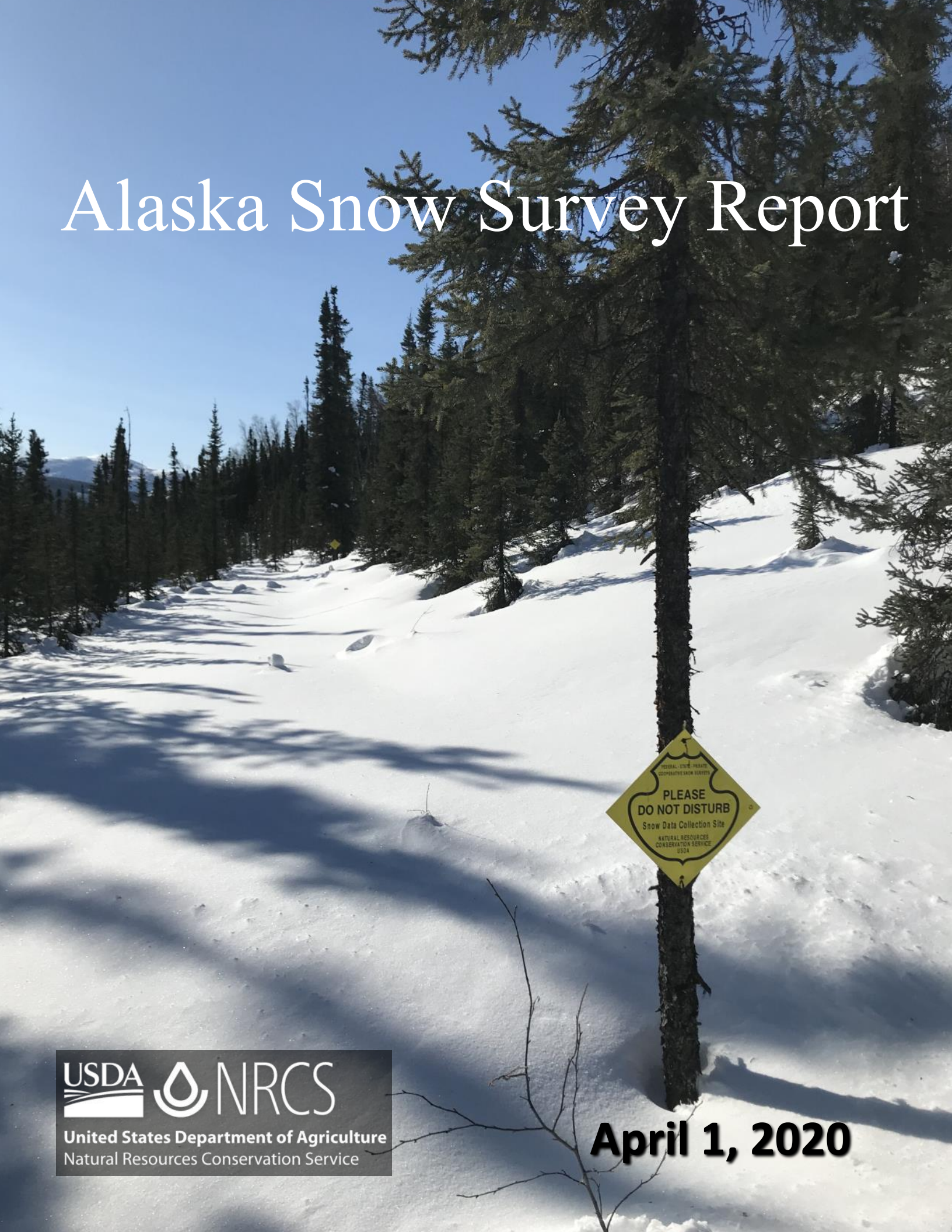
Alaska Snow Survey Report



USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

April 1, 2020

The USDA Natural Resources Conservation Service cooperates with the following organizations in snow survey work:

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  - Chugach National Forest
  - Tongass National Forest
- U.S. Department of Commerce
  - NOAA, Alaska Pacific RFC
- U.S. Department of Defense
  - U.S. Army Corps of Engineers
- U.S. Department of Interior
  - Bureau of Land Management
  - U. S. Fish and Wildlife Service
  - National Park Service

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- University of Alaska
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  - Water and Environment Research

Alaska Public Schools
- Mantanuska-Susitna Borough School District
- Eagle School, Gateway School District

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- Ministry of the Environment
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United States Department of Agriculture

NRCS Natural Resources Conservation Service

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Cover photo: Caribou Mine Snow Course in the Salcha Rive Drainage had and average snow depth of 50" compared to 3" last year. The snow course had a water content of 9.9" which is 210% of normal.

