WATER SUPPLY OUTLOOK
and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS
for
WASHINGTON

UNITED STATES DEPARTMENT of AGRICULTURE···SOIL CONSERVATION SERVICE,
and
DEPARTMENT of CONSERVATION STATE of WASHINGTON

Data included in this report were obtained by the agencies named above in cooperation with the U.S. Forest Service, U.S. Geological Survey, National Park Service, and other Federal, State and private organizations.

AS OF
FEB. 1, 1966

UNITED STATES DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE

To Recipients of Water Supply Outlook Reports:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season as they affect runoff will add to be an effective average. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1400 snow courses in Western United States and in the Columbia Basin in British Columbia. In the near future, it is anticipated that automatic snow water equivalent sensing devices along with radio telemetry will provide a continuous record of snow water equivalent at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data or reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

Listed below are water supply outlook reports based on Federal-State-Private Cooperative snow surveys. Those published by the Soil Conservation Service may be obtained from Soil Conservation Service, Room 507, Federal Building, 701 N. W. Glisan, Portland, Oregon 97209.

PUBLISHED BY SOIL CONSERVATION SERVICE

REPORTS	ISSUED	LOCATION	COOPERATING WITH
RIVER BASINS			
Western United States	Monthly (Feb.-May)	Portland, Oregon	All Cooperators
Basic Data Summary	October 1	Portland, Oregon	All Cooperators
STATES			
Alaska	Monthly (Mar.-May)	Palmer, Alaska	Alaska S.C.D.
Arizona	Semi-Monthly (Jan. 15 - Apr. 1)	Phoenix, Arizona	Salt R. Valley Water Users Assoc. Ariz. Agr. Exp. Station
Colorado and New Mexico	Monthly (Feb.-May)	Fort Collins, Colorado	Colo. State University Colo. State Engineer N. Mex. State Engineer
Idaho	Monthly (Jan.-June)	Boise, Idaho	Idaho State Reclamation Engineer
Montana	Monthly (Jan.-June)	Bozeman, Montana	Mont. Agr. Exp. Station
Nevada	Monthly (Jan.-May)	Reno, Nevada	Nevada Dept. of Conservation and Natural Resources - Division of Water Resources
Oregon	Monthly (Jan.-June)	Portland, Oregon	Oreg. State University Oregon State Engineer
Utah	Monthly (Jan.-June)	Salt Lake City, Utah	Utah State Engineer
Washington	Monthly (Feb.-June)	Spokane, Washington	Wn. State Dept. of Conservation
Wyoming	Monthly (Feb.-June)	Casper, Wyoming	Wyoming State Engineer

PUBLISHED BY OTHER AGENCIES

REPORTS	ISSUED	AGENCY
British Columbia	Monthly (Feb.-June)	Water Resources Service, Dept. of Lands, Forest and Water Resources, Parliament Bldg., Victoria, B.C., Canada
California	Monthly (Feb.-May)	Calif. Dept. of Water Resources, P.O. Box 388, Sacramento, Calif.

FEDERAL-STATE-COOPERATIVE
SNOW SURVEY AND WATER SUPPLY FORECASTS

For

WASHINGTON

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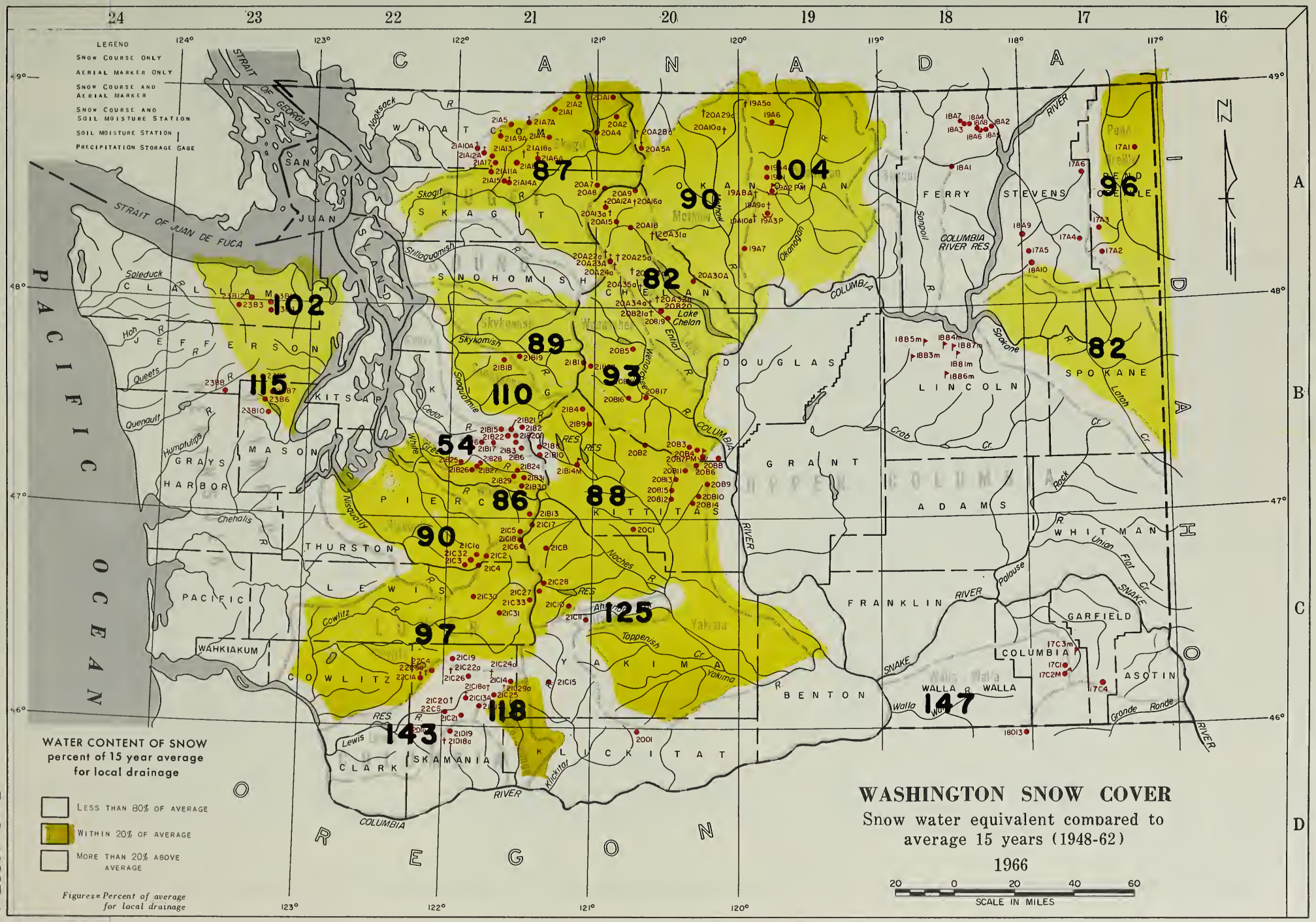
State of Washington


LEGEND
Snow Course Only
Aerial Marker Only
Snow Course and Aerial Marker
Snow Course and Soil Moisture Station
Soil Moisture Station
Precipitation Storage Gage
CANADA
PACIFIC OCEAN
OREGON
IDAHO
STRAIT OF JUAN DE FUCA
STRAIT OF GEORGIA
SAN JUAN ISLANDS
WHATCOM
SKAGIT
SNOHOMISH
CHELAN
OKANOGAN
FERRY
STEVENS
PEND OREILLE
JEFFERSON
CLALLAM
KITSAP
MASON
GRAYS HARBOR
PIERCE
KITTITAS
DOUGLAS
LINCOLN
SPOKANE
GRANT
ADAMS
WHITMAN
THURSTON
LEWIS
PACIFIC
WAHKIAKUM
COWLITZ
YAKIMA
FRANKLIN
BENTON
GARFIELD
COLUMBIA
ASOTIN
WALLA WALLA
CLARK
SKAMANIA
KLICKITAT
COLUMBIA RIVER RES
87
104
90
96
102
82
89
93
115
110
82
54
88
86
90
125
97
147
118
143
WATER CONTENT OF SNOW
percent of 15 year average
for local drainage
LESS THAN 80% OF AVERAGE
WITHIN 20% OF AVERAGE
MORE THAN 20% ABOVE AVERAGE
Figures = Percent of average for local drainage
WASHINGTON SNOW COVER
Snow water equivalent compared to average 15 years (1948-62)
1966
SCALE IN MILES
U.S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE
M-930
7-0-14887-1

INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

UPPER COLUMBIA DRAINAGE

Pend Oreille River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Boyer Mountain	17A2	7	31N	43E	5250
Bunchgrass Meadow	17A1	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	4970

Kettle River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	28	39N	35E	4070
Cabin Creek	18A8	5	38N	36E	3170
Goat Creek	18A4	26	39N	35E	3595
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18Ao	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4600

Colville River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stranger Mountain	17A5	26	31N	38E	4990
Togo	18A10	6	29N	38E	3370

Sanpoil River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Sherman Creek Pass	18A1	19	36N	35E	5350

Okanogan River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2PM	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Touts Coulee	19A6	30	39N	25E	2845

Methow River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Billy Goat Pass	20A10a	10	38N	20E	6400
Dollar Watch	20A29a	8	39N	20E	7000
Harts Pass	20A5A	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650

Chelon Lake Basin

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Bridge Creek	20A15	20	34N	16E	2100
Bullion	20A18	2	33N	16E	1760
Cloudy Pass	20A22a	12	31N	15E	6500
Greenwood Flat	20A25a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5275
Lyman Lake	20A23A	18	31N	16E	5900
Park Creek Flat	20A13a	18	34N	16E	2220
Park Creek Ridge	20A12A	7	34N	16E	4600
Petersons	20A16a	3	34N	17E	3730
Rainy Pass	20A9	21	35N	17E	4780
Safety Harbor	20A30A	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500

