740
	Nov. 24, 1927	6.52	4,640		1945	Feb. 7, 1945	10.41
1929	Apr. 14, 1929	4.34	1,780	1946		Nov. 26, 1945	9.44
1930	Dec. 13, 1929	4.3	1,280		Dec. 28, 1945	10.80	2,910
	1931	Jan. 23, 1931	4.66		2,180	Feb. 1, 1946	10.67
Mar. 31, 1931		6.3	4,360	Feb. 6, 1946	10.93	2,980	
1932		Nov. 9, 1931	4.59	2,120	1947	Nov. 22, 1946	9.70
	Nov. 19, 1931	5.60	3,420	Dec. 11, 1946		10.96	3,000
	Jan. 18, 1932	5.25	2,960	Jan. 25, 1947	9.41	2,140	
	Feb. 26, 1932	4.60	2,120	Feb. 2, 1947	10.40	2,680	
	Mar. 5, 1932	4.93	2,580	1948	Jan. 1, 1948	9.90	2,400
1933	Nov. 5, 1932	4.65	2,180		Mar. 21, 1948	10.33	2,640
	Nov. 13, 1932	4.89	2,250	1949	Dec. 9, 1948	10.77	2,890
	Dec. 2, 1932	5.69	2,810		Feb. 10, 1949	13.66	4,750
	Dec. 26, 1932	5.19	2,220		Feb. 17, 1949	12.15	3,740
	Jan. 1, 1933	5.28	2,330		Feb. 22, 1949	12.10	3,670
1934	Dec. 6, 1933	6.40	3,650	1950	Nov. 27, 1949	10.74	2,870
	Dec. 22, 1933	6.6	3,890		Jan. 20, 1950	11.16	3,120
1935	Oct. 25, 1934	10.50	2,740		Feb. 8, 1950	9.37	2,120
	Nov. 5, 1934	10.86	2,940		Feb. 24, 1950	10.86	2,940
	Dec. 19, 1934	10.15	2,540	1951	Jan. 2, 1951	9.22	2,030
	Jan. 22, 1935	11.60	3,390		1952	Feb. 3, 1952	10.02
1936	Jan. 4, 1936	10.66	2,830	1953		Jan. 9, 1953	10.50
	Jan. 12, 1936	11.40	3,270		Jan. 18, 1953	10.02	2,530
	Feb. 27, 1936	10.85	2,930		Jan. 22, 1953	10.20	2,620
1937	Dec. 22, 1936	10.40	2,680	1954	Dec. 9, 1953	12.01	3,650
	Feb. 17, 1937	10.60	2,790		Jan. 4, 1954	10.21	2,620
	Apr. 14, 1937	9.61	2,240		Jan. 22, 1954	10.73	2,900
1938	Nov. 8, 1937	11.31	3,210		Feb. 19, 1954	9.83	2,440
	Nov. 25, 1937	10.70	2,850	1955	Nov. 18, 1954	9.30	2,170
	Dec. 27, 1937	11.58	3,390		Dec. 30, 1954	9.19	2,120
1939	Feb. 12, 1939	11.05	3,020		Feb. 8, 1955	10.30	2,670
	Feb. 14, 1939	11.05	3,020	1956	Nov. 26, 1955	10.96	3,020
1940	Dec. 16, 1939	11.59	3,390		Dec. 11, 1955	10.80	2,920
	Feb. 6, 1940	11.38	3,260		Dec. 21, 1955	11.90	3,580
1941	Nov. 28, 1940	9.28	2,070		Jan. 6, 1956	9.72	2,380
	1942	Dec. 18, 1941	11.14		3,110	Mar. 1, 1956	9.46
1943		Nov. 14, 1942	9.40		2,130	Mar. 7, 1956	9.45
	Nov. 23, 1942	10.15	2,540		1957	Dec. 9, 1956	9.80
	Feb. 6, 1943	9.62	2,250	Feb. 26, 1957		-	(a)

a Probably above base, gage height and discharge unknown.

## YOUNGS RIVER BASIN

2520. North Fork Klaskanine River near Olney, Oreg.

Location.--Lat 46°04'10", long 123°41'54", in SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.20, T.7 N., R.8 W., on right bank 2.4 miles upstream from Klaskanine Fish Hatchery and North Fork of North Fork, and 3.5 miles southeast of Olney.

Drainage area.--14.0 sq mi. Mean altitude, 1,040 ft; channel slope, 114 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. Datum of gage is 214.02 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 700 cfs and extended by logarithmic plotting.

Bankfull stage.--6.5 ft.

Remarks.--Base for partial-duration series, 500 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Nov. 27, 1949	4.33	691	1953	Jan. 9, 1953	4.98	724
	Jan. 20, 1950	4.59	806	1954	Dec. 6, 1953	4.34	532
	Feb. 8, 1950	3.90	516		Dec. 9, 1953	4.84	829
	Feb. 24, 1950	4.53	778		Jan. 4, 1954	4.43	686
			Jan. 22, 1954		4.55	728	
1951	Jan. 2, 1951	4.04	571	1955	Dec. 30, 1954	4.13	580
	Jan. 16, 1951	4.01	559		Feb. 8, 1955	4.14	584
	Feb. 9, 1951	4.17	624				
	Mar. 15, 1951	4.32	505				
1952	Jan. 30, 1952	4.23	482				

## NECANICUM RIVER BASIN

2990. South Fork Necanicum River near Seaside, Oreg.

Location.--Lat 45°53'35", long 123°49'55", in NW $\frac{1}{4}$  sec.29, T.5 N., R.9 W., at Seaside Dam on Hollenback Road 1.4 miles upstream from mouth and 8 miles southeast of Seaside.

Drainage area.--7.99 sq mi. Mean altitude, 1,060 ft; channel slope, 300 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Crest-stage gage above concrete dam. Altitude of gage is 240 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,230 cfs and extended by logarithmic plotting.

Remarks.--Peak discharges not affected by small diversion at gage for town of Seaside water supply. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	Dec. 4, 1952	7.65	1,780	1956	Dec. 21, 1955	8.85	3,020
1954	Jan. 22, 1954	8.52	2,320	1957	Feb. 26, 1957	7.77	1,880
1955	Feb. 8, 1955	7.13	1,310				

2995. Asbury Creek near Cannon Beach, Oreg.

Location.--Lat 45°48'55", long 123°57'50", in SW $\frac{1}{4}$  sec.19, T.4 N., R.10 W., at culvert on U.S. Highway 101 at Arch Cape, 0.1 mile upstream from mouth and 6 miles south of Cannon Beach.

Drainage area.--1.97 sq mi. Mean altitude, 1,120 ft; channel slope, 987 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 30 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 75 cfs and extended on basis of computations of flow through culvert.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Feb. 4, 1952	7.69	211	1956	Dec. 21, 1955	8.97	260
1953	Jan. 22, 1953	8.68	235	1957	Dec. 11, 1956	8.14	188
1954	Jan. 22, 1954	8.20	193				
1955	Dec. 30, 1954	7.86	166				

NEHALEM RIVER BASIN

3010. Nehalem River near Foss, Oreg.

Location.--Lat 45°42'15", long 123°45'15", in NW $\frac{1}{4}$  sec.35, T.3 N., R.9 W., on right bank 0.25 mile upstream from Cook Creek and 2.2 miles northeast of Foss.

Drainage area.--667 sq mi. Mean altitude, 1,180 ft; channel slope, 21 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. Datum of gage is 32.60 ft above mean sea level, datum of 1929 (Oregon State Highway Department bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 31,000 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Peak discharges not affected by small diversions above station for irrigation and domestic supply. Base for partial-duration series, 19,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1940	Dec. 16, 1939	15.69	26,700	1950	Nov. 27, 1949	13.96	21,900
	Feb. 7, 1940	14.95	24,600		Jan. 22, 1950	15.15	25,300
1941	Jan. 18, 1941	12.93	19,100	Jan. 25, 1950	17.15	30,800	
				Mar. 5, 1950	14.00	21,400	
1942	Dec. 19, 1941	17.13	31,100	1951	Jan. 17, 1951	14.33	22,400
					Feb. 9, 1951	14.00	21,400
1943	Nov. 23, 1942	14.51	22,800	1952	Dec. 5, 1951	15.75	20,200
	Dec. 31, 1942	13.28	20,100		Feb. 1, 1952	13.52	19,600
	Feb. 6, 1943	14.56	23,500		Feb. 4, 1952	14.89	23,700
	Apr. 1, 1943	15.36	25,800				
1944	Dec. 3, 1943	11.80	16,000	1953	Jan. 11, 1953	15.44	19,300
					Jan. 19, 1953	14.59	22,800
1945	Feb. 7, 1945	17.05	30,800	1954	Dec. 9, 1953	16.48	28,400
	Mar. 20, 1945	14.20	22,600		Jan. 6, 1954	18.33	34,700
1946	Nov. 26, 1945	13.68	21,200		Feb. 14, 1954	14.58	22,700
	Dec. 29, 1945	15.87	27,400	Feb. 21, 1954	15.22	24,700	
	Feb. 6, 1946	14.20	22,600				
1947	Dec. 13, 1946	18.45	35,100	1955	Dec. 31, 1954	13.49	19,500
	Jan. 25, 1947	14.11	22,400		1956	Nov. 26, 1955	18.87
	Feb. 2, 1947	14.61	23,800	Dec. 12, 1955		14.72	23,200
1948	Feb. 22, 1948	13.95	21,900	Dec. 21, 1955		19.67	39,300
				Jan. 6, 1956	15.38	25,100	
				Mar. 23, 1956	13.43	19,300	
1949	Dec. 9, 1948	15.37	25,900	1957	Feb. 26, 1957	14.68	23,000
	Feb. 10, 1949	16.87	30,300				
	Feb. 17, 1949	19.04	36,900				
	Feb. 22, 1949	18.91	36,500				

## 3014. Patterson Creek at Bay City, Oreg.

Location.--Lat 45°31'40", long 123°53'15", in SE $\frac{1}{4}$  sec.34, T.1 N., R.10 W., at culvert on U.S. Highway 101 in Bay City and 0.3 mile upstream from mouth.

Drainage area.--1.87 sq mi. Mean altitude, 509 ft; channel slope, 405 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 30 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 32 cfs and extended on basis of computations of flow through culvert.

Remarks.--Only annual peaks are shown.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Mar. 17, 1952	10.72	55	1956	Nov. 26, 1955	13.08	207
1953	Jan. 18, 1953	12.55	166	1957	Mar. 7, 1957	11.27	84
1954	Jan. 22, 1954	11.82	117				
1955	Dec. 30, 1954	11.57	102				

## WILSON RIVER BASIN

## 3015. Wilson River near Tillamook, Oreg.

Location.--Lat 45°28'40", long 123°43'20", in SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.13, T.1 S., R.9 W., on right bank 1.0 mile upstream from Little North Fork and 6.0 miles east of Tillamook.

Drainage area.--159 sq mi; 161 sq mi at site used Dec. 18, 1914, to Nov. 4, 1916. Mean altitude, 1,640 ft; channel slope, 53 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording Dec. 18, 1914, to Nov. 4, 1916, and July 30, 1931, to Sept. 30, 1938; recording thereafter. Dec. 18, 1914, to Nov. 4, 1916, at site 0.8 mile downstream at different datum. July 30, 1931, to Sept. 30, 1938, at site 100 ft downstream at datum 0.93 ft higher. Gage heights herein adjusted to present datum. Datum of gage is 42.13 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 15,000 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Historical data.--Flood in February 1916 reached a stage of 20.8 ft, from floodmarks, site and datum then in use (discharge not determined).

Remarks.--Base for partial-duration series, 12,000 cfs. Only annual peaks are shown prior to 1939.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1915	Jan. 14, 1915	9.2	7,500	1942	Dec. 19, 1941	15.25	18,700
1916	February 1916	20.8	(a)				
				1943	Nov. 23, 1942	14.78	17,800
1932	Jan. 18, 1932	14.77	16,700		Feb. 6, 1943	12.10	12,700
1933	Dec. 19, 1932	12.09	12,900		Apr. 1, 1943	12.94	14,200
1934	Dec. 21, 1933	20.21	30,000	1944	Dec. 2, 1943	11.65	11,900
1935	Jan. 22, 1935	12.89	14,300				
1936	Jan. 12, 1936	15.53	19,500	1945	Feb. 7, 1945	17.13	22,800
1937	Dec. 22, 1936	14.13	16,600		Mar. 20, 1945	11.89	12,400
1938	Dec. 27, 1937	16.35	21,200	1946	Nov. 26, 1945	13.78	15,800
					Dec. 28, 1945	14.43	17,100
1939	Dec. 2, 1938	11.89	12,200				
	Feb. 12, 1939	12.39	13,200	1947	Nov. 18, 1946	12.97	14,300
	Feb. 14, 1939	13.80	15,800		Dec. 13, 1946	14.96	18,100
1940	Dec. 15, 1939	14.42	17,000		Jan. 25, 1947	11.60	12,000
	Feb. 6, 1940	12.68	13,700		Feb. 2, 1947	14.60	17,400
1941	Jan. 18, 1941	11.68	11,900				

a Not determined; probably above base.

Peak stages and discharges of Wilson River near Tillamook, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	Feb. 22, 1948	12.49	13,500	1953	Jan. 19, 1953	12.16	13,900
	Mar. 22, 1948	12.42	13,400		1954	Dec. 9, 1953	14.91
1949	Dec. 9, 1948	12.73	13,900	Jan. 5, 1954		11.35	13,300
	Feb. 10, 1949	15.62	19,500	Jan. 22, 1954		11.71	14,000
	Feb. 17, 1949	17.89	24,500	Feb. 19, 1954		11.47	13,500
	Feb. 22, 1949	14.35	16,900	1955		Nov. 18, 1954	12.15
1950	Nov. 27, 1949	15.95	20,200		Dec. 30, 1954	11.02	12,700
	Jan. 20, 1950	13.02	14,400		Feb. 8, 1955	10.93	12,600
	Feb. 24, 1950	12.49	13,500	1956	Nov. 26, 1955	-	(a)
1951	Dec. 23, 1950	10.43	10,900		Dec. 21, 1955	15.28	21,100
	1952	Jan. 30, 1952	11.54		12,800	Mar. 23, 1956	10.71
Feb. 4, 1952		11.82	13,300	1957	Dec. 9, 1956	13.56	17,500

a Not determined; probably above base.

## TRASK RIVER BASIN

3025. Trask River near Tillamook, Oreg.

Location.--Lat 45°26'25", long 123°43'00", in NW $\frac{1}{4}$  sec.31, T.1 S., R.8 W., on right bank 0.6 mile upstream from Gold Creek and 6.2 miles east of Tillamook.

Drainage area.--143 sq mi. Mean altitude, 1,740 ft; channel slope, 71 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. Altitude of gage is 70 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 12,000 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Historical data.--Maximum stage known, about 17 ft, probably on Nov. 20, 1921 (discharge, 30,000 cfs).

Remarks.--Base for partial-duration series, 9,300 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1922	Nov. 20, 1921	17	30,000	1943	Apr. 1, 1943	8.56	10,400
1932	Jan. 18, 1932	9.6	12,500	1944	Dec. 2, 1943	7.66	8,690
1933	Dec. 2, 1932	8.55	10,200	1945	Feb. 7, 1945	9.32	11,900
	Jan. 2, 1933	8.45	10,100	1946	Dec. 29, 1945	9.24	11,800
1934	Dec. 6, 1933	10.77	15,000		Feb. 6, 1946	8.97	11,200
	Dec. 19, 1933	9.72	12,700	1947	Nov. 18, 1946	7.96	9,260
	Dec. 22, 1933	13.00	20,000		Dec. 13, 1946	11.45	16,400
	Jan. 21, 1934	8.65	10,500		Feb. 2, 1947	9.09	11,500
1935	Oct. 23, 1934	8.51	10,300	1948	Feb. 22, 1948	9.20	11,700
	Nov. 5, 1934	8.36	10,100		1949	Dec. 9, 1948	8.30
	Dec. 20, 1934	9.21	11,700	Dec. 11, 1948		8.98	11,300
1936	Jan. 4, 1936	10.1	13,500	Feb. 10, 1949		10.30	13,900
	Jan. 12, 1936	9.96	13,300	Feb. 17, 1949	12.67	19,200	
1937	Dec. 22, 1936	8.64	10,500	Feb. 22, 1949	9.66	12,600	
	1938	Nov. 8, 1937	8.33	9,920	1950	Nov. 27, 1949	9.52
Nov. 25, 1937		8.34	9,910	Feb. 24, 1950		9.14	11,600
Dec. 27, 1937		11.86	17,400	1951	Jan. 17, 1951	8.56	10,400
1939	Feb. 15, 1939	9.5	12,300		1952	Dec. 4, 1951	7.73
	1940	Dec. 15, 1939	8.67	10,600		1953	Jan. 19, 1953
Feb. 6, 1940		8.41	10,100	1954	Dec. 9, 1953		9.97
1941	Jan. 18, 1941	7.02	7,520		1955	Dec. 30, 1954	9.38
1942	Dec. 19, 1941	10.31	13,900	1956		Dec. 21, 1955	13.09
1943	Nov. 23, 1942	9.44	12,200				
	Feb. 6, 1943	8.13	9,590				

a Annual peak only.

## NESTUCCA RIVER BASIN

3030. Nestucca River near McMinnville, Oreg.

Location.--Lat 45°19'30", long 123°27'00", in NE $\frac{1}{4}$  sec.8, T.3 S., R.6 W., 0.3 mile downstream from Meadow Lake and 14 miles northwest of McMinnville.

Drainage area.--12 sq mi, approximately. Mean altitude, 2,070 ft; channel slope, 52.7 per mile; area of lakes and ponds, 0.3 sq mi.

Gage.--Recording. Altitude of gage is 1,900 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 800 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Flow slightly regulated by Meadow Lake. Base for partial-duration series, 400 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1929	Dec. 30, 1928	3.00	320	1936	Jan. 2, 1936	3.39	484
					Jan. 4, 1936	4.25	970
1930	Feb. 7, 1930	2.89	273		Jan. 12, 1936	5.3	1,390
1931	Mar. 31, 1931	4.84	1,330	1937	Apr. 14, 1937	3.73	672
1932	Jan. 18, 1932	3.75	732	1938	Dec. 27, 1937	5.10	1,480
	Mar. 6, 1932	3.24	405		Mar. 18, 1938	3.71	660
1933	Dec. 2, 1932	3.73	720	1939	Feb. 15, 1939	3.70	655
	Dec. 19, 1932	3.71	660				
	Jan. 2, 1933	3.48	534	1940	Dec. 16, 1939	3.63	616
	Jan. 5, 1933	3.42	501		Feb. 6, 1940	3.96	798
1934	Dec. 6, 1933	3.80	710	1941	Jan. 18, 1941	3.49	540
	Dec. 19, 1933	4.40	1,060				
	Dec. 22, 1933	5.10	1,480	1942	Dec. 19, 1941	3.85	730
	Jan. 21, 1934	3.55	496				
1935	Nov. 5, 1934	3.76	688	1943	Nov. 23, 1942	3.80	700
	Dec. 20, 1934	3.72	666		Dec. 31, 1942	3.77	682
	Dec. 23, 1934	3.50	545		Feb. 6, 1943	3.74	664
	Mar. 12, 1935	4.20	1,050	1944	Dec. 3, 1943	3.21	404
1936	Dec. 31, 1935	3.44	512				

## SILETZ RIVER BASIN

3055. Siletz River at Siletz, Oreg.

Location.--Lat 44°42'55", long 123°53'10", in NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.11, T.10 S., R.10 W., on right bank  $1\frac{1}{2}$  miles east of Siletz and  $2\frac{1}{2}$  miles downstream from Bentilla Creek.

Drainage area.--202 sq mi; 204 sq mi, at sites used prior to October 1938. Mean altitude, 1,260 ft; channel slope, 83 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording November 1905, to May 4, 1912, and Jan. 1, 1924, to Sept. 30, 1938; recording thereafter. Prior to Sept. 30, 1938, at several sites within  $2\frac{1}{2}$  miles downstream at different datums. Datum of gage is 102.32 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 19,000 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Historical data.--Maximum discharge known, 40,800 cfs Nov. 20, 1921 (gage height, 31.6 ft, site and datum then in use).

Remarks.--Peak discharges not affected by slight regulation by log ponds or small diversions above station for irrigation. Base for partial-duration series, 14,000 cfs. Only annual peaks are shown prior to 1939.

Peak stages and discharges of Siletz River at Siletz, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1906	Feb. 20, 1906	8.5	9,980	1945	Jan. 7, 1945	15.72	13,500
1907	Jan. 3, 1907	18.8	24,900		Feb. 7, 1945	20.50	22,400
1908	Mar. 15, 1908	22.7	30,600				
1909	Jan. 19, 1909	14.2	18,200	1946	Nov. 27, 1945	18.48	18,400
1910	Nov. 22, 1909	24.6	34,600		Dec. 28, 1945	20.1	21,600
					Feb. 6, 1946	16.58	15,000
1911	Jan. 18, 1911	19.0	25,200				
1912	Jan. 12, 1912	16.5	21,600	1947	Nov. 27, 1946	16.85	15,400
					Dec. 15, 1946	24.53	31,200
1922	Nov. 20, 1921	31.6	40,800		Jan. 26, 1947	16.28	14,500
					Feb. 2, 1947	18.46	18,400
1925	Jan. 28, 1925	14.5	18,800	1948	Jan. 7, 1948	17.52	17,900
					Feb. 22, 1948	20.44	24,400
1926	Feb. 6, 1926	14.0	16,800				
1927	Jan. 31, 1927	15.8	19,500	1949	Dec. 12, 1948	18.73	20,400
1928	Nov. 25, 1927	22.6	30,700		Dec. 10, 1949	19.65	22,500
1929	Nov. 9, 1928	9.80	11,200		Feb. 17, 1949	25.17	37,000
1930	Feb. 7, 1930	10.0	11,500		Feb. 22, 1949	19.10	21,200
1931	Mar. 31, 1931	26.71	34,100	1950	Nov. 27, 1949	16.77	16,400
1932	Jan. 18, 1932	18.93	21,800		Jan. 22, 1950	16.06	15,100
1933	Jan. 2, 1933	17.86	19,800		Feb. 25, 1950	15.99	14,900
1934	Dec. 6, 1933	23.8	28,700				
1935	Nov. 7, 1934	14.71	15,000	1951	Dec. 22, 1950	16.30	15,500
					Jan. 17, 1951	16.85	16,600
1936	Jan. 4, 1936	17.74	19,600				
1937	Apr. 14, 1937	15.39	16,100	1952	Dec. 22, 1951	15.56	14,100
1938	Dec. 27, 1937	23.83	30,100		Feb. 3, 1952	18.23	19,400
1939	Nov. 3, 1938	15.40	14,000	1953	Jan. 18, 1953	22.26	29,500
	Dec. 15, 1938	17.60	17,800				
1940	Dec. 16, 1939	18.02	18,500	1954	Nov. 22, 1953	20.46	25,100
	Feb. 6, 1940	19.51	21,400		Dec. 6, 1953	15.50	14,700
					Dec. 9, 1953	18.80	21,400
1941	Jan. 18, 1941	14.86	13,200		Dec. 19, 1953	16.23	16,100
					Feb. 21, 1954	15.37	14,500
1942	Dec. 19, 1941	21.96	25,400	1955	Dec. 30, 1954	20.02	24,000
1943	Nov. 23, 1942	22.46	26,500	1956	Nov. 26, 1955	17.87	19,300
	Nov. 27, 1942	17.26	16,200		Dec. 12, 1955	18.03	19,700
	Nov. 29, 1942	16.01	14,000		Dec. 21, 1955	20.20	24,500
	Dec. 27, 1942	17.66	16,900		Jan. 4, 1956	21.02	26,400
	Jan. 1, 1943	17.23	16,100		Jan. 15, 1956	15.56	14,800
	Feb. 6, 1943	18.33	18,100				
	Mar. 31, 1943	21.00	23,400	1957	Dec. 11, 1956	19.77	23,500
1944	Oct. 24, 1943	15.27	12,800		Mar. 7, 1957	14.57	13,100

## ALSEA RIVER BASIN

3065. Alsea River near Tidewater, Oreg.

Location.--Lat 44°23'10", long 123°49'50", in NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.6, T.14 S., R.9 W., on right bank 1.0 mile downstream from Grass Creek, 2.3 miles upstream from Scott Creet, and 3.8 miles southeast of Tidewater.

Drainage area.--334 sq mi. Mean altitude, 1,150 ft; channel slope, 32.9 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. Datum of gage is 48.16 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 20,000 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Historical data.--Maximum stage known, 29.5 ft, from floodmark shown by old resident, on or about Feb. 3, 1890.

Remarks.--Base for partial-duration series, 13,000 cfs.

Peak stages and discharges of Alsea River near Tidewater, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1890	Feb. 3, 1890	29.5	-	1950	Jan. 10, 1950	14.58	13,500
1940	Feb. 6, 1940	15.93	15,900		Jan. 22, 1950	16.22	16,300
					Feb. 25, 1950	15.32	14,700
1941	Jan. 18, 1941	13.40	10,600	1951	Nov. 16, 1950	17.86	19,200
1942	Feb. 4, 1942	14.90	13,900		Jan. 17, 1951	17.42	18,400
					Jan. 21, 1951	17.89	19,300
1943	Nov. 23, 1942	17.19	17,900	1952	Dec. 5, 1951	19.12	22,300
	Nov. 27, 1942	16.21	16,200		Feb. 3, 1952	16.67	17,600
	Dec. 27, 1942	15.68	15,300	1953	Jan. 9, 1953	17.01	18,200
	Jan. 1, 1943	19.98	22,900		Jan. 18, 1953	20.99	26,100
	Feb. 7, 1943	18.81	20,800		1954	Nov. 23, 1953	19.73
Mar. 31, 1943	18.25	19,800	Dec. 6, 1953	16.28		16,800	
1944	Oct. 24, 1943	11.72	8,890	Dec. 10, 1953		15.00	14,500
	Feb. 8, 1945	17.18	17,900	Dec. 19, 1953		16.97	18,100
Jan. 22, 1954				15.12		14,700	
1946	Nov. 27, 1945	17.67	18,700	Jan. 28, 1954	20.03	24,200	
	Dec. 28, 1945	17.88	19,100	Feb. 13, 1954	14.23	13,200	
1947	Feb. 6, 1946	17.28	18,100	1955	Nov. 17, 1954	14.73	14,100
	Nov. 18, 1946	14.40	13,100		Dec. 31, 1954	16.63	17,500
1948	Nov. 27, 1946	14.28	13,000	1956	Nov. 19, 1955	17.00	18,200
	Dec. 15, 1946	21.7	26,400		Nov. 25, 1955	14.64	13,900
	Feb. 2, 1947	15.30	14,700		Dec. 21, 1955	23.80	32,200
	Oct. 20, 1947	14.43	13,200		Jan. 4, 1956	21.87	27,900
1949	Jan. 2, 1948	16.38	16,600	Jan. 16, 1956	15.30	15,000	
	Jan. 7, 1948	22.43	27,800	Mar. 4, 1956	14.21	13,200	
	Feb. 22, 1948	18.35	20,100	1957	Dec. 11, 1956	16.22	16,700
	Dec. 12, 1948	18.05	19,600		Feb. 26, 1957	14.09	13,000
Feb. 10, 1949	20.57	24,200	Mar. 8, 1957		14.74	14,100	
Feb. 17, 1949	21.72	26,400					
	Feb. 22, 1949	17.88	19,200				

## 3068.5. South Fork Weiss Creek near Waldport, Oreg.

Location.--Lat 44°23'40", long 124°01'30", in SW<sup>1</sup>/<sub>4</sub> sec.33, T.13 S., R.11 W., at diversion dam 0.1 mile upstream from confluence with North Fork Weiss Creek and 3.5 miles southeast of Waldport.

Drainage area.--0.33 sq mi. Mean altitude, 820 ft; channel slope, 480 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Crest-stage gage above masonry dam. Altitude of gage is 400 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 17 cfs and extended on basis of computation of flow over dam.

Remarks.--Peak discharges not affected by small diversion at gage for Waldport municipal water supply. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	Jan. 17, 1953	6.92	30	1956	Dec. 21, 1955	6.81	26
1954	Jan. 28, 1954	6.36	14	1957	Oct. 25, 1956	6.13	9.6
1955	Dec. 30, 1954	6.44	16				

3070. Siuslaw River above Wildcat Creek, at Austa, Oreg.

Location.--Lat 44°00'00", long 123°39'25", in SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.16, T.18 S., R.8 W., 0.3 mile upstream from Wildcat Creek and Austa, and 8 miles southeast of Swisshome.

Drainage area.--267 sq mi.

Gage.--Nonrecording. Datum of gage is 269.99 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 4,500 cfs and extended by logarithmic plotting.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1932	Mar. 19, 1932	9.50	5,880	1937	Apr. 14, 1937	11.20	7,660
1933	Jan. 2, 1933	13.90	10,800	1938	Dec. 27, 1937	14.1	11,000
1934	Dec. 22, 1933	10.50	6,890	1939	Feb. 15, 1939	8.30	4,680
1935	Dec. 29, 1934	11.20	7,660	1940	Feb. 6, 1940	9.50	5,880
1936	Jan. 12, 1936	15.5	12,900				

3075. Lake Creek at Triangle Lake, Oreg.

Location.--Lat 44°09'40", long 123°34'10", in SW $\frac{1}{4}$  sec.20, T.16 S., R.7 W., on Right bank 500 ft downstream from outlet of Triangle Lake.

Drainage area.--50 sq mi, approximately. Mean altitude, 1,430 ft; channel slope, 21.8 ft per mile; area of lakes and ponds, 0.6 sq mi.

Gage.--Recording. Datum of gage is 672.75 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 2,400 cfs and extended by logarithmic plotting.

Remarks.--Some natural regulation by Triangle Lake. Base for partial-duration series, 1,200 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1932	Jan. 1, 1932	4.58	1,280	1944	Dec. 5, 1943	3.39	650
	Jan. 19, 1932	5.8	2,070				
1933	Jan. 3, 1933	6.59	2,670	1945	Feb. 9, 1945	4.86	1,450
		8.14	3,960				
1934	Dec. 22, 1933	8.14	3,960	1946	Nov. 28, 1945	5.98	2,200
		4.61	1,290		Dec. 29, 1945	6.98	2,970
1935	Mar. 26, 1935	4.61	1,290	Jan. 5, 1946	5.04	1,550	
		4.87	1,440	Feb. 7, 1946	5.22	1,660	
1936	Jan. 5, 1936	4.87	1,440	1947	Nov. 28, 1946	5.08	1,580
	Jan. 13, 1936	8.1	3,960		Dec. 15, 1946	6.69	2,740
1937	Feb. 18, 1937	5.34	1,720	Feb. 3, 1947	5.24	1,680	
	Apr. 14, 1937	6.03	2,210	1948	Oct. 20, 1947	5.30	1,720
1938	Nov. 21, 1937	5.21	1,650		Jan. 3, 1948	5.70	2,000
	Dec. 28, 1937	7.23	3,150		Jan. 7, 1948	7.65	3,560
1939	Dec. 30, 1937	7.88	3,780		Feb. 22, 1948	6.06	2,250
	Feb. 7, 1938	4.44	1,200	1949	Dec. 12, 1948	6.29	2,420
	Mar. 19, 1938	7.08	3,070		Feb. 11, 1949	5.93	1,990
	Mar. 24, 1938	4.78	1,410		Feb. 18, 1949	8.33	4,180
	1939	Feb. 16, 1939	4.36		1,140	Feb. 23, 1949	5.38
			5.20	1,650	1950	Jan. 23, 1950	6.18
1940	Feb. 7, 1940	5.20	1,650	Feb. 16, 1950		4.81	1,370
		4.54	1,250	Feb. 25, 1950		6.14	2,250
1941	Jan. 19, 1941	4.54	1,250	1951	Nov. 18, 1950	5.80	2,070
1942	Dec. 20, 1941	4.53	1,250		Jan. 18, 1951	5.29	1,710
		5.65	1,960		Jan. 22, 1951	5.57	1,910
1943	Nov. 24, 1942	5.65	1,960	1952	Dec. 5, 1951	6.20	2,100
	Nov. 27, 1942	5.24	1,680		Feb. 4, 1952	6.37	2,220
	Dec. 9, 1942	5.55	1,900	1953	Jan. 19, 1953	7.94	3,640
	Jan. 1, 1943	7.67	3,570				
	Feb. 7, 1943	5.83	2,090				
	Apr. 1, 1943	6.21	2,360				

Peak stages and discharges of Lake Creek at Triangle Lake, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1954	Nov. 23, 1953	5.70	1,940	1954	Feb. 21, 1954	4.73	1,370
	Dec. 7, 1953	(a)	(a)				
	Dec. 20, 1953	(a)	(a)	1955	Jan. 1, 1955	4.78	1,400
	Jan. 24, 1954	4.72	1,360				
	Jan. 29, 1954	5.63	1,950	1956	Dec. 21, 1955	7.7	b3,600
	Feb. 14, 1954	4.85	1,440				

a Probably above base; not determined.

b Annual peak only.

## UMPQUA RIVER BASIN

3080. South Umpqua River at Tiller, Oreg.

(Published as South Fork of Umpqua River at Tiller in 1911)

Location.--Lat 42°55'50", long 122°56'50", in NE $\frac{1}{4}$  sec.33, T.30 S., R.2 W., on right bank 0.2 mile upstream from bridge on State Highway 42 at Tiller and 0.3 mile upstream from Elk Creek.