Table of Contents

General Overview

SnowPack

Much of the Interior and Western Alaska made greater-than-average snowpack gains during March.

The snowpack across much of Alaska is substantial. The Interior, western Alaska, and Southeast Alaska all have above normal snowpacks. The Kenai Peninsula has below normal snowpack, as do other isolated portions of Southcentral.

The Tanana and upper Kuskokwim basins have bounteous snowpacks. These regions have, in general, twice the normal amount of snow. Several snow courses in these basins have set, or nearly set, new snowpack records. With 60 years of measurements, the Fielding Lake snow course, near where the Richardson Highway passes through the Alaska Range, set a new record high with 76" of snow with 22.5" of water content, or 227% of normal. In the lower Tanana Valley, the 9 sites in the Chena basin average 188% of normal.

This robust snowpack continues down river towards Galena, where sites with 15 years of measurements set new highs. The Koyukuk and central Yukon Valleys also had above normal snowpacks, though the Koyukuk snowpack isn't as copious as the last two winters.

Northwest Alaska, which did have low snowpack, made significant gains in March to have near normal snowpack.

To the east, in the Yukon Territory, the Upper Yukon basin has well above normal snowpack, more than twice as much snow as last year! The 32 sites in this region average 133% of normal.

In Southcentral Alaska, the Matanuska and Susitna Basins have above normal snowpack. West of the Talkeetna Mountains, it's been since 2005 that there has been such abundant snow.

The Copper Valley and Northern Cook Inlet have close to normal snowpacks, while the Kenai Peninsula is the snow-famished land with lackluster snowpacks near two-thirds normal.

		Basin Index	
		Current	Last Year
Alaska Statewide Snowpack	**# of Sites**	**Percent of Median**	**Percent of Median**
Upper Yukon Basin	32	133	50
Central Yukon Basin	6	117	104
Tanana Basin	22	180	72
Koyukuk Basin	2	132	175
Kuskokwim Basin	2	197	98
Copper Basin	17	109	74
Matanuska-Susitna Basin	24	155	91
Northern Cook Inlet	12	94	52
Kenai Peninsula	19	64	60
Western Gulf of Alaska	9	85	69
Southeast Alaska	5	131	45

General Overview Continued

Precipitation

Much of the Interior and western Alaska received above to much above monthly precipitation during March. In contrast, regions along the Gulf of Alaska were caught with below normal amounts. The Arctic was mixed; however, many sites reported above normal precipitation.

Locations in the Central Yukon drainage and Tanana Valley caught between 200%-500% of normal precipitation. The 8 measured sites in the Tanana averaged 417% of normal. This above normal trend continued west and north. The 4 sites in the Koyukuk averaged 237% of normal, while sites on the west coast caught 150-300% of normal precipitation.

Upper Cook Inlet and the Matanuska-Susitna Basins were generally above normal, too. Sites in this region varied from near normal to 300% of normal.

However, most of the Kenai Peninsula received well below normal March precipitation. The ten reporting sites on the Peninsula averaged only 32% of normal. Similarly, to the east, Prince William Sound sites averaged only 26% of normal and down in Southeast, sites reported between 30-77% of normal precipitation.

Temperature

Most of the reporting sites across the state modestly close to average, varying from -4°F to +4°F departure from monthly normals. The Arctic was the outlier for March, where Utqiaġvik was 11°F above normal for the month.

Other locations above normal were Nome and Fort Yukon, which were both 4°F above normal for March. On the cold side of monthly normals were Gulkana at 4°F below normal and Anchorage at 3°F below normal. Talkeetna and Homer were both 2°F below normal for the month.

Bettles, Bethel, Juneau, Cordova, and Fairbanks were all within 1°F of monthly March normal temperatures.