Entiat River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4800
Entiat River Trail	20A34a	2	29N	17E	3150
Pope Ridge	20B20	22	29N	18E	4300
Pugh Ridge	20A32a	34	30N	18E	6400
Snow Brushy	20A35a	21	30N	17E	3850
Tommy Creek	20B21a	10	28N	18E	5300

Wenatchee River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Berne-Mill Creek	21B23	7	26N	15E	2925
Blewett Pass No. 2	20B2	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	21B1	14	26N	13E	4070

Squilchuck Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Vista	20B4	18	21N	20E	3400

Stemilt Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Jump-Off	20B8	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7PM	30	21N	20E	4400

Crab Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Creaton-Kunz	18B1m	32	27N	34E	2440
Jack Woods	18B3m	28	27N	31E	2750
Krause	18B4m	21	27N	33E	2420
Sheffels	18B5m	17	27N	32E	2378
Sherman	18B7m	24	27N	33E	2440
Wheatridge	18B6m	24	25N	32E	2290

Yakima River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Ahtanum R. S.	21C11	26	12N	14E	3100
Big Boulder Creek	21B9	35	23N	14E	3200
Bumping Lake	21C8	23	16N	12E	3450
Clockum Pass	20B9	25	20N	20E	5370
Cooke Creek	20B10	17	19N	20E	4123
Fish Lake	21B4	34	24N	14E	3371
Green Lake	21C10	3	12N	13E	6000
Grouse Camp	20B11	29	21N	19E	5385
High Creek	20B12	34	20N	19E	2930
Lake Cle Elum	21B14M	15	20N	14E	2200
Manashtash	20C1	24	17N	16E	3935
Morse Lake	21C17	6	16N	11E	5400
Nanum	20B13	4	20N	19E	3875
Trail Creek	20B14	20	19N	20E	3360
Tunnel Avenue	21B8	13	21N	11E	2450
Walters Flat	20B15	22	20N	19E	3360
White Pass (East Side)	21C28	2	13N	11E	4500
White Pass (Leach Lake)	21C27	1	13N	11E	4500

LOWER COLUMBIA DRAINAGE

Asotin Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Spruce Springs	17C4	9	8N	42E	5700

Mill Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Couse	17C3m	2	9N	35E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400
Walla Walla Diversion	18D13	22	6N	38E	2400

Klickitat River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Satus Pass	20D1	21	6N	17E	4030
West Fork Cabin	21C15	23	9N	12E	3000

White Salmon River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cultus Creek	21C12	35	7N	8E	4000

Lewis River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Blue Lake	21C22a	19	9N	8E	4800
Bob's Trail	21C21	25	8N	7E	2200
Calamity Ridge	22D1a	8	5N	5E	2500
Council Pass	21C18a	24	9N	9E	4200
Divide Meadow	21C29a	21	9N	10E	5600
Grand Meadow	21C25	28	8N	9E	3500
Lone Pine Shelter	21C26	8	9N	7E	3800
Marble Mountain	22C5a	24	8N	5E	3200
New Muddy River	22C6	36	8N	6E	2000
Oldman Pass	21D19	22	6N	7E	3100

Lewis River (continued)

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Plains of Abraham	22C1a	35	9N	5E	4400
Smith Creek Road	22C4	29	9N	6E	2100
Spencer Meadow	21C20a	16	8N	7E	3400
Surprise Lakes	21C13A	14	7N	8E	4250
Table Mountain	21C24a	20	9N	9E	4200
Timbered Peak	21D18a	36	6N	6E	3000

Cowlitz River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cayuse Pass	21C6	15	16N	10E	5300
Mosquito Meadows	21C19	33	10N	7E	4100
Ohanapecosh	21C32	28	15N	10E	2200
Packwood Lake	21C31	21	13N	10E	2870
Pigtail Peak	21C33	11	13N	11E	5900
Potato Hill	21C14	36	10N	10E	4500
Willame Creek	21C30	3	13N	8E	3250

PUGET SOUND DRAINAGE

Nisqually River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Ghost Forest	21C4	23	15N	8E	4550
Longmire	21C3	29	15N	8E	2760
Paradise Park	21C2	13	15N	8E	5500
Stem Glade	21C1	13	15N	8E	5050

White River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Corral Pass	21B13	30	18N	11E	6000
White River Entrance	21C5	4	16N	10E	3600
White River Entrance (new)	21C16	4	16N	10E	3400

Green River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Airstrip	21B24	18	20N	11E	1800
Charley Creek	21B25	27	21N	8E	1200
Grass Mountain No. 1	21B26	21	20N	8E	4000
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Sawmill Ridge	21B31	5	19N	11E	4700
Stampede Pass	21B10	25	21N	11E	3000
Twin Camp	21B30	18	19N	11E	4100

Cedar River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16	31	22N	9E	2500
Mt. Washington	21B15	8	22N	9E	3000
Rex River	21B17	11	21N	9E	2400
South Fork Cedar	21B6	24	21N	10E	3000
Tinkham Creek	21B20	1	21N	10E	3400

Snoqualmie River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Olallie Meadows	21B2	19	22N	11E	3625
South Fork Tolt	21B18	26	26N	9E	1900

Skykomish River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Lake Elizabeth	21B19	33	26N	10E	2900

Skagit River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Devils Park	20A4	34	38N	16E	5900

Skagit River (continued)

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows	20A2	8	40N	16E	5000
Lake Hozomeen	21A2	19	40N	14E	2600
Meadows Cabins	20A8	29	36N	14E	1900
Thunder Basin	20A7	15	35N	14E	4200

Baker River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12A	20	37N	8E	2100
Schreibers Meadow	21A10A	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8	25	37N	9E	4500

Nooksock River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Panorama	21A5	17	39N	9E	4300

OLYMPIC PENINSULA

Dungeness River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Deer Park	23B4	1	28N	5W	5200

Morse Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Deer Park G. S.	23B13	1	28N	5W	4850
Morse Creek	23B12	25	29N	7W	5425

Elwha River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Hurricane	23B3	36	29N	7W	4500

Skokomish River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Black and White	23B7	17	24N	5W	4200
Black and White Lakes	23B6	16	24N	5W	4700
Four Stream	23B10	1	23N	6W	3000
Home Sweet Home	23B5	28	25N	5W	5200
Sundown Pass	23B8	25	24N	7W	3900

LEGEND
NUMBERING SYSTEM EXAMPLE

21A7 SNOW COURSE ONLY
21A7a AERIAL MARKER ONLY
21A7A SNOW COURSE AND AERIAL MARKER
21A7M SNOW COURSE AND SOIL MOISTURE STATION
21A7m SOIL MOISTURE STATION
21A7P SNOW COURSE AND PRECIPITATION STORAGE GAGE
21A7p PRECIPITATION STORAGE GAGE

WATER SUPPLY OUTLOOK

State of Washington
February 1, 1966

* *
* The water supply outlook for irrigation and power for the Columbia *
* Basin in Washington and its tributary streams can be considered good *
* for this time of year. Snow surveys made in the state and adjacent *
* areas near the first of February show a snowpack that varies from a *
* low of 54% of normal to a high of 148%. Most of the courses that *
* were measured along the Cascade divide indicate a snowpack that is *
* below normal in the upper elevations, well above normal in the low *
* elevations and slightly above in the middle. Watershed soil mantles *
* generally have less water in storage than occurred during the last *
* two years and only half of their capacity. Reservoirs as of the end *
* of January generally have below normal amounts of water in storage *
* but most should comfortably fill with the spring runoff. *
* *

SNOW COVER

Most of the watershed in the Upper Columbia Basin of Washington has a snowpack that is very near normal for this time year. The snow courses at high elevations where only one course is used for comparison purposes reduces the percentage down as low as 82%. In opposition, the one course measured in the Ahtanum watershed, at a relatively low elevation, has a snowpack that is 25% above normal. Along the lower Columbia, snowpacks are generally better. Mill Creek, again low elevation, has a snow cover of 44% above normal and Cowlitz, generally based on high elevation courses, only 97%. The Puget Sound drainage basin area varies from a high of 90% to a low of 54%. Again this change of elevation with respect to snow cover is the factor for this broad difference of percentages.

RESERVOIRS

All of the reservoirs in the Columbia Basin in Washington and immediate vicinity have below normal amounts of water in storage as of February 1 with the exception of two on the Skagit River. While most of these reservoirs are abnormally low it is doubtful whether there will be any stored water shortages for irrigation use. The large reservoirs, such as Franklin D. Roosevelt Lake, Chelan Lake and Coeur d'Alene Lake will all comfortably fill with the spring runoff. The five reservoirs in the Yakima drainage should fill with the spring runoff. While there is a possibility that all reservoirs will not completely fill, sufficient water will be available for this year's irrigation needs with a possibility of a small carry-over for 1967. Two reservoirs in the Okanogan drainage, Conconully Reservoir and Salmon Lake, are not expected to

fill under present snow runoff conditions. Conconully Reservoir, which has been drained for repair work, will need 13,000 acre feet to fill it, let alone that which is needed for irrigation and domestic water supplies. Skagit River reservoir will fill and spill with the spring runoff.

PRECIPITATION

Fall precipitation for all ten drainage divisions was well below normal. Divisions reported precipitation of down to 40% of normal for the months of September, October and November. December precipitation was somewhat a continuation of this condition with only above normal precipitations occurring in the Columbia River area in Canada and some from the Methow and Okanogan drainages in Washington. During the month of January above normal precipitation only happened in the Pend Oreille and Spokane drainages, on the west slopes of the Cascades and the lower Columbia in Oregon.

SOIL MOISTURE

There are now eleven soil moisture stations that are used for reporting soil mantle wetness. The five stations in the Crab Creek area in central Washington, have a soil moisture content that averages 44% of capacity, 89% of last year and 96% of 1964. The one station in the Okanogan area in British Columbia is only 48% of capacity, 88% of 1965 and 83% of 1964. The two stations in the Yakima drainage are 69% of capacity, 98% of last year and 5% greater than that which occurred in 1964. Again, two courses in the Walla Walla drainage are 61% of capacity and 65% of last year at this time. In the Wenatchee watershed, a new station has a soil moisture content that is 63% of capacity but 111% of last year.