Drainage area.--449 sq mi. Mean altitude, 3,130 ft; channel slope, 103.8 ft per mile; area of lakes and ponds, 0.4 sq mi.

Gage.--Nonrecording prior to Oct. 1, 1939; recording thereafter. Prior to Oct. 1, 1939, at site 0.2 mile downstream at different datum. Datum of gage is 991.8 ft above mean sea level, datum of 1929 (from river-profile survey).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--Not subject to overflow.

Remarks.--Base for partial-duration series, 7,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1911	Nov. 28, 1910	13.4	a12,500	1951	Oct. 29, 1950	22.35	37,400
					Nov. 18, 1950	11.80	11,600
1940	Feb. 28, 1940	10.55	8,570		Dec. 3, 1950	14.56	17,300
	Mar. 26, 1940	9.50	7,470		Dec. 7, 1950	12.02	12,000
1941	Dec. 27, 1940	8.37	5,830		Jan. 17, 1951	11.35	10,700
					Jan. 23, 1951	13.61	15,200
1942	Dec. 2, 1941	9.96	8,210		Feb. 4, 1951	13.31	14,600
	Dec. 16, 1941	9.64	7,690	1952	Dec. 23, 1951	11.00	10,100
	Dec. 18, 1941	11.78	11,400		Dec. 27, 1951	9.71	7,910
	Jan. 8, 1942	9.40	7,320		Feb. 1, 1952	11.97	11,900
					Mar. 24, 1952	12.85	13,600
1943	Nov. 23, 1942	13.40	14,800	1953	Dec. 10, 1952	9.68	7,860
	Nov. 27, 1942	14.38	17,100		Jan. 9, 1953	9.66	7,830
	Nov. 29, 1942	17.69	25,500		Jan. 18, 1953	20.2	31,600
	Dec. 1, 1942	12.05	12,000		Feb. 3, 1953	12.90	13,800
	Dec. 27, 1942	13.27	14,500		Feb. 5, 1953	14.35	16,900
	Dec. 31, 1942	18.96	29,900		June 7, 1953	9.49	7,560
	Jan. 21, 1943	-	13,500	1954	Nov. 23, 1953	18.82	27,900
	Feb. 4, 1943	10.98	10,400		Dec. 3, 1953	11.24	10,500
1944	Nov. 4, 1943	11.94	12,200		Dec. 6, 1953	10.59	9,380
					Dec. 10, 1953	9.62	7,760
1945	Feb. 8, 1945	10.0	8,550		Jan. 16, 1954	-	13,000
	Feb. 13, 1945	13.76	16,200	1955	Dec. 30, 1954	11.96	11,900
1946	Nov. 19, 1945	10.78	9,970	1956	Nov. 19, 1955	12.37	12,700
	Dec. 6, 1945	10.48	9,410		Dec. 1, 1955	9.37	7,380
	Dec. 28, 1945	18.4	28,200		Dec. 12, 1955	9.30	7,270
	Jan. 5, 1946	11.91	12,200		Dec. 22, 1955	20.85	33,300
1947	Dec. 14, 1946	11.09	10,600		Jan. 15, 1956	14.75	18,200
					Jan. 22, 1956	15.14	22,000
1948	Jan. 2, 1948	10.59	9,380		Feb. 21, 1956	11.41	12,900
	Jan. 7, 1948	16.26	21,300	1957	Oct. 30, 1956	10.23	10,500
	Feb. 22, 1948	15.3	19,000		Dec. 11, 1956	22.7	46,400
1949	Dec. 12, 1948	15.12	18,600		Feb. 26, 1957	13.60	18,000
	Feb. 22, 1949	11.5	11,000		Mar. 6, 1957	9.08	8,390
					Mar. 9, 1957	8.78	7,850
1950	Jan. 18, 1950	11.85	11,700		Mar. 11, 1957	8.98	8,210
	Jan. 23, 1950	11.92	11,800				
	Feb. 16, 1950	9.41	7,440				
	Mar. 19, 1950	11.4	10,800				

a Annual peak only.

3089. Canyon Creek at Canyonville, Oreg.

Location--Lat 42°55'10", long 123°16'20", in SE $\frac{1}{4}$  sec.34, T.30 S., R.5 W., at dam 100 ft east of U.S. Highway 99 and 0.5 mile south of Canyonville.

Drainage area--36.9 sq mi. Mean altitude, 2,100 ft; channel slope, 168 ft per mile; area of lakes and ponds, 0 sq mi.

Gage--Crest-stage gage above concrete dam. Altitude of gage is 770 ft (from topographic map).

Stage-discharge relation--Defined by current-meter measurements below 935 cfs and extended on basis of computations of flow over dam at 2,760 cfs.

Remarks--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1951	Oct. 29, 1950	-	2,700	1955	Dec. 31, 1954	21.36	595
1953	Jan. 18, 1953	26.3	2,420	1956	Dec. 21, 1955	28.66	3,810
1954	Jan. 28, 1954	26.99	2,760	1957	Feb. 26, 1957	25.80	2,170

3090. Cow Creek near Azalea, Oreg.

Location--Lat 42°49'30", long 123°10'40", in N $\frac{1}{4}$  sec.4, T.32 S., R.4 W., on right bank 0.8 mile upstream from Whitehorse Creek and 4.5 miles northeast of Azalea.

Drainage area--76.0 sq mi. Mean altitude, 2,920 ft; channel slope, 105 ft per mile; area of lakes and ponds, 0 sq mi.

Gage--Nonrecording prior to July 19, 1949; recording thereafter. Altitude of gage is 1,685 ft (by barometer).

Stage-discharge relation--Defined by current-meter measurements below 2,100 cfs and extended on basis of slope-area measurement at 5,920 cfs.

Bankfull stage--Not subject to overflow.

Remarks--Base for partial-duration series, 1,300 cfs. Only annual peaks are shown prior to 1950.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1928	Mar. 27, 1928	4.81	764	1951	Jan. 21, 1951	5.94	1,520
1929	Apr. 14, 1929	5.84	564		Feb. 4, 1951	6.47	1,820
1930	Dec. 14, 1929	-	2,800	1952	Dec. 1, 1951	6.62	1,910
1931	Apr. 1, 1931	3.41	395		Dec. 26, 1951	7.42	2,390
1933	Jan. 2, 1933	7.80	2,680		Dec. 29, 1951	6.06	1,580
1934	Jan. 23, 1934	4.2	640		Feb. 1, 1952	8.20	2,860
1935	Jan. 7, 1935	4.20	640		Mar. 24, 1952	5.98	1,540
1936	Jan. 13, 1936	7.73	2,440	1953	Dec. 10, 1952	8.12	2,810
1937	Apr. 13, 1937	7.30	2,200		Jan. 9, 1953	7.67	2,540
1938	Feb. 6, 1938	9.60	3,850		Jan. 12, 1953	5.27	1,180
1939	Mar. 12, 1939	6.7	1,840		Jan. 18, 1953	10.91	4,260
1940	Feb. 28, 1940	8.20	2,880	1954	Nov. 23, 1953	9.13	3,360
1941	Jan. 27, 1941	6.70	1,890		Dec. 6, 1953	6.23	1,680
1942	Dec. 18, 1941	8.2	2,880		Jan. 16, 1954	8.79	3,180
1943	Jan. 21, 1943	9.5	3,850		Jan. 22, 1954	6.24	1,680
1944	Nov. 4, 1943	3.54	381		Jan. 27, 1954	10.04	3,820
1945	Feb. 8, 1945	6.2	1,590		Feb. 12, 1954	7.87	2,620
1946	Dec. 28, 1945	11.2	4,400	1955	Dec. 31, 1954	3.86	613
1947	Mar. 10, 1947	5.70	1,260	1956	Nov. 19, 1955	5.64	1,360
1948	Jan. 6, 1948	11.50	4,550		Dec. 21, 1955	12.76	5,180
1949	Feb. 22, 1949	8.20	2,720		Dec. 26, 1955	9.63	3,620
1950	Jan. 23, 1950	6.12	1,470		Jan. 3, 1956	6.18	1,840
	Mar. 17, 1950	5.80	1,310		Jan. 15, 1956	7.07	2,280
					Jan. 22, 1956	6.30	1,900
1951	Oct. 29, 1950	14.37	5,920		Feb. 21, 1956	8.55	3,050
	Nov. 18, 1950	6.98	2,130	1957	Dec. 11, 1956	5.46	1,340
	Dec. 3, 1950	6.88	2,070		Feb. 26, 1957	9.44	3,460
	Jan. 17, 1951	7.53	2,460		Mar. 12, 1957	4.70	1,030

3100. Cow Creek near Riddle, Oreg.  
(Published as "at Riddle" 1911-12, 1926-32)

Location.--Lat 42°55'25", long 123°25'40", in NW $\frac{1}{4}$  sec.32, T.30 S., R.6 W., on left bank 1,500 ft upstream from Council Creek and 3 $\frac{1}{2}$  miles southeast of Riddle.

Drainage area.--456 sq mi; 485 sq mi at sites used prior to Sept. 30, 1932. Mean altitude, 2,440 ft; channel slope, 47.5 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording gage Aug. 20, 1911, to May 18, 1912, and April 1926 to September 1932; recording thereafter. Prior to May 18, 1912, and April 1926 to September 1932, at sites at Riddle 4.4 miles downstream at altitude 640 ft (from topographic map). Datum of present gage is 682.60 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 28,000 cfs and extended on basis of slope-area measurement at 41,100 cfs.

Bankfull stage.--13 ft at sites at Riddle. Present site not subject to overflow.

Historical data.--Maximum discharge known, 41,100 cfs Oct. 29, 1950 (gage height, about 28.5 ft, present site and datum), from slope-area measurement.

Remarks.--Records for 1926-32 furnished by the State engineer of Oregon. Peak discharges not affected by diversions. Base for partial-duration series, 10,000 cfs. Only annual peaks are shown prior to 1955. Peak discharges herein for 1930-32 are adjusted to present site on basis of drainage-area ratio for use in the analysis.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1912	Jan. 24, 1912	13.2	13,100	1956	Dec. 21, 1955	25.40	33,500
1930	Dec. 14, 1929	11.33	10,600	Dec. 26, 1955	27.35	38,200	
				Jan. 4, 1956	14.45	15,000	
				Jan. 15, 1956	16.24	17,700	
1931	Mar. 12, 1931	7.50	5,470	Jan. 23, 1956	12.08	11,600	
1932	Dec. 31, 1931	12.75	13,300	Feb. 21, 1956	14.40	15,000	
1951	Oct. 29, 1950	28.5	41,100	1957	Dec. 11, 1956	14.14	14,600
1955	Dec. 31, 1954	10.22	8,990	Feb. 26, 1957	19.37	22,500	

3120. South Umpqua River near Brockway, Oreg.

Location.--Lat 43°08'00", long 123°23'50", in SW $\frac{1}{4}$  sec.15, T.28 S., R.6 W., on downstream side of right pier of Winston Bridge on U.S. Highway 99, 2 $\frac{1}{2}$  miles northeast of Brockway, and 4 miles downstream from Lookingglass Creek.

Drainage area.--1,670 sq mi. Mean altitude, 2,230 ft; channel slope, 49.8 ft per mile; area of lakes and ponds, 0.4 sq mi.

Gage.--Nonrecording prior to June 30, 1912, Sept. 27, 1923, to Sept. 30, 1926, and Jan. 16, 1942, to June 23, 1949; recording thereafter. Prior to Nov. 20, 1910, at site 90 ft upstream at datum 3.16 ft higher. Nov. 20, 1910, to June 30, 1912, on former bridge 440 ft upstream at datum 2.16 ft higher and Sept. 27, 1923, to Sept. 30, 1926, at datum 2.00 ft higher. Gage heights herein adjusted to present datum. Datum of present gage is 461.84 ft above mean sea level, datum of 1929 (Oregon State Highway Department bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 76,000 cfs and extended on basis of slope-conveyance study.

Bankfull stage.--Not subject to overflow.

Historical data.--Flood of Feb. 21, 1927, reached a stage of about 31.2 ft, present site and datum (discharge, 101,000 cfs). Flood in February 1890 reached a stage 1.9 ft higher, according to local residents who lived nearby at time of both floods (discharge, about 130,000 cfs).

Remarks.--Base for partial-duration series, 18,000 cfs. Only annual peaks are shown prior to 1950.

Peak stages and discharges of South Umpqua River near Brockway, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1890	February 1890	33.1	130,000	1952	Dec. 1, 1951	14.36	22,200
1906	Jan. 16, 1906	21.26	46,400		Dec. 5, 1951	15.18	25,000
1907	Jan. 4, 1907	29.16	71,000		Dec. 24, 1951	17.95	34,400
1908	Dec. 26, 1907	22.66	51,700		Dec. 30, 1951	17.14	31,700
1909	Jan. 16, 1909	21.86	48,700		Feb. 2, 1952	19.09	38,500
1910	Nov. 23, 1909	27.66	70,700		Mar. 24, 1952	16.59	29,800
1911	Nov. 29, 1910	17.36	36,100	1953	Dec. 10, 1952	16.66	30,000
1912	Feb. 18, 1912	17.36	32,700		Jan. 9, 1953	17.94	34,400
1924	Dec. 7, 1923	12.35	13,300		Jan. 14, 1953	41.43	22,400
1925	Dec. 30, 1924	20.92	38,600		Jan. 18, 1953	30.36	89,200
1926	Feb. 3, 1926	19.8	35,000	1954	Feb. 3, 1953	16.72	30,300
1927	Feb. 21, 1927	31.2	101,000		Feb. 6, 1953	16.71	30,200
1942	Feb. 4, 1942	14.61	20,000		Nov. 23, 1953	29.03	81,800
1943	Dec. 31, 1942	28.5	70,000		Dec. 6, 1953	16.48	29,400
1944	Nov. 4, 1943	12.5	14,600		Dec. 9, 1953	14.48	22,600
1945	Feb. 14, 1945	18.32	31,500		Jan. 17, 1954	24.02	57,700
1946	Dec. 29, 1945	28.2	67,700	1955	Jan. 23, 1954	16.20	28,500
1947	Dec. 14, 1946	14.22	19,300		Jan. 28, 1954	23.88	57,100
1948	Jan. 7, 1948	29.0	71,400	1956	Feb. 13, 1954	17.61	33,200
1949	Dec. 12, 1948	20.45	38,200		Dec. 31, 1954	16.31	28,800
1950	Jan. 18, 1950	18.45	31,900		Nov. 20, 1955	15.54	26,200
	Jan. 23, 1950	20.61	38,800		Dec. 1, 1955	13.30	18,600
	Mar. 17, 1950	15.92	24,300		Dec. 9, 1955	13.49	19,300
1951	Oct. 29, 1950	32.4	102,000		Dec. 22, 1955	31.55	91,300
	Nov. 16, 1950	20.57	43,900		Dec. 26, 1955	30.34	85,300
	Nov. 18, 1950	21.06	45,700		Jan. 4, 1956	15.11	24,700
	Dec. 4, 1950	20.02	41,800		Jan. 7, 1956	14.40	22,300
	Dec. 7, 1950	15.18	25,000	1957	Jan. 15, 1956	22.12	49,700
	Jan. 18, 1951	23.18	54,200		Jan. 23, 1956	21.34	46,700
	Jan. 21, 1951	17.58	33,100		Feb. 21, 1956	16.61	29,800
	Jan. 24, 1951	18.03	34,700		Dec. 11, 1956	26.26	68,200
	Feb. 5, 1951	17.34	32,300		Feb. 26, 1957	23.50	57,100
					Mar. 9, 1957	13.34	20,500
					Mar. 12, 1957	15.04	26,200

3121. Parrott Creek at Roseburg, Oreg.

Location.--Lat 43°11'45", long 123°20'50", in NE<sup>1</sup> sec.25, T.27 S., R.6 W., at culvert on Starmer Street between Masters and Booth streets in Roseburg, and 0.5 mile upstream from mouth.

Drainage area.--2.42 sq mi. Mean altitude, 1,090 ft; channel slope, 205 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 510 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 31 cfs and extended on basis of computations of flow through culvert.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Dec. 23, 1951	12.32	141	1956	Dec. 21, 1955	15.24	290
1953	Jan. 18, 1953	12.94	168	1957	Feb. 26, 1957	11.89	120
1954	Nov. 22, 1953	12.41	144				
1955	Dec. 30, 1954	(a)	(b)				

a Peak stage did not reach bottom of gage.

b Discharge less than 31 cfs.

## 3123. Marks Creek near Roseburg, Oreg.

Location--Lat 43°14'55", long 123°23'50", in NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.3, T.27 S., R.6 W., at culvert on Garden Valley Road, 1.0 mile upstream from mouth and 3.8 miles northwest of Roseburg.

Drainage area--1.26 sq mi. Mean altitude, 760 ft; channel slope, 397 ft per mile; area of lakes and ponds, 0 sq mi.

Gage--Crest-stage gage. Altitude of gage is 445 ft (from topographic map).

Stage-discharge relation--Defined by current-meter measurements below 22 cfs and extended on basis of computations of flow through culvert.

Remarks--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Feb. 3, 1952	12.49	96	1956	Dec. 21, 1955	15.08	235
1953	Jan. 18, 1953	13.37	140	1957	Feb. 26, 1957	13.33	138
1954	Nov. 22, 1953	12.74	108				
1955	Dec. 30, 1954	11.31	46				

## 3125. Lake Creek at Diamond Lake, near Fort Klamath, Oreg.

Location--Lat 43°11'10", long 122°09'55", in SW $\frac{1}{4}$  sec.30, T.27 S., R.6 E., on right bank 260 ft downstream from outlet of Diamond Lake and 35 miles north of Fort Klamath.

Drainage area--54.9 sq mi. Mean altitude, 5,830 ft; channel slope, 27.6 ft per mile; area of lakes and ponds, 4.75 sq mi.

Gage--Nonrecording prior to Oct. 6, 1933; recording thereafter. Prior to May 26, 1931, at site 300 ft downstream at different datum. Altitude of gage is 5,180 ft (from river-profile map).

Stage-discharge relation--Defined by current-meter measurements below 170 cfs and extended by logarithmic plotting.

Bankfull stage--3 ft.

Remarks--Flow regulated at times by gates and fish racks at lake outlet. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1927	Feb. 23, 1927	2.08	137	1941	Jan. 25, 1941	1.53	79
1928	May 24, 1928	1.80	89	1942	Jan. 11, 1942	1.63	108
1929	Feb. 2, 1929	1.75	75	1943	Jan. 1, 1943	2.8	336
				1944	Oct. 26, 1943	1.65	104
1931	Apr. 5, 1931	1.50	50	1945	May 17, 1945	1.68	115
1932	June 30, 1932	1.55	92				
1933	Jan. 1, 1933	1.82	131	1946	Dec. 28, 1945	2.08	182
1934	Jan. 23, 1934	1.49	84	1947	July 11, 1947	1.87	146
1935	Dec. 5, 1934	1.72	108	1948	June 9, 1948	1.73	122
				1949	Dec. 12, 1948	1.72	121
1936	Jan. 16, 1936	1.56	95	1950	Jan. 18, 1950	al.93	-
1937	Dec. 22, 1936	1.51	84		Jan. 27, 1950	1.81	144
1938	Dec. 11, 1937	a2.15	-				
	Dec. 27, 1937	1.26	126	1951	Jan. 23, 1951	1.63	143
1939	Dec. 3, 1937	1.56	95	1952	Dec. 5, 1951	1.71	156
1940	Apr. 15, 1940	1.82	137	1953	Dec. 14, 1952	2.02	290

a Backwater from ice.

3135. North Umpqua River below Lemolo Reservoir, near Toketee Falls, Oreg.  
(Published as "below Lake Creek" 1928-52, and as "below Lake Creek,  
near Toketee Falls" 1953)

Location.--Lat 43°19'20", long 122°11'40", in NW<sup>1</sup>NW<sup>1</sup> sec.11, T.26 S., R.5 E.,  
on right bank 1,900 ft downstream from Lemolo Reservoir and 13 miles east of  
town of Toketee Falls.

Drainage area.--170 sq mi. Mean altitude, 5,670 ft; channel slope, 73.1 ft per  
mile; area of lakes and ponds, 5.0 sq mi.

Gage.--Recording. Prior to July 15, 1954, at site 1 mile upstream at datum  
about 65 ft higher than present gage. July 15, 1954, to Sept. 25, 1955, at  
site 400 ft upstream at datum 14.11 ft higher than present gage. Altitude  
of gage is 4,025 ft (from river-profile map).

Stage-discharge relation.--Defined by current-meter measurements below 850 cfs  
and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Flow regulated since July 15, 1954, by Lemolo Reservoir (usable ca-  
pacity, 12,520 acre-ft). Flow slightly regulated by Diamond Lake. Records  
given herein include flow in Lemolo No. 1 power canal which, beginning  
July 7, 1955, has diverted 0.4 mile above station for power generation with  
return flow 4.3 miles downstream. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1928	May 12, 1928	1.68	662	1943	June 1, 1943	2.03	988
1929	May 23, 1929	1.40	580	1944	Nov. 4, 1943	1.54	629
1930	Dec. 19, 1929	1.60	710	1945	May 16, 1945	1.58	653
1931	May 14, 1931	1.14	431	1946	May 21, 1946	1.88	864
1932	May 20, 1932	1.72	724	1947	May 4, 1947	1.58	653
1933	June 9, 1933	2.34	1,190	1948	June 9, 1948	2.23	1,110
1934	Jan. 23, 1934	1.26	497	1949	May 14, 1949	2.06	949
1935	May 24, 1935	1.53	661	1950	June 3, 1950	2.03	922
1936	May 14, 1936	1.61	697	1951	May 24, 1951	1.83	758
1937	May 23, 1937	1.40	563	1952	May 28, 1952	2.33	1,080
1938	May 27, 1938	1.80	815	1953	June 7, 1953	-	1,050
1939	Nov. 4, 1938	1.44	579	1954	Nov. 22, 1953	2.23	1,110
1940	Apr. 9, 1940	1.30	490	1955	June 10, 1955	3.60	912
1941	May 8, 1941	1.04	372	1956	June 3, 1956	a7.15	1,400
1942	May 24, 1942	1.32	501	1957	Dec. 11, 1956	-	996

a Gage height in river only.

3140. North Umpqua River above Clearwater River, near Toketee Falls, Oreg.  
(Published as North Umpqua River above Clearwater River prior to October 1952)

Location.--Lat 43°17'10", long 122°24'00", in NE<sup>1</sup> sec.25, T.26 S., R.3 E.,  
1 mile upstream from Toketee Reservoir, 2 miles upstream from Clearwater  
River and 2.5 miles east of town of Toketee Falls.

Drainage area.--258 sq mi. Mean altitude, 5,250 ft; channel slope, 89.8 ft per  
mile; area of lakes and ponds, 5.0 sq mi.

Gage.--Recording. Datum of gage is 2,457.51 ft above mean sea level (levels by  
The California Oregon Power Co.).

Stage-discharge relation.--Defined by current-meter measurements below 1,410  
cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Flow slightly regulated by Diamond Lake. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	May 2, 1949	4.36	2,380	1952	May 29, 1952	3.69	1,690
1950	June 2, 1950	3.79	1,610	1953	Jan. 18, 1953	5.62	3,680
1951	Dec. 7, 1950	4.57	2,590	1954	Nov. 23, 1953	5.43	3,320

3145. Clearwater River above Trap Creek, near Toketee Falls, Oreg.  
(Published as "above Trap Creek" prior to 1952)

Location.--Lat 43°14'40", long 122°17'10", in SE $\frac{1}{4}$  sec.1, T.27 S., R.4 E., on right bank 900 ft downstream from Clearwater No. 1 diversion dam, 0.4 mile upstream from Trap Creek, and 8.7 miles east of Town of Toketee Falls.

Drainage area.--41.6 sq mi. Mean altitude, 5,180 ft; channel slope, 222 ft per mile; area of lakes and ponds, 0.01 sq mi.

Gage.--Recording. Prior to Dec. 1, 1953, at two sites about 0.4 mile downstream at different datums. Datum of gage is 3,862.84 ft above mean sea level (levels by The California Oregon Power Co.).

Stage-discharge relation.--Defined by current-meter measurements below 290 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Records herein include flow in Clearwater No. 1 power canal, completed in June 1953, which diverts 900 ft above station for generation of power and returns to Clearwater River  $2\frac{1}{2}$  miles below station. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1928	Mar. 26, 1928	1.63	286	1944	Nov. 4, 1943	1.48	253
1929	May 22, 1929	1.30	262	1945	May 3, 1945	1.49	256
1930	Dec. 19, 1929	1.30	273				
				1946	Dec. 28, 1945	1.90	368
1931	Apr. 1, 1931	1.00	189	1947	June 8, 1947	1.48	253
1932	May 21, 1932	1.55	296	1948	Jan. 7, 1948	2.40	445
1933	June 9, 1933	2.02	380	1949	May 2, 1949	1.98	392
1934	Jan. 23, 1934	1.02	209	1950	June 1, 1950	1.78	333
1935	May 22, 1935	1.07	218				
				1951	Oct. 29, 1950	2.28	487
1936	Apr. 24, 1936	1.22	250	1952	May 27, 1952	1.92	366
1937	June 20, 1937	1.25	236	1953	Jan. 18, 1953	2.03	400
1938	May 26, 1938	1.40	310	1954	Nov. 23, 1953	a2.01	435
1939	Apr. 22, 1939	1.07	226	1955	June 9, 1955	-	331
1940	Mar. 26, 1940	1.37	214				
				1956	Dec. 22, 1955	a6.53	598
1941	May 24, 1941	1.08	168	1957	Oct. 30, 1956	-	238
1942	Dec. 2, 1941	1.62	264		Dec. 11, 1956	a4.13	351
1943	Jan. 1, 1943	2.17	451				

a Gage heights in river only since June 1953.

3150. Clearwater River at mouth, near Toketee Falls, Oreg.  
(Published as Clearwater River at mouth, prior to October 1952)

Location.--Lat 43°15'50", long 122°25'00", in SW $\frac{1}{4}$  sec.36, T.26 S., R.3 E., on left bank 0.3 mile upstream from mouth and 2.0 miles southeast of town of Toketee Falls.

Drainage area.--76.6 sq mi. Mean altitude, 4,820 ft; channel slope, 214 ft per mile; area of lakes and ponds, 0.01 sq mi.

Gage.--Nonrecording prior to Oct. 13, 1948; recording thereafter. Datum of gage is 2,437.5 ft above mean sea level (levels by The California Oregon Power Co.).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--Not subject to overflow.

Remarks.--Regulated by Clearwater No. 1 powerplant of The California Oregon Power Co. since June 1953. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	Jan. 7, 1948	4.96	1,340	1951	Oct. 29, 1950	4.82	1,250
1949	May 2, 1949	4.40	1,010	1952	Apr. 28, 1952	3.96	760
1950	Feb. 15, 1950	a3.97	-	1953	Jan. 18, 1953	a5.33	1,380
	May 26, 1950	3.74	650	1954	Nov. 23, 1953	a5.28	1,330

a Backwater from debris.

3155. North Umpqua River at Toketee Falls, Oreg.

Location.--Lat 43°15'50", long 122°25'20", in E $\frac{1}{2}$  sec.35, T.26 S., R.3 E.,  
0.1 mile downstream from Clearwater River, half a mile upstream from Toketee  
Falls, and 1.8 miles southeast of town of Toketee Falls.

Drainage area.--339 sq mi. Mean altitude, 5,130 ft; channel slope, 87.4 ft per  
mile; area of lakes and ponds, 5.1 sq mi.

Gage.--Recording gage. Datum of gage is 2,373 ft above mean sea level (levels  
by The California Oregon Power Co.).

Stage-discharge relation.--Defined by current-meter measurements below 1,900  
cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Base for partial-duration series, 1,700 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1925	Feb. 4, 1925	4.30	3,350	1938	Dec. 11, 1937	2.78	1,990
1926	Feb. 6, 1926	2.35	1,620		Jan. 22, 1938	3.44	2,560
					Apr. 30, 1938	2.86	2,020
1927	Nov. 29, 1926	3.17	2,270	1939	Mar. 25, 1939	2.48	1,680
	Feb. 20, 1927	4.65	3,600				
	Apr. 27, 1927	2.67	1,780	1940	Mar. 26, 1940	2.30	1,580
	May 16, 1927	3.07	2,170				
	June 8, 1927	2.67	1,780	1941	Nov. 29, 1940	1.63	1,060
1928	Nov. 25, 1927	3.06	2,170	1942	Dec. 18, 1941	2.46	1,710
	Nov. 28, 1927	4.15	3,480				
	Mar. 11, 1928	3.5	2,650	1943	Nov. 23, 1942	3.13	2,280
1929	Mar. 21, 1929	2.87	1,970		Nov. 27, 1942	3.60	2,700
1930	Dec. 19, 1929	4.40	3,480		Nov. 29, 1942	4.99	4,070
1931	Apr. 1, 1931	3.75	2,810		Dec. 1, 1942	4.03	3,090
1932	Mar. 19, 1932	4.40	3,740		Dec. 31, 1942	5.90	5,080
	Mar. 24, 1932	2.72	1,950		Mar. 8, 1943	2.63	1,840
	May 21, 1932	2.94	2,180	1944	Apr. 21, 1943	2.98	2,150
1933	Apr. 29, 1933	2.64	1,890		June 1, 1943	3.31	2,440
	June 9, 1933	4.32	3,330	1945	Feb. 8, 1945	2.51	1,750
1934	Jan. 23, 1934	3.07	2,250		Feb. 13, 1945	3.82	2,900
1935	Dec. 20, 1934	3.33	2,430		May 16, 1945	2.77	1,960
1936	Apr. 24, 1936	2.79	1,990	1946	Dec. 28, 1945	5.65	4,800
1937	Apr. 14, 1937	3.35	2,520		May 19, 1946	2.68	1,880
	May 18, 1937	2.56	1,780	1947	Dec. 14, 1946	3.55	2,660
1938	Nov. 20, 1937	2.54	1,780	1948	Jan. 7, 1948	4.59	3,650
					Feb. 22, 1948	3.17	2,310
					June 10, 1948	2.90	2,080

a Annual peak only.

3160. Fish Creek at Big Camas ranger station, near Toketee Falls, Oreg.  
(Published as Fish Creek at Big Camas ranger station, prior to  
October 1952)

Location.--Lat 43°13'50", long 122°26'45", in SE $\frac{1}{4}$  sec.10, T.27 S., R.3 E., on right bank 0.3 mile upstream from Camas Creek, 0.7 mile east of Big Camas ranger station, 3.2 miles south of town of Toketee Falls, and 5 miles upstream from mouth.

Drainage area.--68.8 sq mi. Mean altitude, 4,880 ft; channel slope, 196 ft per mile; area of lakes and ponds, 0.05 sq mi.

Gage.--Recording prior to July 10, 1951, and since Nov. 4, 1951; nonrecording July 10, 1951, to Nov. 3, 1951. Prior to Aug. 10, 1951, at site 1,000 ft upstream at datum 13.72 ft higher. Aug. 11 to Nov. 3, 1951, at site 200 ft downstream at different datum. Nov. 4, 1951, to Sept. 30, 1956, at present site at datum 1.92 ft higher than present gage; gage heights herein for 1952-56 adjusted to present datum. Datum of present gage is 2,858.52 ft above mean sea level, datum of 1929 (levels by The California Oregon Power Co.).

Stage-discharge relation.--Defined by current-meter measurements below 6,000 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Records herein include flow in Fish Creek power canal (completed in June 1952), which diverts 2 miles above station for power generation at Fish Creek powerplant; diversion discharges to North Umpqua River just below town of Toketee Falls. Base for partial-duration series, 900 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1948	Jan. 7, 1948	7.62	4,270	1952	Dec. 1, 1951	5.05	1,100	
	Feb. 22, 1948	5.22	1,500		May 27, 1952	4.83	947	
	June 2, 1948	4.65	1,000	1953	Jan. 18, 1953	9.09	5,160	
1949	Dec. 12, 1948	5.04	1,340		Feb. 3, 1953	6.48	2,020	
	May 2, 1949	6.05	2,300		May 19, 1953	5.19	1,060	
	May 12, 1949	4.84	1,160		June 7, 1953	5.25	1,100	
1950	Jan. 22, 1950	4.53	911	1954	Nov. 23, 1953	a8.65	4,700	
1951	Oct. 29, 1950	7.24	3,750	1955	June 9, 1955	a5.19	1,030	
	Nov. 2, 1950	5.06	1,410		1956	Dec. 22, 1955	a12.82	b9,880
	Nov. 15, 1950	4.73	1,110	1957		Dec. 11, 1956	-	1,860
	Dec. 3, 1950	5.58	1,860			Feb. 26, 1957	a6.23	1,850
	Dec. 6, 1950	6.32	2,600	Mar. 6, 1957		-	1,210	
	Jan. 23, 1951	4.53	953					
Feb. 5, 1951	5.13	1,420						

a Gage height in river channel.

b Affected by failure of power canal diversion dam 2 miles upstream.

3165. North Umpqua River above Copeland Creek, near Toketee Falls, Oreg.  
(Published as "above Copeland Creek" prior to October 1952)

Location.--Lat 43°17'45", long 122°32'10", in NW $\frac{1}{4}$  sec.24, T.26 S., R.2 E., on right bank 0.6 mile upstream from Copeland Creek and 4.7 miles west of town of Toketee Falls.

Drainage area.--475 sq mi. Mean altitude, 4,870 ft; channel slope, 90.2 ft per mile; area of lakes and ponds, 5.1 sq mi.