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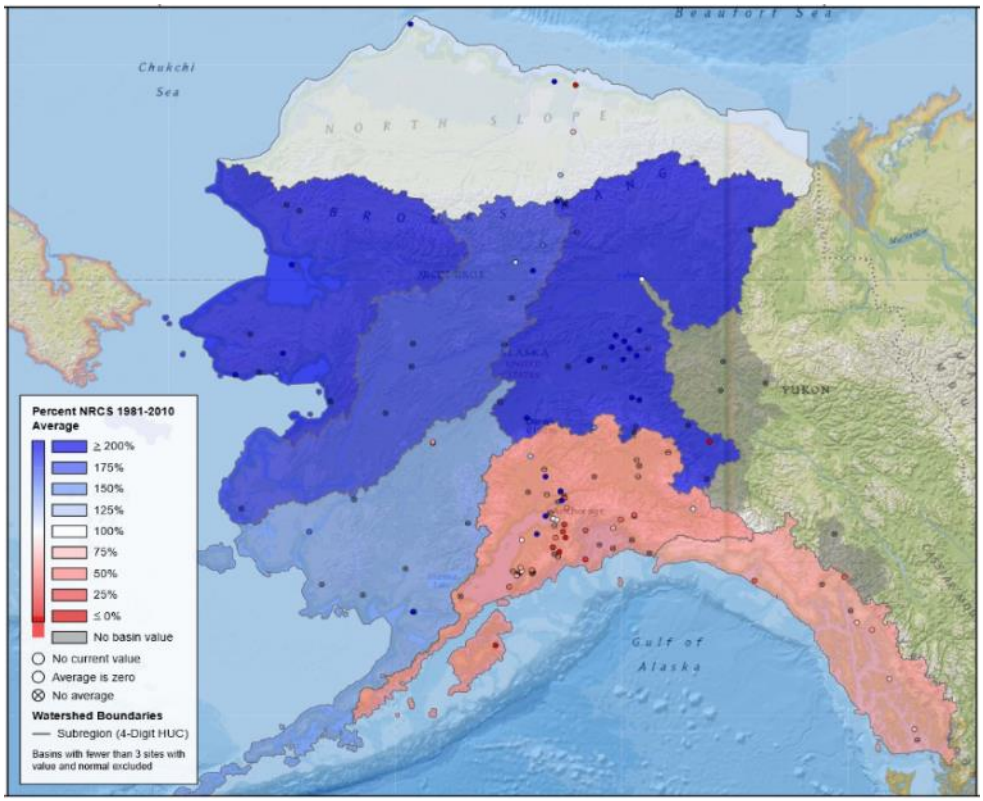
Alaska Statewide Precipitation Maps