STREAMFLOW

Forecasts of streamflows are made only for the main stem of the Columbia River. These forecasts for the April-September period are for flows at Birchbank 17% above normal, Grand Coulee 4% above, below Rock Island Dam 3% above and at The Dalles 1% above. Numerical forecasts of other streams are not made by the Soil Conservation Service until the March 1 report when a more thorough analysis of the snowpack conditions and how they relate to valley precipitation and other data can be made.

COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

The following tabulation of Washington stream basins presents the water content of the snow about February 1, 1966, as per cent of the same date in 1965 and 1964 and average of record.

Tributary Basin	No. of Courses Average	Years of Record	1966 Snow Water Expressed as per cent of 1965	1964	1948-1962 Avg.
UPPER COLUMBIA BASIN					
Pend Oreille	5 - 8	2 - 29	84	89	96*
Kettle	3 - 11	3 - 26	72	91	106*
Colville	5	4 - 7	81	105	--
Spokane	1 - 8	2 - 21	73	85	82
Okanogan	17 - 21	1 - 28	95	93	104*
Methow	5 - 6	7 - 22	85	83	90*
Chelan	1	12	84	86	82*
Entiat	1	5	79	91	--
Wenatchee	2 - 7	5 - 21	70	72	93*
Yakima	10 - 12	7 - 44	74	74	88*
Ahtanum	1	24	80	172	125*
LOWER COLUMBIA					
Mill Creek	3	12	105	98	147*
Klickitat	2	8 - 9	97	179	--
White Salmon	2	8	89	94	118*
Lewis	3 - 17	3 - 8	100	108	143*
Cowlitz	3 - 8	2 - 14	81	85	97*
PUGET SOUND					
Nisqually	3	9	74	71	90*
White	2	10 - 14	78	67	86*
Green	1 - 9	4 - 19	75	71	54*
Snoqualmie	1	16	73	72	110*
Skykomish	1	21	70	64	89
Skagit	4 - 5	9 - 16	91	74	87*
Nooksack	1	9	96	66	--
OLYMPIC PENINSULA					
Skokomish	1 - 5	2 - 8	107	82	115*
Elwha	1	6	90	64	--*
Dungeness	1	12	122	124	102*

* Records of less than 15 years used in computation of average

RESERVOIR STORAGE - 1000 Acre Feet

BASIN or STREAM	RESERVOIR 1/	USABLE CAPACITY	Measured (February) 1966	1965	1964	Normal*
			COLUMBIA			
Spokane	Coeur d'Alene Lake	225.1	53.8	237.5	104.7	131.0
Columbia	Franklin D. Roosevelt	5232.0	3170.0	4427.0	4118.0	4059.3
Columbia	Banks Lake 2/	761.8	506.1	447.6	354.4	484.3
Okanogan	Conconully Reservoir	13.0	0	4.7	3.8	7.0
Okanogan	Salmon Lake	10.5	7.8	8.4	9.5	8.9
Chelan	Lake Chelan	676.1	272.0	334.0	317.6	341.0
			YAKIMA			
Yakima	Keechelus Lake	157.8	76.4	104.6	56.8	87.4
Kachess	Kachess Lake	239.0	162.8	191.3	132.9	171.9
Cle Elum	Lake Cle Elum	436.9	186.4	307.1	140.4	240.9
Bumping	Bumping Lake	33.7	3.2	10.8	7.5	10.4
Tieton	Rimrock Lake	198.0	82.4	153.9	84.2	113.0
			PUGET SOUND			
Skagit	Ross Reservoir 2/	1202.9	867.9	916.5	1162.2	766.9
Skagit	Diablo Reservoir	90.6	85.9	82.9	83.8	85.7
Skagit	Gorge Reservoir	9.8	7.4	7.5	7.7	--

1/ Based on Active Storage

2/ Less than 15-year record in period 1948-62

* 15-year average 1948-62

SOIL MOISTURE - FEBRUARY

Drainage Basin and Station	Number	Elev.	Profile (Inches) : Depth	Total Capacity	Soil Moisture Content (Inches) as of Feb. 1 : 1966	1965	1964
CRAB CREEK							
Creston-Kunz	18B1m	2440	48	13.6	5.3	7.7	6.7
Jack Woods	18B3m	2600	48	13.6	7.0	6.7	8.4
Krause	18B4m	2440	48	13.6	6.9	7.4	6.4
Sheffels	18B5m	2360	48	13.6	5.1	5.8	5.0
Wheatridge	18B6m	2200	48	13.6	5.9	6.6	5.5
OKANOGAN							
Trout Creek	3-M	3600	48	7.3	3.5*	4.0	4.2
YAKIMA							
Domery Flat	21B20m	2200	48	6.9	4.4*	4.9	--
Lake Cle Elum	21B14M	2200	48	12.8	9.5*	9.0	9.0
WALLA WALLA							
Couse	17C3m	3650	48	11.1	7.2	10.1	7.0*
Helmers	17C2M	4400	48	12.0	6.8	11.5	8.5
WENATCHEE							
Upper Wheeler	20B7M	4400	48	12.7	8.0	7.2	--

* January 1 measurement

FALL SOIL MOISTURE

Drainage Basin and Station	Number	Elev.	Profile (Inches) : Depth	Total Capacity	Soil Moisture Content (Inches) as of Oct. 1 : 1965	1964	1963
CRAB CREEK							
Creston-Kunz	18B1m	2440	48	13.6	4.9	5.4	5.1
Jack Woods	18B3m	2600	48	13.6	5.0	4.4	6.3
Krause	18B4m	2440	48	13.6	5.8	5.9	5.2
Sheffels	18B5m	2360	48	13.6	4.0	3.7	3.7
Wheatridge	18B6m	2200	48	13.6	4.2	4.1	4.5
OKANOGAN							
Trout Creek	3-M	3600	48	7.3	4.1	4.9	4.1
YAKIMA							
Domery Flat	21B20m	2200	48	6.9	1.9	4.4	--
Lake Cle Elum	21B14M	2200	48	12.8	6.9	8.5	6.6
WALLA WALLA							
Couse	17C3m	3650	48	11.1	6.0	5.6	5.7
Helmers	17C2M	4400	48	12.0	6.2	6.0	5.8
WENATCHEE							
Upper Wheeler	20B7M	4400	48	12.7	6.2	5.3	--

PRECIPITATION [1]

Division Averages and Departures

DRAINAGE DIVISIONS	FALL Sept-Oct-Nov. 1965 [2] Average	Departure	WINTER Dec. 1965 & Jan. 1966 [2] Average	Departure
Columbia in Canada	6.01	- 0.36	8.21	+ 1.93
Pend Oreille - Spokane	5.44	- 3.50	6.83	- 1.72
Northeastern Washington	3.31	- 2.00	4.35	- 0.85
Southeastern Washington	2.84	- 3.03	4.26	- 1.41
Central Washington	5.55	- 6.32	12.82	- 2.52
North Central Washington	1.65	- 1.38	3.23	- 0.10
Northwest Slope Cascades	16.93	- 8.11	21.61	- 1.77
Southwest Slope Cascades	11.21	- 6.88	18.50	+ 0.03
Blue Mountains, Oregon	2.49	- 2.23	3.03	- 1.97
Lower Columbia in Oregon	3.23	- 1.17	5.11	- 0.71

Northeastern Washington - Lower Spokane, Colville, Sanpoil and lower Kettle drainages

Southeastern Washington - Touchet, Tucannon and Palouse drainages

Central Washington - Yakima, Wenatchee and Chelan drainages

North Central Washington - Methow and Okanogan drainages

Northwest Slope Cascades - Puget Sound drainages

Southwest Slope Cascades - Lower Columbia drainages

1/ - Preliminary analysis by U. S. Weather Bureau from data furnished by Meteorological Services of Canada and U. S. Weather Bureau

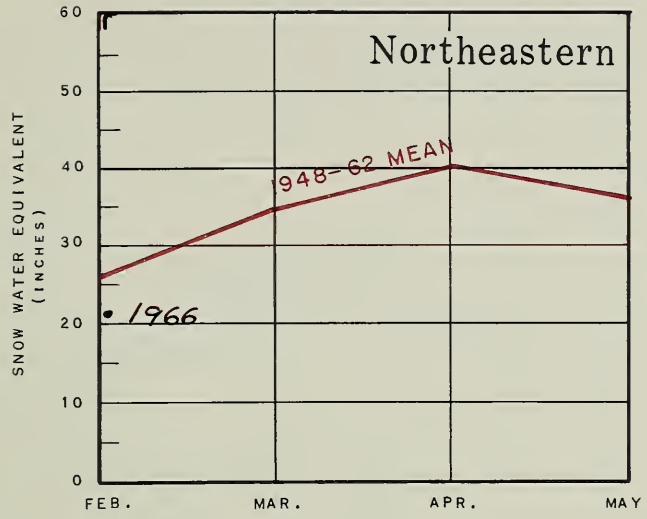
2/ - Departure from 15-year (1948-62) drainage division average