Gage.--Recording. Altitude of gage is 1,580 ft (from river-profile map).

Stage-discharge relation.--Defined by current-meter measurements below 10,000 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Regulation by powerplants upstream; slightly regulated by Diamond Lake and Lemolo Reservoir (usable capacity, 12,520 acre-ft). Only annual peaks are shown.

Peak stages and discharges of North Umpqua River above Copeland Creek, near Toketee Falls, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Feb. 25, 1950	6.82	4,670	1954	Nov. 23, 1953	11.94	16,400
				1955	June 10, 1955	6.15	3,830
1951	Oct. 29, 1950	11.30	12,200				
1952	May 19, 1952	6.60	4,200	1956	Dec. 22, 1955	14.84	25,000
1953	Jan. 18, 1953	12.23	17,200	1957	Dec. 11, 1956	10.60	13,000

3175. North Umpqua River above Rock Creek, near Glide, Oreg.

Location.--Lat 43°19'40", long 123°00'00", in NW<sup>1</sup>/<sub>4</sub> sec.12, T.26 S., R.3 W., 0.5 mile upstream from Rock Creek and 5.0 miles northeast of Glide.

Drainage area.--886 sq mi. Mean altitude, 3,980 ft; channel slope, 63.1 ft per mile; area of lakes and ponds, 5.2 sq mi.

Gage.--Recording. Altitude of gage is 770 ft (from river-profile map).

Stage-discharge relation.--Defined by current-meter measurements below 18,000 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Historical data.--Flood of Oct. 29, 1950, reached a stage of 20.5 ft, from floodmarks (discharge, 55,000 cfs); that of Dec. 22, 1955, reached a stage of 23.1 ft, from floodmarks (discharge, 68,000 cfs).

Remarks.--Base for partial-duration series, 14,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1925	Oct. 31, 1924	11.72	19,600	1937	Apr. 14, 1937	14.32	28,400
	Nov. 20, 1924	12.44	21,900				
	Dec. 30, 1924	15.45	32,800	1938	Nov. 20, 1937	11.28	17,700
	Jan. 29, 1925	11.25	18,000		Dec. 11, 1937	11.72	19,300
	Feb. 4, 1925	13.68	26,400		Jan. 22, 1938	13.42	25,000
1926	Feb. 6, 1926	11.08	16,800		Mar. 19, 1938	12.96	23,500
1927	Nov. 20, 1926	10.2	15,100	1939	Mar. 12, 1939	10.06	14,000
	Nov. 29, 1926	13.7	26,400	1940	Mar. 26, 1940	9.78	13,100
	Jan. 2, 1927	10.5	16,000	1941	Jan. 25, 1941	8.75	10,400
	Feb. 20, 1927	20.18	53,000	1942	Nov. 15, 1941	12.06	20,200
1928	Nov. 28, 1927	13.4	25,400		Dec. 3, 1941	10.70	15,800
	Mar. 11, 1928	13.6	26,100		Dec. 18, 1941	12.67	22,300
1929	Mar. 21, 1929	10.45	16,000		Jan. 8, 1942	10.13	13,600
	Apr. 14, 1929	10.27	14,600	1943	Nov. 23, 1942	15.54	33,500
1930	Dec. 19, 1929	13.02	22,900		Nov. 27, 1942	14.92	30,900
1931	Apr. 1, 1931	12.40	20,900		Nov. 29, 1942	17.55	42,300
1932	Mar. 18, 1932	15.84	33,200		Dec. 1, 1942	12.85	23,000
1933	June 9, 1933	10.20	15,300		Dec. 27, 1942	14.5	29,300
1934	Jan. 23, 1934	11.65	18,700		Dec. 30, 1942	19.97	52,100
1935	Dec. 20, 1934	12.97	23,500		Jan. 21, 1943	12.24	20,400
1936	Jan. 2, 1936	12.1	19,900	1944	Nov. 4, 1943	13.58	25,600
	Jan. 4, 1936	13.20	24,200	1945	Feb. 8, 1945	11.13	17,100
	Jan. 11, 1936	12.2	20,300		Feb. 15, 1945	12.99	23,500
				1951	Oct. 29, 1950	20.5	55,000
				1956	Dec. 22, 1955	23.1	68,000

## 3185. North Umpqua River near Glide, Oreg.

Location.--Lat 43°18'20", long 123°07'00", in SW $\frac{1}{4}$  sec.13, T.26 S., R.4 W., 1.2 miles downstream from Little River and 1.4 miles west of Glide.

Drainage area.--1,210 sq mi. Mean altitude, 3,520 ft; channel slope, 58.2 ft per mile; area of lakes and ponds, 5.3 sq mi.

Gage.--Nonrecording. Prior to Oct. 17, 1922, at site 150 ft downstream at datum 0.60 ft higher than described gage; gage heights herein adjusted to described datum. Altitude of gage is 645 ft (river-profile survey).

Stage-discharge relation.--Defined by current-meter measurements below 40,000 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Historical data.--Maximum stage known, 22.6 ft Nov. 22, 1909, from floodmark (discharge, 94,000 cfs). Flood of Oct. 29, 1950, reached a stage of 20.4 ft, from floodmarks (discharge, 80,000 cfs); that of Dec. 22, 1955, reached a stage of 21.7 ft, from floodmarks (discharge, 90,000 cfs).

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1910	Nov. 22, 1909	22.6	94,000	1931	Apr. 1, 1931	12.10	33,800
1916	Nov. 25, 1915	13.4	42,000	1932	Mar. 19, 1932	17.3	59,500
1917	Apr. 11, 1917	8.0	18,100	1933	Jan. 2, 1933	10.94	28,400
1918	Jan. 12, 1918	13.5	42,500	1934	Jan. 23, 1934	10.6	27,000
1919	Jan. 17, 1919	10.0	26,100	1935	Dec. 20, 1934	13.3	39,500
1920	Nov. 3, 1919	11.4	32,400	1936	Jan. 4, 1936	13.4	40,000
1922	Nov. 21, 1921	14.4	50,000	1937	Apr. 14, 1937	14.3	44,500
1928	Mar. 11, 1928	12.4	35,200	1938	Jan. 22, 1938	13.5	40,500
1929	Apr. 14, 1929	9.98	24,300	1951	Oct. 29, 1950	20.4	80,000
1930	Dec. 19, 1929	10.40	26,100	1956	Dec. 22, 1955	21.7	90,000

## 3190. North Umpqua River near Oakcreek, Oreg.

Location.--Lat 43°17'00", long 123°14'40", in NW $\frac{1}{4}$  sec.25, T.26 S., R.5 W., about 3 miles west of former town of Oakcreek and 7 $\frac{1}{4}$  miles northeast of Roseburg.

Drainage area.--1,276 sq mi.

Gage.--Nonrecording. Altitude of gage is 545 ft (from river-profile map).

Stage-discharge relation.--Defined by current-meter measurements below 41,000 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1906	Jan. 16, 1906	12.5	29,900	1914	Dec. 31, 1913	9.55	17,700
1907	Feb. 4, 1907	21.2	67,900	1915	Oct. 19, 1914	10.1	19,600
1908	Dec. 22, 1907	17.7	52,300				

3195. North Umpqua River at Winchester, Oreg.

Location.--Lat 43°16'20", long 123°24'40", in NW<sup>1</sup>NE<sup>1</sup> sec.33, T.26 S., R.6 W., on right bank at Browns Bridge, 1.8 miles upstream from confluence with South Umpqua River and 3 miles west of Winchester.

Drainage area.--1,344 sq mi.

Gage.--Nonrecording Oct. 1, 1908, to Dec. 31, 1913, and Oct. 1, 1923, to Sept. 30, 1929; recording after August 1954. Prior to Sept. 30, 1929, at site 4.8 miles upstream at altitude 420 ft (from river-profile map); datum raised 0.74 ft Oct. 1, 1923. Gage heights herein for December 1908 to December 1913, adjusted to datum used 1923-29. Altitude of present gage is 370 ft (from river-profile map).

Stage-discharge relation.--Defined by current-meter measurements below 46,500 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Historical data.--Flood of Nov. 23, 1953, reached a stage of 28.4 ft, from flood-marks, present site and datum (discharge, 89,000 cfs).

Remarks.--Peak discharges slightly regulated by Diamond Lake and since July 15, 1954, by Lemolo Reservoir (usable capacity, 12,520 acre-ft). Base for partial-duration series, 20,000 cfs. Only annual peaks are shown prior to 1955. Records herein for 1954-57, adjusted on basis of drainage-area ratio, are combined with those for station near Glide for use in the analysis.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1909	Jan. 21, 1909	12.56	32,400	1955	Dec. 31, 1954	15.03	38,100
1910	Nov. 23, 1909	27.36	100,000	1956	Nov. 19, 1955	14.79	37,200
1911	Nov. 28, 1910	14.76	41,000		Dec. 12, 1955	12.71	29,500
1912	Jan. 12, 1912	19.26	60,500		Dec. 22, 1955	29.14	92,500
1913	Mar. 30, 1913	11.96	30,100		Dec. 26, 1955	18.51	52,000
					Jan. 15, 1956	18.94	53,800
1924	Dec. 29, 1923	-	20,200		Jan. 22, 1956	18.65	52,600
1925	Dec. 30, 1924	15.3	42,800		Feb. 21, 1956	12.87	30,000
1926	Feb. 4, 1926	10.20	23,300	1957	Oct. 30, 1956	11.24	24,300
1927	Feb. 20, 1927	24.2	78,200		Dec. 11, 1956	24.36	75,400
1928	Mar. 11, 1928	13.7	36,100		Feb. 26, 1957	16.81	45,200
1929	Mar. 21, 1929	11.00	25,900		Mar. 9, 1957	11.15	24,000
					Mar. 12, 1957	10.70	22,400
1954	Nov. 23, 1953	28.4	89,900				

## UMPQUA RIVER BASIN

3210. Umpqua River near Elkton, Oreg.

Location.--Lat 43°35'10", long 123°33'30", in NW¼ sec.8, T.23 S., R.7 W., on right bank 3½ miles south of Elkton and 8 miles upstream from Elk Creek.

Drainage area.--3,683 sq mi. Mean altitude, 2,480 ft; channel slope, 34 ft per mile; area of lakes and ponds, 5.8 sq mi.

Gage.--Nonrecording prior to Nov. 1, 1956; recording thereafter. Prior to Jan. 1, 1910, at site 1,700 ft upstream at datum 2.63 ft higher. Jan. 1, 1910, to Sept. 30, 1929, at datum 2.11 ft higher, and Oct. 1, 1929, to Nov. 1, 1956, at datum 1.15 ft higher. Gage heights herein prior to Nov. 1, 1956, adjusted to datum used Oct. 1, 1929, to Nov. 1, 1956. Datum of present gage is 90.42 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 175,000 cfs.

Bankfull stage.--46 ft.

Historical data.--Maximum stage known since at least 1861, 46.0 ft Dec. 22, 1955, from floodmarks, present site and datum (discharge, 218,000 cfs). Flood in 1861 reached a stage about 0.1 ft lower, from information by local residents.

Remarks.--Records for 1905-8 furnished by the State engineer of Oregon. Base for partial-duration series, 52,000 cfs. Only annual peaks are shown prior to 1948.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1861	-	45.5	218,000	1947	Dec. 14, 1946	22.60	74,000
1906	Jan. 17, 1906	19.81	61,400	1948	Jan. 3, 1948	21.8	70,000
1908	Dec. 26, 1907	30.48	106,000	Jan. 7, 1948	37.8	154,000	
1909	Jan. 20, 1909	28.48	97,200	Feb. 22, 1948	31.5	120,000	
1910	Nov. 23, 1909	39.48	44,000	1949	Dec. 12, 1948	29.5	109,000
1911	Nov. 29, 1910	26.96	94,300	Feb. 23, 1949	24.6	84,100	
1912	Jan. 13, 1912	29.96	109,000	1950	Jan. 19, 1950	21.2	67,100
1913	Jan. 18, 1913	22.96	75,800	Jan. 22, 1950	23.36	78,000	
1914	Jan. 26, 1914	20.96	67,000	Mar. 18, 1950	19.7	58,500	
1915	Feb. 3, 1915	12.96	33,100	1951	Oct. 30, 1950	44.2	208,000
1916	Feb. 7, 1916	30.96	116,000	Nov. 18, 1950	25.0	86,100	
1917	Mar. 25, 1917	14.76	40,300	Dec. 4, 1950	22.7	74,500	
1918	Jan. 13, 1918	20.96	67,000	Dec. 7, 1950	19.22	57,800	
1919	Jan. 19, 1919	25.96	91,000	Jan. 18, 1951	27.6	99,600	
1920	Dec. 9, 1919	17.96	53,500	Jan. 22, 1951	20.1	61,800	
1921	Dec. 30, 1920	23.96	81,000	Jan. 24, 1951	22.5	73,500	
1922	Nov. 30, 1921	22.96	76,000	Feb. 5, 1951	22.5	73,500	
1923	Jan. 6, 1923	26.96	96,000	1952	Dec. 24, 1951	20.76	64,900
1924	Dec. 7, 1923	14.46	39,100	Dec. 30, 1951	19.4	58,500	
1925	Dec. 30, 1924	30.96	116,000	Feb. 2, 1952	22.30	72,500	
1926	Feb. 5, 1926	20.96	67,000	Mar. 25, 1952	19.10	57,100	
1927	Feb. 21, 1927	40.96	185,000	1953	Jan. 9, 1953	19.2	57,500
1928	Mar. 27, 1928	20.96	67,000	Jan. 19, 1953	43.0	199,000	
1929	Apr. 15, 1929	16.16	45,400	Feb. 4, 1953	22.10	71,500	
1930	Dec. 20, 1929	19.9	62,000	Feb. 6, 1953	21.80	70,100	
1931	Apr. 1, 1931	17.40	51,000	1954	Nov. 23, 1953	42.40	195,000
1932	Mar. 19, 1932	28.70	104,000	Dec. 7, 1953	21.22	67,200	
1933	Jan. 3, 1933	28.0	101,000	Jan. 17, 1954	28.6	105,000	
1934	Jan. 24, 1934	18.1	53,200	Jan. 28, 1954	26.7	94,800	
1935	Dec. 20, 1934	23.1	76,600	Feb. 13, 1954	18.60	54,800	
1936	Jan. 13, 1936	30.0	111,000	1955	Dec. 31, 1954	19.8	60,400
1937	Apr. 14, 1937	26.60	94,000	1956	Nov. 20, 1955	20.6	64,200
1938	Feb. 7, 1938	31.0	119,000	Dec. 22, 1955	45.6	218,000	
1939	Mar. 13, 1939	19.00	57,500	Dec. 26, 1955	40.0	178,000	
1940	Feb. 29, 1940	24.50	83,500	Jan. 16, 1956	29.3	109,000	
1941	Dec. 27, 1940	21.8	70,400	Jan. 23, 1956	28.3	105,000	
1942	Dec. 19, 1941	22.6	74,200	Feb. 21, 1956	29.6	111,000	
1943	Dec. 31, 1942	41.1	186,000	1957	Dec. 12, 1956	33	131,000
1944	Nov. 5, 1943	18.0	52,000	Feb. 26, 1957	-	110,000	
1945	Feb. 14, 1945	23.12	76,500	Mar. 12, 1957	-	53,000	
1946	Dec. 29, 1945	40.1	179,000				

3227. Bear Creek near Drain, Oreg.

Location.--Lat 43°38'00", long 123°21'55", in NW $\frac{1}{4}$  sec.25, T.22 S., R.6 W., at diversion dam 0.8 mile downstream from Lost Cabin Creek and 3.5 miles southwest of Drain.

Drainage area.--5.13 sq mi. Mean altitude, 1,190 ft; channel slope, 195 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 555 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 178 cfs and extended on basis of computations of flow over dam.

Remarks.--Peak discharges not affected by diversion at gage for town of Drain water supply. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Nov. 28, 1951	14.43	247	1956	Dec. 21, 1955	15.59	452
1953	Jan. 18, 1953	14.96	381	1957	Dec. 11, 1956	14.57	281
1954	Jan. 27, 1954	15.07	412				
1955	Dec. 30, 1954	14.07	174				

a Backwater from debris.

3230. Mill Creek near Ash, Oreg.

Location.--Lat 43°36'20", long 123°50'50", in NE $\frac{1}{4}$  sec.2, T.23 S., R.10 W., 0.7 mile downstream from Loon Lake and 3 $\frac{1}{4}$  miles northwest of Ash.

Drainage area.--90 sq mi, approximately. 88.7 sq mi at site used 1907-12.

Gage.--Nonrecording prior to Sept. 28, 1912; recording May 1915 to October 1917. Prior to Sept. 28, 1912, at site above Loon Lake outlet at different datum. Altitude of last used gage is 150 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 3,400 cfs and extended by logarithmic plotting.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1908	Dec. 26, 1907	15.5	4,420	1912	Jan. 13, 1912	14.5	3,820
1909	Jan. 16, 1909	13.0	2,920				
1910	Nov. 23, 1909	21.4	10,000	1916	Feb. 7, 1916	13.1	8,690
1911	Jan. 19, 1911	14.5	3,820	1917	Mar. 25, 1917	6.80	3,340

COQUILLE RIVER BASIN

3250. South Fork Coquille River at Powers, Oreg.

Location.--Lat 42°53'30", long 124°04'10", in SE $\frac{1}{4}$  sec.12, T.31 S., R.12 W., on left bank 0.7 mile downstream from highway bridge at Powers and 0.8 mile upstream from Woodward Creek.

Drainage area.--169 sq mi; 168 sq mi at site used 1917-26. Mean altitude, 2,200 ft; channel slope, 79.4 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording prior to Nov. 17, 1938; recording thereafter. Prior to Sept. 30, 1926, at site 1.0 mile upstream at different datum. Nov. 26, 1928, to Nov. 17, 1938, at highway bridge 0.7 mile upstream at different datum. Datum of gage is 197.42 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 14,000 cfs and extended on basis of contracted-opening measurement at 24,400 cfs.

Bankfull stage.--Not subject to overflow.

Remarks.--Peak discharges not affected by diversions. Base for partial-duration series, 9,300 cfs. Only annual peaks are shown prior to 1939.

Peak stages and discharges of South Fork Coquille River at Powers, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1917	Dec. 3, 1916	8.25	5,040				
1918	Feb. 6, 1918	10.80	10,000	1946	Nov. 18, 1945	12.40	12,100
1919	Jan. 17, 1919	15.2	19,700		Nov. 27, 1945	13.96	14,600
1920	Dec. 10, 1919	11.25	10,900		Dec. 6, 1945	11.40	10,600
					Dec. 28, 1945	20.57	30,500
1921	Feb. 20, 1921	11.00	10,100	1947	Nov. 18, 1946	11.72	11,100
1922	Nov. 21, 1921	10.2	8,440		Nov. 22, 1946	10.59	9,380
1923	Dec. 31, 1922	10.60	9,260	1948	Jan. 2, 1948	12.2	11,800
1924	Dec. 6, 1923	10.4	8,840		Jan. 7, 1948	15.07	16,500
1925	Oct. 31, 1924	17.5	25,300		Feb. 22, 1948	10.73	9,600
1926	Feb. 4, 1926	15.5	20,000	1949	Dec. 12, 1948	11.54	10,800
1929	Apr. 14, 1929	11.49	11,600		Feb. 22, 1949	13.12	13,300
1930	Dec. 14, 1929	12.10	12,700	1950	Jan. 21, 1950	11.49	11,000
1931	Mar. 12, 1931	8.20	5,870		Mar. 17, 1950	11.12	10,400
1932	Dec. 31, 1931	13.1	14,700	1951	Oct. 28, 1950	18.14	24,400
1933	Jan. 2, 1933	15.0	18,000		Nov. 16, 1950	11.20	10,500
1934	Dec. 18, 1933	12.05	11,500		Nov. 18, 1950	13.52	14,600
1935	Nov. 4, 1934	10.55	7,230		Jan. 17, 1951	14.35	16,200
1936	Jan. 12, 1936	17.50	23,600		Jan. 21, 1951	13.00	13,700
1937	Apr. 13, 1937	15.6	15,200	1952	Nov. 30, 1951	12.04	12,000
1938	Nov. 19, 1937	17.4	23,300		Feb. 1, 1952	10.66	9,820
1939	Dec. 2, 1938	12.06	11,100	1953	Jan. 9, 1953	14.04	15,600
	Mar. 12, 1939	11.40	9,990		Jan. 18, 1953	17.64	24,900
1940	Dec. 10, 1939	12.76	12,100		May 26, 1953	10.66	10,800
	Feb. 28, 1940	12.00	11,300	1954	Nov. 22, 1953	17.49	24,500
1941	Dec. 20, 1940	13.80	14,300		Dec. 19, 1953	10.53	10,600
	Dec. 26, 1940	12.80	12,600		Jan. 16, 1954	11.51	12,300
1942	Nov. 15, 1941	11.67	10,800		Jan. 27, 1954	14.17	16,300
	Dec. 2, 1941	14.50	15,500	1955	Dec. 31, 1954	10.35	9,600
	Dec. 16, 1941	11.18	10,700	1956	Nov. 19, 1955	13.87	15,800
	Dec. 19, 1941	12.30	12,500		Dec. 21, 1955	19.75	28,000
	Feb. 4, 1942	12.20	12,300		Dec. 26, 1955	18.45	25,200
1943	Nov. 14, 1942	11.74	11,100		Jan. 4, 1956	12.32	13,000
	Nov. 23, 1942	12.44	12,200		Jan. 15, 1956	14.72	17,400
	Dec. 8, 1942	15.05	16,500		Jan. 22, 1956	10.84	9,810
	Dec. 27, 1942	13.64	14,100		Feb. 21, 1956	11.24	10,500
	Dec. 30, 1942	13.75	14,300	1957	Dec. 11, 1956	13.36	14,500
	Jan. 21, 1943	13.67	14,200		Feb. 26, 1957	15.13	18,100
1944	Nov. 4, 1943	10.78	9,670				
1945	Feb. 8, 1945	11.56	10,800				

## 3265. Middle Fork Coquille River near Myrtle Point, Oreg.

Location.--Lat 43°01'30", long 124°05'20", in NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.26, T.29 S., R.12 W., 0.3 mile downstream from Indian Creek, 2.1 miles upstream from South Fork, and 3.6 miles southeast of Myrtle Point.

Drainage area.--305 sq mi. Mean altitude, 1,460 ft; channel slope, 37.3 ft per mile; area of lakes and ponds, 0.1 sq mi.

Gage.--Recording. Datum of gage is 41.20 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 9,000 cfs and extended by logarithmic plotting.

Bankfull stage.--22 ft.

Historical data.--Maximum stage known, 25.8 ft Oct. 31, 1924, from information by observer (discharge, 31,800 cfs).

Remarks.--Peak discharges may be slightly affected by operation of log ponds during winter and spring months. Base for partial-duration series, 8,200 cfs.

## Peak stages and discharges of Middle Fork Coquille River near Myrtle Point, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1925	Oct. 31, 1924	25.8	31,800	1938	Mar. 23, 1938	15.3	8,380
1931	Mar. 12, 1931	13.77	7,030	1939	Feb. 6, 1939	15.5	8,660
1932	Nov. 19, 1931	16.9	12,300	1940	Mar. 12, 1939	16.12	9,500
	Dec. 27, 1931	15.9	10,600		Dec. 10, 1939	15.98	9,330
	Dec. 31, 1931	19.2	16,600		Feb. 17, 1940	17.21	11,100
	Mar. 19, 1932	15.3	9,610		Feb. 28, 1940	18.55	13,400
1933	Dec. 26, 1932	15.7	10,300	1941	Dec. 20, 1940	20.35	17,000
	Jan. 2, 1933	22.5	23,600		Dec. 26, 1940	18.9	14,000
	Jan. 27, 1933	18.2	14,700	1942	Nov. 15, 1941	18.10	12,600
	May 8, 1933	15.1	9,280		Dec. 3, 1941	16.13	9,540
1934	Jan. 23, 1934	14.4	8,160	Dec. 16, 1941	16.83	10,600	
	1935	Nov. 25, 1934	15.1	9,280	Dec. 20, 1941	17.44	11,500
		Dec. 20, 1934	16.8	12,200	1943	Nov. 29, 1942	15.95
1936	Jan. 4, 1936	20.9	19,100	Dec. 8, 1942		22.00	20,800
	Jan. 13, 1936	22.0	21,500	Dec. 25, 1942	15.77	9,040	
	Jan. 16, 1936	15.8	9,570	Dec. 27, 1942	15.56	8,740	
	Feb. 21, 1936	15.4	8,970	Dec. 31, 1942	22.23	21,400	
1937	Feb. 1, 1937	17.2	11,100	1944	Jan. 21, 1943	18.43	13,200
	Feb. 3, 1937	15.8	9,080		Nov. 4, 1943	15.97	9,320
	Apr. 13, 1937	15.8	9,080	1945	Feb. 13, 1945	16.58	10,200
1938	Nov. 11, 1937	15.4	8,520		Mar. 17, 1945	16.40	9,950
	Nov. 20, 1937	15.6	8,800	1946	Nov. 19, 1945	16.91	10,700
	Dec. 11, 1937	16.6	10,200		Nov. 28, 1945	16.96	10,800
	Feb. 6, 1938	20.2	16,600		Dec. 7, 1945	16.81	10,500
	Mar. 4, 1938	15.7	8,940		Dec. 28, 1945	23.0	23,400
	Mar. 16, 1938	22.0	20,800		Jan. 5, 1946	17.38	11,400
Mar. 19, 1938	20.1	16,400	Feb. 6, 1946		15.15	8,170	

## 3266. Gettys Creek near Myrtle Point, Oreg.

Location.--Lat 43°00'30", long 124°12'40", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.35, T.29 S., R.13 W., at culvert on county road, 0.2 mile upstream from mouth and 5.5 miles southwest of Myrtle Point.

Drainage area.--1.45 sq mi. Mean altitude, 480 ft; channel slope, 156 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 150 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 45 cfs and extended on basis of computations of flow through culvert.

Remarks.--Only annual peaks are shown.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	Jan. 18, 1953	14.34	176	1956	Dec. 21, 1955	16.33	223
1954	Jan. 16, 1954	13.42	154	1957	Dec. 11, 1956	10.95	91
1955	Dec. 30, 1954	12.35	128				

3270. North Fork Coquille River near Myrtle Point, Oreg.

Location.--Lat 43°06'10", long 124°04'30", in NW<sup>1</sup> sec.36, T.28 S., R.12 W., 0.2 mile downstream from East Fork and 4.3 miles northeast of Myrtle Point.

Drainage area.--276 sq mi; 284 sq mi at site used prior to Oct. 23, 1930. Mean altitude, 1,180 ft; channel slope, 37.1 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording prior to Oct. 23, 1930; recording thereafter. Prior to Oct. 23, 1930, at highway bridge 4.5 miles downstream at different datum. Datum of gage is 10.94 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 7,000 cfs and extended on basis of slope-conveyance study.

Bankfull stage.--26 ft on right bank and 29 ft on left bank.

Historical data.--Maximum stage known, 41.2 ft, present site and datum, Nov. 23, 1909 (discharge, 34,000 cfs). Flood of Dec. 26, 1955, reached a stage of 37.0 ft, from floodmarks (discharge, 20,000 cfs).

Remarks.--Peak discharge may be slightly affected by operation of log ponds above station. Base for partial-duration series, 7,000 cfs. Only annual peaks are shown prior to 1931, and for 1956.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1910	Nov. 23, 1909	41.2	34,000	1939	Feb. 6, 1939	30.72	8,730
					Feb. 15, 1939	30.4	8,640
1929	Jan. 3, 1929	26.85	6,560		Mar. 13, 1939	28.0	7,050
1930	Dec. 19, 1929	29.36	8,390	1940	Feb. 17, 1940	29.74	7,530
1931	Apr. 1, 1931	26.55	6,630		Feb. 29, 1940	29.3	7,280
1932	Nov. 20, 1931	31.8	10,200	1941	Dec. 21, 1940	32.31	10,400
	Jan. 1, 1932	-	10,000		Dec. 27, 1940	32.31	10,400
	Mar. 19, 1932	33.0	11,700		Jan. 26, 1941	29.0	7,000
1933	Dec. 27, 1932	30.3	8,850	1942	Nov. 15, 1941	35.31	16,100
	Jan. 3, 1933	35.7	16,900		Dec. 3, 1941	29.0	7,000
	Jan. 27, 1933	31.2	9,600		Dec. 20, 1941	32.5	10,800
	Feb. 16, 1933	28.1	7,510	1943	Nov. 30, 1942	31.6	9,440
1934	Jan. 24, 1934	29.0	7,600		Dec. 8, 1942	35.3	16,100
1935	Dec. 20, 1934	31.74	10,100		Dec. 28, 1942	30.8	8,440
1936	Jan. 5, 1936	33.5	12,600		Dec. 31, 1942	36.3	23,900
	Jan. 11, 1936	34.2	13,900		Jan. 22, 1943	31.3	9,030
	Feb. 22, 1936	27.5	7,130	1944	Nov. 5, 1943	31.33	9,070
1937	Feb. 1, 1937	31.3	9,300	1945	Feb. 14, 1945	32.35	10,500
	Feb. 4, 1937	31.9	9,900		Mar. 18, 1945	29.9	7,630
	Apr. 15, 1937	30.2	8,280	1946	Nov. 19, 1945	30.2	7,880
1938	Nov. 20, 1937	31.9	9,900		Nov. 28, 1945	32.7	11,000
	Nov. 23, 1937	30.4	8,460		Dec. 7, 1945	30.9	8,540
	Jan. 22, 1938	32.2	10,300		Dec. 28, 1945	39.3	26,900
	Feb. 7, 1938	33.2	11,900		Jan. 5, 1946	30.5	8,140
	Mar. 16, 1938	34.0	13,500		Mar. 13, 1946	29.4	7,260
	Mar. 19, 1938	35.27	16,100	1956	Dec. 26, 1955	37.0	20,000
	Mar. 23, 1938	28.0	7,050				

## 3271. Geiger Creek near Bandon, Oreg.

Location.--Lat 43°06'15", long 124°22'45", in SE $\frac{1}{4}$  sec.32, T.28 S., R.14 W., at culvert on county road, 1.1 miles upstream from mouth and 1.8 miles south-east of Bandon.

Drainage area.--1.36 sq mi; 1.73 sq mi at site used 1953. Mean altitude, 270 ft; channel slope, 89 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Crest-stage gage since Nov. 3, 1953. Altitude of gage is 120 ft (from topographic map).

Stage-discharge relation.--Defined by computations of flow through culvert. Peak for Jan. 18, 1953, determined by indirect measurement of flow over dam and through diversion pipe at mouth, 1.1 miles downstream.

Remarks.--Only annual peaks are shown. Peak for Jan. 18, 1953, adjusted on basis of drainage-area ratio to described site for analysis.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	Jan. 18, 1953	-	140	1956	Dec. 21, 1955	24.10	131
1954	Nov. 22, 1953	22.10	101	1957	Oct. 25, 1956	21.90	98
1955	Dec. 30, 1954	20.89	83				

## ROGUE RIVER BASIN

## 3275. Rogue River above Bybee Creek, Oreg.

Location.--Lat 42°56'05", long 122°25'15", in NE $\frac{1}{4}$  sec.26, T.30 S., R.3 E., on left bank 700 ft upstream from Bybee Creek, and 2.3 miles northeast of village of Union Creek.

Drainage area.--155 sq mi. Mean altitude, 5,200 ft; channel slope, 79.1 ft per mile; area of lakes and ponds, 0.1 sq mi.

Gage.--Recording. Prior to Nov. 23, 1934, at site 200 ft downstream at different datum. Altitude of gage is 3,465 ft (from river-profile map).

Stage-discharge relation.--Defined by current-meter measurements below 2,000 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Base for partial-duration series, 1,600 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1931	Apr. 1, 1931	4.74	2,050	1940	Mar. 26, 1940	4.06	1,590
1932	Mar. 19, 1932	5.95	2,940	1941	Nov. 29, 1940	3.19	1,080
	May 13, 1932	4.07	1,690	1942	Dec. 2, 1941	4.56	1,890
	May 20, 1932	4.35	1,870		Nov. 24, 1942	5.52	2,540
1933	May 29, 1933	4.23	1,820	Nov. 27, 1942	5.84	2,780	
	June 9, 1933	7.68	4,290	Nov. 29, 1942	7.84	4,430	
1934	Jan. 23, 1934	4.30	1,940	Dec. 1, 1942	6.15	3,030	
				Dec. 31, 1942	6.83	3,570	
1935	Dec. 20, 1934	4.70	1,970	May 31, 1943	4.78	2,030	
1936	Apr. 24, 1936	4.47	1,850	1944	Nov. 4, 1943	5.15	2,280
1937	Jan. 22, 1937	a5.55	-	1945	Feb. 13, 1945	4.96	2,150
	Apr. 14, 1937	4.15	1,670	May 3, 1945	4.18	1,660	
1938	Nov. 20, 1937	5.04	2,180	May 16, 1945	4.39	1,780	
	Dec. 11, 1937	4.24	1,670	1946	Dec. 28, 1945	7.84	4,430
	Jan. 22, 1938	4.40	1,790		Nov. 18, 1946	4.20	1,670
	May 26, 1938	4.44	1,810	Dec. 14, 1946	4.80	2,040	
	1939	Nov. 4, 1938	4.54	1,870	1948	Jan. 7, 1948	6.84
Dec. 3, 1938		4.27	1,710				

a Backwater from ice.