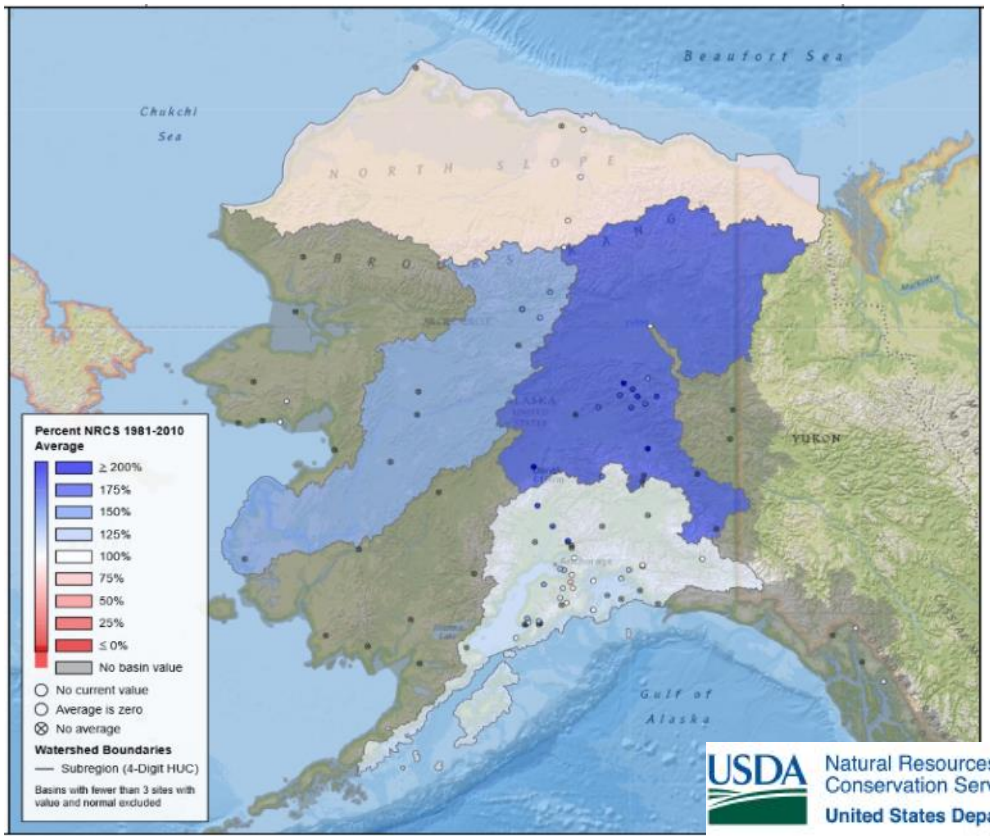
Monthly Precipitation for March, 2020

(% of NRCS 81-2010 Average)



Water Year-to-date Precipitation (Oct. 1. 2019 –March 31, 2020)

(% of NRCS 81-2010 Average)



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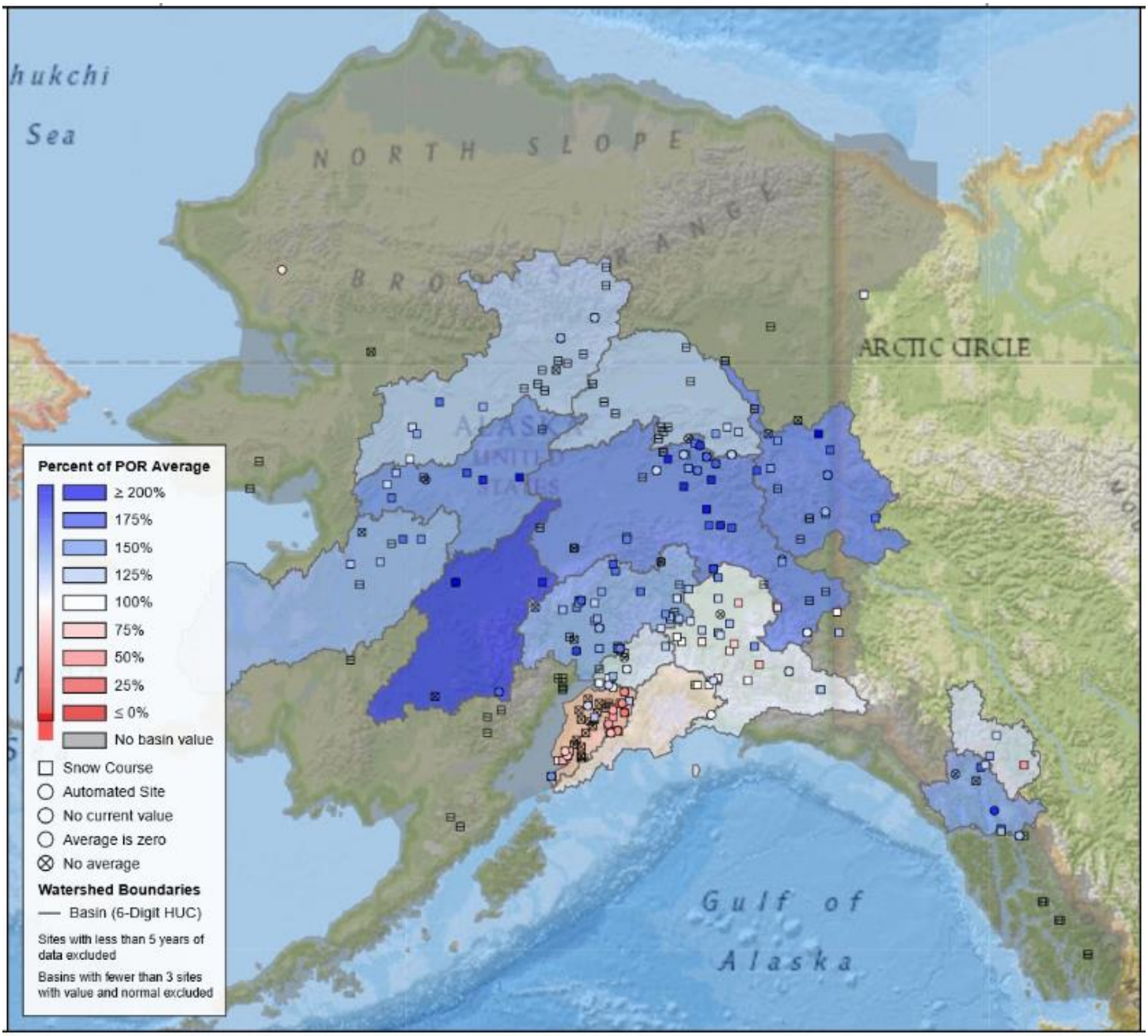
Alaska Statewide Snowpack Map