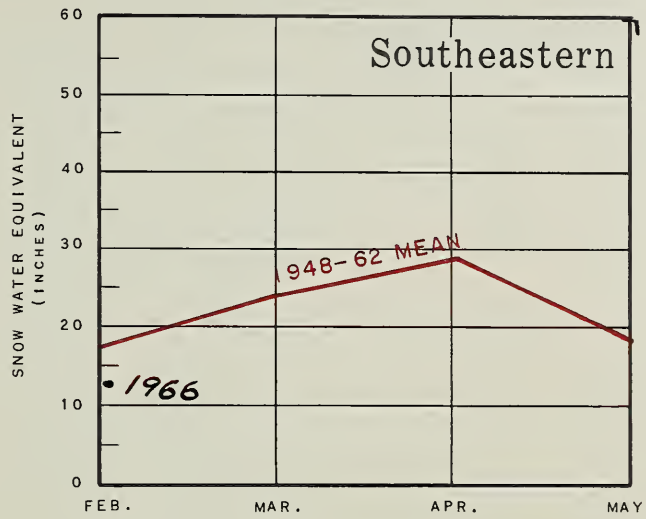
Note - Precipitation shown in inches

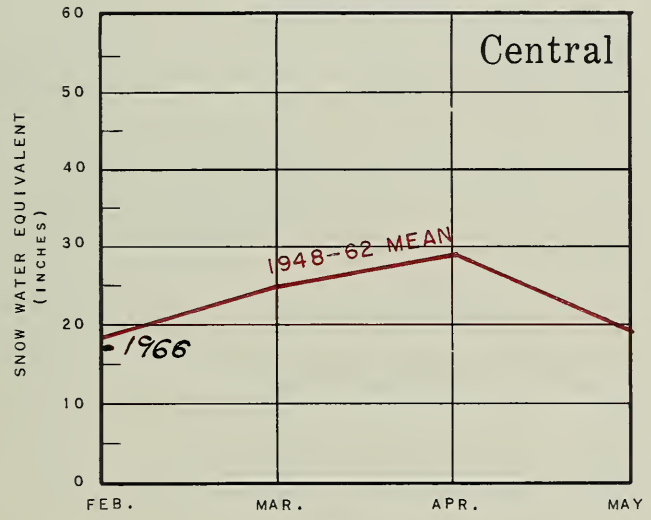
WASHINGTON SNOW COVER

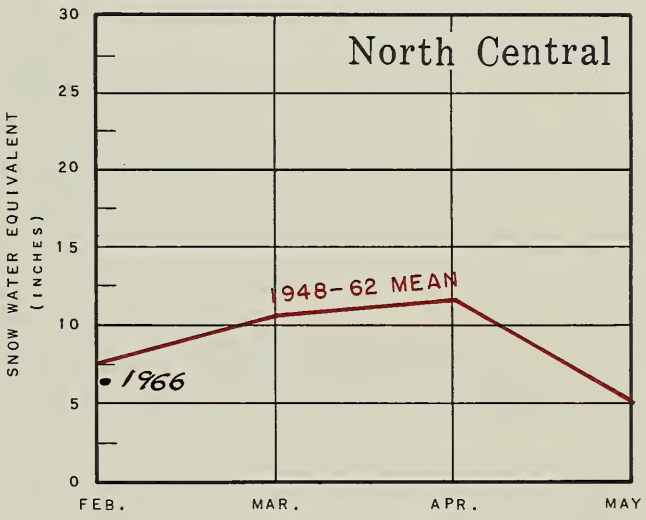
1966

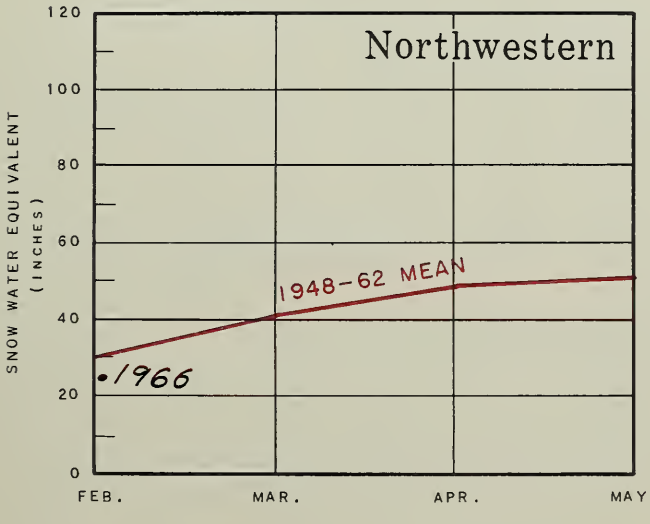
DRAINAGE AREAS

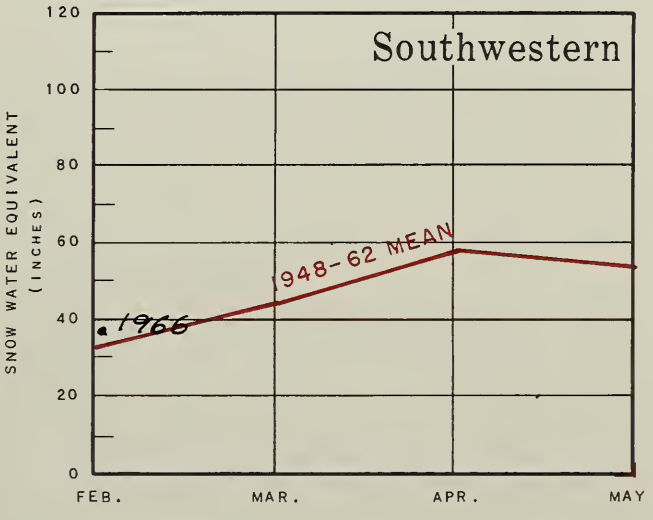










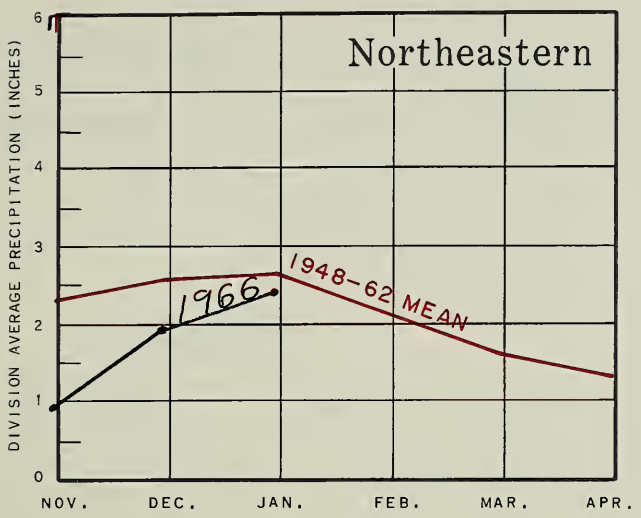


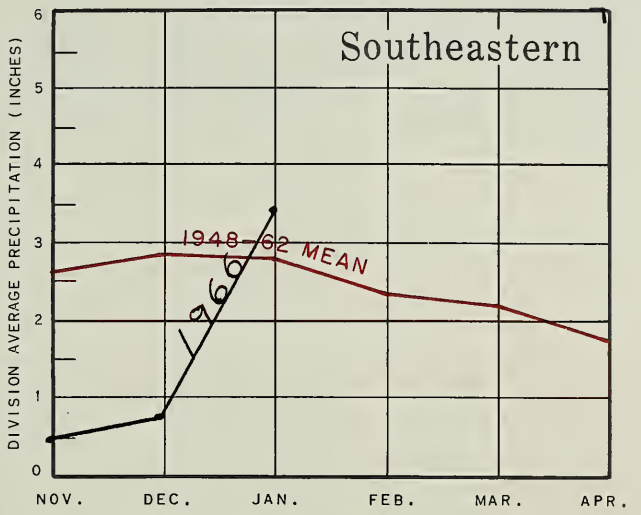
Selected Snow Survey Courses by Soil Conservation Service