## Peak stages and discharges of Rogue River above Bybee Creek, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	May 26, 1948	4.17	1,650	1951	Oct. 29, 1950	6.53	5,330
1949	May 2, 1949	5.27	2,370	Nov. 2, 1950	4.65	1,940	
	May 13, 1949	4.48	1,840	Dec. 4, 1950	4.47	1,830	
				Dec. 7, 1950	5.85	2,790	
1950	June 1, 1950	4.26	1,710	1952	Dec. 1, 1951	4.47	1,830
				May 27, 1952	4.71	1,980	

3280. Rogue River above Prospect, Oreg.  
(Published as North Fork Rogue River at Prospect 1909-10,  
and Rogue River near Prospect 1911-12, 1924-25)

Location--Lat 42°46'30", long 122°29'55", in NE $\frac{1}{4}$  sec.19, T.32 S., R.3 E., on left bank 1.5 miles upstream from California Oregon Power Co. diversion dam and 1.8 miles northwest of Prospect.

Drainage area--332 sq mi. Mean altitude, 4,900 ft; channel slope, 68.2 ft per mile; area of lakes and ponds, 0.1 sq mi.

Gage--Nonrecording for January 1908 to February 1912; recording since October 1923. Prior to October 1923 at several sites within a few hundred feet upstream at various datums. Altitude of gage is 2,620 ft (from river-profile map).

Stage-discharge relation--Defined by current-meter measurements below 6,400 cfs and extended on basis of slope-area measurement at 16,600 cfs.

Bankfull stage--Not subject to overflow.

Remarks--Base for partial-duration series, 2,700 cfs. Only annual peaks are shown prior to 1924.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1909	Jan. 21, 1909	5.0	4,400	1937	May 14, 1937	3.96	2,780
1910	Nov. 23, 1909	-	-	1938	Nov. 20, 1937	4.77	4,050
1911	Nov. 24, 1910	3.1	2,940		Dec. 11, 1937	4.55	3,680
					Jan. 22, 1938	4.77	4,050
1924	Feb. 7, 1924	3.69	2,090	Apr. 30, 1938	4.30	3,300	
1925	Nov. 20, 1924	4.50	3,540	May 16, 1938	4.31	3,300	
	Dec. 30, 1924	6.20	6,480	1939	Nov. 4, 1938	4.12	3,030
	Jan. 30, 1925	4.08	2,910		Dec. 3, 1938	4.44	3,510
	Feb. 4, 1925	5.93	5,950	1940	Feb. 6, 1940	4.09	2,980
1926	Feb. 4, 1926	3.89	2,450		Feb. 28, 1940	4.37	3,400
	Nov. 29, 1926	5.61	5,360		Mar. 26, 1940	4.14	3,060
	Dec. 2, 1926	4.44	3,450	1941	Jan. 25, 1941	3.24	1,780
	Feb. 20, 1927	6.97	8,130		Dec. 2, 1941	4.88	4,150
May 16, 1927	4.16	3,030	1942	Nov. 24, 1942	5.39	4,980	
1928	Nov. 28, 1927	5.97		6,100	Nov. 27, 1942	5.31	4,850
	Mar. 11, 1928	4.86		4,000	Nov. 29, 1942	7.20	8,690
	Mar. 26, 1928	4.80		3,910	Dec. 1, 1942	5.83	5,760
1929	Mar. 21, 1929	4.53		3,510	Dec. 27, 1942	5.04	4,400
				Dec. 31, 1942	6.96	8,110	
1930	Dec. 19, 1929	5.41	4,940	Mar. 9, 1943	4.02	2,820	
1931	Apr. 1, 1931	4.70	3,750	June 1, 1943	4.36	3,330	
				1944	Nov. 4, 1943	4.64	3,760
1932	Mar. 19, 1932	6.7	7,530		1945	Feb. 8, 1945	4.14
	May 13, 1932	4.13	2,900	Feb. 13, 1945		5.41	5,020
1933	Apr. 29, 1933	3.96	2,780	May 16, 1945		4.37	3,340
	May 30, 1933	4.36	3,380	1946	Dec. 28, 1945	8.4	11,900
	June 9, 1933	6.30	6,680		1947	Nov. 19, 1946	4.42
1934	Jan. 23, 1934	4.5	3,600	Dec. 14, 1946		4.66	3,920
1935	Dec. 20, 1934	4.79	4,050	1948	Jan. 7, 1948	7.18	8,610
1936	Apr. 24, 1936	4.07	2,920		Feb. 22, 1948	4.06	2,970
					May 27, 1948	3.92	2,760
1937	Apr. 13, 1937	5.09	4,520				

Peak stages and discharges of Rogue River above Prospect, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	May 2, 1949	5.16	4,660	1953	May 19, 1953	4.53	3,280
	May 13, 1949	4.23	3,200		June 7, 1953	4.56	3,640
1950	May 14, 1950	3.99	2,660	1954	Nov. 23, 1953	7.62	9,680
1951	Oct. 29, 1950	6.74	7,620	Dec. 20, 1953	4.83	4,070	
	Nov. 2, 1950	4.52	3,570	Feb. 12, 1954	4.09	2,940	
	Nov. 18, 1950	4.02	2,820	Mar. 9, 1954	3.92	2,700	
	Dec. 4, 1950	5.09	4,480	1955	May 21, 1955	4.05	2,780
	Dec. 7, 1950	5.70	5,520		Nov. 19, 1955	4.56	3,260
Feb. 4, 1951	4.67	3,810	Dec. 22, 1955	10.01	16,600		
1952	Dec. 1, 1951	5.01	4,360	Jan. 15, 1956	6.56	6,810	
	Apr. 28, 1952	4.13	2,730	Feb. 22, 1956	6.12	6,320	
	May 28, 1952	4.40	3,120	May 23, 1956	4.18	2,970	
1953	Jan. 18, 1953	7.95	10,500	1957	Dec. 11, 1956	7.40	9,140
	Feb. 3, 1953	5.45	5,080		Feb. 28, 1957	6.27	6,620
	Feb. 6, 1953	5.08	4,470		Mar. 6, 1957	4.71	3,820

3300. Rogue River below Prospect powerplant No. 1, Oreg.  
(Published as Rogue River below Prospect 1913-27)

Location.--Lat 42°43'50", long 122°30'50", in NW $\frac{1}{4}$  sec.6, T.33 S., R.3 E., on left bank 300 ft downstream from Prospect powerplant of The California Oregon Power Co., 1.2 miles downstream from Barr Creek, and 2.0 miles southwest of Prospect.

Drainage area.--387 sq mi.

Gage.--Nonrecording prior to Jan. 13, 1928; recording thereafter. Prior to Jan. 13, 1928, at site 400 ft upstream (above powerplant tailrace) at different datum. Altitude of gage is 1,970 ft (from river-profile map).

Stage-discharge relation.--Defined by current-meter measurements below 5,200 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Records include flow of The California Oregon Power Co. flume. Small diversions for irrigation above station and slight regulation by pondage at diversion dam and forebay of powerplant. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1914	Apr. 15, 1914	5.0	3,120	1922	Nov. 30, 1921	7.0	9,230
1915	Oct. 19, 1914	4.7	2,450	1923	Jan. 6, 1925	5.3	3,840
				1924	Feb. 7, 1924	4.8	2,660
1916	Mar. 20, 1916	4.9	3,050	1925	Dec. 30, 1924	6.5	7,570
1917	June 9, 1917	5.4	4,100	1926	Feb. 4, 1926	4.68	2,720
1918	Jan. 12, 1918	5.4	4,140		Feb. 20, 1927	7.4	10,500
1919	Apr. 4, 1919	5.5	4,430	1928	Nov. 28, 1927	6.6	7,850
1920	Jan. 26, 1920	4.84	2,750	1929	Mar. 21, 1929	4.23	3,920
1921	Dec. 30, 1920	6.0	5,960	1930	Dec. 19, 1929	4.97	5,440

3305. South Fork Rogue River above Innaha Creek, near Prospect, Oreg.

Location.--Lat 42°42'15", long 122°23'10", in NE $\frac{1}{4}$  sec.18, T.33 S., R.4 E., on left bank 900 ft upstream from Innaha Creek, 1,200 ft upstream from South Fork diversion dam, and 6 miles southeast of Prospect.

Drainage area.--52 sq mi, approximately.

Gage.--Recording. Altitude of gage is 3,390 ft (from river-profile map).

Stage-discharge relation.--Defined by current-meter measurements below 980 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Only annual peaks are shown. Records herein for 1931-49, adjusted on basis of drainage-area ratio, are combined with those for station near Prospect for use in the analysis.

## Peak stages and discharges of South Fork Rogue River above Imnaha Creek, near Prospect, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1932	Mar. 19, 1932	4.47	1,100	1941	May 8, 1941	3.38	528
1933	June 9, 1933	4.21	950	1942	May 25, 1942	3.13	435
1934	Jan. 23, 1934	3.63	628	1943	Dec. 1, 1942	6.21	2,170
1935	Dec. 20, 1934	3.75	675	1944	Nov. 4, 1943	3.27	419
				1945	Feb. 13, 1945	4.76	1,170
1936	Apr. 24, 1936	3.66	628				
1937	Apr. 15, 1937	3.74	670	1946	Dec. 28, 1945	4.88	1,260
1938	Jan. 22, 1938	3.90	750	1947	Dec. 14, 1946	2.95	358
1939	Dec. 3, 1938	4.52	1,140	1948	Jan. 7, 1948	4.20	850
1940	Mar. 26, 1940	2.91	378	1949	May 2, 1949	4.85	906

## 3310. Imnaha Creek near Prospect, Oreg.

Location.--Lat 42°42'20", long 122°23'05", in NE $\frac{1}{4}$  sec.18, T.33 S., R.4 E., on left bank 1,200 ft upstream from mouth and 6.0 miles southeast of Prospect.

Drainage area.--26 sq mi, approximately.

Gage.--Nonrecording. Altitude of gage is 3,400 ft (from river-profile map).

Stage-discharge relation.--Defined by current-meter measurements below 240 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Only annual peaks are shown.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1932	Mar. 19, 1932	2.10	237	1941	May 8, 1941	1.06	53
1933	June 15, 1933	1.86	176	1942	May 25, 1942	-	110
1934	Jan. 23, 1934	-	110	1943	Nov. 29, 1942	2.6	410
1935	Dec. 20, 1934	-	150	1944	May 4, 1944	1.14	69
				1945	Feb. 13, 1945	-	500
1936	Apr. 24, 1936	-	150				
1937	May 14, 1937	-	130	1946	Dec. 29, 1945	-	320
1938	Jan. 22, 1938	-	200	1947	Dec. 14, 1946	-	100
1939	Dec. 3, 1938	-	220	1948	Jan. 7, 1948	-	330
1940	Mar. 26, 1940	1.84	167	1949	May 2, 1949	-	250

## 3320. South Fork Rogue River near Prospect, Oreg.

Location.--Lat 42°42'25", long 122°23'20", in NE $\frac{1}{4}$  sec.18, T.33 S., R.4 E., on right bank 500 ft downstream from diversion dam and intake of South Fork power canal, 0.1 mile downstream from Imnaha Creek, and 6 miles southeast of Prospect.

Drainage area.--79 sq mi, approximately. Mean altitude, 5,150 ft; channel slope, 151 ft per mile; area of lakes and ponds, 1.0 sq mi.

Gage.--Recording. Apr. 1, 1924, to Sept. 30, 1931, at site 0.1 mile downstream at different datum. Altitude of gage is 3,330 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 780 cfs and extended on basis of computation of flow over dam at 3,180 cfs.

Bankfull stage.--Not subject to overflow.

Remarks.--Records herein include flow in South Fork power canal (completed in March 1932) which diverts 500 ft above station and returns water to Rogue River above South Fork Rogue River. Only annual peaks are shown.

Peak stages and discharges of South Fork Rogue River near Prospect, Oreg.

Water year	Date	Gage height (feet) <sup>a</sup>	Discharge (cfs)	Water year	Date	Gage height (feet) <sup>a</sup>	Discharge (cfs)
1925	Dec. 30, 1924	3.97	1,270	1951	Dec. 7, 1950	5.43	1,330
				1952	May 28, 1952	4.30	785
1926	Dec. 1, 1925	1.53	216	1953	Jan. 18, 1953	5.94	1,760
1927	Feb. 20, 1927	3.89	1,210	1954	Nov. 23, 1953	7.34	2,540
1928	Nov. 28, 1927	4.99	1,200	1955	June 9, 1955	4.03	730
1929	May 22, 1929	2.66	618				
1930	Dec. 19, 1929	4.58	1,700	1956	Dec. 22, 1955	8.3	3,180
				1957	Dec. 11, 1956	7.59	2,440
1931	Apr. 1, 1931	2.63	602				
1950	May 22, 1950	3.82	523				

<sup>a</sup> Gage heights in river channel.

3330. Middle Fork Rogue River near Prospect, Oreg.

Location.--Lat 42°44'05", long 122°24'05", in NE<sup>1</sup>NE<sup>1</sup> sec.1, T.33 S., R.3 E., on right bank 850 ft downstream from diversion dam and intake of Middle Fork power canal and 4.5 miles southeast of Prospect.

Drainage area.--57 sq mi, approximately. Mean altitude, 5,310 ft; channel slope, 244 ft per mile; area of lakes and ponds, 0.4 sq mi.

Gage.--Recording. Prior to Nov. 10, 1949, at site 140 ft downstream; June 17, 1925, to Oct. 1, 1939, at datum 0.7 ft lower and Oct. 1, 1939, to Nov. 10, 1949, at datum 1.7 ft lower than described gage. Datum of gage is 2,619 ft above mean sea level (levels by The California Oregon Power Co.).

Stage-discharge relation.--Defined by current-meter measurements below 550 cfs and extended by logarithmic plotting. Subject to frequent shifts.

Remarks.--Records include flow in Middle Fork power canal, completed Nov. 19, 1931, which diverts 850 ft above station for hydroelectric power and returns to Rogue River above South Fork Rogue River. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1927	Feb. 20, 1927	3.04	890	1942	Dec. 3, 1941	3.75	813
1928	Mar. 26, 1928	2.35	515	1943	Nov. 29, 1942	5.15	2,760
1929	Mar. 21, 1929	2.64	672	1944	Nov. 4, 1943	3.38	1,010
1930	Dec. 18, 1929	-	1,200	1945	Feb. 13, 1945	3.69	1,190
1931	Apr. 1, 1931	2.30	590	1946	Dec. 28, 1945	5.2	2,640
1932	Mar. 19, 1932	3.55	1,300	1947	Dec. 13, 1946	2.93	675
1933	June 9, 1933	2.63	771	1948	Jan. 7, 1948	4.2	1,640
1934	Jan. 23, 1934	2.45	721	1949	May 2, 1949	3.47	1,040
1935	Dec. 20, 1934	2.69	786	1950	June 1, 1950	2.98	480
1936	May 13, 1936	2.10	479	1951	Dec. 7, 1950	3.70	1,100
1937	Apr. 15, 1937	2.47	726	1952	May 27, 1952	2.97	548
1938	Dec. 10, 1937	2.75	835	1953	Jan. 18, 1953	4.47	1,750
1939	Dec. 3, 1938	2.40	721	1954	Nov. 23, 1953	5.52	3,120
1940	Mar. 26, 1940	2.77	415	1955	June 9, 1955	2.58	502
1941	Nov. 29, 1940	2.94	450	1956	Dec. 22, 1955	5.65	3,230

## 3335. Red Blanket Creek near Prospect, Oreg.

Location.--Lat 42°46'40", long 122°25'35", in NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.23, T.32 S., R.3 E., on right bank 1.8 miles downstream from Lick Creek and 3.7 miles northeast of Prospect.

Drainage area.--40 sq mi, approximately; 42 sq mi, approximately, at site used prior to October 1928. Mean altitude, 5,290 ft; channel slope, 234 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording prior to Sept. 8, 1949; recording thereafter. Prior to Sept. 30, 1928, at site  $2\frac{1}{2}$  miles downstream at different datum. Oct. 1, 1928, to Apr. 22, 1932, and Oct. 1, 1933, to Sept. 7, 1949, at site 150 ft downstream at datum 1.71 ft higher. Apr. 23, 1932, to Sept. 30, 1933, at present site at datum 2.14 ft higher. Gage heights herein since Oct. 1, 1928, adjusted to present datum. Altitude of gage is 2,780 ft (from river-profile map).

Stage-discharge relation.--Defined by current-meter measurements below 360 cfs and extended on basis of slope-area measurement at 1,840 cfs.

Bankfull stage.--Not determined.

Remarks.--Peak discharges not affected by diversions. Base for partial duration series, 300 cfs. Only annual peaks are shown prior to 1950.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1928	Mar. 11, 1928	5.6	1,200	1951	Dec. 3, 1950	4.40	665
1929	Apr. 14, 1929	3.67	300		Dec. 7, 1950	4.67	817
1930	Feb. 20, 1930	3.63	255		Jan. 24, 1951	3.89	426
					Feb. 4, 1951	3.86	414
1931	Mar. 20, 1931	3.57	184				
1932	Mar. 18, 1932	5.13	700	1952	Oct. 23, 1951	3.74	369
1933	June 9, 1933	4.34	580		Feb. 1, 1952	3.62	317
1934	Jan. 23, 1934	-	350		Apr. 28, 1952	3.63	320
1935	Dec. 20, 1934	-	380		May 28, 1952	3.73	356
1936	Apr. 24, 1936	3.79	335	1953	Jan. 18, 1953	6.02	1,280
1937	Apr. 14, 1937	-	500		Feb. 3, 1953	4.14	535
1938	Jan. 22, 1938	-	350		Feb. 6, 1953	4.46	698
1939	Nov. 4, 1938	4.29	541		May 19, 1953	3.71	358
1940	Mar. 26, 1940	-	210		June 7, 1953	3.70	383
	Mar. 29, 1940	3.55	-				
1941	May 8, 1941	-	190	1954	Nov. 23, 1953	6.62	1,530
	May 9, 1941	3.43	-		Dec. 20, 1953	3.80	372
1942	Dec. 3, 1941	4.31	470		June 15, 1954	3.73	366
1943	Nov. 29, 1942	6.81	1,630	1955	June 9, 1955	3.73	362
1944	May 5, 1944	3.25	160				
1945	Feb. 13, 1945	-	700	1956	Nov. 19, 1955	3.58	303
					Dec. 12, 1955	3.62	318
1946	Dec. 28, 1945	6.11	1,250		Dec. 22, 1955	7.30	1,840
1947	Dec. 14, 1946	-	280		Jan. 15, 1956	5.32	998
1948	Jan. 7, 1948	6.01	1,200		Jan. 22, 1956	4.80	790
1949	May 2, 1949	-	520		May 22, 1956	3.70	350
					June 19, 1956	3.62	318
1950	Jan. 23, 1950	3.61	302				
	June 1, 1950	3.66	319	1957	Oct. 26, 1956	3.63	306
					Nov. 17, 1956	3.64	326
1951	Oct. 29, 1950	4.70	835		Dec. 11, 1956	6.29	1,390
	Nov. 2, 1950	4.06	497		Feb. 26, 1957	4.25	594
	Nov. 18, 1950	3.64	334		Mar. 6, 1957	4.08	538

3350. Rogue River below South Fork Rogue River, near Prospect, Oreg.

Location.--Lat 42°42'00", long 122°35'40", in SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.16, T.33 S., R.2 E., on left bank at downstream side of highway bridge, 0.5 mile downstream from Cascade Gorge and 6.6 miles southwest of Prospect.

Drainage area.--643 sq mi. Mean altitude, 4,700 ft; channel slope, 45.3 ft per mile; area of lakes and ponds, 1.5 sq mi.

Gage.--Recording. Datum of gage is 1,706.26 ft above mean sea level (Bureau of Reclamation bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 12,000 cfs and extended on basis of slope-area measurement at 34,000 cfs.

Bankfull stage.--Not subject to overflow.

Remarks.--Peak discharges not affected by regulation by powerplant 5.5 miles upstream. Base for partial-duration series, 5,300 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1929	Mar. 21, 1929	-	-	1945	May 16, 1945	5.5	6,500
1930	Dec. 19, 1929	-	-	1946	Dec. 28, 1945	12.2	19,800
1931	Apr. 1, 1931	-	-		Jan. 5, 1946	4.8	5,400
1932	Mar. 19, 1932	8.7	12,600	1947	Nov. 19, 1946	5.00	5,700
1933	May 30, 1933	4.93	5,920		Dec. 14, 1946	5.25	6,100
	June 9, 1933	7.3	9,820	1948	Jan. 7, 1948	10.2	15,200
1934	Jan. 23, 1934	5.33	6,520		Feb. 22, 1948	5.24	5,860
1935	Dec. 20, 1934	6.00	7,640	1949	May 2, 1949	6.8	8,540
1936	Apr. 24, 1936	4.73	5,620		May 14, 1949	5.0	5,500
1937	Apr. 13, 1937	6.42	8,280	1950	Mar. 19, 1950	4.65	5,000
1938	Nov. 20, 1937	5.45	6,760	1951	Oct. 29, 1950	8.6	11,900
	Dec. 11, 1937	5.65	7,080		Nov. 2, 1950	5.15	5,720
	Jan. 22, 1938	6.04	7,640		Dec. 3, 1950	7.1	9,090
	Mar. 19, 1938	4.95	6,000		Dec. 7, 1950	8.0	10,800
	Apr. 30, 1938	5.00	6,070		Jan. 24, 1951	5.42	6,150
	May 16, 1938	4.80	5,770		Feb. 4, 1951	6.44	7,890
	May 26, 1938	4.55	5,400	1952	Dec. 1, 1951	5.45	6,200
1939	Nov. 4, 1938	4.78	5,740		Feb. 2, 1952	5.15	5,720
	Dec. 3, 1938	5.85	7,400		May 28, 1952	5.13	5,700
1940	Feb. 28, 1940	4.73	5,660	1953	Jan. 18, 1953	12.5	20,500
	Mar. 26, 1940	4.65	5,540		Feb. 3, 1953	7.12	9,130
1941	Jan. 25, 1941	3.29	3,570		Feb. 6, 1953	7.87	10,600
1942	Dec. 2, 1941	5.1	6,220		May 19, 1953	5.25	5,880
1943	Nov. 24, 1942	6.5	8,450	1954	June 7, 1953	5.77	6,750
	Nov. 27, 1942	-	-		Nov. 23, 1953	12.31	20,000
	Nov. 29, 1942	10.5	16,100		Dec. 20, 1953	5.62	6,490
	Dec. 1, 1942	8.2	11,500	1955	June 10, 1955	4.33	4,560
	Dec. 27, 1942	6.3	8,120				
	Dec. 31, 1942	-	-	1956	Dec. 22, 1955	17.3	34,000
	June 1, 1943	5.75	6,900		Jan. 15, 1956	8.43	12,000
1944	Nov. 4, 1943	4.52	4,980		Jan. 23, 1956	8.85	12,900
1945	Feb. 13, 1945	7.5	9,900		May 23, 1956	4.80	5,580
				1957	Dec. 11, 1956	11.62	19,200
					Feb. 26, 1957	7.90	10,900
					Mar. 12, 1957	-	9,000

3351. Fourbit Creek near Butte Falls, Oreg.

Location.--Lat 42°30'20", long 122°26'30", in SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.22, T.35 S., R.3 E.,  $\frac{2}{2}$  miles upstream from mouth, and 7 miles southeast of Butte Falls.

Drainage area.--31.7 sq mi. Mean altitude, 4,820 ft; channel slope, 292 ft per mile; area of lakes and ponds, 0.05 sq mi.

Gage.--Recording. Altitude of gage is 2,920 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 80 cfs and extended by logarithmic plotting.

Bankfull stage.--Not determined.

Remarks.--Records furnished by the Stage engineer of Oregon. Peak discharges not affected by regulation or diversion. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Mar. 22, 1950	2.41	78	1955	May 12, 1955	2.29	70
1952	Mar. 24, 1952	-	97	1956	Dec. 22, 1955	4.47	485
1953	Feb. 6, 1953	3.40	180	1957	Dec. 11, 1956	4.37	462
1954	Nov. 23, 1953	3.55	234				

3352. South Fork Big Butte Creek above Willow Creek, near Butte Falls, Oreg. (known locally as Rancheria Creek)

Location.--Lat 42°31'15", long 122°29'05", in SE $\frac{1}{4}$  sec.17, T.35 S., R.3 E., 200 ft upstream from Willow Creek and 4.0 miles east of Butte Falls.

Drainage area.--71.2 sq mi. Mean altitude, 4,260 ft; channel slope, 207 ft per mile; area of lakes and ponds, 0.05 sq mi.

Gage.--Nonrecording prior to Oct. 12, 1950; recording thereafter. Prior to May 10, 1946, at site 50 ft upstream at different datum. Altitude of present gage is 2,540 ft (from river-profile map).

Stage-discharge relation.--Defined by current-meter measurements below 300 cfs and extended by logarithmic plotting.

Remarks.--Records furnished by State engineer of Oregon. Peak discharges not affected by regulation or diversion. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1936	Jan. 17, 1936	4.02	920	1946	Mar. 12, 1946	2.60	240
1937	Apr. 16, 1937	3.20	600	1947	Apr. 15, 1947	1.58	137
1938	Mar. 19, 1938	3.80	445				
1939	Mar. 21, 1939	2.90	259	1950	Mar. 19, 1950	3.22	398
1940	Mar. 1, 1940	2.85	250				
1941	Mar. 14, 1941	1.86	89	1953	Jan. 18, 1953	4.91	790
1942	May 26, 1942	2.20	143	1954	Nov. 23, 1953	3.76	562
1943	Dec. 31, 1942	5.06	649	1955	May 12, 1955	1.96	183
1944	Apr. 25, 1944	2.33	145	1956	Dec. 22, 1955	5.75	1,020
1945	Feb. 13, 1945	3.40	377	1957	Dec. 13, 1956	3.61	562

3353. Willow Creek near Butte Falls, Oreg.

Location.--Lat 42°29'05", long 122°27'00", in NW<sup>1</sup>/<sub>4</sub> sec.34, T.35 S., R.3 E., 0.5 mile downstream from Willow Creek Reservoir and 6 miles southeast of Butte Falls.

Drainage area.--28.2 sq mi.

Gage.--Recording. Prior to Nov. 20, 1952, at site 1<sup>1</sup>/<sub>2</sub> miles downstream at different datum. Altitude of gage is 2,940 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 125 cfs and extended by logarithmic plotting.

Remarks.--Records furnished by the State engineer of Oregon. Flow regulated by Willow Creek Reservoir (capacity, 7,500 acre-ft). Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Mar. 19, 1950	2.87	240	1954	Dec. 6, 1953	2.22	163
				1955	Mar. 29, 1955	1.55	88
1951	Dec. 3, 1950	3.07	350	1956	Dec. 22, 1955	3.23	408
1953	Mar. 24, 1953	2.47	200				

3355. South Fork Big Butte Creek near Butte Falls, Oreg.  
(Published as "at Butte Falls" 1922-24)

Location.--Lat 42°32'25", long 122°33'15", in SW<sup>1</sup>/<sub>4</sub> sec.11, T.35 S., R.2 E., on right bank just downstream from Ginger Creek and 1 mile east of Butte Falls.

Drainage area.--135 sq mi; 130 sq mi at site used Sept. 21, 1910, to Sept. 30, 1922; 136 sq mi at site at Butte Falls used 1922-24. Mean altitude, 3,950 ft; channel slope, 132 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording prior to Sept. 30, 1922; recording thereafter. Prior to Sept. 30, 1922, at site 300 ft upstream from present gage at different datums. Oct. 1, 1922, to Sept. 30, 1924, at site at Butte Falls 0.9 mile downstream from present gage at lower datum. Altitude of present gage is 2,360 ft (from river-profile map).

Stage-discharge relation.--Defined by current-meter measurements below 1,600 cfs and extended by logarithmic plotting.

Remarks.--Records furnished by State engineer of Oregon. Peak discharges partly affected by diversions and regulation by Willow Creek Reservoir (capacity, 7,500 acre-ft). Base for partial-duration series, 450 cfs. Only annual peaks are shown prior to 1939.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1911	Nov. 28, 1910	3.2	1,210	1934	Jan. 23, 1934	1.30	325
				1935	Dec. 20, 1934	1.65	520
1919	Apr. 4, 1919	2.8	790	1936	Jan. 15, 1936	2.79	1,260
1921	Feb. 21, 1921	3.5	1,320	1938	Mar. 19, 1938	2.79	1,290
1923	Dec. 31, 1922	-	780	1939	Mar. 12, 1939	1.78	593
1925	Dec. 30, 1924	2.72	1,200	1941	Jan. 25, 1941	1.25	294
1926	Feb. 10, 1926	1.35	328				
				1927	Feb. 20, 1927	4.05	2,470
1928	Nov. 28, 1927	2.06	739	1942	Dec. 2, 1942	2.25	875
1930	Feb. 2, 1930	1.55	468	1943	Dec. 25, 1942	1.92	653
1932	Mar. 19, 1932	2.85	1,300				
1933	Mar. 12, 1933	1.73	536				

Peak stages and discharges of South Fork Big Butte Creek near Butte Falls, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1943	Dec. 28, 1942	2.72	1,200	1951	Jan. 17, 1951	3.06	1,460	
	Dec. 31, 1942	4.02	2,280		Feb. 4, 1951	2.77	1,240	
	Jan. 21, 1943	2.53	1,070		Mar. 15, 1951	1.71	511	
	Feb. 4, 1943	2.14	798	1952	Nov. 12, 1951	1.66	481	
1944	Apr. 24, 1944	1.42	358		Dec. 24, 1951	2.19	823	
	1945	Feb. 14, 1945	2.43		1,000	Dec. 29, 1951	2.30	900
		May 17, 1945	1.66	491	Feb. 2, 1952	2.62	1,130	
1946	May 26, 1945	1.64	479	Feb. 16, 1952	2.26	872		
	Dec. 28, 1945	2.89	1,320	Mar. 25, 1952	2.06	734		
	Jan. 2, 1946	1.73	523	Apr. 7, 1952	1.83	584		
1947	Jan. 5, 1946	2.03	714	1953	Jan. 18, 1953	3.49	1,800	
	Jan. 7, 1946	2.00	695		Feb. 7, 1953	2.69	1,180	
	Feb. 27, 1946	1.67	487		Mar. 24, 1953	1.73	523	
	Mar. 13, 1946	1.84	591		May 27, 1953	1.98	682	
1948	Nov. 19, 1946	1.48	376	June 8, 1953	1.76	541		
	Jan. 4, 1948	1.77	547	1954	Nov. 23, 1953	2.82	1,280	
Jan. 7, 1948	2.77	1,240	Dec. 6, 1953		2.35	935		
1949	Feb. 22, 1948	2.12	774		Jan. 17, 1954	1.81	572	
	Dec. 12, 1948	2.71	1,200		Jan. 23, 1954	-	-	
1950	Dec. 22, 1948	1.86	604	Jan. 28, 1954	2.41	977		
	Feb. 27, 1949	1.67	487	1955	Dec. 30, 1954	1.63	463	
	May 2, 1949	1.66	481		1956	Dec. 9, 1955	1.64	469
	1951	Jan. 23, 1950	1.91			636	Dec. 22, 1955	4.50
Mar. 5, 1950		1.65	475			Jan. 15, 1956	1.63	1,140
1952	Mar. 19, 1950	2.44	998	Jan. 23, 1956		3.12	1,510	
	Oct. 28, 1950	1.69	499	Feb. 21, 1956	1.82	578		
	Dec. 3, 1950	2.66	1,160	1957	Oct. 30, 1956	1.84	591	
	Dec. 7, 1950	2.37	949		Dec. 13, 1956	2.77	1,240	
1953	Dec. 14, 1950	1.82	578		Feb. 26, 1957	2.13	747	
					Mar. 12, 1957	2.94	1,370	
				Mar. 31, 1957	2.27	879		

## 3375. Big Butte Creek near McLeod, Oreg.

Location.--Lat 42°39'25", long 122°41'20", in NW $\frac{1}{4}$  sec.3, T.34 S., R.1 E., on right bank 50 ft downstream from highway bridge, 1.0 mile upstream from mouth, and 1.0 mile south of McLeod.

Drainage area.--249 sq mi. Mean altitude, 3,520 ft; channel slope, 108 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording. Datum of gage is 1,526.48 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 3,000 cfs and extended on basis of slope-area measurement at 8,950 cfs.

Remarks.--Peak discharges not materially affected by slight regulation by fish hatchery 600 ft above station and several diversions in vicinity of Butte Falls, the two largest being the city of Medford diversion and Eagle Point Irrigation District canal. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	Dec. 28, 1945	7.2	3,050	1952	Feb. 1, 1952	7.6	3,060
1947	Mar. 10, 1947	3.66	771	1953	Jan. 18, 1953	11.1	6,390
1948	Jan. 7, 1948	9.4	4,680	1954	Nov. 23, 1953	9.8	5,080
1949	Dec. 12, 1948	7.0	2,620	1955	Mar. 29, 1955	4.20	1,060
1950	Mar. 19, 1950	7.00	2,620	1956	Dec. 22, 1955	12.75	8,950
1951	Dec. 3, 1950	8.6	3,920		1957	Mar. 12, 1957	7.80

3380. Elk Creek near Trail, Oreg.

Location.--Lat 42°39'50", long 122°44'50", in SW $\frac{1}{4}$  sec.30, T.33 S., R.1 E., on right bank 0.4 mile upstream from mouth and 3.3 miles northeast of Trail.