Based on April 1st, 2020 Snow Water Equivalent



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Streamflow Forecasts

FORECAST POINT*	Percent of Ave. Flow	Period
Yukon River at Eagle	123	April - July
Porcupine River nr Int'l Boundary……	102	April - July
Yukon River near Stevens Village	119	April - July
Tanana River at Fairbanks	130	April - July
Tanana River at Nenana	123	April - July
Little Chena River near Fairbanks	133	April - July
Chena River near Two Rivers	148	April - July
Salcha near Salchaket	152	April - July
Kuskokwim River at Crooked Creek	121	April - July
Sagvanirktok River near Pump Station 3	136	April - July
Kuparuk River near Deadhorse	90	April - July
Gulkana River at Sourdough	132	April - July
Little Susitna River near Palmer	144	April - July
Talkeetna River near Talkeetna	131	April - July
Ship Creek near Anchorage	105	April - July
Kenai River at Cooper Landing	91	April - July
Bradley Lake Inflow	102	April - July
Taiya River nr Skagway	110	April - July

Snowmelt Runoff Index (SRI): for streams which no longer have stream gauging stations

FORECAST POINT	INDEX
Koyukuk River at Hughes……..	1.5
MF Koyukuk R near Wiseman ……..	1.5
Slate Creek at Coldfoot……..	0
Beaver Creek above Victoria Creek……..	—
Birch Creek below South Fork……..	1.5
Caribou Creek at Chatanika……..	—
Susitna River near Gold Creek……..	2
Chulitna River near Talkeetna……..	2
Deshka River at mouth near Willow……..	2
Montana Creek at Parks Highway……..	1
Willow Creek near Willow……..	2
Skwentna River at Skwentna……..	—
Chuitna River near Tyonek……..	—
Campbell Creek near Spenard……..	0
Indian Creek at Indian……..	-2.5
Bird Creek at Bird Creek ……..	-2.5
Glacier Creek nr Girdwood ……..	-0.5
Six Mile Creek near Hope……..	-2.0
Resurrection Creek near Hope……..	—
Grouse Ck at Grouse Lake Outlet nr Seward ……..	-2.5
Anchor River near Anchor Point ……..	-2.5
Deep Creek near Ninilchik……..	-2.5
Ninilchik River near Ninilchik……..	-2.5
Fritz Creek near Homer……..	-2
Skagway River at Skagway……..	2
Municipal Watershed C nr Petersburg ……..	—
Gold Creek near Juneau……..	2.0

Index	Key:
-2 to -3	much below average snowmelt runoff
-1 to -2	below average snowmelt runoff
-1 to +1	average snowmelt runoff
+1 to +2	above average snowmelt runoff
+2 to +3	much above average snowmelt runoff

HOW FORECASTS ARE MADE

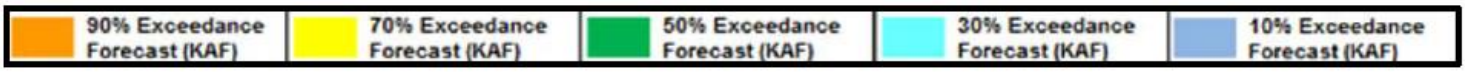
Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snow courses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. These forecasts are coordinated between hydrologists in the Natural Resources Conservation Service and the National Weather Service. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