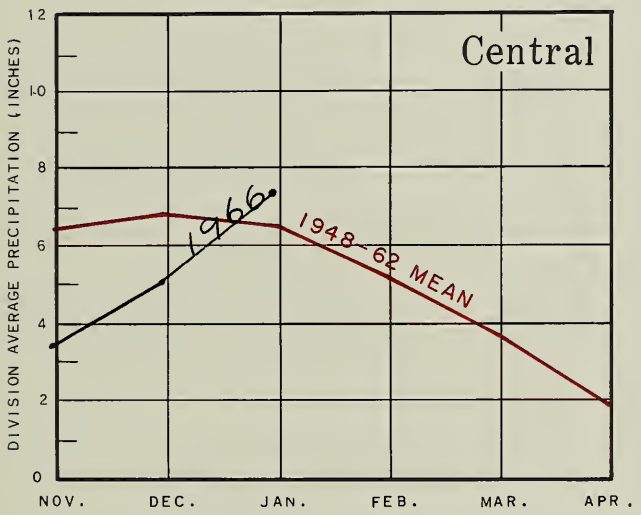
WASHINGTON VALLEY PRECIPITATION

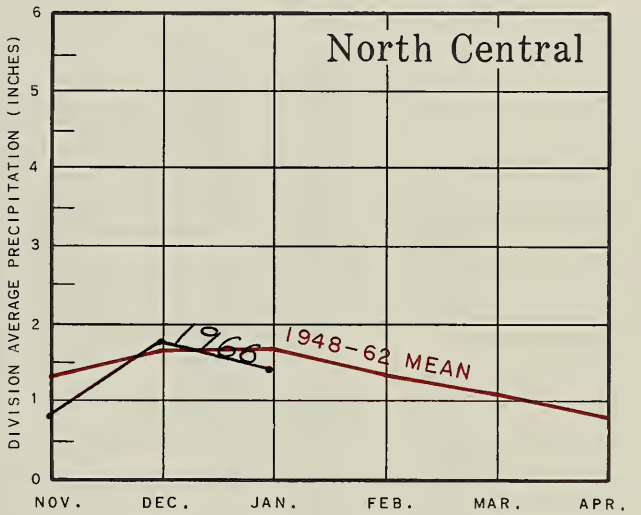
1965 - 1966

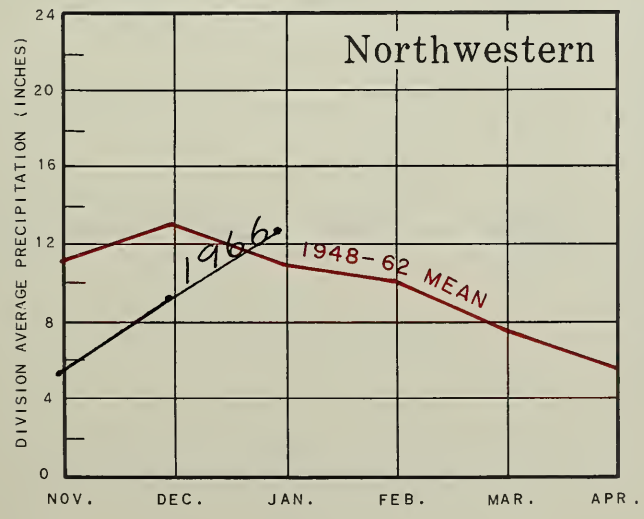
DRAINAGE AREAS

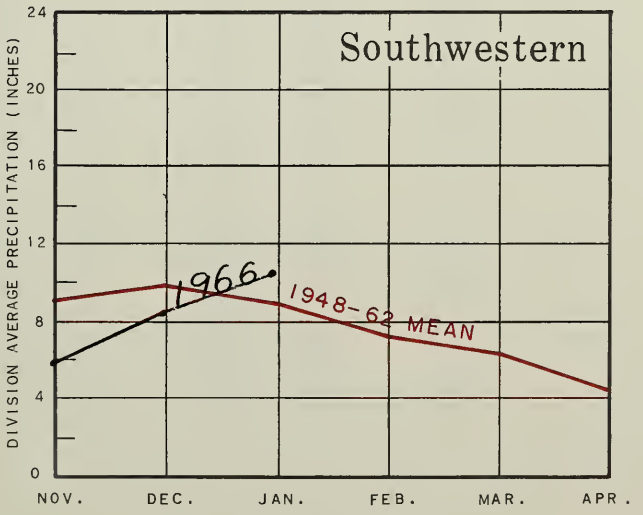












Preliminary Analysis by U. S. Weather Bureau

APPENDIX 1

SNOW DATA FEBRUARY 1, 1966

DRAINAGE BASIN and SNOW COURSE	No.	Elev.	SNOW COVER MEASUREMENT 1966 Date of Survey	Snow Depth (In.)	Water Content (In.)	Past Record Water Content (In.) 1965	1964	1948-62 Avg.
Snow Surveys Made Prior to February 1, 1966								
UPPER COLUMBIA DRAINAGE								
KETTLE RIVER								
Boulder Road	18A2	1450	10/25	0	0.0	0.0	0.0	--
			11/10	0	0.0	0.0	0.0	--
			11/24	0	0.0	0.0	0.0	--
			12/14	0	0.0	0.9	1.0	--
			1/3	23	3.4	3.0	2.7	--
			1/17	19	4.4	6.9	2.8	--
Butte Creek	18A3	4070	10/25	0	0.0	0.0	0.0	--
			11/10	0	0.0	1.2	1.4	--
			11/24	3	0.6	1.3	1.9	--
			12/14	5	1.7	3.1	2.9	--
			1/3	27	4.0	5.5	3.4	--
			1/17	24	5.5	9.1	4.4	--
Cabin Creek	18A8	3170	10/25	0	0.0	0.0	0.0	--
			11/10	0	0.0	0.5	1.3	--
			11/24	0	0.0	0.0	1.0	--
			12/14	5	1.0	3.1	2.1	--
			1/3	27	3.5	5.1	4.1	--
			1/17	22	5.0	8.2	4.2	--
Goat Creek	18A4	3595	10/25	0	0.0	0.0	0.0	--
			11/10	0	0.0	0.5	1.0	--
			11/24	0	0.0	0.6	1.2	--
			12/14	3	0.6	2.6	1.9	--
			1/3	24	3.5	4.7	3.3	--
			1/17	21	4.7	7.3	3.8	--
Snow Caps Creek	18A5	2150	10/25	0	0.0	0.0	0.0	--
			11/10	0	0.0	0.0	0.0	--
			11/24	0	0.0	0.0	0.0	--
			12/14	0	0.0	1.3	0.8	--
			1/3	21	3.0	3.3	2.8	--
			1/17	18	4.3	6.8	2.8	--

APPENDIX 2

DRAINAGE and SNOW COURSE	No.	Elev.	SNOW COVER MEASUREMENT 1966 Date of Survey	Snow Depth (in.)	Water Content (In.)	Past Record Water Content (In.) 1965	1964	1948-62 Avg.
Snow Surveys Made Prior to February 1, 1966 (Cont.)								
KETTLE RIVER (Cont.)								
Snow Caps Trail	18A6	2150	10/25	0	0.0	0.0	0.0	--
			11/10	0	0.0	0.0	0.0	--
			11/24	0	0.0	0.0	1.1	--
			12/14	2	0.5	1.9	1.8	--
			1/3	22	3.1	4.1	3.1	--
			1/17	20	4.4	6.6	3.5	--
Summit G. S.	18A7	4600	10/25	0	0.0	0.0	0.0	--
			11/10	0	0.0	0.8	1.4	--
			11/24	3	0.8	1.2	1.9	--
			12/14	6	2.1	3.1	2.8	--
			1/3	23	3.6	5.0	3.9	--
			1/17	22	5.4	7.8	4.4	--
WENATCHEE RIVER								
Berne-Mill Creek	21B23	2925	10/26	0	0.0	0.0	0.0	--
			11/12	0	0.0	1.0	0.8	--
			11/29	9	1.4	4.8	2.1	--
			12/14	11	2.0	9.8	3.5	--
			12/30	35	5.0	14.8	8.6	--
			1/13	53	15.1	19.7	18.0	--
Blewett Pass No.2	20B2	4270	1/3	40	7.6	9.6	4.6	8.1*
Chiwaukum G. S.	20B16	1810	10/26	0	0.0	0.0	0.0	--
			11/12	0	0.0	0.6	0.0	--
			11/29	2	0.2	1.6	0.4	--
			12/13	2	0.4	3.7	1.4	--
			12/30	23	2.3	7.8	3.6	--
			1/13	37	7.8	10.9	4.5	--
Lake Wenatchee	20B5	1970	10/26	0	0.0	0.0	0.0	--
			11/12	0	0.0	0.0	0.0	--
			11/29	4	0.6	1.3	0.1	--
			12/13	4	1.1	4.6	1.4	--
			12/30	23	3.1	8.5	4.8	--
			1/13	38	9.9	12.4	6.9	--

* Adjusted 1948-62 average

APPENDIX 3

DRAINAGE BASIN and SNOW COURSE	No.	Elev.	SNOW COVER MEASUREMENT 1966 Date of Survey	Snow Depth (In.)	Water Content (In.)	Past Record Water Content (In.) :1965	1964	1948-62
Snow Surveys Made Prior to February 1, 1966 (Cont.)								
WENATCHEE RIVER (Cont.)								
Leavenworth R. S.	21B17	1127	10/26	0	0.0	0.0	0.0	--
			11/26	2	0.5	0.0	0.0	--
			12/15	0	0.0	0.5	1.0	--
			12/28	25	3.0	4.2	3.0	--
			1/13	30	7.3	6.1	2.6	--
Merritt	20B18	2140	11/12	0	0.0	0.0	0.0	--
			11/29	3	0.5	2.2	0.7	--
			12/13	7	2.0	6.3	2.1	--
			12/30	26	4.2	11.5	5.9	--
			1/13	44	12.0	16.8	9.7	--
Stevens Pass	21B1	4070	10/26	0	0.0	0.0	4.0	--
			11/12	0	0.0	1.8	7.5	--
			11/29	23	4.4	6.9	12.0	11.6*
			12/14	24	7.8	15.6	16.8	15.2*
			12/30	66	13.2	34.1	24.0	21.8*
			1/13	96	28.5	34.6	30.8	27.5*
YAKIMA RIVER								
Ahtanum R. S.	21C11	3100	12/27	27	3.3	5.8	2.2	4.3*
#Blewett Pass No.2	20B2	4270	1/3	40	7.6	9.6	4.6	8.1*
Bumping Lake	21C8	3450	11/30	4	0.6	2.4	0.0	4.6*
			12/29	47	6.4	9.9	4.8	7.8
			1/14	49	14.2	15.4	8.4	--
Lake Cle Elum	21B14M	2200	12/29	14	2.0	8.0	4.6	4.9
			1/15	22	7.8	9.7	8.4	--
#Stampede Pass	21B10	3000	11/1	0	0.0	0.0	2.7	--
			11/15	0	0.0	1.1	5.5	--
			11/30	19	2.2	5.2	10.1	--
			12/14	12	3.4	12.1	13.9	--
			1/7	81	12.1	19.1	17.2	20.7*
			1/18	81	16.7	23.7	26.0	25.1*

* Adjusted 1948-62 average
\# Not located directly on this drainage

APPENDIX 4

DRAINAGE BASIN and SNOW COURSE	No.	Elev.	SNOW COVER MEASUREMENT 1966 Date of Survey	1966 Snow Depth (In.)	1966 Water Content (In.)	Past Record Water Content (In.) :1965	1964	1948-62 Avg.
Snow Surveys Made Prior to February 1, 1966 (Cont.)								
YAKIMA RIVER (Cont.)								
Tunnel Avenue	21B8	2450	11/15	0	0.0	0.0	0.0	--
			12/29	30	5.1	14.5	8.5	10.0
			1/14	48	16.4	20.5	13.6	--
White Pass (E Side)	21C28	4500	11/30	7	1.4	--	--	--
			1/11	48	13.4	18.7	12.2	--
White Pass (Leech L)	21C27	4500	1/4	65	11.8	18.8	11.7	--
AHTANUM CREEK								
Ahtanum R. S.	21C11	3100	12/27	27	3.3	5.8	2.2	4.3*
LOWER COLUMBIA DRAINAGE								
MILL CREEK								
Walla Walla Div.	18D13	2400	12/26	0	0.0	1.0	0.0	0.0*
WHITE SALMON RIVER								
Cultus Creek	21C12	4000	Not measured			20.1	14.8	17.1*
#Surprise Lakes +	21C13A	4250	1/1	95	23.8	22.7	19.3	21.0*
LEWIS RIVER								
Blue Lake +	21C22a	4800	1/1	164	41.0	--	34.2	--
Bob's Trail	21C21	2200	1/7	51	16.6	9.9	0.0	--
Calamity Ridge +	22D1a	2500	1/1	34	7.8	--	2.3	--
Council Pass +	21C18a	4200	1/1	87	21.8	--	18.6	--
Divide Meadow +	21C29a	5600	1/1	95	24.7	--	22.9	--
Grand Meadow	21C25	3500	1/3	79	15.1	14.2	5.4	--
Marble Mountain +	22C5a	3200	1/1	63	16.7	--	9.3	--
#Mosquito Meadows	21C19	4100	1/6	110	28.7	--	--	--
New Muddy River	22C3	1400	12/28	38	7.2	13.5	0.0	--
Smith Creek Road	22C4	2100	12/28	54	11.0	22.7	0.0	--
Spencer Meadow +	21C20a	3400	1/1	80	19.2	--	10.4	9.4*
Surprise Lakes +	21C13A	4250	1/1	95	23.8	22.7	19.3	21.0*