Drainage area.--133 sq mi. Mean altitude, 3,100 ft; channel slope, 189 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording prior to June 23, 1950; recording thereafter. Prior to July 5, 1946, at several sites about 0.7 mile upstream from present gage at different datums. July 5, 1946, to May 23, 1954, at site 0.3 mile upstream from present gage at datum 12.14 ft higher. Datum of gage is 1,456.56 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 6,500 cfs and extended on basis of slope-area measurement at 13,700 cfs. Frequent shifts in rating.

Bankfull stage.--13 ft.

Remarks.--Peak discharges not affected by diversions. Base for partial-duration series, 2,700 cfs. Only annual peaks are shown prior to 1951.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	Dec. 28, 1945	13.5	9,880	1953	Jan. 9, 1953	7.77	3,720
1947	Nov. 18, 1946	6.7	2,720		Jan. 18, 1953	13.32	10,000
1948	Jan. 6, 1948	11.7	7,960		Feb. 5, 1953	7.53	3,510
1949	Feb. 22, 1949	7.75	3,700	1954	Nov. 23, 1953	11.75	8,000
1950	Mar. 19, 1950	6.74	2,850		Jan. 16, 1954	7.63	3,600
					Jan. 27, 1954	7.56	3,550
1951	Oct. 29, 1950	11.80	8,080	1955	Dec. 31, 1954	6.32	1,840
	Nov. 18, 1950	7.52	3,520	1956	Nov. 19, 1955	7.24	2,740
	Dec. 3, 1950	8.50	4,400		Dec. 22, 1955	14.34	13,700
	Jan. 17, 1951	8.77	4,670		Jan. 15, 1956	9.52	5,630
	Jan. 23, 1951	6.67	2,850		Jan. 22, 1956	9.78	6,050
	Feb. 4, 1951	9.03	4,950	1957	Dec. 11, 1956	10.68	7,850
1952	Dec. 1, 1951	7.19	3,200		Feb. 26, 1957	9.61	6,140
	Dec. 23, 1951	6.82	2,890				
	Feb. 1, 1952	9.36	5,300				
	Mar. 24, 1952	6.98	3,010				

3390. Rogue River at Dodge Bridge, near Eagle Point, Oreg.

Location.--Lat 42°31'30", long 122°50'30", in SE $\frac{1}{4}$  sec.17, T.35 S., R.1 W., on right bank 20 ft upstream from Dodge Bridge, 0.6 mile downstream from Reese Creek, 4 $\frac{1}{2}$  miles northwest of Eagle Point, and at mile 134.9 (Geological Survey river-profile survey).

Drainage area.--1,210 sq mi, approximately. Mean altitude, 3,930 ft; channel slope, 38.9 ft per mile; area of lakes and ponds, 1.5 sq mi.

Gage.--Recording. Datum of gage is 1,273.66 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 21,600 cfs and extended on basis of peak flow at stations upstream and downstream.

Remarks.--Peak discharges not affected by diurnal fluctuation caused by power-plant 30 miles upstream or diversions. Base for partial-duration series, 9,000 cfs. Only annual peak 1939.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1939	Mar. 12, 1939	5.84	11,800	1942	Dec. 2, 1941	7.36	17,300
					Dec. 16, 1941	5.43	10,200
1940	Feb. 6, 1940	5.39	10,000		Dec. 18, 1941	5.90	11,800
	Feb. 28, 1940	6.08	12,400		Feb. 4, 1942	5.49	10,400
	Mar. 26, 1940	6.31	13,300	1943	Nov. 23, 1942	6.15	12,700
1941	Dec. 27, 1940	5.22	9,460		Nov. 27, 1942	6.22	13,000
	Jan. 25, 1941	5.76	11,300		Nov. 30, 1942	8.6	23,700

Peak stages and discharges of Rogue River at Dodge Bridge, near Eagle Point, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1943	Dec. 2, 1942	6.57	14,200	1951	Jan. 24, 1951	5.75	12,000
	Dec. 27, 1942	8.01	20,500		Feb. 4, 1951	8.14	21,900
	Dec. 31, 1942	10.12	32,700	1952	Dec. 1, 1951	5.78	12,100
	Jan. 21, 1943	7.2	16,600		Dec. 23, 1951	5.79	12,100
	Feb. 4, 1943	5.53	10,500		Dec. 27, 1951	5.54	11,200
1944	Nov. 4, 1943	4.67	7,770	Dec. 29, 1951	5.92	12,500	
	1945	Feb. 8, 1945	5.31	9,750	Feb. 1, 1952	7.15	17,400
Feb. 14, 1945		7.99	20,400	Feb. 16, 1952	5.92	12,500	
May 16, 1945		5.26	9,590	Mar. 24, 1952	5.06	9,650	
1946	Nov. 28, 1945	5.26	9,590	1953	Dec. 10, 1952	5.04	9,580
	Dec. 28, 1945	11.52	41,900		Jan. 9, 1953	5.54	11,200
	Jan. 2, 1946	5.56	10,600	Jan. 13, 1953	5.02	9,520	
	Jan. 5, 1946	6.08	12,400	Jan. 18, 1953	all 11.20	44,600	
	Jan. 7, 1946	5.32	9,790	Feb. 3, 1953	6.57	16,600	
1947	Nov. 19, 1946	5.24	9,950	1954	Feb. 6, 1953	7.07	18,800
	1948	Jan. 4, 1948	5.8		11,900	Nov. 23, 1953	10.92
Jan. 7, 1948		10.0	32,000	Dec. 6, 1953	5.78	13,000	
Feb. 22, 1948		6.15	13,300	Dec. 20, 1953	4.97	9,780	
1949	Dec. 12, 1948	6.16	13,400	Jan. 16, 1954	7.13	19,200	
	Feb. 22, 1949	6.08	13,100	Jan. 23, 1954	5.64	12,500	
	May 2, 1949	5.21	10,100	Jan. 27, 1954	8.10	24,600	
1950	Jan. 18, 1950	5.40	10,800	1955	Feb. 12, 1954	5.30	11,100
	Jan. 23, 1950	6.00	12,800		Dec. 31, 1954	4.44	8,120
	Mar. 19, 1950	6.21	13,500	1956	Nov. 19, 1955	5.75	13,100
1951	Oct. 29, 1950	10.3	33,800		Dec. 22, 1955	12.90	75,000
	Nov. 18, 1950	5.84	12,300		Jan. 15, 1956	7.65	22,000
	Dec. 3, 1950	8.70	24,700		Jan. 22, 1956	8.25	25,600
	Dec. 7, 1950	7.36	18,300		Feb. 21, 1956	6.53	16,400
	Jan. 17, 1951	8.66	24,500	1957	Oct. 30, 1956	5.17	10,700
Jan. 21, 1951	5.03	9,550	Dec. 11, 1956		8.30	25,500	
			Feb. 26, 1957		7.58	22,200	
				Mar. 11, 1957	6.40	16,800	

a Backwater from debris.

3395. South Fork Little Butte Creek at Big Elk ranger station, Oreg.  
(Published as "at Big Elk ranger station, near Lakecreek" 1926-27)

Location--Lat 42°20'40", long 122°21'30", in NW $\frac{1}{4}$  sec.21,T.37 S., R.4 E., 1 mile south of Big Elk ranger station, 2 $\frac{1}{2}$  miles upstream from Big Draw Creek, and 15 miles southeast of town of Lakecreek.

Drainage area--17 sq mi, approximately. Mean altitude, 5,350 ft; channel slope, 120 ft per mile; area of lakes and ponds, 0 sq mi.

Gage--Recording. Prior to Oct. 28, 1942, at site 600 ft downstream at same datum. Altitude of gage is 4,660 ft (by barometer).

Stage-discharge relation--Defined by current-meter measurements below 60 cfs and extended by logarithmic plotting. Subject to frequent shifts.

Remarks--Records for 1932-56 furnished by the State engineer of Oregon. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1927	May 15, 1927	2.90	111	1943	Apr. 20, 1943	2.16	98	
1928	Mar. 27, 1928	2.47	74	1944	May 6, 1944	1.68	64	
1929	May 23, 1929	2.72	105	1945	May 5, 1945	2.41	119	
1931	Apr. 30, 1931	1.06	17	1946	May 21, 1946	2.21	102	
1933	May 31, 1933	-	116	1949	May 14, 1949	2.66	136	
	1934	Mar. 25, 1934	1.36		1950	May 26, 1950	2.16	106
1936	May 14, 1936	3.02	102	1951	Jan. 18, 1951	2.35	117	
1937	May 25, 1937	2.92	102		1954	Nov. 23, 1953	1.81	62
1938	May 25, 1938	3.11	108	1955		May 30, 1955	2.11	82
1939	Apr. 23, 1939	2.63	89	1956		May 23, 1956	3.82	136
1941	May 8, 1941	1.91	46					
1942	May 25, 1942	2.80	145					

3405. Dead Indian Creek near Lilyglen, Oreg.

Location.--Lat 42°15'50", long 122°27'20", in SW<sup>1</sup> sec.15, T.38 S., R.3 E., at highway bridge 1 mile west of Lilyglen and 14 miles northeast of Ashland.

Drainage area.--7.9 sq mi, approximately.

Gage.--Recording prior to June 30, 1919, and Oct. 15, 1942, to Sept. 30, 1950; nonrecording Oct. 7, 1930, to June 30, 1931. Rectangular weir since October 1947. Prior to Sept. 30, 1943, near present site at different datums. Altitude of last used gage is 4,530 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 60 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Records for 1930-31 and 1942-43, furnished by State engineer of Oregon. Records for 1947-50, furnished by the Bureau of Reclamation. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1917	May 12, 1917	1.46	111	1943	Nov. 29, 1942	-	108
1918	Mar. 31, 1918	-	-				
1919	Apr. 17, 1919	1.38	88				
1931	Apr. 1, 1931	-	-	1948	Jan. 7, 1948	2.70	340
				1949	Apr. 17, 1949	1.39	94
				1950	Apr. 21, 1950	1.18	65

3415. South Fork Little Butte Creek near Lakecreek, Oreg.

Location.--Lat 42°24'30", long 122°36'00", in SE<sup>1</sup> sec.29, T.36 S., R.2 E., on left bank a quarter of a mile upstream from intake of Rogue River Valley Canal and 1.4 miles southeast of town of Lakecreek.

Drainage area.--138 sq mi; 110 sq mi at site used 1910-13. Mean altitude, 4,440 ft; channel slope, 172 ft per mile; area of lakes and ponds, 0.05 sq mi.

Gage.--Nonrecording prior to Apr. 19, 1913; recording thereafter. Prior to Apr. 19, 1913, at site above Lost Creek 4 miles upstream at higher datum. Altitude of gage is 1,720 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 2,000 cfs and extended by logarithmic plotting.

Bankfull stage.--Not determined.

Remarks.--Records furnished by the State engineer of Oregon. Peak discharges not affected by diversions. Base for partial-duration series, 500 cfs. Only annual peaks are shown prior to 1938.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1911	Dec. 3, 1910	2.3	440	1936	Jan. 14, 1936	4.14	1,320
1912	Feb. 17, 1912	4.2	1,900	1937	Apr. 15, 1937	4.21	1,280
1913	Apr. 17, 1913	2.5	670	1938	Dec. 11, 1937	3.95	1,110
1922	May 20, 1922	3.30	800		Jan. 22, 1938	5.37	752
1923	Dec. 31, 1922	3.80	1,180		Feb. 7, 1938	5.34	752
1924	Feb. 7, 1924	2.85	545		Mar. 16, 1938	2.95	554
1925	Dec. 30, 1924	5.25	2,210		Mar. 19, 1938	4.04	1,180
					Mar. 23, 1938	4.07	1,140
1926	Feb. 10, 1926	2.32	261		Apr. 19, 1938	3.38	720
1927	Feb. 20, 1927	6.10	3,060		May 1, 1938	3.56	810
1928	Mar. 26, 1928	4.13	1,210	May 15, 1938	2.98	549	
1929	Jan. 2, 1929	2.97	558	1939	Mar. 12, 1939	3.54	810
1930	Feb. 8, 1930	2.80	500				
1931	Apr. 1, 1931	1.92	130	1940	Feb. 28, 1940	4.53	1,240
1932	Mar. 19, 1932	4.58	1,560		Mar. 1, 1940	3.86	780
1933	May 5, 1933	2.90	505		Mar. 8, 1940	3.77	800
1934	Jan. 23, 1934	2.29	235		Mar. 26, 1940	3.54	741
1935	Apr. 16, 1935	3.26	748		Mar. 31, 1940	3.51	722

Peak stages and discharges of South Fork Little Butte Creek near Lakecreek, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1941	Feb. 11, 1941	2.98	564	1951	Oct. 29, 1950	3.94	1,370	
1942	Dec. 18, 1941	3.14	659	Nov. 16, 1950	3.36	841		
	Feb. 6, 1942	2.67	514	Dec. 3, 1950	5.13	2,260		
	May 25, 1942	4.16	1,570	Jan. 17, 1951	4.50	1,640		
				Feb. 4, 1951	4.10	1,320		
1943	Nov. 27, 1942	3.64	990	1952	Dec. 23, 1951	3.77	1,090	
	Nov. 29, 1942	4.35	1,540	Dec. 27, 1951	3.88	1,170		
	Dec. 24, 1942	3.52	909	Feb. 1, 1952	3.07	648		
	Dec. 28, 1942	3.83	1,130	Feb. 16, 1952	4.06	1,290		
	Jan. 1, 1943	4.16	1,390	Mar. 24, 1952	4.41	1,570		
	Jan. 21, 1943	5.77	2,870	Apr. 7, 1952	3.05	672		
	Mar. 29, 1943	3.05	690	Apr. 19, 1952	2.87	572		
				May 8, 1952	2.77	520		
1944	Apr. 23, 1944	2.83	588	1953	Jan. 19, 1953	5.89	2,870	
1945	Feb. 13, 1945	3.93	1,190		Feb. 7, 1953	4.59	1,730	
	May 16, 1945	3.42	924		May 26, 1953	3.59	1,030	
	May 23, 1945	3.12	723		June 7, 1953	3.60	1,040	
	May 28, 1945	3.59	1,040	1954	Nov. 23, 1953	6.08	2,360	
1946	Dec. 28, 1945	4.53	1,620		Dec. 3, 1953	4.17	1,170	
	Mar. 13, 1946	3.06	639		Dec. 6, 1953	3.60	868	
1947	Nov. 19, 1946	3.12	718		Jan. 17, 1954	2.98	571	
1948	Jan. 4, 1948	4.85	2,120	Jan. 27, 1954	4.85	1,560		
	Jan. 7, 1948	6.48	3,920	Feb. 12, 1954	3.00	580		
	Feb. 22, 1948	2.99	564	1955	Mar. 29, 1955	2.88	526	
	Apr. 20, 1948	2.90	510		1956	Dec. 1, 1955	3.02	610
	May 25, 1948	3.36	882			Dec. 8, 1955	2.87	536
1949	Dec. 7, 1948	3.19	763			Dec. 22, 1955	6.84	3,410
	Dec. 12, 1948	4.00	1,360	Jan. 15, 1956		4.04	1,150	
	Feb. 22, 1949	3.18	756	Jan. 22, 1956	3.58	815		
	Mar. 27, 1949	2.85	550	Feb. 21, 1956	3.65	825		
	Apr. 11, 1949	2.93	592	May 10, 1956	3.96	1,110		
	Apr. 18, 1949	2.88	568	1957	Oct. 30, 1956	4.65	1,560	
	May 2, 1949	2.87	562		Dec. 11, 1956	5.16	1,950	
1950	Jan. 19, 1950	3.09	743		Feb. 24, 1957	4.22	1,410	
	Jan. 23, 1950	3.05	715		Mar. 11, 1957	5.75	2,620	
	Mar. 19, 1950	3.45	995	Mar. 25, 1957	3.50	940		
	Mar. 22, 1950	2.90	610	Mar. 31, 1957	3.45	1,020		
	Apr. 13, 1950	2.74	508					

3425. North Fork Little Butte Creek at Fish Lake, near Lakecreek, Oreg.

Location.--Lat 42°22'35", long 122°21'20", in SE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.4, T.37 S., R.4 E., on right bank 0.5 mile downstream from Fish Lake and 14 miles east of town of Lakecreek.

Drainage area.--18 sq mi, approximately.

Gage.--Nonrecording prior to July 10, 1918; recording thereafter. Concrete control since Nov. 8, 1955. Prior to Oct. 28, 1932, at site 0.2 mile upstream from present gage at different datum; datum lowered 1.0 ft Sept. 30, 1921; gage heights herein for 1917-21 adjusted to datum used 1922-32. Datum of gage is 4,571.41 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 150 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Since 1915, flow partly regulated by Fish Lake (capacity, 8,150 acre-ft). Cascade canal diverts from Fourmile Lake in Klamath River basin and discharges into lava bed  $1\frac{1}{2}$  miles above Fish Lake; diversion began August 1923. Only annual peaks are shown.

Peak stages and discharges of North Fork Little Butte Creek at Fish Lake, near Lakecreek, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1917	June 5, 1917	-	940	1938	July 23, 1938	1.63	135
1918	Sept. 30, 1918	2.58	79	1939	July 28, 1939	1.67	146
1919	Apr. 29, 1919	2.37	62	1940	July 23, 1940	1.62	133
1920	May 20, 1920	2.88	68	1941	July 23, 1941	1.56	124
1921	May 17, 1921	3.10	108	1942	July 30, 1942	1.55	122
1922	Sept. 28, 1922	3.18	115	1943	July 31, 1943	1.57	122
1923	July 30, 1923	2.81	90	1944	July 27, 1944	1.65	139
1924	June 8, 1924	2.92	98	1945	July 28, 1945	1.64	137
1925	July 15, 1925	3.10	115	1946	July 4, 1946	1.70	149
1926	June 8, 1926	3.43	145	1947	July 23, 1947	1.58	135
1927	Aug. 25, 1927	3.64	153	1948	Aug. 1, 1948	1.57	132
1928	June 6, 1928	3.24	109	1949	July 21, 1949	1.66	153
1929	July 19, 1929	3.57	138	1950	Aug. 18, 1950	1.61	148
1930	July 10, 1930	3.50	158	1951	July 25, 1951	1.67	155
1931	July 9, 1931	3.47	98	1952	Aug. 6, 1952	1.59	126
1932	July 1, 1932	4.23	131	1953	June 8, 1953	1.70	141
1933	Aug. 9, 1933	1.69	125	1954	Aug. 24, 1954	2.31	135
1934	July 4, 1934	1.67	126	1955	July 24, 1955	1.78	153
1935	July 21, 1935	1.56	116	1956	Sept. 24, 1956	1.74	130
1936	July 23, 1936	1.57	125	1957	July 14, 1957	1.79	147
1937	Aug. 7, 1937	1.69	141				

3430. North Fork Little Butte Creek near Lakecreek, Oreg.  
 (Published as "near Lakecreek" 1911-13 and as "above Medford intake, near Lakecreek" 1922-28, 1931-40)

Location.--Lat 42°24'10", long 122°32'20", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 25, T. 36 S., R. 2 E., on right bank a quarter of a mile upstream from Hanley South Canal diversion and  $\frac{1}{2}$  miles east of town of Lakecreek.

Drainage area.--38 sq mi, approximately. Mean altitude, 4,820 ft; channel slope, 219 ft per mile; area of lakes and ponds, 1.0 sq mi.

Gage.--Nonrecording prior to Mar. 31, 1913; recording thereafter. Prior to Mar. 31, 1913, near present site at different datum. Datum of gage is 2,125.01 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 210 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Records for 1929-31 furnished by the State engineer of Oregon. Flow partly regulated by Fish Lake (capacity, 8,150 acre-ft). Diversions for irrigation of 100 acres above station; some water diverted into Fish Lake from Fourmile Lake, in Klamath River basin, since September 1923. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1912	Feb. 17, 1912	4.55	497	1942	May 25, 1942	2.62	309
				1943	Nov. 29, 1942	2.58	403
1925	Dec. 30, 1924	3.30	680	1944	July 27, 1944	2.18	157
1926	June 8, 1926	2.30	168	1945	Feb. 14, 1945	2.35	255
1929	Mar. 21, 1929	2.21	165	1946	Mar. 13, 1946	2.28	215
1930	July 10, 1930	2.16	176	1947	July 21, 1947	2.25	163
				1948	Jan. 7, 1948	3.04	464
1931	June 13, 1931	1.97	112	1949	Dec. 12, 1948	2.62	239
1932	Mar. 19, 1932	2.88	333	1950	Jan. 18, 1950	2.51	220
1933	July 19, 1933	2.28	166	1951	Dec. 3, 1950	2.75	350
1934	June 25, 1934	2.28	170	1952	Mar. 24, 1952	2.76	438
1935	Apr. 16, 1935	2.34	189	1953	Feb. 7, 1953	2.97	600
1936	Jan. 14, 1936	2.55	224	1954	Nov. 23, 1953	2.86	485
1937	Apr. 15, 1937	2.46	199	1955	Aug. 3, 1955	2.67	174
1938	Mar. 19, 1938	2.56	248				
1939	July 25, 1939	a2.29	178	1956	Dec. 22, 1955	2.51	281
1940	July 26, 1940	2.25	151	1957	Dec. 11, 1956	3.56	1,430
1941	July 17, 1941	2.22	143				

a Occurred Mar. 12, 1939.

## ROGUE RIVER BASIN

3445. North Fork Little Butte Creek above intake of Rogue River Valley Canal, near Lakecreek, Oreg.  
(Published as "near Lakecreek" 1916-19, 1921, 1924)

Location.--Lat 42°25'40", long 122°36'00", in SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.20, T.36 S., R.2 E., 0.1 mile upstream from intake of Rogue River Valley Canal and 1.0 mile northeast of town of Lakecreek.

Drainage area.--52 sq mi, approximately.

Gage.--Nonrecording prior to June 12, 1918; recording thereafter. Prior to Sept. 30, 1918, at datum 1.0 ft lower than described gage; gage height for 1918 adjusted to described datum. Altitude of last used gage is 1,720 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 380 cfs and extended by logarithmic plotting.

Remarks.--Records furnished by the State engineer of Oregon. Peak discharges partly affected by transmountain diversion from Klamath River basin, diversions for irrigation and water supply, and regulation since August 1923 by Fish Lake (capacity, 8,150 acre-ft). Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1918	Jan. 12, 1918	5.02	1,460	1926	June 9, 1926	1.80	161
	Mar. 2, 1919	2.98	650	1927	Feb. 20, 1927	3.75	775
1922	Nov. 30, 1921	2.75	540	1928	Mar. 26, 1928	2.45	327
	Dec. 31, 1922	2.60	463	1929	Apr. 14, 1929	2.30	288
1924	Feb. 7, 1924	2.18	293	1930	Feb. 1, 1930	2.91	465
1925	Dec. 30, 1924	5.42	1,560	1931	June 16, 1931	1.78	169

3470. Little Butte Creek above Eagle Point, Oreg.

Location.--Lat 42°28'30", long 122°44'00", in NW $\frac{1}{4}$  sec.5, T.36 S., R.1 E., 1 mile upstream from intake of Eagle Point Canal, 3 miles east of Eagle Point, and 9.1 miles upstream from mouth.

Drainage area.--269 sq mi.

Gage.--Nonrecording. Prior to Oct. 1, 1924, at sites half a mile downstream from described gage at different datum. Altitude of last used gage is 1,390 ft (from river-profile map).

Stage-discharge relation.--Defined by current-meter measurements below 2,100 cfs and extended by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Peak discharges partly affected by transmountain diversion from Klamath River basin, diversions for irrigation and water supply, and regulation since August 1923 by Fish Lake (capacity, 8,150 acre-ft). Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1917	May 17, 1917	6.25	1,430	1923	Dec. 30, 1922	8.2	4,050
1918	Jan. 12, 1918	11.3	6,200	1924	Feb. 7, 1924	5.86	2,060
1919	Feb. 9, 1919	7.6	3,090	1925	Oct. 30, 1924	13.0	7,000
1920	Dec. 24, 1919	7.0	2,670	1926	Feb. 4, 1926	-	660
1921	Jan. 4, 1921	8.90	4,420	1929	Apr. 14, 1929	5.5	1,720
1922	Mar. 23, 1922	6.15	2,630				

3480. Little Butte Creek below Eagle Point, Oreg.  
(Published as "at Eagle Point" or "near Eagle Point" 1907-16)

Location.--Lat 42°27'40", long 122°48'50", in SW $\frac{1}{4}$  sec.3, T.36 S., R.1 W., 300 ft upstream from State Highway 62, 1 mile southwest of Eagle Point, and 4 miles upstream from mouth.

Drainage area.--293 sq mi; 285 sq mi at site used 1907-16. Mean altitude, 3,700 ft; channel slope, 114 ft per mile; area of lakes and ponds, 1.05 sq mi.

Gage.--Nonrecording. July 13, 1907, to Apr. 30, 1916, at site 2.5 miles upstream from described gage at different datum. Altitude of last used gage is 1,265 ft (from river-profile map),

Stage-discharge relation.--Defined by current-meter measurements below 4,200 cfs and extended on basis of slope-area measurement at 10,000 cfs.

Bankfull stage.--Not subject to overflow.

Remarks.--Peak discharges partly affected by transmountain diversion from Klamath River basin, diversions for irrigation and water supply, and regulation since August 1923 by Fish Lake (capacity, 8,150 acre-ft). Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1908	Dec. 26, 1907	7.65	3,890	1916	Feb. 7, 1916	6.3	2,840
1909	Jan. 20, 1909	10.0	5,760				
1910	Nov. 23, 1909	11.0	6,600	1946	Dec. 28, 1945	8.5	5,850
				1947	Nov. 19, 1946	3.5	945
1911	Nov. 28, 1910	9.3	5,240	1948	Jan. 7, 1948	11.4	10,000
1912	Feb. 17, 1912	10.6	6,240	1949	Feb. 22, 1949	6.72	3,690
1913	Apr. 14, 1913	7.5	3,760	1950	Jan. 18, 1950	6.15	3,100
1914	Jan. 21, 1914	8.50	4,560				
1915	Feb. 1, 1915	4.2	1,420				

3500. Emigrant Creek near Ashland, Oreg.

Location.--Lat 42°09'50", long 122°36'10", in NE $\frac{1}{4}$  sec.20, T.39 S., R.2 E., on right bank 1,100 ft downstream from Emigrant Dam and 6 miles southeast of Ashland.

Drainage area.--64.3 sq mi.

Gage.--Recording. Jan. 27, 1920, to May 8, 1924, at site 800 ft downstream from present gage at different datum. Feb. 6, 1925, to Nov. 4, 1925, at site 600 ft downstream from present gage at different datum. Datum of gage is 2,053.73 ft above mean sea level (levels by Bureau of Reclamation).

Stage-discharge relation.--Defined by current-meter measurements below 1,100 cfs and extended on basis of slope-area measurement at 4,600 cfs and by computation of flow over dam at 5,260 cfs. Rating subject to shifts.

Bankfull stage.--Not subject to overflow.

Remarks.--Flow regulated since 1924 by Emigrant Reservoir (capacity, 7,720 acre-ft). Several diversions above station for irrigation; the principal diversion canals are Ashland lateral and East lateral. Water diverted by Keene Creek Canal from Klamath River into Emigrant Creek above station. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1921	Feb. 13, 1921	7.65	900	1930	July 2, 1930	1.45	42
1922	Mar. 23, 1922	5.80	236				
1923	Feb. 20, 1923	4.70	52	1931	June 16, 1931	1.38	29
1924	Feb. 7, 1924	5.95	281	1932	Mar. 19, 1932	3.09	366
1925	Apr. 20, 1925	9.5	2,100	1933	Apr. 4, 1933	3.98	1,000
				1934	July 6, 1934	1.23	30
1926	Oct. 7, 1925	5.40	73	1935	Mar. 30, 1935	-	1,000
1927	Feb. 20, 1927	-	5,260				
1928	Mar. 26, 1928	3.70	680	1936	July 31, 1936	1.24	22
1929	Apr. 15, 1929	-	1,060	1937	Apr. 15, 1937	5.22	1,220

Peak stages and discharges of Emigrant Creek near Ashland, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938	Mar. 23, 1938	3.13	382	1948	Jan. 7, 1948	6.70	2,050
1939	Mar. 25, 1939	2.26	159	1949	Mar. 27, 1949	2.33	180
1940	Feb. 28, 1940	-	1,700	1950	Mar. 19, 1950	2.78	268
1941	Jan. 25, 1941	-	445	1951	Jan. 18, 1951	2.84	281
1942	May 25, 1942	3.91	638	1952	Mar. 24, 1952	5.40	1,110
1943	Jan. 21, 1943	6.00	1,600	1953	Jan. 18, 1953	7.4	2,910
1944	July 12, 1944	1.67	95	1954	Jan. 27, 1954	6.86	2,160
1945	May 30, 1945	2.82	391	1955	Aug. 6, 1955	1.69	39
1946	Jan. 2, 1946	2.59	312	1956	Dec. 21, 1955	8.55	4,600
1947	Apr. 6, 1947	1.40	56	1957	Feb. 26, 1957	6.20	1,730

3505. Emigrant Creek below Walker Creek, near Ashland, Oreg.

Location.--Lat 42°11'40", long 122°39'00", in NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.12, T.39 S., R.1 E., 200 ft downstream from Walker Creek and 3 miles east of Ashland.

Drainage area.--109 sq mi.

Gage.--Recording. Prior to Mar. 5, 1947, at site 160 ft upstream at datum 2.99 ft higher. Datum of gage is 1,866.3 ft above mean sea level, datum of 1929 (Bureau of Reclamation bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 2,100 cfs and extended by logarithmic plotting.

Bankfull stage.--4 ft.

Remarks.--Records for 1944-45 furnished by the State engineer of Oregon. Peak discharges partly affected by transmountain diversion from Hyatt Prairie Reservoir (capacity, 16,180 acre-ft), regulation by Emigrant Reservoir (capacity, 7,720 acre-ft), and diversions for irrigation. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1944	Apr. 23, 1944	2.17	143	1948	Jan. 7, 1948	8.87	3,750
1945	May 30, 1945	2.77	600	1949	Feb. 22, 1949	3.72	488
1946	Jan. 5, 1946	2.41	496	1950	Mar. 19, 1950	3.87	405
1947	Feb. 12, 1947	1.74	98	1951	Jan. 17, 1951	4.92	824

3530. West Fork Ashland Creek near Ashland, Oreg.

Location.--Lat 42°09'00", long 122°42'55", in NW $\frac{1}{4}$  sec.28, T.39 S., R.1 E., at diversion dam above Reader Reservoir, and 2.4 miles south of Ashland.

Drainage area.--10.5 sq mi; 9.98 sq mi at site used 1924-32. Mean altitude, 5,050 ft; channel slope, 719 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording prior to January 1933; crest-stage gage above concrete dam 1953-57. At site 0.7 mile upstream from present gage at different datum 1924-32. Altitude of gage is 2,930 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 70 cfs and extended by logarithmic plotting at site used 1925-32; computations of peak flow over dam used 1954-57.

Bankfull stage.--Not subject to overflow.

Remarks.--Only annual peaks are shown.

Peak stages and discharges of West Fork Ashland Creek near Ashland, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1925	Oct. 31, 1924	2.85	158	1932	Mar. 19, 1932	1.47	38
1926	Feb. 4, 1926	1.89	66	1954	Jan. 23, 1954	13.95	86
1927	Feb. 20, 1927	3.15	281	1955	Oct. 10, 1954	13.36	39
1928	Mar. 26, 1928	2.2	110				
1929	Mar. 21, 1929	1.28	28	1956	Dec. 21, 1955	14.85	208
1930	Dec. 14, 1929	2.10	96	1957	Dec. 11, 1956	13.82	73
1931	Nov. 16, 1930	1.02	15				

3535. East Fork Ashland Creek near Ashland, Oreg.

Location.--Lat 42°09'10", long 122°42'30", in NW $\frac{1}{4}$  sec.28, T.39 S., R.1 E., at diversion dam above Reader Reservoir and 2.2 miles south of Ashland.

Drainage area.--8.14 sq mi; 7.96 sq mi at site used prior to Sept. 30, 1932. Mean altitude, 5,000 ft; channel slope, 575 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording prior to January 1933; crest-stage gage thereafter. At site 300 ft upstream from present gage at different datum 1924-32. Altitude of present gage is 2,850 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 72 cfs and extended by logarithmic plotting at site used 1925-32; computations of peak flow over dam used 1954-57.

Bankfull stage.--Not subject to overflow.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1925	Oct. 31, 1924	2.30	130	1932	June 14, 1932	1.47	35
1926	Feb. 4, 1926	1.68	48	1954	Jan. 23, 1954	4.04	75
1927	Feb. 20, 1927	3.50	292	1955	Oct. 4, 1954	3.78	48
1928	Mar. 26, 1928	2.23	96				
1929	May 23, 1929	1.29	31	1956	Dec. 21, 1955	5.22	292
1930	Dec. 14, 1929	2.18	91	1957	Oct. 30, 1956	3.92	62
1931	Mar. 18, 1931	1.12	16				

3570. Bear Creek below Phoenix Canal, near Talent, Oreg.  
(Published as Bear Creek at Talent 1907-11)

Location.--Lat 42°15'20", long 122°47'10", in NW $\frac{1}{4}$  sec.23, T.38 S., R.1 W., 500 ft downstream from Phoenix Canal intake, and three-quarters of a mile north of Talent.

Drainage area.--225 sq mi; 224 sq mi at site at Talent used 1907-11.