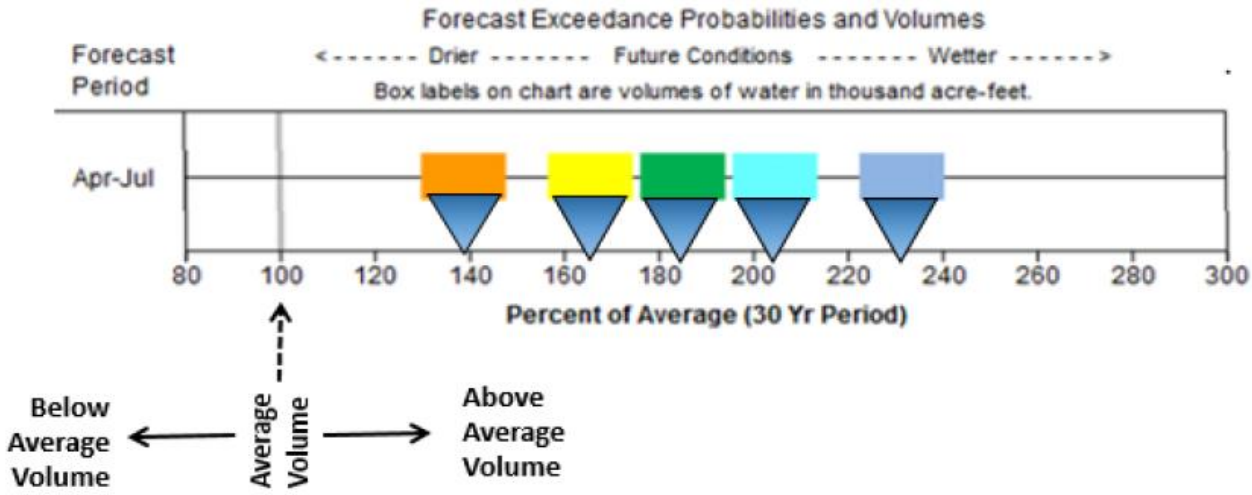
The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

How to Interpret the Streamflow Forecast Graphic:

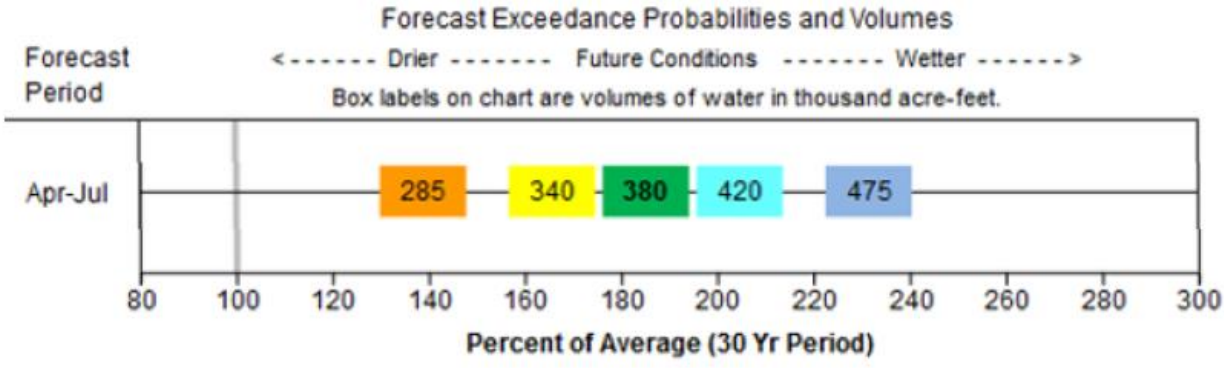
This graphic provides a visual alternative to the forecast tables the NRCS has presented for years. It gives both the volume and percent of average of each of the five forecast exceedances. The five colored boxes represent each forecast's five exceedances.



The center of each forecast exceedance box corresponds to that exceedance's percent of average on the horizontal axis. In this case the green 50% exceedance forecast box is centered over 185% of average streamflow. If drier future conditions occur the orange box (90% exceedance) is 139% of average. If wetter future conditions occur the darker blue box (10% exceedance) is 232% of average. In some cases when exceedance volumes are similar, the width of the colored boxes gets squeezed. Still use the center of the box to determine its percent of average. The width of the box is irrelevant.