* Adjusted 1948-62 average
\# Not directly on this drainage
\+ Snow water equivalent estimated from aerial stadia observation

DRAINAGE BASIN and SNOW COURSE	No.	Elev.	SNOW COVER MEASUREMENT 1966 Date of Survey	1966 Snow Depth (In.)	1966 Water Content (In.)	Past Record Water Content (In.): 1965	1964	1948-62 Avg.
Snow Surveys Made Prior to February 1, 1966 (Cont.)								
LEWIS RIVER (Cont.)								
Table Mountain +	21C24a	4200	1/1	102	25.5	--	22.3	--
Timbered Peak +	21D18a	3000	1/1	59	14.3	--	9.0	--
COWLITZ RIVER								
Cayuse Pass	21C6	5300	1/1	115	25.6	--	--	--
Mosquito Meadows	21C19	4100	1/6	110	28.7	--	--	--
Packwood Lake	21C31	4100	1/7	33	9.5	--	--	--
Pigtail Peak	21C33	5900	1/1	118	26.7	37.0	24.4	--
#White Pass (E Side)	21C28	4500	11/30	7	1.4	--	--	--
			1/11	48	13.4	18.7	12.2	--
#White Pass (Leech L)	21C27	4500	1/4	65	11.8	18.8	11.7	--
PUGET SOUND DRAINAGE								
NISQUALLY RIVER								
Ghost Forest	21C4	4550	12/29	61	12.1	--	--	--
Longmire	21C3	2760	12/29	15	2.0	--	--	--
New Paradise Park	21C2	5500	12/29	79	18.4	--	--	--
Stem Glade	21C1	5050	12/29	81	17.4	--	--	--
GREEN RIVER								
Airstrip	21B24	1800	12/31	15	2.2	4.9	0.0	--
Charley Creek	21B25	1200	12/30	18	3.1	4.1	0.0	--
Grass Mtn No. 1	21B26	4000	11/29	10	2.4	4.3	0.0	--
			12/30	38	7.1	12.2	7.3	--
Grass Mtn No. 2	21B27	2900	11/29	8	1.3	4.4	0.0	--
Grass Mtn No. 3	21B28	2100	11/29	0	0.0	0.0	0.0	--
Lester Creek	21B29	3100	11/29	12	1.6	3.8	2.2	--
			12/31	38	7.1	13.1	8.0	--
Stampede Pass	21B10	3000	11/1	0	0.0	0.0	2.7	--
			11/15	0	0.0	1.1	5.5	--
			11/30	19	2.2	5.2	10.1	--
			12/14	12	3.4	12.1	13.9	--
			1/7	81	12.1	19.1	17.2	20.7*
			1/18	81	16.7	23.7	26.0	25.1*

* Adjusted 1948-62 average
\# Not directly on this drainage
\+ Snow water equivalent estimated from aerial stadia observation

APPENDIX 6

DRAINAGE BASIN and SNOW COURSE	No.	Elev.	SNOW COVER MEASUREMENT 1966 Date of Survey	Snow Depth (In.)	Water Content (In.)	Past Record Water Content (In.) 1965	1964	1948-62 Avg.
Snow Surveys Made Prior to February 1 1966 (Cont.)								
GREEN RIVER (Cont.)								
Sawmill Ridge	21B31	4700	11/29	16	2.7	6.4	9.0	--
			12/31	40	7.9	--	15.8	--
Twin Camp	21B30	4100	11/29	7	1.8	4.2	3.3	--
			12/31	30	6.2	13.3	10.3	--
WHITE RIVER								
#Cayuse Pass	21C6	5300	1/1	115	25.6	--	--	--
White River Camp Gr	21C34	4000	12/31	53	10.3	New Course		
SKYKOMISH RIVER								
#Stevens Pass	21B1	4070	10/26	0	0.0	0.0	4.0	--
			11/12	0	0.0	1.8	7.5	--
			11/29	23	4.4	6.9	12.0	11.6*
			12/14	24	7.8	15.6	16.8	15.2*
			12/30	66	13.2	34.1	24.0	21.8*
			1/13	96	28.5	34.6	30.8	27.5*
SKAGIT RIVER								
#Panorama Dome	21A5	4300	1/13	150	53.9	45.8	49.7	--
BAKER RIVER								
Dock Butte +	21A11A	3800	11/24	25	7.5	--	--	--
			1/15	120	42.0	34.8	--	--
Easy Pass +	21A7A	5200	11/24	31	9.3	--	--	--
			1/15	210	73.5	--	--	--
Jasper Pass +	21A6A	5400	11/24	32	9.6	--	--	--
			1/15	170	59.5	--	--	--
Marten Lake +	21A9A	3600	11/24	24	7.2	--	--	--
			1/15	161	56.4	63.3	--	--
Mount Blum +	21A18a	5800	11/24	36	10.8	--	--	--
			1/15	147	51.4	52.2	--	--

* Adjusted 1948-62 average
\# Not directly on this drainage
\+ Snow water equivalent estimated from aerial stadia observation

APPENDIX 7

DRAINAGE BASIN and SNOW COURSE	No.	Elev.	SNOW COVER MEASUREMENT 1966 Date of Survey	Snow Depth (In.)	Water Content (In.)	Past Record Water Content (In.) 1965	1964	1948-62 Avg.
Snow Surveys Made Prior to February 1, 1966 (Cont.)								
BAKER RIVER (Cont.)								
#Panorama Dome	21A5	4300	1/13	150	53.9	45.8	49.7	--
Rocky Creek +	21A12A	2100	11/24	6	1.8	--	--	--
			1/15	116	40.6	32.8	--	--
Schreibers Meadow+	21A10A	3400	11/24	26	7.8	--	--	--
			1/15	119	41.6	45.5	--	--
S.F. Thunder Creek+	21A14A	2200	11/24	0	0.0	--	--	--
			1/15	63	22.0	19.2	--	--
Watson Lakes +	21A8A	4500	11/24	26	7.8	--	--	--
			1/15	136	47.6	43.3	--	--
NOOKSACK RIVER								
Panorama Dome	21A5	4300	1/13	150	53.9	45.8	49.7	--

Not directly on this drainage
+ Snow water equivalent estimated from aerial stadia observation

APPENDIX 8

DRAINAGE BASIN and SNOW COURSE	No.	Elev.	SNOW COVER MEASUREMENT 1966 Date of Survey	Snow Depth (In.)	Water Content (In.)	Past Record Water Content (In.) 1965	1964	1948-62 Avg.
UPPER COLUMBIA DRAINAGE								
PEND OREILLE RIVER								
Benton Meadow	16A2	2344	1/31	24	6.7	8.9	7.6	5.6
Benton Spring	16A3	4900	1/31	46	14.1	15.7	14.2	14.7
#Chewelah	17A4	4925	1/26	54	16.9	18.5	13.8	--
Lookout	15B2	5250	1/31	71	21.6	27.7	26.7	26.4
Nelson	Canada	3050	1/31	56	13.9	13.2	14.9	12.0
Schweitzer Bowl	16A6	4500	1/28	74	21.3	23.3	27.4	--
Schweitzer Ridge	16A5	6100	1/28	92	29.2	38.3	34.0	--
Winchester Creek	17A3	2970	1/28	37	9.8	14.0	11.0	9.9*
KETTLE RIVER								
Boulder Road	18A2	1450	1/27	20	5.6	7.1	5.3	--
Butte Creek	18A3	4070	1/27	25	7.4	9.7	6.9	--
Cabin Creek	18A8	3170	1/27	22	5.6	9.4	5.6	--
Carmi	Canada	4100	2/1	20	3.5	10.4	6.0	--
Farron	Canada	4000	1/31	41	10.7	13.5	11.3	10.1
Goat Creek	18A4	3595	1/27	21	5.5	8.2	5.5	--
Monashee Pass	Canada	4500	1/31	42	10.9	9.7	9.5	9.3**
Old Glory Mountain	Canada	7000	2/1	67	17.5	24.0	24.6	17.6**
Snow Caps Creek	18A5	2150	1/27	18	4.8	7.2	5.1	--
Snow Caps Trail	18A6	2720	1/27	20	5.2	7.2	5.2	--
Summit G.S.	18A7	4600	1/27	23	6.5	9.3	6.4	--
COLVILLE RIVER								
Baird	17A6	3215	1/26	26	6.1	8.6	6.6	--
Carlson	18A9	2885	1/31	20	5.1	6.6	5.0	--
Chewelah	17A4	4925	1/26	54	16.9	18.5	13.8	--
Stanger Mountain	17A5	4990	1/27	44	13.0	16.0	13.6	--
Togo	18A10	3370	1/28	37	11.1	14.7	10.8	--

\# Not located directly on this drainage
* Adjusted 1948-62 average
** Average for years of record
\+ Snow water equivalent estimated from aerial stadia observation