Gage.--Nonrecording October 1907 to September 1911; recording 1926-29. October 1907 to September 1911, at site at Talent a quarter of a mile upstream from described gage at datum 20 ft higher. Altitude of gage is 1,520 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 2,000 cfs and extended by logarithmic plotting; at site at Talent, extended above 270 cfs by logarithmic plotting.

Bankfull stage.--Not subject to overflow.

Remarks.--Records for 1927-29 furnished by State engineer of Oregon. Peak discharges partly affected by transmountain diversion, regulation since 1924 by Emigrant Reservoir (capacity, 7,720 acre-ft), and diversions for irrigation. Only annual peaks are shown.

Peak stages and discharges of Bear Creek below Phoenix Canal, near Talent, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1908	Dec. 26, 1907	6.4	860	1927	Feb. 20, 1927	-	5,600
1909	Jan. 16, 1909	8.3	1,580	1928	Mar. 26, 1928	-	1,480
1910	Nov. 23, 1909	6.1	668	1929	Apr. 15, 1929	-	935
1911	Jan. 19, 1911	7.6	1,180				

3575. Bear Creek at Medford, Oreg.

Location.--Lat 42°19'40", long 122°52'10", in NW $\frac{1}{4}$  sec. 30, T.37 S., R.1 W., on left bank 40 ft upstream from Main Street Bridge in Medford.

Drainage area.--289 sq mi.

Gage.--Nonrecording gage prior to June 30, 1918, and Jan. 7 to Sept. 9, 1943; recording gage Sept. 20, 1918, to Jan. 6, 1943, and since Sept. 10, 1943. Prior to Feb. 9, 1919, at site 40 ft upstream from present gage at datum 0.58 ft lower, and Feb. 10, 1919, to Sept. 9, 1943, at datum 0.42 ft higher than present gage. Gage heights herein adjusted to present datum. Datum of present gage is 1,343.98 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 6,900 cfs and extended by logarithmic plotting. Frequent shifts in ratings owing to channel improvements.

Remarks.--Flow partly regulated since 1924 by Emigrant Reservoir (capacity, 7,720 acre-ft). Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1916	Feb. 10, 1916	4.42	1,390	1937	Apr. 13, 1937	4.20	1,860
1917	Feb. 24, 1917	3.12	680	1938	Feb. 7, 1938	4.72	2,020
1918	Jan. 12, 1918	3.22	655	1939	Mar. 12, 1939	3.14	702
1919	Feb. 9, 1919	6.32	2,400	1940	Feb. 28, 1940	7.27	5,610
1920	Apr. 19, 1920	2.42	196				
1921	Feb. 14, 1921	6.22	1,710	1941	Feb. 12, 1941	4.08	1,440
1922	Mar. 24, 1922	3.72	634	1942	May 25, 1942	4.54	2,080
1923	Dec. 31, 1922	5.77	1,430	1943	Jan. 21, 1943	7.62	6,760
1924	Feb. 7, 1924	3.72	580	1944	Apr. 24, 1944	1.68	375
1925	Dec. 30, 1924	6.82	2,180	1945	May 30, 1945	2.73	1,060
				1946	Dec. 28, 1945	2.73	1,060
1926	Feb. 4, 1926	3.37	425	1947	Nov. 19, 1946	1.85	466
1927	Feb. 20, 1927	11.42	8,300	1948	Jan. 7, 1948	6.94	6,810
1928	Mar. 26, 1928	5.87	1,710	1949	Feb. 22, 1949	2.95	1,280
1929	Apr. 14, 1929	-	1,100	1950	Jan. 19, 1950	2.59	966
1930	Feb. 8, 1930	2.62	299				
				1951	Jan. 17, 1951	4.57	3,450
1931	Oct. 29, 1930	1.26	41	1952	Mar. 24, 1952	3.68	2,190
1932	Mar. 19, 1932	4.21	940	1953	Jan. 18, 1953	5.47	4,940
1933	Apr. 5, 1933	3.15	375	1954	Jan. 27, 1954	6.09	6,080
1934	Apr. 2, 1934	1.92	111	1955	Mar. 29, 1955	.85	109
1935	Mar. 30, 1935	3.02	740				
				1956	Dec. 22, 1955	7.50	9,400
1936	Jan. 15, 1936	3.94	1,730	1957	Mar. 11, 1957	5.81	6,870

3590. Rogue River at Raygold, near Central Point, Oreg.  
(Published as "near Tolo" prior to October 1921)

Location.--Lat 42°26'15", long 122°59'10", in SW $\frac{1}{4}$  sec.18, T.36 S., R.2 W., on right bank at Raygold, 0.2 mile downstream from Gold Ray Dam, 1.3 miles downstream from Bear Creek, and 5.6 miles northwest of Central Point.

Drainage area.--2,020 sq mi, approximately. Mean altitude, 3,560 ft; channel slope, 36.1 ft per mile; area of lakes and ponds, 2.55 sq mi.

Gage.--Nonrecording gage prior to Sept. 19, 1914; recording gage thereafter. Prior to Oct. 1, 1956, at site 300 ft upstream at same datum. Datum of gage is 1,121.78 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 36,000 and extended on basis of slope-area measurement at 110,000 cfs.

Bankfull stage.--Not subject to overflow.

Historical data.--Greatest flood known occurred during December 1861 and reached a stage of about 32 ft. Flood in February 1890 reached a stage of about 27.5 ft, from information by Corps of Engineers.

Remarks.--Peak discharges not affected by diurnal fluctuation caused by power-plant just above station and many diversions for irrigation above station. Base for partial-duration series, 11,000 cfs. Only annual peaks are shown prior to 1915.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1862	December 1861	32	-	1925	Feb. 4, 1925	11.05	27,200	
					Feb. 8, 1925	8.69	18,800	
1890	February 1890	27.5	-		Apr. 19, 1925	7.82	15,800	
1906	Jan. 16, 1906	13.7	38,800	1926	Feb. 4, 1926	5.94	10,000	
1907	Feb. 4, 1907	17.0	56,000	1927	Nov. 29, 1926	11.13	27,600	
1908	Dec. 26, 1907	15.3	46,700		Dec. 3, 1926	10.50	25,400	
1909	Jan. 20, 1909	12.0	31,100		Jan. 2, 1927	8.05	18,500	
1910	Nov. 23, 1909	22.5	92,800		Feb. 21, 1927	24.8	110,000	
1911	Nov. 28, 1910	13.0	35,500	1928	Nov. 28, 1927	7.20	13,900	
1912	Feb. 17, 1912	14.2	41,200		Mar. 11, 1928	6.60	12,100	
1913	Jan. 18, 1913	7.3	14,200		Mar. 26, 1928	10.7	26,100	
1914	Jan. 22, 1914	10.0	23,500	1929	Jan. 3, 1929	5.81	9,730	
1915	Feb. 1, 1915	7.4	15,400		1930	Dec. 19, 1929	7.50	14,800
1916	Jan. 24, 1916	6.75	13,400	Feb. 2, 1930		7.28	14,200	
	Feb. 7, 1916	9.15	20,600	1931	Apr. 1, 1931	5.30	8,420	
1917	Feb. 25, 1917	6.68	12,300		1932	Dec. 27, 1931	6.30	11,200
	Apr. 11, 1917	6.30	11,140	Mar. 19, 1932		12.2	31,900	
1918	Jan. 12, 1918	10.9	25,800	1933	Jan. 2, 1933	8.45	17,800	
	Feb. 6, 1918	7.11	13,500		1934	Jan. 23, 1934	6.06	10,600
1919	Jan. 17, 1919	6.48	11,700	1935		Dec. 20, 1934	6.85	12,700
	Feb. 9, 1919	9.0	19,200			1936	Jan. 2, 1936	7.50
	Feb. 26, 1919	6.53	11,700	Jan. 9, 1936			-	-
	Mar. 2, 1919	7.60	15,000	Jan. 11, 1936	-	-		
1920	Dec. 25, 1919	5.52	8,980	Jan. 15, 1936	10.24	24,200		
	1921	Nov. 17, 1920	6.65	12,000	1937	Apr. 13, 1937	10.70	26,100
Nov. 26, 1920		7.50	14,700	1938		Nov. 20, 1937	10.6	25,700
Dec. 11, 1920		6.52	11,700		Dec. 11, 1937	10.97	27,200	
Dec. 30, 1920		10.52	24,400		Jan. 18, 1938	6.35	11,400	
Jan. 5, 1921		10.02	22,700		Jan. 22, 1938	8.6	18,500	
Feb. 9, 1921		7.30	14,100		Feb. 7, 1938	10.3	24,600	
Feb. 14, 1921		9.89	22,400		Feb. 14, 1938	7.35	14,400	
Feb. 20, 1921		8.59	16,000		Mar. 16, 1938	8.35	17,800	
1922	Nov. 30, 1921	9.10	19,600		Mar. 19, 1938	9.39	21,300	
	Mar. 23, 1922	6.51	11,700	Mar. 23, 1938	10.9	26,800		
	1923	Dec. 31, 1922	8.78	18,600	1939	Dec. 3, 1938	6.47	11,700
1924		Feb. 7, 1924	7.30	14,400		Mar. 12, 1939	7.62	15,200
		Oct. 31, 1924	9.30	21,000	1940	Feb. 6, 1940	6.90	13,000
		Nov. 9, 1924	9.40	21,300		Feb. 28, 1940	10.2	24,200
Nov. 20, 1924	10.10	23,900	Mar. 2, 1940	7.0		13,300		
Dec. 30, 1924	15.22	44,400						
Jan. 30, 1925	7.05	13,300						

## ROGUE RIVER BASIN

Peak stages and discharges of Rogue River at Raygold, near Central Point, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1940	Mar. 26, 1940	9.46	21,600	1951	Oct. 29, 1950	14.91	43,100	
	Mar. 31, 1940	6.70	12,400		Nov. 18, 1950	7.2	13,900	
1941	Dec. 27, 1940	6.60	12,100		Dec. 3, 1950	13.76	38,200	
	Jan. 25, 1941	7.28	14,100	Dec. 7, 1950	9.95	23,300		
1942	Dec. 3, 1941	10.45	25,200	Dec. 14, 1950	6.28	11,200		
	Dec. 16, 1941	8.52	18,200	Jan. 17, 1951	13.58	37,500		
	Dec. 18, 1941	9.03	20,000	Jan. 21, 1951	7.11	13,600		
	Jan. 8, 1942	6.57	12,000	Jan. 24, 1951	7.23	14,000		
	Feb. 4, 1942	7.43	14,600	Feb. 4, 1951	12.29	32,300		
	May 25, 1942	7.05	13,400	1952	Dec. 1, 1951	7.01	13,300	
1943	Nov. 24, 1942	7.45	14,700		Dec. 24, 1951	8.40	17,800	
	Nov. 27, 1942	7.85	16,000		Dec. 27, 1951	9.24	20,800	
	Nov. 30, 1942	11.45	29,000		Dec. 29, 1951	8.85	19,400	
	Dec. 2, 1942	8.10	16,800		Feb. 2, 1952	11.43	28,900	
	Dec. 8, 1942	6.60	12,100		Feb. 16, 1952	10.51	25,400	
	Dec. 25, 1942	9.10	20,300	Mar. 24, 1952	7.95	16,300		
1944	Dec. 27, 1942	11.00	27,200	1953	Dec. 10, 1952	7.25	14,000	
	Dec. 31, 1942	14.30	40,500		Jan. 9, 1953	7.43	14,600	
	Jan. 21, 1943	13.92	38,900		Jan. 13, 1953	7.66	15,300	
	Jan. 30, 1943	7.35	14,400		Jan. 18, 1953	17.83	56,500	
	Feb. 4, 1943	7.20	13,900		Feb. 3, 1953	9.95	23,300	
	Feb. 7, 1943	6.93	13,000		Feb. 7, 1953	10.54	25,500	
	1945	Nov. 5, 1943	5.06	8,060	May 26, 1953	8.51	18,200	
		Feb. 8, 1945	7.45	14,700	June 7, 1953	6.25	11,100	
		Feb. 14, 1945	10.98	27,100	1954	Nov. 23, 1953	16.93	52,300
	May 16, 1945	6.70	12,400	Dec. 4, 1953		8.67	18,700	
	1946	Nov. 28, 1945	6.90	13,000		Dec. 6, 1953	8.69	18,800
Dec. 28, 1945		16.0	48,000	Dec. 8, 1953		7.52	14,900	
Jan. 2, 1946		7.93	16,200	Jan. 16, 1954		10.90	26,800	
Jan. 5, 1946		7.73	15,600	Jan. 23, 1954		8.11	16,800	
Jan. 7, 1946		7.68	15,400	Jan. 28, 1954	14.64	42,000		
Jan. 24, 1946		6.70	12,400	Feb. 13, 1954	7.29	14,200		
1947	Nov. 19, 1946	6.37	11,500	1955	Dec. 31, 1954	5.49	9,210	
	1948	Jan. 4, 1948	9.20		20,600	1956	Nov. 19, 1955	7.38
Jan. 7, 1948		15.6	46,200		Dec. 22, 1955		23.1	110,000
Feb. 22, 1948		8.13	16,900		Jan. 15, 1956		13.0	37,000
1949	Dec. 12, 1948	8.60	18,500	Jan. 22, 1956	13.3		38,500	
	Feb. 22, 1949	9.15	20,400	Feb. 21, 1956	13.1	37,500		
1950	Jan. 18, 1950	8.40	17,800	1957	Oct. 30, 1956	9.0	22,000	
	Jan. 23, 1950	8.10	16,800		Dec. 11, 1956	12.3	37,400	
	Mar. 19, 1950	9.34	21,100		Jan. 20, 1957	6.47	12,900	
			Feb. 26, 1957		12.23	37,000		
			Mar. 12, 1957		12.64	39,300		
			Mar. 25, 1957	7.69	16,900			
			Mar. 31, 1957	7.18	15,200			

3595. Evans Creek near Bybee Springs, near Rogue River, Oreg.  
(Published as "near Rogue River" 1926-27, and as "at Bybee Springs, near Rogue River" 1940-48)

Location.--Lat 42°34'50", long 123°01'20", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.26, T.34 S., R.3 W., 1.2 miles upstream from Bybee Springs, 1.8 miles downstream from West Fork, and 13 miles northeast of Rogue River.

Drainage area.--116 sq mi; 118 sq mi at sites used prior to Oct. 7, 1948. Mean altitude, 2,710 ft; channel slope, 158 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording. Prior to Oct. 7, 1948, at site at Bybee Springs 1.2 miles downstream at different datum. Altitude of gage is 1,380 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 1,500 cfs and extended on basis of slope-area measurement at 8,250 cfs.

Bankfull stage.--Not subject to overflow.

Remarks.--Records since 1941 furnished by State engineer of Oregon. Peak discharges not affected by diversions. Only annual peaks are shown.

Peak stages and discharges of Evans Creek near Bybee Springs, near Rogue River, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1926	Feb. 4, 1926	6.40	3,000	1950	Mar. 17, 1950	6.30	2,630
1927	Feb. 20, 1927	12.5	11,100				
1941	Jan. 25, 1941	6.50	1,930	1951	Oct. 29, 1950	11.5	8,250
1942	Dec. 2, 1941	7.50	2,600	1952	Feb. 1, 1952	8.59	4,550
1943	Dec. 30, 1942	9.10	4,040	1953	Jan. 18, 1953	11.2	7,920
1944	Mar. 9, 1944	4.24	728	1956	Dec. 22, 1955	12.1	9,150
1945	Feb. 8, 1945	7.30	2,270				
1948	Jan. 6, 1948	10.4	5,200				

3613. Jones Creek near Grants Pass, Oreg.

Location.--Lat 42°26'10", long 123°17'10", in SE $\frac{1}{4}$  sec.16, T.36 S., R.5 W., at dam 200 ft downstream from "A" Street bridge, 0.8 mile upstream from mouth, and 2 miles east of Grants Pass.

Drainage area.--7.41 sq mi. Mean altitude, 2,050 ft; channel slope, 443 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Crest-stage gage above concrete dam. Altitude of gage is 1,030 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 315 cfs and extended on basis of computations of flow over dam.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Dec. 26, 1951	12.24	194	1956	Feb. 22, 1956	16.50	1,350
1953	Jan. 18, 1953	13.60	250	1957	Mar. 12, 1957	13.60	230
1954	Jan. 27, 1954	14.70	502				
1955	Dec. 6, 1954	12.98	175				

3615. Rogue River at Grants Pass, Oreg.

Location.--Lat 42°25'50", long 123°19'00", in NW $\frac{1}{4}$  sec.20, T.36 S., R.5 W., on right bank at city of Grants Pass filter plant, 0.6 mile upstream from bridge on U.S. Highway 99 at Grants Pass, and at mile 98.0 (Geological Survey river-profile survey).

Drainage area.--2,420 sq mi, approximately.

Gage.--Recording. Datum of gage is 888.28 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 33,000 cfs and extended on basis of slope-area measurements at 65,400 and 135,000 cfs. Subject to shifts.

Bankfull stage.--Not determined.

Historical data.--Flood in December 1861 reached a stage of about 39 ft, from information by Corps of Engineers. Flood in February 1890 reached a stage of about 32 ft and that of Feb. 21, 1927, about 28 ft, from information by local resident.

Remarks.--Peak discharges not affected by diversions. Some regulation by dams at Savage Rapids and Raygold, and slight regulation by Fish Lake and Emigrant Reservoir. Base for partial-duration series, 13,000 cfs.

## ROGUE RIVER BASIN

Peak stages and discharges of Rogue River at Grants Pass, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1862	December 1861	39.0	-	1949	Feb. 22, 1949	11.45	23,500
1890	February 1890	32.0	-	1950	Jan. 18, 1950	9.67	18,700
1927	Feb. 21, 1927	28.0	-		Jan. 23, 1950	10.05	19,600
1939	Mar. 12, 1939	9.81	18,600		Mar. 19, 1950	11.00	22,200
1940	Feb. 6, 1940	9.00	16,400	1951	Oct. 29, 1950	21.25	65,400
	Feb. 13, 1940	8.00	13,800		Nov. 16, 1950	6.70	13,000
	Feb. 17, 1940	7.90	13,500		Nov. 18, 1950	8.72	18,600
	Feb. 28, 1940	13.4	29,700		Dec. 4, 1950	17.8	50,800
	Mar. 2, 1940	8.7	15,600		Dec. 7, 1950	11.25	26,300
	Mar. 27, 1940	11.8	24,500		Dec. 14, 1950	6.77	13,200
	Mar. 31, 1940	8.0	13,800		Jan. 18, 1951	17.30	48,700
1941	Dec. 27, 1940	8.66	15,500		Jan. 21, 1951	9.37	20,500
	Jan. 26, 1941	9.60	18,100		Jan. 24, 1951	8.30	17,400
1942	Dec. 3, 1941	12.91	28,000	1952	Feb. 4, 1951	16.30	44,700
	Dec. 16, 1941	10.47	20,600		Dec. 1, 1951	7.66	15,600
	Dec. 18, 1941	12.20	25,700		Dec. 24, 1951	9.24	20,100
	Dec. 23, 1941	7.70	13,000		Dec. 27, 1951	11.30	26,500
	Jan. 8, 1942	8.32	14,600		Dec. 29, 1951	10.53	24,000
	Feb. 4, 1942	9.38	17,500		Feb. 2, 1952	14.78	38,800
	May 25, 1942	8.40	14,800		Feb. 16, 1952	11.90	28,500
1943	Nov. 24, 1942	8.70	15,600	1953	Mar. 24, 1952	8.77	18,700
	Nov. 27, 1942	9.30	17,200		Dec. 10, 1952	8.18	17,000
	Nov. 30, 1942	13.4	29,600		Jan. 9, 1953	8.55	18,100
	Dec. 2, 1942	8.95	16,300		Jan. 14, 1953	8.50	18,000
	Dec. 8, 1942	9.60	18,100		Jan. 18, 1953	23.90	77,000
	Dec. 25, 1942	11.36	23,200		Feb. 3, 1953	10.95	26,500
	Dec. 28, 1942	14.4	33,000		Feb. 8, 1953	11.34	27,800
	Dec. 31, 1942	19.76	54,100		May 26, 1953	9.60	22,300
	Jan. 21, 1943	19.83	54,400	1954	Nov. 23, 1953	21.15	66,000
	Jan. 30, 1943	8.9	16,100		Dec. 4, 1953	7.28	16,300
	Feb. 4, 1943	8.6	15,300		Dec. 6, 1953	8.77	20,600
	Feb. 7, 1943	7.96	13,600		Jan. 16, 1954	14.75	40,600
1944	Nov. 5, 1943	5.57	8,150		Jan. 23, 1954	9.30	22,200
1945	Feb. 8, 1945	9.75	18,600		Jan. 28, 1954	19.19	64,000
	Feb. 14, 1945	13.3	29,300	1955	Feb. 13, 1954	7.95	19,800
1946	Nov. 28, 1945	8.66	15,800	1956	Dec. 31, 1954	4.81	10,700
	Dec. 29, 1945	23.16	70,000		Nov. 19, 1955	7.02	17,100
	Jan. 2, 1946	9.46	17,800		Dec. 1, 1955	6.16	14,600
	Jan. 5, 1946	9.44	17,800		Dec. 19, 1955	8.57	21,800
	Jan. 7, 1946	9.56	18,100		Dec. 22, 1955	29.60	135,000
	Jan. 24, 1946	8.15	14,500		Jan. 7, 1956	5.74	14,100
1947	Mar. 10, 1947	7.10	12,400	1957	Jan. 15, 1956	15.90	53,000
1948	Jan. 4, 1948	10.98	22,100		Jan. 23, 1956	15.80	52,500
	Jan. 7, 1948	21.06	59,900		Oct. 30, 1956	8.65	22,900
	Feb. 22, 1948	9.70	18,800		Dec. 11, 1956	12.85	39,100
1949	Dec. 12, 1948	9.75	18,900		Jan. 20, 1957	6.00	14,800
					Feb. 26, 1957	14.72	47,400
					Mar. 12, 1957	15.30	50,100
					Mar. 25, 1957	7.68	19,800
					Apr. 1, 1957	6.87	17,300

3620. Applegate River near Copper, Oreg.

Location.--Lat 42°03'30", long 123°06'50", in SE $\frac{1}{4}$  sec.25, T.40 S., R.4 W., on right bank 0.2 mile downstream from French Gulch, 1.6 miles downstream from Squaw Creek, and 2.6 miles northeast of Copper.

Drainage area.--220 sq mi.

Gage.--Recording. Datum of gage is 1,759.66 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 6,300 cfs and extended on basis of slope-area measurements at 11,800 and 20,300 cfs.

Bankfull stage.--Not subject to overflow.

Remarks.--Peak discharges not affected by diversions or regulation by Squaw Lake. Base for partial-duration series, 1,700 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1939	Mar. 22, 1939	4.28	1,330	1950	Jan. 21, 1950	6.01	2,260	
1940	Dec. 9, 1939	5.38	2,110	Mar. 17, 1950	7.78	3,670		
	Feb. 6, 1940	7.10	3,460	Mar. 21, 1950	5.33	1,740		
	Feb. 29, 1940	11.84	7,410	1951	Oct. 29, 1950	16.50	11,800	
	Mar. 28, 1940	10.35	6,040		Nov. 18, 1950	6.15	2,610	
	Mar. 29, 1940	6.72	2,990		Dec. 3, 1950	12.45	7,840	
1941	Dec. 20, 1940	9.26	5,090		Jan. 17, 1951	6.62	2,990	
	Dec. 24, 1940	5.07	1,730		Jan. 21, 1951	6.02	2,510	
	Dec. 26, 1940	5.95	2,380	Feb. 4, 1951	12.65	8,020		
	Jan. 25, 1941	5.45	2,020	Feb. 7, 1951	8.02	4,110		
	1942	Dec. 2, 1941	11.66	6,900	1952	Nov. 28, 1951	5.47	2,070
Dec. 16, 1941		7.31	3,290	Dec. 1, 1951		9.27	5,060	
Dec. 18, 1941		8.08	3,900	Dec. 27, 1951		6.64	2,910	
Jan. 7, 1942		5.27	1,790	Feb. 1, 1952		11.05	6,660	
Jan. 26, 1942		5.29	1,800	Apr. 30, 1952		5.71	2,170	
Feb. 4, 1942		5.90	2,230	1953	Jan. 9, 1953	9.44	5,220	
May 25, 1942		6.03	2,320		Jan. 12, 1953	9.65	5,400	
1943		Nov. 23, 1942	7.75		3,640	Jan. 18, 1953	19.48	15,300
		Nov. 26, 1942	6.27		2,500	Feb. 3, 1953	5.63	2,100
		Nov. 29, 1942	6.35		2,560	Apr. 27, 1953	6.23	2,580
	Dec. 27, 1942	8.76	4,450	May 19, 1953	5.28	1,820		
	Dec. 31, 1942	12.85	7,980	1954	Nov. 23, 1953	12.03	7,550	
	Jan. 21, 1943	12.25	7,440		Jan. 16, 1954	6.90	3,120	
1944	May 5, 1944	3.98	909		Jan. 22, 1954	5.67	2,140	
	1945	Feb. 8, 1945	9.82		5,330	Jan. 27, 1954	8.92	4,750
Feb. 13, 1945		6.76	2,870		Feb. 12, 1954	10.15	5,860	
1946		Nov. 28, 1945	9.69		5,220	Mar. 9, 1954	7.71	3,770
	Dec. 28, 1945	16.7	12,000	Apr. 4, 1954	6.92	3,140		
	Jan. 2, 1946	-	-	1955	Dec. 31, 1954	4.40	1,180	
1947	Nov. 18, 1946	6.82	2,820		Nov. 19, 1955	6.38	2,700	
	Nov. 22, 1946	6.57	2,620		Dec. 21, 1955	23.47	20,300	
	Feb. 12, 1947	6.24	2,360		Jan. 15, 1956	13.42	9,560	
1948	Oct. 16, 1947	5.88	2,070		Jan. 22, 1956	9.12	5,510	
	Jan. 6, 1948	17.84	13,400		Feb. 21, 1956	8.64	4,880	
	Feb. 22, 1948	5.37	1,780	Apr. 21, 1956	4.99	1,870		
1949	Feb. 22, 1949	7.26	3,260	May 19, 1956	5.22	2,030		
	May 2, 1949	6.82	2,910	1957	Oct. 30, 1956	5.20	2,020	
	1950	Jan. 18, 1950	6.37		2,550	Dec. 11, 1956	5.54	2,260
Feb. 26, 1957		14.85	11,100		Mar. 4, 1957	5.50	2,200	
Mar. 4, 1957		5.50	2,200		Mar. 11, 1957	7.41	3,770	
Mar. 11, 1957	7.41	3,770						

3630. Applegate River near Ruch, Oreg.  
(Published as "near Buncom" 1911-14)

Location.--Lat 42°10'40", long 123°02'40", in E½ sec.15, T.39 S., R.3 W., on downstream side of left pier of Cameron Bridge, 1.6 miles upstream from Little Applegate River and 4.2 miles south of Ruch.

Drainage area.--297 sq mi. Mean altitude, 3,900 ft; channel slope, 136 ft per mile; area of lakes and ponds, 0.4 sq mi.

Gage.--Nonrecording June 1911 to Sept. 30, 1914; recording since Oct. 1, 1925. June 1911 to Sept. 30, 1914, at datum 0.88 ft lower; gage heights herein adjusted to described datum. Datum of last used gage is 1,475.64 ft above mean sea level (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 7,200 cfs and extended by logarithmic plotting.

Remarks.--Peak discharges not affected by diversions or slight regulation by Squaw Lake. Base for partial-duration series, 1,800 cfs. Only annual peaks are shown 1912-14.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1912	Feb. 17, 1912	6.62	5,010	1940	Mar. 26, 1940	7.15	6,500
1913	Nov. 9, 1912	4.12	2,270		Mar. 29, 1940	4.52	2,970
1914	Jan. 21, 1914	7.62	6,300				
1926	Feb. 4, 1926	6.36	4,770	1941	Dec. 20, 1940	6.26	5,210
					Dec. 26, 1940	4.24	2,640
					Jan. 25, 1941	3.80	2,160
1927	Nov. 20, 1926	5.51	3,700				
	Nov. 25, 1926	4.35	2,510	1942	Dec. 2, 1941	-	8,000
	Nov. 30, 1926	9.35	8,850		Dec. 16, 1941	4.95	3,360
	Dec. 2, 1926	6.45	4,770		Dec. 18, 1941	5.62	4,180
	Jan. 2, 1927	4.87	3,050		Jan. 8, 1942	3.56	1,880
	Feb. 20, 1927	16.0	20,000		Jan. 27, 1942	3.55	1,880
	Apr. 2, 1927	-	-		Feb. 4, 1942	4.30	2,640
					May 25, 1942	4.16	2,490
1928	Mar. 26, 1928	8.70	8,370				
1929	May 21, 1929	2.48	850	1943	Nov. 23, 1942	5.33	3,820
					Nov. 27, 1942	4.20	2,530
					Nov. 29, 1942	4.26	2,600
1930	Dec. 14, 1929	6.58	5,420		Dec. 24, 1942	3.47	1,800
	Feb. 2, 1930	3.59	1,850		Dec. 27, 1942	6.10	4,810
					Dec. 31, 1942	9.17	8,470
1931	Mar. 18, 1931	3.71	1,950		Jan. 21, 1943	9.50	10,000
1932	Mar. 19, 1932	5.50	4,020	1944	Mar. 10, 1944	2.28	976
1933	May 30, 1933	4.02	2,260	1945	Feb. 8, 1945	6.83	5,840
	June 9, 1933	4.01	2,260		Feb. 13, 1945	4.40	2,760
1934	Jan. 3, 1934	3.70	1,950	1946	Nov. 28, 1945	6.64	5,570
1935	Apr. 29, 1935	3.32	1,710		Dec. 28, 1945	12.2	13,100
					Jan. 2, 1946	3.87	2,510
					Jan. 7, 1946	3.47	2,110
1936	Jan. 2, 1936	4.88	3,430				
	Jan. 11, 1936	4.95	3,540	1947	Nov. 18, 1946	4.55	3,240
	Jan. 15, 1936	5.1	3,650		Nov. 22, 1946	4.34	3,000
	Feb. 22, 1936	4.57	3,100		Feb. 12, 1947	4.09	2,730
1937	Apr. 13, 1937	7.3	6,360	1948	Oct. 16, 1947	3.74	2,380
					Jan. 4, 1948	4.94	3,700
1938	Nov. 20, 1937	10.40	11,600		Jan. 6, 1948	12.8	14,000
	Nov. 23, 1937	4.43	2,880		Feb. 22, 1948	3.26	1,920
	Dec. 11, 1937	8.65	8,760				
	Jan. 22, 1938	3.60	1,890	1949	Dec. 12, 1948	3.23	1,900
	Feb. 7, 1938	6.72	5,830		Feb. 22, 1949	-	4,400
	Mar. 2, 1938	3.63	1,940		May 2, 1949	4.25	2,900
	Mar. 16, 1938	4.80	3,300				
	Mar. 19, 1938	4.10	2,460	1950	Jan. 18, 1950	4.16	2,810
	Mar. 23, 1938	5.20	3,810		Jan. 21, 1950	3.88	2,820
	Apr. 19, 1938	4.57	3,000		Mar. 17, 1950	5.12	3,510
	Apr. 30, 1938	4.43	2,880		Mar. 22, 1950	3.22	1,890
	May 15, 1938	4.50	2,940				
	May 26, 1938	4.13	2,520	1951	Oct. 29, 1950	11.4	12,000
	June 5, 1938	3.57	1,840		Nov. 18, 1950	4.00	2,760
					Dec. 3, 1950	8.27	7,850
1939	Mar. 23, 1939	3.04	1,360		Jan. 17, 1951	5.36	4,330
					Jan. 21, 1951	4.50	3,510
1940	Dec. 9, 1939	4.14	2,510		Feb. 4, 1951	9.00	8,780
	Feb. 6, 1940	5.40	4,070				
	Feb. 28, 1940	9.15	9,640	1952	Nov. 28, 1951	3.30	2,000

Peak stages and discharges of Applegate River near Ruch, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Dec. 1, 1951	5.93	5,020	1953	Jan. 9, 1953	6.58	5,800
	Dec. 27, 1951	4.60	3,420		Jan. 12, 1953	6.52	5,720
	Feb. 1, 1952	8.27	7,850		Jan. 18, 1953	13.5	15,000
	Apr. 7, 1952	3.06	1,810		Feb. 3, 1953	3.48	2,250
	Apr. 19, 1952	3.06	1,810		Feb. 7, 1953	3.05	1,800
	Apr. 30, 1952	3.50	2,250		Apr. 27, 1953	3.90	2,650
	May 19, 1952	3.09	1,840		May 19, 1953	3.16	1,910

3660. Applegate River near Applegate, Oreg.

Location.--Lat 42°14'30", long 123°08'20", in NE $\frac{1}{4}$  sec.26, T.38 S., R.4 W., on left bank 0.9 mile downstream from Keeler Creek and 1.8 miles southeast of Applegate.

Drainage area.--480 sq mi. Mean altitude, 3,660 ft; channel slope, 110 ft per mile; area of lakes and ponds, 0.4 sq mi.

Gage.--Nonrecording prior to Dec. 23, 1938; recording thereafter. Datum of gage is 1,285.33 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 9,600 cfs and extended on basis of slope-area measurements at 18,600 and 47,600 cfs.

Bankfull stage.--13 ft.

Historical data.--Maximum stage known, 18.7 ft, Feb. 20, 1927, from well defined floodmarks.