APPENDIX 9

DRAINAGE BASIN and SNOW COURSE	No.	Elev.	SNOW COVER MEASUREMENT 1966 Date of Survey	Snow Depth (In.)	Water Content: (In.)	Past Record Water Content (In.) :1965	1964	1948-62 Avg.
SPOKANE RIVER								
Forty-nine Meadows +	15B3A	5000	1/29	70	21.3	28.0	26.6	--
4th of July Summit	16B3	3100	2/1	28	8.3	8.9	10.9	--
Granite Peak +	15B13A	6000	1/30	93	28.3	40.9	30.1	--
#Lookout	15B2	5250	1/31	71	21.6	27.7	26.7	26.4
Lost Lake +	15B14A	6000	1/30	92	28.0	49.1	34.3	--
Medicine Ridge +	15B4A	6150	1/30	115	35.0	46.4	35.3	--
Outlaw +	15B12A	3750	1/29	42	12.14	11.6	15.6	--
Sherwin	16C1	3200	1/29	38	10.0	12.4	14.1	--
OKANOGAN RIVER								
Aberdeen Lake	Canada	4300	1/31	23	6.3	5.7	4.6	4.8**
Blackwall Mountain	Canada	6250	1/31	72	25.2	24.8	31.6	21.8**
Brookmere	Canada	3200	1/30	28	8.0	6.3	10.2	7.2**
Clark	19A8a	7000	Not Measured			--	16.1	--
Copper Mountain	Canada	4300	Not Measured			--	6.1	5.3**
Enderby	Canada	6250	1/24	82	20.9	19.9	13.7	--
Hamilton Hill	Canada	4900	1/29	42	13.1	--	11.3	8.6**
#Harts Pass	20A5A	6500	1/27	78	26.0	30.8	36.9	31.1*
#Horseshoe Basin +	19A5a	7000	Not Measured			--	12.0	--
Lost Horse Mountain	Canada	6300	1/31	19	4.6	5.5	7.9	6.0**
#Loup Loup	19A7	4650	1/27	26	6.1	8.0	6.8	--
McCulloch	Canada	4200	1/29	21	4.6	5.2	5.8	5.0
Missezula Mountain	Canada	5100	1/31	28	7.5	5.4	7.4	5.6**
Mission Creek	Canada	6000	1/29	43	10.5	14.3	14.4	11.8**
Monashee Pass	Canada	4500	1/31	42	10.9	9.7	9.5	9.3**
Muckamuck +	19A9a	6390	Not Measured			--	11.3	--
Mutton Creek No. 1	19A1	5700	1/26	35	9.7	10.0	7.2	9.6*
Mutton Creek No. 2	19A4	6000	1/26	33	9.4	11.2	11.6	10.0*
New Copper Mountain	Canada	4300	1/30	23	5.6	5.9	6.6	5.2**
Paysayten +	20A28a	4300	Not Measured			15.6	15.0	--
Postill Lake	Canada	4500	1/28	25	5.8	5.7	--	5.7**
Rusty Creek	19A3	4000	1/31	25	6.7	5.8	5.3	6.0
Salmon Meadows	19A2	4500	1/26	26	6.0	9.0	9.2	7.7*
Silver Star Mtn.	Canada	6050	1/31	60	16.6	16.0	11.6	14.2**
Starvation Mtn. +	19A10a	6750	Not Measured			--	16.6	--
Summerland Reservoir	Canada	4200	1/26	28	6.5	--	8.5	--
Touts Coulee	19A6	2845	1/27	15	3.1	4.2	3.6	--
Trout Creek	Canada	4700	2/1	28	5.5	5.7	6.3	5.7

\# Not located directly on this drainage
* Adjusted 1948-62 average
** Average for years of record
\+ Snow water equivalent estimated from aerial stadia observation

APPENDIX 10

DRAINAGE BASIN and SNOW COURSE	No.	Elev.	SNOW COVER MEASUREMENT 1966 Date of Survey	Snow Depth (In.)	Water Content (In.)	Past Record Water Content (In.) :1965	1964	1948-62 Avg.
METHOW RIVER								
Billy Goat Pass +	20A10a	6400	Not Measured			23.4	23.8	--
Dollar Watch +	20A29a	7000	Not Measured			18.7	20.2	--
Harts Pass	20A5A	6500	1/27	78	26.0	30.8	36.9	31.1*
Horseshoe Basin +	19A5a	7000	Not Measured			--	12.0	--
Loup Loup	19A7	4650	1/27	26	6.1	8.0	6.8	--
#Mutton Creek No. 1	19A1	5700	1/26	35	9.7	10.0	7.2	9.4*
#Mutton Creek No. 2	19A4	6000	1/26	33	9.4	11.2	11.6	10.0*
#Rusty Creek	19A3	4000	1/31	25	6.7	5.8	5.3	6.0
#Salmon Meadows	19A2	4500	1/26	26	6.0	9.0	9.2	7.7*
War Creek Pass +	20A3a	6500	Not Measured			New Aerial Marker		
CHELAN LAKE BASIN								
Cloudy Pass +	20A22a	6500	Not Measured			29.0	23.0	29.7*
Greenwood Flat +	20A25a	3540	Not Measured			20.0	24.2	23.6*
Little Meadows +	20A24a	5275	Not Measured			30.7	27.5	31.6*
Lyman Lake +	20A23A	5900	Not Measured			37.7	32.5	--
Park Creek Flat +	20A13a	2220	Not Measured			27.8	25.2	--
Park Creek Ridge +	20A12A	4600	Not Measured			33.9	34.5	--
Petersons +	20A16a	3730	Not Measured			28.4	21.0	--
Rainy Pass	20A9	4780	1/28	76	24.3	28.9	28.3	29.8*
Safety Harbor +	20A30A	6300	Not Measured			24.1	--	--
War Creek Pass +	20A31a	6500	Not Measured			New Aerial Marker		
ENTIAT RIVER								
Brief	20B19	1600	1/30	31	6.8	8.6	7.5	--
Entiat Meadows +	20A33a	4800	Not Measured			New Aerial Marker		
Entiat River Tr. +	20A34a	3150	Not Measured			New Aerial Marker		
Pope Ridge	20B20	4300	1/31	53	14.4	New Course		
Pugh Ridge +	20A32a	6400	Not Measured			New Aerial Marker		
Snow Brushy +	20A35a	3850	Not Measured			New Aerial Marker		
Tommy Creek +	20B21a	5300	Not Measured			New Aerial Marker		
WENATCHEE RIVER								
Berne-Mill Creek	21B23	2925	1/28	52	17.8	24.7	26.8	--
Blewett Pass No. 2	20B2	4270	1/28	44	12.7	18.0	14.3	12.4*
Chiwaukum G. S.	20B16	1810	1/28	33	8.4	14.4	10.9	--
Lake Wenatchee	20B5	1970	1/28	36	10.6	15.4	15.4	--

\# Not directly on this drainage
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\+ Snow water equivalent estimated from aerial stadia observation

APPENDIX 11

DRAINAGE BASIN and SNOW COURSE	No.	Elev.	SNOW COVER MEASUREMENTS 1966 Date of Survey	1966 Snow Depth (In.)	1966 Water Content (In.)	Past Record Water Content (In.) 1965	1964	1948-62 Avg.
WENATCHEE RIVER (Cont.)								
Leavenworth R. S.	20B17	1127	1/26	25	7.3	8.1	6.7	--
#Lyman Lake	20A23A	5900	Not Measured			37.7	32.5	--
Merritt	20B18	2140	1/28	41	13.4	18.6	18.4	--
Stevens Pass	21B1	4070	1/28	94	31.2	44.6	48.9	34.9
SQUILCHUCK CREEK								
Beehive Springs	20B3	4400	1/26	29	7.7	7.1	6.9	5.5*
Scout-A-Vista	20B4	3400	1/26	29	7.0	7.8	6.3	6.1*
STEMILT CREEK								
Jump-Off	20B8	4450	1/27	28	8.0	7.4	6.4	--
Stemilt Slide	20B6	5000	1/27	39	12.0	11.7	10.7	--
Upper Wheeler	20B7	4400	1/27	32	9.0	9.9	9.0	--
YAKIMA RIVER								
Ahtanum R. S.	21C11	3100	1/30	33	8.1	10.1	4.7	6.5*
#Blewett Pass No.2	20B2	4270	1/28	44	12.7	18.0	14.3	12.4*
Bumping Lake	21C8	3450	1/28	47	14.4	17.9	15.2	13.5
#Cayuse Pass	21C6	5300	2/1	143	53.3	63.9	81.6	60.3*
Clockum Pass	20B9	5370	Not Measured					
Cooke Creek	20B10	4123	2/1	26	7.3	--	--	--
Grouse Camp	20B11	5385	1/31	49	12.6	--	--	--
High Creek	20B12	2930	2/2	26	6.9	6.6	6.0	--
Lake Cle Elum	21B14M	2200	1/29	26	8.4	12.2	14.2	8.9
Manashtash	20C1	3935	2/2	16	4.5	4.9	5.1	--
Morse Lake	21C17	5400	1/27	103	32.4	45.4	47.0	39.8*
Nanum	20B13	3875	1/31	37	10.3	--	--	--
#Olallie Meadows	21B2	3625	1/31	93	33.0	45.3	45.6	30.1*
#Satus Pass	20D1	4030	1/31	49	17.1	14.6	9.5	--
#Stampede Pass	21B10	3000	1/28	82	18.0	37.7	33.9	33.6*
Trail Creek	20B14	3360	2/1	20	5.4	--	--	--
Tunnel Avenue	21B8	2450	1/29	50	17.3	24.8	27.9	18.7
Walters Flat	20B15	3360	2/2	30	8.1	8.5	6.6	--
White Pass (E Side)	21C28	4500	1/31	54	16.1	24.3	20.1	18.5*
White Pass (Leech L)	21C27	4500	1/31	66	21.6	29.2	29.0	--
AHTANUM CREEK								
Ahtanum R. S.	21C11	3100	1/30	33	8.1	10.1	4.7	6.5*

\# Not directly on this drainage
* Adjusted 1948-62 average

APPENDIX 12

DRAINAGE BASIN and SNOW COURSE	No.	Elev.	SNOW COVER MEASUREMENT 1966 Date of Survey	Snow Depth (In.)	Water Content (In.)	Past Record Water Content (In.) 1965	1964	1948-62 Avg.
LOWER COLUMBIA DRAINAGE								
ASOTIN CREEK								
Spruce Springs	17C4	5700	1/27	50	15.7	24.6	--	--
MILL CREEK								
Homestead	17C1	4030	1/28	32	9.4	8.9	8.4	7.0*
Martin Springs	17C2	4400	1/28	40	12.0	13.2	12.6	8.3*
Walla Walla Div.	18D13	2400	1/26	16	4.0	2.0	4.9	2.0*
KLICKITAT RIVER								
Satus Pass	20D1	4030	1/31	49	17.1	14.6	9.5	--
West Fork Cabin	21C15	3000	1/29	41	14.7	18.1	8.3	--
WHITE SALMON RIVER								
Cultus Creek	21C12	4000	1/27	95	36.2	39.9	35.5	30.1*
#Surprise Lakes	21C13A	4250	1/27	102	37.8	43.0	43.5	32.8*
WIND RIVER								
Oldman Pass	21D19	3100	1/26	68	27.8	25.4	14.8	--
LEWIS RIVER								
Blue Lake +	21C22a	4800	1/28	155	57.3	62.8	69.1	--
Bob's Trail	21C21	2200	1/27	52	20.6	18.8	14.3	--
Calamity Ridge +	22D1a	2500	1/28	31	12.4	4.8	2.8	--
Council Pass +	21C18a	4200	1/28	90	33.3	34.0	40.3	--
#Cultus Creek	21C12	4000	1/27	95	36.2	39.9	35.5	30.1*
Divide Meadow +	21C29a	5600	1/28	101	36.3	48.4	49.0	--
Grand Meadow	21C25	3500	1/28	61	22.3	26.6	18.8	--
Lone Pine Shelter	21C26	3800	1/28	89	36.4	38.0	30.3	--
Marble Mountain +	22C5a	3200	1/28	72	30.3	21.6	27.6	--
#Mosquito Meadows	21C19	4100	1/28	93	36.9	41.3	34.3	--
New Muddy River	22C16	2000	1/29	42	20.0	19.2	11.2	--

\# Not located directly on this drainage
* Adjusted 1948-62 average
\+ Snow water equivalent estimated from aerial stadia observation

APPENDIX 13

DRAINAGE BASIN and SNOW COURSE	No.	Elev.	SNOW COVER MEASUREMENT 1966 Date of Survey	Snow Depth (In.)	Water Content (In.)	Past Record Water Content (In.) 1965	1964	1948-62 Avg.
LEWIS RIVER (Cont.)								
Oldman Pass	21D19	3100	1/26	68	27.8	25.4	14.8	--
Smith Creek Road	22C4	2100	1/29	55	25.7	30.1	11.1	--
Spencer Meadow +	21C20a	3400	1/28	78	29.6	18.4	23.3	9.4*
Surprise Lakes	21C13A	4250	1/27	102	37.8	43.0	43.5	32.8*
Table Mountain +	21C24a	4200	1/28	97	36.8	40.4	43.9	--
Timbered Peak +	21D18a	3000	1/28	60	24.6	12.0	13.7	--
COWLITZ RIVER								
Cayuse Pass	21C6	5300	2/1	143	53.3	63.9	81.6	60.3*
Mosquito Meadows	21C19	4100	1/28	93	36.9	41.3	34.3	--
Ohanapecosh	21C32	2200	1/31	44	16.0	20.8	16.6	--
Packwood Lake	21C31	2870	1/27	35	13.6	14.8	7.8	--
Pigtail Peak	21C33	5900	1/31	113	40.2	59.0	56.2	--
Potato Hill	21C14	4500	1/29	70	26.1	29.9	23.0	19.7*
#White Pass (E Side)	21C28	4500	1/31	54	16.1	24.3	20.1	18.5*
#White Pass (Leech L)	21C27	4500	1/31	66	21.6	29.2	29.0	--
Willame Creek	21C30	3250	1/26	70	24.6	28.5	24.9	--
PUGET SOUND DRAINAGE								
NISQUALLY RIVER								
Ghost Forest	21C4	4550	1/28	83	31.3	37.3	41.0	30.6*
Longmire	21C3	2760	1/28	28	8.8	13.8	12.3	9.5*
New Paradise Park	21C35	5500	1/28	105	39.2	New Course		
Stem Glade	21C1	5050	1/28	111	39.8	56.2	58.6	48.4*
WHITE RIVER								
#Cayuse Pass	21C6	5300	2/1	143	53.3	63.9	81.6	60.3*
#Morse Lake	21C17	5400	1/27	103	32.4	45.4	47.0	39.8*
White R. Camp Gr.	21C34	4000	2/1	63	21.8	New Course		
GREEN RIVER								
Airstip	21B24	1800	1/24	26	7.2	7.2	10.2	--
Charley Creek	21B25	1200	1/24	14	4.3	0.0	3.2	--
Grass Mtn. No. 1	21B26	4000	1/24	48	17.0	17.0	21.2	--
Grass Mtn. No. 2	21B27	2900	1/24	50	17.8	18.5	20.8	--

\# Not directly on this drainage
* Adjusted 1948-62 average
\+ Snow water equivalent estimated from aerial stadia observation

APPENDIX 14

DRAINAGE BASIN and SNOW COURSE	No.	Elev.	SNOW COVER MEASUREMENT 1966 Date of Survey	Snow Depth (In.)	Water Content (In.)	Past Record Water Content (In.) 1965	1964	1948-62 Avg.
GREEN RIVER (Cont.)								
Grass Mtn. No. 3	21B28	2100	1/24	20	6.2	3.7	0.0	--
Lester Creek	21B29	3100	1/24	55	15.6	19.8	20.6	--
Sawmill Ridge	21B31	4700	1/24	69	20.3	32.6	35.2	--
Stampede Pass	21B10	3000	1/28	82	18.0	37.7	33.9	33.6*
Twin Camp	21B30	4100	1/24	48	14.8	26.0	25.8	--
SNOQUALMIE RIVER								
Olallie Meadows	21B2	3625	1/31	93	33.0	45.3	45.6	30.1*
SKAGIT RIVER								
#Cloudy Pass	20A22A	6500	Not Measured			29.0	23.0	29.7*
Devils Park	20A4	5900	1/27	80	26.5	29.7	36.0	31.9*
#Harts Pass	20A5A	6500	1/27	78	26.0	30.8	36.9	31.1*
Klesilkwa	Canada	3700	Late Report			8.6	11.2	10.7**
#Lyman Lake	20A23A	5900	Not Measured			37.7	32.5	--
New Tashme	Canada	2500	2/1	33	10.7	10.2	10.2	7.8
#Panorama Dome	21A5	4300	1/26	146	51.5	53.8	77.6	--
#Rainy Pass	20A9	4780	1/28	76	24.3	28.9	28.3	29.8*
BAKER RIVER								
Dock Butte +	21A11A	3800	2/1	131	45.8	40.3	--	--
Easy Pass +	21A7A	5200	2/1	149	52.2	48.0	--	--
Jasper Pass +	21A6A	5400	2/1	160	56.0	59.3	79.3	--
Marten Lake +	21A9A	3600	2/1	164	57.4	60.0	64.5	--
Mount Blum +	21A8a	5800	2/1	158	55.3	60.0	--	--
#Panorama Dome	21A5	4300	1/26	146	51.5	53.8	77.6	--
Rocky Creek +	21A12A	2100	2/1	64	22.4	28.0	22.2	--
Schreibers Meadow +	21A10A	3400	2/1	105	36.8	41.8	57.3	--
S. F. Thunder Cr. +	21A14A	2200	2/1	38	13.3	10.1	7.9	--
Watson Lakes +	21A8A	4500	2/1	140	49.0	46.7	54.4	--

\# Not directly on this drainage
* Adjusted 1948-62 average
\+ Snow water equivalent estimated from aerial stadia observation

APPENDIX 15

DRAINAGE BASIN and SNOW COURSE	No.	Elev.	SNOW COVER MEASUREMENTS 1966 Date of Survey	Snow Depth (In.)	Water Content (In.)	Past Record Water Content (In.) 1965	1964	1946-62 Avg.
NOOKSACK RIVER								
Panorama Dome	21A5	4300	1/26	146	51.5	53.8	77.6	--
OLYMPIC PENINSULA								
DUNGENESS RIVER								
Deer Park	23B4	5200	1/31	56	18.3	14.9	14.7	18.0*
MORSE CREEK								
Deer Park G. S.	23B13	4850	1/31	46	14.8	14.1	--	--
Morse Creek	23B12	5425	1/27	95	32.6	29.5	34.4	--
ELWHA RIVER								
Hurricane	23B3	4500	1/27	55	17.0	18.9	26.4	--
SKOKOMISH RIVER								
Black & White	23B7	4200	1/28	83	33.5	32.8	41.8	--
Black & White Lakes	23B6	4700	1/28	109	45.9	38.5	52.0	40.0*
Four Stream	23B10	3000	1/28	56	24.4	26.4	25.0	--
Home Sweet Home	23B5	5200	1/28	140	52.7	47.8	75.0	--
Sundown Pass	23B8	3900	1/28	104	44.1	42.4	50.5	--

* Adjusted 1948-62 average

Agencies Assisting with Snow Surveys

GOVERNMENT AGENCIES

Canada:

Department of Lands, Forests and Water Resources,
Water Resources Service, British Columbia

States:

Washington State Department of Conservation
Washington State Department of Natural Resources

Federal:

Department of the Army
    Corps of Engineers
U. S. Department of Agriculture
    Forest Service
U. S. Department of Commerce
    Weather Bureau
U. S. Department of the Interior
    Bonneville Power Administration
    Bureau of Reclamation
    Geological Survey
    National Park Service

PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company

OTHER PUBLIC AGENCIES

Okanogan Irrigation District
Wenatchee Heights Irrigation District

MUNICIPALITIES

City of Walla Walla
City of Tacoma
City of Seattle

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

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