Remarks.--Peak discharges not affected by diversions. Base for partial-duration series, 2,200 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1927	Feb. 20, 1927	18.7	a34,000	1948	Oct. 16, 1947	5.18	2,810
1939	Nov. 4, 1938	4.25	1,820	1949	Jan. 4, 1948	6.60	4,740
					Jan. 6, 1948	14.20	21,200
1940	Dec. 10, 1939	5.20	2,900		Feb. 22, 1949	6.87	5,120
	Feb. 6, 1940	6.10	4,140	May 2, 1949	5.60	3,360	
	Feb. 28, 1940	9.67	10,600	1950	Jan. 18, 1950	5.62	3,390
	Mar. 26, 1940	7.57	6,550		Jan. 21, 1950	5.49	3,220
1941	Dec. 21, 1940	6.94	5,450	Mar. 17, 1950	6.26	4,260	
	Dec. 26, 1940	-	-	1951	Oct. 29, 1950	13.20	18,600
	Jan. 25, 1941	4.89	2,520		Nov. 16, 1950	4.70	2,270
1942	Dec. 2, 1941	9.00	9,250	Nov. 18, 1950	5.43	3,140	
	Dec. 16, 1941	6.02	3,960	Dec. 3, 1950	10.1	11,100	
	Dec. 18, 1941	6.58	4,760	Jan. 17, 1951	7.90	6,690	
	Feb. 6, 1942	5.51	3,270	Jan. 21, 1951	6.33	4,360	
	May 25, 1942	5.59	3,380	Feb. 4, 1951	10.7	12,500	
1943	Nov. 23, 1942	6.09	4,060	1952	Dec. 1, 1951	7.02	5,330
	Nov. 27, 1942	5.17	2,830		Dec. 27, 1951	6.32	4,350
	Nov. 29, 1942	5.28	2,970		Feb. 1, 1952	10.11	11,100
	Dec. 27, 1942	7.04	5,450		Apr. 30, 1952	4.92	2,410
	Dec. 31, 1942	9.62	10,200	1953	Jan. 9, 1953	7.93	6,740
	Jan. 21, 1943	11.87	15,100		Jan. 12, 1953	7.84	6,590
Jan. 30, 1943	4.76	2,330	Jan. 18, 1953		15.60	29,100	
1944	Mar. 10, 1944	3.48	1,040		Feb. 3, 1953	5.16	2,690
					Feb. 7, 1953	4.86	2,350
1945	Feb. 8, 1945	7.60	6,210	Apr. 27, 1953	5.47	3,180	
	Feb. 13, 1945	5.58	3,350	1954	Nov. 23, 1953	8.88	8,480
1946	Nov. 28, 1945	7.46	5,990		Jan. 17, 1954	7.27	5,700
	Dec. 28, 1945	12.5	16,800		Jan. 23, 1954	5.68	3,350
	Jan. 2, 1946	5.14	2,800		Jan. 27, 1954	10.88	12,900
	Jan. 7, 1946	4.99	2,620		Feb. 12, 1954	8.54	7,820
1947	Nov. 19, 1946	6.10	4,040		Mar. 9, 1954	6.50	4,550
	Nov. 23, 1946	5.77	3,580	Apr. 4, 1954	5.83	3,560	
	Feb. 12, 1947	5.59	3,350	1955	May 20, 1955	3.76	1,300

a Annual peak only.

Peak stages and discharges of Applegate River near Applegate, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	Nov. 19, 1955	5.52	3,150	1956	May 19, 1956	5.01	2,510
	Dec. 21, 1955	18.00	47,600				
	Jan. 4, 1956	6.02	3,830	1957	Oct. 30, 1956	5.01	2,440
	Jan. 15, 1956	10.65	12,400				
	Jan. 22, 1956	7.54	6,110				
	Feb. 21, 1956	11.14	13,500				
Apr. 22, 1956	4.81	2,290	1957	Mar. 4, 1957	5.20	2,740	
							Mar. 12, 1957

3685. Powell Creek near Williams, Oreg.

Location.--Lat 42°16'00", long 123°17'40", in SW $\frac{1}{4}$  sec.16, T.38 S., R.5 W., on left bank 0.1 mile upstream from Blodgett ditch intake and 2 miles northwest of Williams.

Drainage area.--8.6 sq mi, approximately. Mean altitude, 3,220 ft; channel slope, 462 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. Altitude of gage is 1,680 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 550 cfs and extended on basis of slope-area measurement at 780 cfs.

Historical data.--Flood of Dec. 28, 1945, reached a stage of about 7.0 ft, from floodmarks.

Remarks.--Base for partial-duration series, 150 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1946	Dec. 28, 1945	a7.0	-	1952	Dec. 29, 1951	3.64	221	
					Feb. 1, 1952	4.21	400	
1947	Mar. 10, 1947	3.31	173	1953	Jan. 9, 1953	3.79	259	
1948	Jan. 4, 1948	3.85	318		Jan. 18, 1953	5.36	1,110	
	Jan. 6, 1948	4.92	780	1954	Nov. 22, 1953	4.55	568	
1949	Feb. 10, 1949	3.38	167		Jan. 16, 1954	4.32	450	
	Feb. 22, 1949	3.49	188		Jan. 22, 1954	3.61	213	
					Jan. 27, 1954	4.93	791	
1950	Jan. 18, 1950	3.47	184	1955	Dec. 31, 1954	2.24	36	
	Jan. 23, 1950	3.80	262		Dec. 22, 1955	5.37	972	
	Mar. 17, 1950	3.60	211	Dec. 26, 1955	3.05	186		
	Mar. 19, 1950	3.57	205	Jan. 15, 1956	4.15	436		
1951	Oct. 28, 1950	5.14	938	1956	Jan. 22, 1956	3.18	208	
	Nov. 18, 1950	3.80	262		1957	Oct. 29, 1956	2.87	161
	Dec. 3, 1950	4.68	639			Feb. 26, 1957	3.87	388
	Jan. 17, 1951	4.52	568		Mar. 11, 1957	-	280	
	Jan. 21, 1951	4.32	465					
	Feb. 4, 1951	3.80	271					
1952	Dec. 27, 1951	3.52	194					

a Annual peak only.

3695. Applegate River near Wilderville, Oreg.  
(Published as "at Murphy" 1908-10)

Location.--Lat 42°21'10", long 123°24'10", in NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.15, T.37 S., R.6 W., on left bank 900 ft downstream from Jackson Creek and 3.8 miles southeast of Wilderville.

Drainage area.--694 sq mi; 659 sq mi at site used 1908-10. Mean altitude, 3,630 ft; channel slope, 105 ft per mile; area of lakes and ponds, 0.4 sq mi.

Gage.--Nonrecording. Gage for 1907-10 at site at Murphy about 5 miles upstream from described site at altitude 1,030 ft (by barometer). Datum of gage is 949.54 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 12,000 cfs and extended on basis of slope-area measurement at 67,100 cfs at site 1.7 miles downstream (drainage area, 700 sq mi).

Bankfull stage.--Not subject to overflow.

Remarks.--Peak discharges not affected by diversions. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1908	Dec. 26, 1907	9.65	12,000	1947	Nov. 19, 1946	7.5	4,900
1909	Jan. 20, 1909	11.4	19,100	1948	Jan. 6, 1948	17.2	38,400
1910	Nov. 23, 1909	13.4	27,100	1949	Feb. 22, 1949	8.4	6,400
				1950	Jan. 18, 1950	9.0	7,350
1939	Mar. 13, 1939	6.34	3,470				
1940	Feb. 23, 1940	12.16	13,300	1951	Oct. 29, 1950	17.5	40,700
				1952	Feb. 2, 1952	14.4	22,500
1941	Dec. 21, 1940	8.5	6,450	1953	Jan. 18, 1953	18.3	47,500
1942	Dec. 5, 1941	11.0	11,000	1954	Jan. 28, 1954	15.0	25,800
1943	Jan. 21, 1943	16.9	36,300	1955	Dec. 31, 1954	4.66	1,860
1944	Mar. 10, 1944	4.76	1,600				
1945	Feb. 8, 1945	9.8	8,740	1956	Dec. 22, 1955	20.3	66,500
1946	Dec. 28, 1945	16.3	32,100				

3698. Butcherknife Creek near Wonder, Oreg.

Location.--Lat 42°20'40", long 123°34'00", in NE $\frac{1}{4}$  sec.19, T.37 S., R.7 W., at culvert on county road 0.1 mile west of U.S. Highway 199, 0.7 mile upstream from mouth, and 2.3 miles southwest of Wonder.

Drainage area.--3.07 sq mi. Mean altitude, 1,760 ft; channel slope, 493 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 1,220 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 116 cfs and extended on basis of computations of flow through culvert.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	Jan. 18, 1953	16.40	327	1956	Dec. 21, 1955	16.84	369
1954	Jan. 27, 1954	16.82	367	1957	Feb. 26, 1957	16.36	323
1955	Dec. 30, 1954	12.93	56				

## 3700. Slate Creek at Wonder, Oreg.

Location.--Lat 42°21'40", long 123°31'10", in SW $\frac{1}{4}$  sec.10, T.37 S., R.7 W., on left bank 0.6 mile upstream from Elliot Creek and 0.7 mile east of Wonder.

Drainage area.--31.4 sq mi. Mean altitude, 2,160 ft; channel slope, 232 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording prior to Nov. 21, 1946; recording thereafter. Prior to Nov. 21, 1946, at several sites within half a mile of present site at various datums. Datum of present gage is 1,034.85 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 2,100 cfs and extended on basis of slope-area measurements at 2,940 and 4,020 cfs.

Remarks.--Records for 1944-45 furnished by the State engineer of Oregon. Peak discharges not affected by diversions. Base for partial-duration series, 900 cfs. Only annual peaks are shown prior to 1947.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1944	Oct. 24, 1943	2.40	865	1952	Dec. 27, 1951	6.04	1,340
1945	Feb. 8, 1945	3.20	1,530		Jan. 10, 1952	5.72	1,160
					Feb. 1, 1952	7.48	2,230
1946	Dec. 28, 1945	9.0	4,000	1953	Dec. 7, 1952	6.16	1,550
1947	Nov. 22, 1946	6.75	2,080		Dec. 10, 1952	6.87	1,970
	Feb. 12, 1947	4.96	932		Jan. 9, 1953	7.34	2,270
	Mar. 9, 1947	5.85	1,410		Jan. 13, 1953	5.35	1,080
					Jan. 18, 1953	9.48	3,820
1948	Oct. 16, 1947	5.40	1,150	1954	Nov. 23, 1953	7.64	2,480
	Jan. 2, 1948	5.28	1,090		Jan. 16, 1954	6.72	1,880
	Jan. 6, 1948	8.29	2,940		Jan. 22, 1954	5.73	1,290
	Feb. 22, 1948	5.18	1,080		Jan. 27, 1954	9.15	3,580
1949	Feb. 10, 1949	5.23	1,060		Feb. 12, 1954	7.47	2,360
	Feb. 22, 1949	6.43	1,810	1955	Dec. 31, 1954	4.36	714
1950	Jan. 21, 1950	6.56	1,810	1956	Dec. 21, 1955	9.60	3,920
	Mar. 17, 1950	5.30	1,140		Dec. 25, 1955	8.98	3,460
1951	Oct. 29, 1950	9.72	4,020		Jan. 4, 1956	6.31	1,670
	Nov. 16, 1950	5.18	1,080		Jan. 6, 1956	6.15	1,580
	Nov. 18, 1950	5.76	1,370		Jan. 15, 1956	6.71	1,890
	Dec. 3, 1950	7.42	2,320		Jan. 22, 1956	5.11	1,060
	Jan. 17, 1951	7.25	2,210	1957	Feb. 26, 1957	8.64	3,200
	Jan. 21, 1951	7.11	2,120		Mar. 12, 1957	4.90	929
	Feb. 4, 1951	6.69	1,680				
1952	Dec. 1, 1951	5.31	1,060				

## 3702. Round Prairie Creek near Wilderville, Oreg.

Location.--Lat 42°22'40", long 123°29'45", in SW $\frac{1}{4}$  sec.2, T.37 S., R.7 W., at culvert on U.S. Highway 199, 0.1 mile upstream from mouth and 1.5 miles west of Wilderville.

Drainage area.--3.16 sq mi. Mean altitude, 1,630 ft; channel slope, 378 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Crest-stage gage. Datum of gage is 971.56 ft above mean sea level, datum of 1929, supplementary adjustment of 1956.

Stage-discharge relation.--Defined by current-meter measurements below 132 cfs and extended on basis of computations of flow through culvert.

Remarks.--Only annual peaks are shown.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	Jan. 18, 1953	6.66	298	1956	Dec. 21, 1955	6.30	262
1954	Jan. 27, 1954	6.73	305	1957	Feb. 26, 1957	5.94	226
1955	Apr. 22, 1955	3.43	26				

3715. Grave Creek at Pease Bridge, near Placer, Oreg.

Location.--Lat 42°38'30", long 123°12'40", in SE $\frac{1}{4}$  sec.6, T.34 S., R.4 W., on right bank 0.5 mile downstream from Pease Bridge, 0.6 mile upstream from Boulder Creek, and 5.4 miles east of Placer. All records computed are for site 0.5 mile upstream at Pease Bridge where discharge measurements are made.

Drainage area.--22 sq mi, approximately, at measuring section 0.5 mile upstream. Mean altitude, 3,480 ft; channel slope, 198 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. Prior to Aug. 4, 1955, at sites 0.5 mile upstream at datum 29.9 ft higher. Datum of gage is 2,354.2 ft above mean sea level, datum of 1929 (Bureau of Reclamation bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 620 cfs and extended on basis of slope-area measurement at 4,610 cfs.

Bankfull stage.--Not subject to overflow.

Remarks.--Records for 1940-45 furnished by State engineer of Oregon. Base for partial-duration series, 850 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1941	Dec. 20, 1940	4.53	1,230	1951	Nov. 18, 1950	4.56	1,420
	Dec. 26, 1940	4.35	1,090		Dec. 3, 1950	4.93	1,710
1942	Dec. 2, 1941	4.70	1,120		Jan. 17, 1951	4.12	1,070
					Feb. 4, 1951	4.35	1,250
1943	Nov. 23, 1942	4.70	1,120	1952	Dec. 1, 1951	3.84	868
	Dec. 27, 1942	4.65	1,090		Feb. 1, 1952	4.30	1,220
	Dec. 30, 1942	6.10	2,300	1953	Jan. 9, 1953	5.15	1,890
1944	Mar. 9, 1944	2.67	268		Jan. 18, 1953	6.28	2,890
				1945	Feb. 8, 1945	4.11	785
Feb. 12, 1954	4.68	1,510					
1946	Dec. 28, 1945	-	-	1955	Dec. 30, 1954	3.63	1,020
1947	Nov. 18, 1946	4.36	1,390		1956	Nov. 19, 1955	5.11
				1948		Oct. 16, 1947	3.96
Jan. 6, 1948	5.73	2,400	Dec. 26, 1955				
			1949	Feb. 22, 1949		3.71	926
1950	Mar. 17, 1950	3.66					
			1951	Oct. 29, 1950		6.95	3,550
Feb. 26, 1957	7.15	2,400					

3720. Grave Creek near Placer, Oreg.

Location.--Lat 42°37'40", long 123°20'30", in NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.7, T.34 S., R.5 W., 0.2 mile upstream from Shanks Creek, 1.6 miles west of Placer, and 13 miles north of Grants Pass.

Drainage area.--45.6 sq mi. Mean altitude, 3,150 ft; channel slope, 163 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording. Datum of gage is 1,279.97 ft above mean sea level, datum of 1929 (levels by Bureau of Reclamation).

Stage-discharge relation.--Defined by current-meter measurements below 1,500 cfs and extended by logarithmic plotting. Subject to frequent shifts.

Remarks.--Records furnished by State engineer of Oregon. Peak discharges not affected by diversions. Only annual peaks are shown.

## Peak stages and discharges of Grave Creek near Placer, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1942	Dec. 2, 1941	6.45	2,200	1949	Feb. 22, 1949	6.45	2,740
1943	Dec. 30, 1942	7.0	2,850	1950	Jan. 23, 1950	6.0	2,110
1944	Mar. 9, 1944	4.04	588	1951	Oct. 29, 1950	8.3	8,000
1945	Feb. 8, 1945	5.6	1,420	1952	Feb. 1, 1952	6.06	2,290
1946	Dec. 28, 1945	8.2	5,500	1953	Jan. 18, 1953	7.5	5,090
1947	Mar. 10, 1947	5.10	1,210	1954	Nov. 22, 1953	6.84	3,760
1948	Jan. 7, 1948	8.0	6,690				

3725. East Fork Illinois River near Takilma, Oreg.

Location.--Lat 42°00'40", long 123°37'30", in SE $\frac{1}{4}$  sec.10, T.41 S., R.8 W., on right bank 500 ft upstream from highway bridge, 0.3 mile upstream from Long Gulch, and 3 miles south of Takilma.

Drainage area.--42.6 sq mi. Mean altitude, 3,900 ft; channel slope, 308 ft per mile; area of lakes and ponds, 0.1 sq mi.

Gage.--Nonrecording prior to May 13, 1949; recording thereafter. Prior to Oct. 31, 1946, at various sites at different datums. Datum of gage is 1,746.6 ft above mean sea level, datum of 1929 (Bureau of Reclamation bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 5,500 cfs and extended by logarithmic plotting.

Remarks.--Records for 1928-32, 1941-45 furnished by State engineer of Oregon. Peak discharges not affected by diversions. Base for partial-duration series, 2,500 cfs. Only annual peaks are shown prior to 1950.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1928	Mar. 26, 1928	-	2,000	1951	Jan. 21, 1951	6.63	2,530
1929	Apr. 14, 1929	4.51	1,450		Feb. 4, 1951	7.43	3,600
1930	Dec. 14, 1929	5.7	3,360	1952	Feb. 1, 1952	7.39	3,430
1931	Mar. 20, 1931	5.1	2,580	1953	Jan. 9, 1953	8.03	5,070
1932	Mar. 18, 1932	6.2	3,500		Jan. 18, 1953	8.56	6,280
1941	Dec. 24, 1940	9.0	2,900	1954	Nov. 23, 1953	8.40	5,900
1942	Dec. 17, 1941	11.0	6,150		Jan. 16, 1954	6.69	2,850
1943	Dec. 30, 1942	-	3,500		Jan. 27, 1954	6.77	2,950
1944	Nov. 4, 1943	6.70	1,710		Feb. 12, 1954	6.77	2,950
1945	Feb. 8, 1945	9.7	5,540	1955	Dec. 30, 1954	7.18	3,510
1946	Dec. 28, 1945	9.4	4,770	1956	Nov. 19, 1955	6.86	3,070
1947	Nov. 22, 1946	7.1	3,330		Dec. 19, 1955	6.94	3,180
1948	Jan. 7, 1948	8.6	5,730		Dec. 22, 1955	10.05	8,230
1949	Feb. 22, 1949	5.8	1,700		Jan. 15, 1956	8.83	5,460
1950	Jan. 18, 1950	7.62	4,050		Jan. 22, 1956	7.70	3,530
	Mar. 17, 1950	7.47	3,830		Feb. 21, 1956	7.30	3,030
1951	Oct. 29, 1950	8.75	6,750	1957	Oct. 29, 1956	7.70	3,580
	Nov. 18, 1950	6.50	2,540		Feb. 26, 1957	8.34	4,580
	Dec. 3, 1950	8.72	6,670		Mar. 11, 1957	7.00	2,650
	Jan. 17, 1951	7.4	3,560				

3735. Althouse Creek near Holland, Oreg.

Location.--Lat 42°06'00", long 123°31'30", in SE $\frac{1}{4}$  sec.9, T.40 S., R.7 W., on right bank half a mile upstream from Carter Gulch and 2 miles southeast of Holland.

Drainage area.--23.8 sq mi. Mean altitude, 3,500 ft; channel slope, 345 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Recording. Datum of gage is 1,754.54 ft above mean sea level (Bureau of Reclamation bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 470 cfs and extended on basis of slope-area measurements at 1,520 and 2,160 cfs.

Remarks.--Peak discharges not affected by regulation or diversion. Base for partial-duration series, 500 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	Dec. 28, 1945	4.85	a1,300	1951	Oct. 29, 1950	5.96	2,160
					Nov. 18, 1950	4.12	694
1947	Nov. 22, 1946	3.70	750	1951	Dec. 3, 1950	5.45	1,710
	Feb. 11, 1947	3.26	508		Dec. 7, 1950	3.77	575
	Mar. 9, 1947	3.68	739		Jan. 17, 1951	5.02	1,400
1948	Jan. 2, 1948	3.44	635	1952	Jan. 21, 1951	4.23	838
	Jan. 7, 1948	5.14	1,520		Dec. 1, 1951	3.73	590
	Feb. 22, 1948	3.87	652		Dec. 27, 1951	4.21	787
	Apr. 15, 1948	3.64	520		Feb. 1, 1952	4.84	1,250
1949	Dec. 12, 1948	3.87	652	1953	Jan. 9, 1953	4.30	850
	Feb. 22, 1949	4.25	905		Jan. 13, 1953	4.03	668
1950	Jan. 18, 1950	3.93	782		Jan. 18, 1953	6.50	2,680
	Jan. 21, 1950	3.58	600	1956	Dec. 22, 1955	6.5	a2,680
	Mar. 17, 1950	4.41	1,060				

a Annual peak only.

3745. Grayback Creek near Holland, Oreg.

Location.--Lat 42°08'30", long 123°27'20", in NW $\frac{1}{4}$  sec.31, T.39 S., R.6 W., on right bank 400 ft upstream from bridge on State Highway 46, 600 ft upstream from mouth and 4 $\frac{1}{2}$  miles northeast of Holland.

Drainage area.--24.1 sq mi.

Gage.--Recording. Datum of gage is 1,836.92 ft above mean sea level (Bureau of Reclamation bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 580 cfs and extended on basis of slope-area measurement at 1,500 cfs.

Bankfull stage.--Not subject to overflow.

Remarks.--Peak discharges not affected by diversions. Base for partial-duration series, 300 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1947	Nov. 22, 1946	3.94	476	1950	Jan. 22, 1950	3.59	367
	Feb. 11, 1947	3.38	339		Mar. 17, 1950	4.45	688
	Mar. 9, 1947	3.55	405		Mar. 21, 1950	3.61	363
1948	Jan. 2, 1948	3.59	367	1951	Oct. 29, 1950	6.80	2,080
	Jan. 7, 1948	5.92	1,500		Nov. 18, 1950	4.00	500
	Feb. 22, 1948	3.92	468		Dec. 3, 1950	6.15	1,630
1949	Dec. 7, 1948	3.52	346		Dec. 7, 1950	4.22	518
	Dec. 12, 1948	3.92	468	Jan. 17, 1951	5.32	1,070	
	Feb. 22, 1949	4.23	592	Jan. 21, 1951	4.05	458	
	May 2, 1949	3.39	308	Feb. 4, 1951	5.13	958	
	1950	Jan. 18, 1950	4.16	564	Feb. 7, 1951	3.83	389

## 3750. Sucker Creek near Holland, Oreg.

Location.--Lat 42°09'00", long 123°27'50", in NE $\frac{1}{4}$  sec.25, T.39 S., R.7 W., on right bank 1.3 miles downstream from Grayback Creek and 4 miles northeast of Holland.

Drainage area.--76 sq mi, approximately. Mean altitude, 3,910 ft; channel slope, 204 ft per mile; area of lakes and ponds, 0.3 sq mi.

Gage.--Nonrecording prior to Sept. 19, 1952; recording thereafter. Prior to Sept. 16, 1947, at several sites within a half a mile of present site at various datums. Sept. 16, 1947, to Sept. 19, 1952, at site 280 ft upstream at datum 0.62 ft higher than present gage. Datum of present gage is 1,777.22 ft above mean sea level (Bureau of Reclamation bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 4,200 cfs and extended on basis of slope-area measurement at 5,130 cfs.

Remarks.--Records for 1942-45, furnished by State engineer of Oregon. Peak discharges not affected by diversions. Base for partial-duration series, 1,400 cfs. Only annual peaks are shown prior to 1953.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1942	Dec. 2, 1941	4.10	2,160	1954	Nov. 23, 1953	6.18	3,520
	Dec. 18, 1941	4.10	2,180		Jan. 16, 1954	4.87	1,830
1943	Dec. 31, 1942	6.62	4,890	Jan. 27, 1954	4.86	1,820	
1944	Mar. 9, 1944	2.2	632	Feb. 12, 1954	5.48	2,540	
1945	Feb. 7, 1945	6.2	4,390	1955	Dec. 30, 1954	3.56	711
1946	Dec. 28, 1945	6.6	4,270		Dec. 19, 1955	5.24	2,250
1947	Nov. 22, 1946	3.50	1,140	Dec. 22, 1955	7.95	7,150	
1948	Jan. 7, 1948	8.3	5,090	Dec. 26, 1955	4.94	1,900	
1949	Feb. 22, 1949	5.10	1,660	Jan. 15, 1956	7.12	5,140	
1950	Mar. 17, 1950	5.8	2,260	Jan. 22, 1956	5.22	2,220	
1951	Oct. 29, 1950	8.75	5,720	Feb. 21, 1956	4.73	1,680	
	1952	Feb. 1, 1952	6.1	2,850	1957	Dec. 11, 1956	4.51
1953	Jan. 9, 1953	4.52	1,420	Feb. 26, 1957		6.76	4,470
	Jan. 18, 1953	7.75	6,580	Mar. 11, 1957		4.79	1,800

3755. West Fork Illinois River below Rock Creek, near O'Brien, Oreg.  
(Published as "above O'Brien" 1943-46, and as "near O'Brien" 1946-54)

Location.--Lat 42°02'20", long 123°44'50", in SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.34, T.40 S., R.9 W., on left bank 900 ft downstream from Rock Creek and 3.0 miles southwest of O'Brien.

Drainage area.--42.4 sq mi; 45.0 sq mi at site above O'Brien used 1943-46; and 48.6 sq mi at site near O'Brien used 1946-54. Mean altitude, 2,500 ft; channel slope, 174 ft per mile; area of lakes and ponds, 0.05 sq mi.

Gage.--Nonrecording Feb. 2, 1943, to Sept. 30, 1954; recording thereafter. Prior to Oct. 31, 1946, at site above O'Brien 1.8 miles downstream from present gage at altitude 1,460 ft (from topographic map). Nov. 1, 1946, to Sept. 30, 1954, at site at O'Brien, 3.0 miles downstream from present gage at datum 111.77 ft lower than present datum. Datum of present gage is 1,516.14 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 1,400 cfs and extended by logarithmic plotting at site used 1943-46. Defined by current-meter measurements below 7,200 cfs and extended on basis of slope-area measurement at 14,200 cfs at site used 1946-54. Defined by current-meter measurements below 6,200 cfs and extended on basis of slope-area measurement at 12,100 cfs at present site.

Bankfull stage.--Not determined at site used 1943-46. Not subject to overflow at site used 1946-54. Not determined at present site.

Remarks.--Records for 1943-45 furnished by State engineer of Oregon. Base for partial-duration series, 4,000 cfs. Only annual peaks are shown prior to 1955. Records herein for 1944-46, 1955-57 adjusted by drainage-area ratio to site used 1946-54 for analysis.

Peak stages and discharges of West Fork Illinois River below Rock Creek, near O'Brien, Oreg.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1944	Nov. 4, 1943	4.5	3,660	1955	Dec. 30, 1954	11.50	5,200
1945	Feb. 8, 1945	5.4	6,050	1956	Nov. 19, 1955	10.90	4,380
1946	Dec. 28, 1945	7.1	12,300	1956	Dec. 22, 1955	14.79	12,100
1947	Nov. 22, 1946	7.1	3,740	1956	Jan. 15, 1956	12.34	6,480
1948	Jan. 6, 1948	9.9	8,020	1956	Feb. 21, 1956	12.85	7,340
1949	Dec. 7, 1948	8.10	4,820	1957	Oct. 29, 1956	10.60	4,000
1950	Jan. 18, 1950	10.2	8,560	1957	Dec. 11, 1956	10.85	4,530
1951	Oct. 28, 1950	12.96	14,200	1957	Feb. 26, 1957	10.95	4,640
1952	Feb. 1, 1952	7.60	5,000	1957	Mar. 11, 1957	10.93	4,620
1953	Jan. 18, 1953	11.7	11,800				
1954	Nov. 23, 1953	11.6	11,600				

3770. Illinois River at Kerby, Oreg.

Location.--Lat 42°11'50", long 123°39'30", in NW $\frac{1}{4}$  sec.9, T.39 S., R.8 W., on right bank at Finch Bridge and 0.5 mile west of Kerby.

Drainage area.--364 sq mi; 369 sq mi at site used Nov. 3, 1934, to Oct. 29, 1950. Mean altitude, 2,930 ft; channel slope, 130 ft per mile; area of lakes and ponds, 0.65 sq mi.

Gage.--Nonrecording prior to Nov. 2, 1934, and since Oct. 1, 1950; recording Nov. 3, 1934, to Sept. 30, 1950. Prior to May 9, 1928, at site 0.3 mile upstream from present gage at different datum. May 9, 1928, to Nov. 2, 1934, at present site at different datum. Nov. 3, 1934, to Sept. 30, 1950, at site 1.0 mile downstream from present gage at datum 18.76 ft lower than present datum. Datum of present gage is 1,234.00 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Stage-discharge relation.--Defined by current-meter measurements below 31,000 cfs and extended on basis of slope-area measurement at 49,000 cfs.

Remarks.--Peak discharges not affected by diversions. Base for partial-duration series, 11,000 cfs. Only annual peaks are shown prior to 1935 and after 1950.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1927	Feb. 20, 1927	19.6	52,000	1940	Feb. 28, 1940	16.81	19,900
1928	Mar. 26, 1928	16.6	30,800	1941	Dec. 20, 1940	16.89	20,100
1929	Apr. 15, 1929	7.0	9,880	1941	Dec. 24, 1940	14.31	15,100
1930	Dec. 14, 1929	10.8	28,800	1941	Dec. 26, 1940	17.20	20,700
1931	Nov. 16, 1930	10.2	14,700	1941	Jan. 18, 1941	13.00	13,000
1932	Mar. 18, 1932	11.2	19,100	1941	Jan. 25, 1941	14.99	16,500
1933	Jan. 2, 1933	11.3	19,600	1942	Dec. 2, 1941	18.39	25,800
1934	Jan. 14, 1934	9.96	13,800	1942	Dec. 16, 1941	13.05	13,100
1935	Jan. 7, 1935	10.60	8,020	1942	Dec. 19, 1941	18.08	22,400
1936	Jan. 2, 1936	17.16	20,000	1942	Jan. 7, 1942	14.19	15,000
1936	Jan. 4, 1936	13.10	12,300	1942	Feb. 4, 1942	14.03	14,800
1936	Jan. 9, 1936	14.15	14,300	1942	Feb. 6, 1942	13.69	14,200
1936	Jan. 11, 1936	16.00	17,700	1943	Nov. 23, 1942	14.46	15,500
1936	Jan. 15, 1936	18.50	22,600	1943	Nov. 27, 1942	14.75	16,000
1937	Apr. 13, 1937	20.16	26,100	1943	Dec. 8, 1942	13.24	13,400
1938	Nov. 19, 1937	19.02	23,600	1943	Dec. 27, 1942	16.06	18,400
1938	Dec. 11, 1937	17.60	20,800	1943	Dec. 31, 1942	21.23	35,100
1938	Feb. 7, 1938	19.55	24,900	1943	Jan. 21, 1943	19.91	26,100
1938	Mar. 16, 1938	18.10	21,800	1944	Nov. 4, 1943	9.11	7,090
1938	Mar. 19, 1938	19.48	24,600	1945	Feb. 8, 1945	17.19	21,500
1938	Mar. 23, 1938	16.50	18,600	1945	Feb. 13, 1945	12.70	13,200
1939	Dec. 2, 1938	13.33	12,600	1946	Nov. 28, 1945	16.89	20,900
1939	Mar. 12, 1939	13.83	13,500	1946	Dec. 28, 1945	23.3	43,200
1940	Dec. 10, 1939	12.32	11,700	1947	Nov. 19, 1946	11.50	11,300

## Peak stages and discharges of Illinois River at Kerby, Oreg.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1947	Nov. 22, 1946	14.42	16,300	1950	Jan. 18, 1950	19.26	28,400
	Mar. 10, 1947	13.48	14,600		Jan. 21, 1950	14.8	17,000
1948	Oct. 16, 1947	12.8	13,300		Mar. 17, 1950	16.63	21,000
	Jan. 2, 1948	13.6	14,800	1951	Oct. 29, 1950	13.7	49,000
	Jan. 6, 1948	21.2	34,900		Feb. 1, 1952	10.0	25,600
	Feb. 22, 1948	13.75	15,000	1952	Jan. 18, 1953	13.2	46,800
1949	Dec. 7, 1948	12.45	12,700	1953	Nov. 23, 1953	12.2	39,500
	Dec. 12, 1948	13.60	14,800	1954	Dec. 31, 1954	6.70	10,800
	Feb. 10, 1949	11.95	11,900	1955	Dec. 22, 1955	14.4	56,800
	Feb. 22, 1949	13.87	15,300	1957	Feb. 26, 1957	9.8	30,600
	May 2, 1949	11.9	11,800				

## 3775. Deer Creek near Dryden, Oreg.

Location.--Lat 42°15'50", long 123°27'00", near center of sec.18, T.38 S., R.6 W., on left bank 500 ft downstream from confluence of North and South Forks and 5 miles east of Dryden.

Drainage area.--23 sq mi, approximately. Mean altitude, 3,370 ft; channel slope, 454 ft per mile; area of lakes and ponds, 0 sq mi.

Gage.--Nonrecording prior to Sept. 12, 1946; recording thereafter. Prior to Sept. 12, 1946, at datum 1.26 ft higher; gage heights herein adjusted to described datum. Datum of last used gage is 1,650.10 ft above mean sea level (levels by Bureau of Reclamation).

Stage-discharge relation.--Defined by current-meter measurements below 1,500 cfs and extended on basis of slope-area measurements at 4,370 and 4,400 cfs.

Remarks.--Records prior to 1946 furnished by State engineer of Oregon. Peak discharges not affected by diversion. Base for partial-duration series, 930 cfs. Only annual peaks are shown prior to 1947.

## Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1942	Dec. 18, 1941	7.26	2,360	1952	Dec. 1, 1951	5.05	1,080
1943	Dec. 30, 1942	7.96	2,680		Dec. 27, 1951	5.90	1,140
1944	Mar. 9, 1944	3.68	355		Feb. 1, 1952	6.84	2,660
1945	Feb. 7, 1945	6.86	1,930	1953	Dec. 10, 1952	4.97	1,030
1946	Dec. 28, 1945	8.06	2,750		Jan. 9, 1953	6.29	2,040
	1947	Mar. 9, 1947	6.16		1,250	Jan. 12, 1953	4.95
Jan. 18, 1953		a7.61	5,000		Feb. 3, 1953	4.29	953
1948	Jan. 2, 1948	5.82	1,080	1954	Nov. 23, 1953	6.71	2,300
	Jan. 6, 1948	7.22	1,980		Jan. 16, 1954	5.46	1,500
1949	Dec. 12, 1948	5.46	904		Jan. 22, 1954	4.67	1,140
	1950	Jan. 18, 1950	5.82		1,080	Jan. 27, 1954	6.41
Mar. 17, 1950		5.70	1,020	Apr. 4, 1954	5.15	1,730	
1951	Oct. 29, 1950	7.92	4,370	1955	Dec. 31, 1954	5.03	948
	Nov. 18, 1950	5.97	1,750	1956	Nov. 19, 1955	5.81	1,540
	Dec. 3, 1950	7.10	3,020		Dec. 21, 1955	7.67	4,400
	Jan. 17, 1951	6.55	1,920		Jan. 15, 1956	6.43	2,800
	Jan. 21, 1951	5.97	1,750		Jan. 22, 1956	5.45	1,510
	Feb. 4, 1951	6.06	1,630		Feb. 21, 1956	5.32	1,410

a Backwater from debris.

3789. Ransom Creek near Brookings, Oreg.

Location.--Lat 42°03'45", long 124°18'00", in NE $\frac{1}{4}$  sec.1, T.41 S., R.14 W., at culvert on U.S. Highway 101, 0.1 mile upstream from mouth and 1.2 miles northwest of Brookings.

Drainage area.--0.74 sq mi. Mean altitude, 427 ft; channel slope, 260 ft per mile; area of lakes and ponds, 0.01 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 160 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 35 cfs and extended on basis of computations of flow through culverts.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	Jan. 17, 1953	24.8	300	1956	Dec. 21, 1955	23.06	211
1954	Nov. 22, 1953	22.17	172	1957	Dec. 11, 1956	26.52	165
1955	Dec. 30, 1954	24.46	280				

- Anderson, I. E., 1948, Floods of the Puyallup and Chehalis River basins, Washington: U.S. Geol. Survey Water-Supply Paper 968-B.
- Benson, M. A., 1959, Channel-slope factor in flood-frequency analysis: Am. Soc. Civil Engineers Proc. Separate 1994.
- \_\_\_\_\_ 1960, Characteristics of frequency curves based on a theoretical 1,000-year record, in Dalrymple, Tate, Flood-frequency analyses: U.S. Geol. Survey Water-Supply Paper 1543-A, p. 51-74.
- Bodhaine, G. L., and Robinson, W. H., 1952, Floods in western Washington, frequency and magnitude in relation to drainage basin characteristics: U.S. Geol. Survey Circ. 191.
- Bunch, C. M., and Price, McGlone, 1962, Floods in Georgia, magnitude and frequency: U.S. Geol. Survey open-file report.
- Corbett and others, 1957, Stream gaging procedure, a manual describing methods and practices of the Geological Survey: U.S. Geol. Survey Water-Supply Paper 888.
- Cragwell, J. S., Jr., 1952, Floods in Louisiana, magnitude and frequency: Louisiana Dept. of Highways.
- Dalrymple, Tate, 1950, Regional flood frequency: Washington, D.C., Highway Research Board Research Rept. 11-B.
- Furness, L. W., 1955, Floods in Nebraska, magnitude and frequency: Nebraska Dept. Roads and Irrig.
- Gumbel, E. J., 1945, Floods estimated by the probability method: Eng. News-Rec., June 14, p. 97-101.
- Jarvis, C. S., and others, 1936, Floods in the United States, magnitude and frequency: U.S. Geol. Survey Water-Supply Paper 771.
- Kinnison, H. B., and Colby, B. R., 1945, Flood formulas based on drainage basin characteristics: Am. Soc. Civil Eng. Trans., v. 110, p. 849-904.
- Langbein, W. B., 1949, Annual runoff in the United States: U.S. Geol. Survey Circ. 52.
- \_\_\_\_\_ 1949, Annual floods and partial-duration flood series: Am. Geophys. Union Trans., v. 30, p. 879-881.
- McCabe, John A., and Crosby, Orlo A., 1959, Floods in North and South Dakota, frequency and magnitude: U.S. Geol. Survey open-file report, Bismarck, North Dakota.
- Mitchell, W. D., 1954, Floods in Illinois, magnitude and frequency: Illinois Div. Waterways, Dept. Public Works and Bldgs.
- Peirce, L. B., 1954, Floods in Alabama, magnitude and frequency: U.S. Geol. Survey Circ. 342.
- Powell, R. W., 1943, A simple method of estimating flood frequency: Civil Eng., v. 13, p. 105-106.
- Pride, R. W., 1958, Floods in Florida, magnitude and frequency: U.S. Geol. Survey open-file report.
- Prior, C. H., 1949, Magnitude and frequency of floods in Minnesota: Minnesota Dept. Conserv., Div. Waters Bull. 1.
- Rantz, S. E., and Riggs, H. C., 1949, Magnitude and frequency of floods in Columbia River basin: U.S. Geol. Survey Water-Supply Paper 1080.
- Riggs, H. C., 1955, Floods in North Carolina, magnitude and frequency: U.S. Geol. Survey open-file report.
- Schwob, H. H., 1953, Iowa floods, magnitude and frequency: Iowa Highway Research Board Bull. 1.
- Searcy, J. K., 1955, Floods in Missouri, magnitude and frequency: U.S. Geol. Survey Circ. 370.

INDEX

	Page		Page
Abernathy Creek near Longview, Wash...	249	Calapooya Creek, above Hinkle Creek, near Nonpariel, Ore.....	45
Alder Brook near Rose Lodge, Ore.....	44	near Oakland, Ore.....	45
Alsea River, near Tidewater, Ore.....	259	Calapooya River, at Albany, Ore.....	177
North Fork, at Alsea, Ore.....	44	at Holley, Ore.....	176
South Fork, near Alsea, Ore.....	44	Camas Creek, near Lehman, Ore.....	71
Alsea River basin, records.....	44-45, 259-260	near Ukiah, Ore.....	72
Althouse Creek near Holland, Ore.....	311	Canyon Creek (Lewis River basin) near Amboy, Wash.....	226
Amazon Creek near Eugene, Ore.....	44	Canyon Creek (Umpqua River basin), at Canyonville, Ore.....	263
Analysis of data, method.....	8-19	near Canyonville, Ore.....	45
Applegate River, near Applegate, Ore.....	305	Canyon Creek (Washougal River basin) near Washougal, Wash.....	144
near Copper, Ore.....	303	Cavitt Creek near Peel, Ore.....	45
near Ruch, Ore.....	304	Charlton Creek above Crane Prairie Reservoir, near Lapine, Ore.....	83
near Wilderville, Ore.....	307	Cispus River near Randle, Wash.....	236
Area, description of.....	2-8	Clackamas River, above Three Lynx Creek, Ore.....	215
Arkansas Creek near Castle Rock, Wash.....	247	at Big Bottom, Ore.....	211
Asbury Creek near Cannon Beach, Ore..	255	near Cazadero, Ore.....	217
Ashland Creek, East Fork, near Ashland, Ore.....	297	Clatskanie River near Clatskanie, Ore.	250
West Fork, near Ashland, Ore.....	296	Clear Creek near Government Camp, Ore.	109
Badger Hollow near Clyde, Wash.....	44	Clearwater River above Trap Creek, near Toketee Falls, Ore.....	268
Balm Fork at Heppner, Ore.....	44	at mouth, near Toketee Falls, Ore...	268
Bateman Creek near Glenwood, Ore.....	207	Columbia River, at The Dalles, Ore.....	115
Bear Creek (Rogue River basin), at Medford, Ore.....	298	at Vancouver, Wash.....	146
below Phoenix Canal, near Talent, Ore.....	297	below McNary Dam, near Umatilla, Ore.....	54
Bear Creek (Umpqua River basin) near Drain, Ore.....	275	Columbia River tributary, at Carrolls, Wash.....	231
Beaver Creek (Deschutes River basin), near Paulina, Ore.....	98	at Home Valley, Wash.....	128
North Fork, near Paulina, Ore.....	98	Coos River basin, records.....	45
South Fork, near Paulina, Ore.....	97	Coquille River, Middle Fork, near Myrtle Point, Ore.....	276
Beaver Creek (Willamette River basin) near Glenwood, Ore.....	206	North Fork near Myrtle Point, Ore...	278
Beech Creek near Mt. Vernon, Ore.....	44	South Fork, above Panther Creek, near Illahe, Ore.....	45
Big Butte Creek, near McLeod, Ore.....	288	at Powers, Ore.....	275
South Fork, above Willow Creek, near Butte Falls, Ore.....	286	near Illahe, Ore.....	45
South Fork, near Butte Falls, Ore..	287	near Myrtle Point, Ore.....	45
Big Creek (tributary to Columbia River) near Knappa, Ore.....	251	Coquille River basin, records.....	45, 275-279
Big Creek (tributary to Lewis River) below Skookum Meadow, near Trout Lake, Wash.....	222	Cottonwood Creek near Monument, Ore...	76
Big Marsh Creek at Roey Ranch, near Crescent, Ore.....	89	Cow Creek, near Azalea, Ore.....	263
Birch Creek, at Rieth, Ore.....	60	near Riddle, Ore.....	264
near Pilot Rock, Ore.....	59	West Fork, near Glendale, Ore.....	45
Black Horse Creek at Lexington, Ore..	44	Cowman River near Kelso, Wash.....	248
Blue Creek near Walla Walla, Wash.....	50	Cowlitz River, at Castle Rock, Wash...	246
Blue River, above Quentin Creek, Ore.....	165	at Kelso, Wash.....	238
near Blue River, Ore.....	166	at Mossyrock, Wash.....	234
Breitenbush River above Canyon Creek, near Detroit, Ore.....	180	Clear Fork, near Packwood, Wash...	232
Bridge Creek, above Gable Creek, near Mitchell, Ore.....	44	near Kosmos, Wash.....	237
below Bear Creek near Mitchell, Ore.....	44	near Mayfield, Wash.....	242
Brown Creek near Lapine, Ore.....	64	Cowlitz River basin, records.....	44, 231-248
Brush Creek basin, records.....	45	Cox Creek at Albany, Ore.....	179
Buck Canyon near Klondike, Ore.....	142	Coyote Creek near Crow, Ore.....	172
Bull Run River, at Bull Run, Ore.....	138	Crescent Creek, at Crescent Lake, near Crescent, Ore.....	88
below Lake Ben Morrow, Ore.....	139	below Cold Creek, near Crescent, Ore.....	89
near Bull Run, Ore.....	221	Crooked River, above Hoffman Dam, near Prineville, Ore.....	101
Burntbridge Creek at Vancouver, Wash..	307	near Culver, Ore.....	104
Butcherknife Creek near Wonder, Ore..	44	near Post, Ore.....	100
Butler Canyon near Tygh Valley, Ore..	44	North Fork, above Deep Creek, Ore...	99
Butler Canyon tributary near Tygh Valley, Ore.....	44	below Deep Creek, Ore.....	100
Butte Creek (tributary to Calapooya River) near Plainview, Ore.....	44	Cultus Creek above Crane Prairie Reser- voir, near Lapine, Ore.....	81
Butte Creek (tributary to Rudding River) at Monitor, Ore.....	203	Cultus River above Cultus Creek, near Lapine, Ore.....	81
Butter Creek near Pine City, Ore.....	62	Dairy Creek, East Fork, at Mountain- dale, Ore.....	209
Butter Creek tributaries near Echo, Ore.....	44	Davis Hollow near Dayton, Wash.....	45
Cable Creek near Ukiah, Ore.....	73	Days Creek at Days Creek, Ore.....	45
		Dead Indian Creek near Lillyglen, Ore.....	291
		Deadwood Creek tributary at Alpha, Ore.....	45

	Page		Page
Deer Creek (Deschutes River basin) above Crane Prairie Reservoir, near Lapine, Ore. ....	82	Glenn Creek near Salem, Ore. ....	194
Deer Creek (Rogue River basin) near Dryden, Ore. ....	314	Gordon Hollow at DeMoss Springs, Ore. ..	44
Deer Creek (Umpqua River basin) near Roseburg, Ore. ....	45	Gorton Creek at Wyeth, Ore. ....	44
Deschutes River, above Davis Creek, near Lapine, Ore. ....	84	Grave Creek, at Pease Bridge, near Placer, Ore. ....	309
above Lava Island, near Bend, Ore. ..	92	near Placer, Ore. ....	309
at Benham Falls, near Bend, Ore. ....	91	Grayback Creek near Holland, Ore. ....	311
at Cline Falls, near Redmond, Ore. ..	108	Grays River, west Branch, near Grays River, Wash. ....	252
at Mecca, Ore. ....	112	Green Point Creek below North Fork, near Dee, Ore. ....	121
at Moody, near Biggs, Ore. ....	86	Hackelman Creek near Upper Soda, Ore. ..	162
at Fringale Falls, near Lapine, Ore. ..	112	Harris Creek near Brookings, Ore. ....	45
at Sherars Bridge, Ore. ....	93	Haskins Creek, below reservoir, near McMinville, Ore. ....	198
below Bend, Ore. ....	83	near McMinville, Ore. ....	197
below Crane Prairie Reservoir, near Lapine, Ore. ....	93	Hills Creek near Oakridge, Ore. ....	146
below Lava Island, near Bend, Ore. ..	83	Hood River, at Tucker Bridge, near Hood River, Ore. ....	122
below Snow Creek, near Lapine, Ore. ....	80	near Hood River, Ore. ....	123
below Wicklup Reservoir, near Lapine, Ore. ....	85	West Fork, near Dee, Ore. ....	121
near Culver, Ore. ....	87	Hood River basin, records. ....	121-123
near Lapine, Ore. ....	107	Illinois River, at Kerby, Ore. ....	313
near Madras, Ore. ....	107	below Rancharie Creek, near Selma, Ore. ....	45
Deschutes River basin, records. ....	44,80-112	East Fork, near Tokilma, Ore. ....	310
Desolation Creek near Dale, Ore. ....	69	West Fork, below Rock Creek, near O'Brien, Ore. ....	312
Dog Creek near Cougar, Wash. ....	44	Imnaha Creek near Prospect, Ore. ....	282
Drift Creek near Salada, Ore. ....	45	John Day River, at McDonald Ferry, Ore. ....	79
Dry Creek (Columbia River tributary) at Cascade Locks, Ore. ....	131	at Pictre Gorge, near Dayville, Ore. ....	68
Dry Creek (Rogue River basin) near Eagle Point, Ore. ....	45	at Prairie City, Ore. ....	66
Dry Creek (Walla Walla River basin) near Walla Walla, Wash. ....	51	at Service Creek, Ore. ....	77
Dry Run Creek near Port Oxford, Ore. ..	45	Middle Fork, at Ritter, Ore. ....	73
Eightmile Creek near Boyd, Ore. ....	113	near Dayville, Ore. ....	67
Elk Creek (Rogue River basin) near Trail, Ore. ....	289	North Fork, at Monument, Ore. ....	76
Elk Creek (Umpqua River basin), near Drain, Ore. ....	45	near Dale, Ore. ....	70
near Yoncalla, Ore. ....	45	South Fork, at Dayville, Ore. ....	68
Elk Creek (Yaquina River basin) near Elk City, Ore. ....	44	near Dayville, Ore. ....	67
Elokomin River near Cathlamet, Wash. ..	250	John Day River basin, records. ....	44,65-79
Emigrant Creek, below Walker Creek, near Ashland, Ore. ....	296	Johnson Creek (Cowlitz River basin) near Packwood, Wash. ....	235
near Ashland, Ore. ....	45,295	Johnson Creek (Willamette River basin) at Sycamore, Ore. ....	218
Evans Creek near Bybee Springs, near Rogue River, Ore. ....	300	Jones Creek near Grants Pass, Ore. ....	301
Fall Creek (Alsea River basin) near Alsea, Ore. ....	45	Jumpoff Joe Creek, at Merlin, Ore. ....	45
Fall Creek (Willamette River basin), above Winberry Creek, near Lowell, Ore. ....	153	near Merlin, Ore. ....	45
below Winberry Creek, near Fall Creek, Ore. ....	154	Kalama River, below Italian Creek, near Kalama, Wash. ....	230
Fall River near Lapine, Ore. ....	87	near Kalama, Wash. ....	229
Fifteenmile Creek near Wrentham, Ore. ....	113	Kalama River basin, records. ....	229-230
Fifteenmile Creek basin, records. ....	113-114	Klaskanine River, North Fork, near Olney, Ore. ....	254
First Creek near Sisters, Ore. ....	106	Klickitat Creek at Mossyrock, Wash. ....	241
Fish Creek at Big Camas ranger station, near Toketee Falls, Ore. ....	270	Klickitat River, above West Fork, near Glenwood, Wash. ....	116
Five Rivers near Fisher, Ore. ....	45	near Glenwood, Wash. ....	117
Pivemile Creek near The Dalles, Ore. ..	114	near Pitt, Wash. ....	120
Floods, maximum known, summary tables. Formulas and curves, application. ....	24-45	West Fork, near Glenwood, Wash. ....	116
Fourbit Creek near Butte Falls, Ore. ..	286	Klickitat River basin, records. ....	116-120
Fox Creek at gorge, near Fox, Ore. ....	74	Lacamas Creek, North Fork, near Ethel, Wash. ....	243
Frozen Creek, West Fork, near Myrtle Creek, Ore. ....	45	Lady Creek near Rhododendron, Ore. ....	132
Gaging-station inventory. ....	32-43	Lake Creek (Cowlitz River basin), at mouth, near Lewis, Wash. ....	234
Gaging-station records, explanation of short-term stations. ....	21-23	near Packwood, Wash. ....	233
Gales Creek, near Forest Grove, Ore. ..	208	Lake Creek (Deschutes River basin) near Sisters, Ore. ....	105
near Gales Creek, Ore. ....	207	Lake Creek (Siuslaw River basin) at Triangle Lake, Ore. ....	261
Gate Creek at Vida, Ore. ....	168	Lake Creek (Umpqua River basin) at Diamond Lake, near Fort Klamath, Ore. ....	266
Geiger Creek near Bantle, Ore. ....	279	Lake River basin, records. ....	221
Gettys Creek near Myrtle Point, Ore. ..	277	Lewis River, above Muddy River, near Cougar, Wash. ....	223
Gibbons Creek tributary near Washou- gal, Wash. ....	44	at Ariel, Wash. ....	227
Gibson Creek near Salem, Ore. ....	194	East Fork, near Heisson, Wash. ....	228
		near Amboy, Wash. ....	226
		near Cougar, Wash. ....	225
		Lewis River basin, records. ....	44,222-229
		Lewis River, East Fork tributary near Woodland, Wash. ....	229

	Page		Page
Rock Creek (Willamette River basin)		Touchet River near Touchet, Wash.....	52
near Boring, Oreg.....	44	Toutle River, near Silver Lake, Wash.....	244
Rock Creek (Willamette River basin)		South Fork at Toutle, Wash.....	243
near Philomath, Oreg.....	174	Toutle River tributary near Castle	
Rogue River, above Bybee Creek, Oreg..	279	Rock, Wash.....	246
above Prospect, Oreg.....	280	Trask River near Tillamook, Oreg.....	257
at Dodge Bridge, near Eagle Point,		Tualatin River, at Farmington, Oreg....	210
Oreg.....	289	at Gaston, Oreg.....	204
at Grants Pass, Oreg.....	301	near Dilley, Oreg.....	206
at Raygold, near Central Point,		near Willamette, Oreg.....	211
Oreg.....	299	Tumalo Creek, near Bend, Oreg.....	95
below Illinois River, near Agness,		near Tumalo, Oreg.....	94
Oreg.....	45	Umatilla River, above McKay Creek, near	
below Prospect powerplant No. 1,		Pendleton, Oreg.....	57
Oreg.....	281	above Meacham Creek, near Gibbon,	
below South Fork Rogue River, near		Oreg.....	55
Prospect, Oreg.....	285	at Gibbon, Oreg.....	55
Middle Fork, near Prospect, Oreg.....	283	at Pendleton, Oreg.....	56
South Fork, above Imnaha Creek, near		at Yoakum, Oreg.....	61
Prospect, Oreg.....	281	near Umatilla, Oreg.....	63
near Prospect, Oreg.....	282	Umatilla River basin, records.....	44, 55-63
Rogue River basin, records.....	45, 279-314	Umpqua River near Elkton, Oreg.....	274
Rogue River tributary near Wedderburn,		Umpqua River basin, records.....	45, 262-275
Oreg.....	45	Waldo Lake Outlet near Oakridge, Oreg..	150
Round Prairie Creek near Wilderville,		Walla Walla River, below Freewater,	
Oreg.....	308	Oreg.....	49
Row River, above Pitcher Creek, near		near Milton, Oreg.....	48
Dorena, Oreg.....	157	near Reese, Wash.....	44
near Cottage Grove, Oreg.....	158	near Touchet, Wash.....	53
Rush Creek above Falls, near Cougar,		North Fork, near Milton, Oreg.....	47
Wash.....	222	South Fork, below Pacific Power &	
Salmon Creek (Lake River basin) near		Light Co. plant, near Milton,	
Battle Ground, Wash.....	221	Oreg.....	47
Salmon Creek (Willamette River basin)		near Milton, Oreg.....	46
near Oakridge, Oreg.....	149	Walla Walla River basin, records.....	44, 46-53
Salmon River, above Boulder Creek,		Warm Springs River near Warm Springs,	
near Brightwood, Oreg.....	136	Oreg.....	108
at Welches, Oreg.....	136	Warmsprings Creek near Mt. Vernon,	
below Linney Creek, Oreg.....	135	Oreg.....	44
near Government Camp, Oreg.....	134	Washougal River near Washougal, Wash...	144
Salt Creek near Oakridge, Oreg.....	148	Washougal River basin, records.....	144-145
Saltzman Creek at Portland, Oreg.....	220	Weiss Creek, South Fork, near Waldport,	
Sandy River, above Salmon River, at		Oreg.....	260
Brightwood, Oreg.....	133	Whetstone Hollow near Dayton, Wash....	44
below Bull Run River, near Bull Run,		White River below Tygh Valley, Oreg....	110
Oreg.....	143	near Tygh Valley, Oreg.....	110
near Marmot, Oreg.....	137	near Wapinitia, Oreg.....	109
Sandy River basin, records.....	131-143	White Salmon River at Husum, Wash....	124
Santiam River at Jefferson, Oreg.....	188	near Underwood, Wash.....	125
Scoggin Creek near Gaston, Oreg.....	205	White Salmon River basin, records.....	124-126
Shanghai Creek near Hockinson, Wash...	145	Wildhorse Creek near Pendleton, Oreg....	44
Shiek Creek near Cascadia, Oreg.....	184	Wiley Creek near Foster, Oreg.....	186
Shitike Creek at Warm Springs, Oreg...	107	Willamette River, at Albany, Oreg.....	178
Siletz River at Siletz, Oreg.....	258	at Harrisburg, Oreg.....	171
Siulaw River above Wildcat Creek, at		at Portland, Oreg.....	219
Austa, Oreg.....	261	at Salem, Oreg.....	192
Siulaw River basin, records.....	45, 261	at Springfield, Oreg.....	161
Slate Creek at Wonder, Oreg.....	308	at Wilsonville, Oreg.....	200
Snailback Creek near Selma, Oreg.....	45	Coast Fork, at London, Oreg.....	155
Soap Creek tributary near Suver,		at Saginaw, Oreg.....	159
Oreg.....	191	below Cottage Grove Dam, Oreg.....	156
South Santiam River, at Waterloo,		near Goshen, Oreg.....	160
Oreg.....	187	Middle Fork, above Salt Creek, near	
below Cascadia, Oreg.....	184	Oakridge, Oreg.....	147
South Umpqua River, at Tiller, Oreg...	252	at Jasper, Oreg.....	155
near Brockway, Oreg.....	264	below North Fork, near Oakridge,	
South Yamhill River, near Whiteson,		Oreg.....	151
Oreg.....	196	near Dexter, Oreg.....	153
near Willamina, Oreg.....	194	North Fork of, near Oakridge, Oreg....	150
South Yamhill River tributary near		Willamette River basin, records.....	44, 146-220
Willamina, Oreg.....	44	Willamina Creek near Willamina, Oreg....	195
Squaw Creek near Sisters, Oreg.....	96	Willow Creek (tributary to Butte Creek)	
Still Creek, at Rhododendron, Oreg....	133	near Butte Falls, Oreg.....	287
near Government Camp, Oreg.....	132	Willow Creek (tributary to Columbia	
Strawberry Creek, above Slide Creek,		River) at Heppner, Oreg.....	64
near Prairie City, Oreg.....	65	Willow Creek basin, records.....	44, 64
near Prairie City, Oreg.....	65	Wilson River near Tillamook, Oreg.....	256
Sucker Creek near Holland, Oreg.....	312	Wind River (Columbia River tributary)	
Susan Creek near Idleyld, Oreg.....	45	above Trout Creek, near Carson,	
Sutherland Creek, at Wilbur, Oreg.....	45	Wash.....	128
at Sutherland, Oreg.....	45	near Carson, Wash.....	130
Swift Creek near Cougar, Wash.....	224	Wind River basin, records.....	128-130
Tanner Creek at Bonneville, Oreg.....	44	Wind River (Willamette River basin)	
Tilton River, near Cinebar,		near Detroit, Oreg.....	44
Wash.....	240	Winston Creek near Mayfield, Wash.....	241
near Mineral, Wash.....	239	Yoncalla Creek near Yoncalla, Oreg.....	45
West Fork, near Morton, Wash.....	239	Youngs River near Astoria, Oreg.....	253
Touchet River, at Boles, Wash.....	52	Youngs River basin, records.....	253-254
East Fork, near Dayton, Wash.....	51		

	Page		Page
Little Butte Creek, above Eagle Point, Ore.....	294	Mill Creek (tributary to Willamette River), at penitentiary annex, near Salem, Ore.....	193
below Eagle Point, Ore.....	295	at Salem, Ore.....	193
North Fork, above intake of Rogue River Valley Canal, near Lake-creek, Ore.....	294	near Willamina, Ore.....	44
at Fish Lake, near Lakecreek, Ore.....	292	Millilooma River, West Fork, near Allegany, Ore.....	45
near Lakecreek, Ore.....	293	Miscellaneous sites and short-term gaging stations, peaks.....	44-45
South Fork, at Big Elk ranger station, Ore.....	290	Mohawk River near Springfield, Ore.....	169
near Lakecreek, Ore.....	291	Molalla River, above Pine Creek, near Wilhoit, Ore.....	200
Little Deschutes River, above Walker Basin intake, near Lapine, Ore.....	90	near Molalla, Ore.....	202
at Allens ranch, near Lapine, Ore..	91	near Molalla, at mouth, near Cottage Grove, Ore.....	159
at Crescent, Ore.....	88	near Cottage Grove, Ore.....	158
near Lapine, Ore.....	90	Muddy Creek near Corvallis, Ore.....	176
Little Fall Creek near Fall Creek, Ore.....	154	Muddy River below Clear Creek, near Cougar, Wash.....	223
Little Klickitat River, near Golden-dale, Wash.....	118	Mustard Hollow near Dayton, Wash.....	44
near Wahkiacus, Wash.....	119	Necanicum River, South Fork, near Seaside, Ore.....	254
Little North Santiam River near Mehama, Ore.....	182	Nehalem River near Foss, Ore.....	255
Little Sandy River, near Bull Run, Ore.....	141	Nestucca River near McMinnville, Ore..	258
near Marmot, Ore.....	141	Niggerhead Creek near Randle, Wash.....	236
Little Washougal River near Washougal, Wash.....	145	Nineteen Creek near Morton, Wash.....	44
Little White Salmon River, at Willard, Wash.....	126	North Santiam River, at Mehama, Ore.....	183
below Lapham Creek, near Willard, Wash.....	127	at Niagara, Ore.....	181
near Willard, Wash.....	126	below Boulder Creek, near Detroit, Ore.....	179
Little White Salmon River basin, records.....	126-128	North Santiam River tributary near Gates, Ore.....	182
Little Zigzag River at Twin Bridges, near Rhododendron, Ore.....	131	North Umpqua River, above Clearwater River, near Toketee Falls, Ore.....	267
Long Tom River, at Monroe, Ore.....	174	above Copeland Creek, near Toketee Falls, Ore.....	270
below Fern Ridge Dam, near Smithfield, Ore.....	173	above Rock Creek, near Glide, Ore...	271
near Alvadore, Ore. See Long Tom River below Fern Ridge Dam near Smithfield.....	173	at Toketee Falls, Ore.....	269
near Noti, Ore.....	171	at Winchester, Ore.....	273
Lookingglass Creek at Brockway, Ore.....	45	below Lemolo Reservoir, near Toketee Falls, Ore.....	267
Lookout Creek near Blue River, Ore...	166	near Glide, Ore.....	272
Lookout Creek tributary No. 3 near Blue River Ore.....	165	near Oakcreek, Ore.....	272
Lost Creek near Brightwood, Ore.....	131	North Umpqua River tributary near Glide, Ore.....	45
Lucklamute River, at Pedee, Ore.....	190	North Yamhill River, at Pike, Ore.....	199
near Hoskins, Ore.....	189	near Pike, Ore.....	198
near Suver, Ore.....	190	Oak Grove Fork, above powerplant intake, Ore.....	214
McKay Creek (Deschutes River basin) near Prineville, Ore.....	104	at Timothy Meadows, Ore.....	213
McKay Creek (Umatilla River basin), near Pendleton, Ore.....	58	Ochoco Creek, above Mill Creek, near Prineville, Ore.....	102
near Pilot Rock, Ore.....	57	at Elliott Ranch, near Prineville, Ore.....	103
McKay Creek (Willamette River basin) near North Plains, Ore.....	209	Odell Creek near Crescent, Ore.....	85
McKenzie River, at McKenzie Bridge, Ore.....	163	Ohanapecosh River near Lewis, Wash.....	231
at outlet of Clear Lake, Ore.....	162	Olalla Creek at Tenmile, near Myrtle Creek, Ore.....	45
near Coburg, Ore.....	170	Olequa Creek tributary near Winlock, Wash.....	243
near Springfield, Ore.....	169	Panther Creek (Willamette River basin) near Carlton, Ore.....	199
near Vida, Ore.....	167	Panther Creek (Wind River basin) near Carson, Wash.....	129
South Fork, near Rainbow, Ore.....	164	Parrott Creek at Roseburg, Ore.....	265
Marks Creek near Roseburg, Ore.....	266	Pass Creek near Drain, Ore.....	45
Marys River near Philomath, Ore.....	175	Patterson Creek at Bay City, Ore.....	256
Meadow Creek below Lone Butte Meadow, near Trout Lake, Wash.....	222	Powell Creek near Williams, Ore.....	306
Mean annual flood and drainage basin characteristics, correlation....	24-31	Prather Creek near Diaston, Ore.....	157
Metolius River near Grandview, Ore...	106	Pudding River, at Aurora, Ore.....	204
Meyers Canyon near Mitchell, Ore.....	44	near Mount Angel, Ore.....	203
Middle Santiam River, at mouth, near Foster, Ore.....	186	Quinn River near Lapine, Ore.....	82
near Foster, Ore.....	185	Rancheria Creek. See South Fork Big Butte Creek.....	286
Mill Creek (tributary to Columbia River) near Cathlamet, Wash.....	249	Ransom Creek near Brookings, Ore.....	315
Mill Creek (tributary to Cowlitz River) at Randle, Wash.....	236	Red Blanket Creek near Prospect, Ore..	284
Mill Creek (tributary to Ochoco River) near Prineville, Ore.....	103	Rickreall Creek below Dallas, Ore....	44
Mill Creek (tributary to Umpqua River) near Ash, Ore.....	275	Risk Creek near Skamokawa, Wash.....	251
Mill Creek (tributary to Walla Walla River) near Walla Walla, Wash...	49	Rock Creek (Columbia River tributary) near Goldendale, Wash.....	44
		Rock Creek (Little White Salmon River basin) near Willard, Wash.....	128
		Rock Creek (Umpqua River basin) near Glide, Ore.....	45