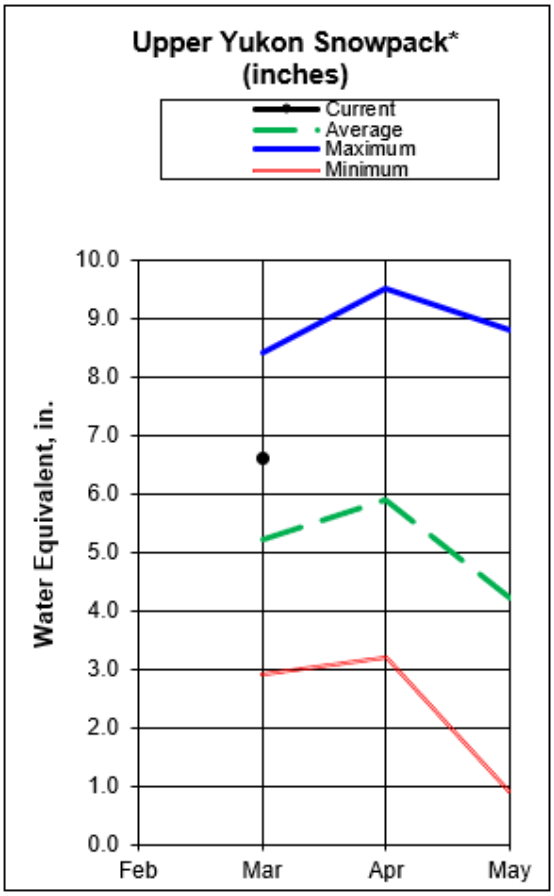


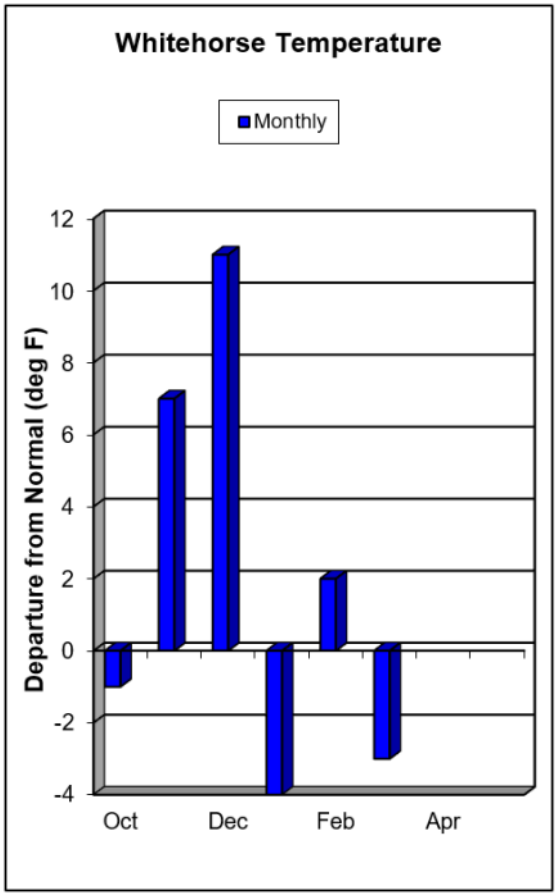
Boxes to the right of the gray 100% of average line represent above average volumes. Conversely, any boxes to the left of the gray 100% line represent below average volumes. In this case all forecast exceedances are for above average April-July volumes. Averages are based on the 1981-2010 period. The number inside or above each colored box represents the volume of that exceedance forecast in thousand acre-feet (KAF). In this case the green 50% exceedance forecast volume is 380 KAF which is centered above 185% of average. Volumes decrease with drier future conditions (left of green box) and increase with wetter conditions (right of green box).



Forecast graphics for other basins are available at: https://www.wcc.nrcs.usda.gov/wsf/Fcst_Chart/
This is an new product. Please submit likes, dislikes and questions to Daniel.Fisher@ak.usda.gov

Upper Yukon Basin





Snowpack

The Upper Yukon Basin retains above normal snowpack going into April and has more than twice the amount of snow as it did last year at this time. A lot of water will be coming down the Yukon this year.

The three snow courses near Dawson average 157% of normal with Midnight Dome Snow Course gaining a new 46-year record high and Grizzly Creek with a second highest all-time reading.

Likewise, two snow courses in the Stewart-Pelly drainages set new record highs. These were: Pelly Farm (37-years on record) and Calumet (44-years on record). The 12 sites in these basins average 138% of normal snowpack.

The eight sites in the White River Basin recorded an average of 136% of normal snowpack, ranging from 103% at Beaver Creek to 150% at Mt. Berdoe Snow Course. Last year, three of the eight sites were melted out at this time.

The snowpack in the basin above Whitehorse is also above normal. The ten sites in this location average 120% of normal. However, Atlin Lake Snow course was the sole snow course in the Yukon Territory to be measured with a below normal snowpack, only 56% of normal.

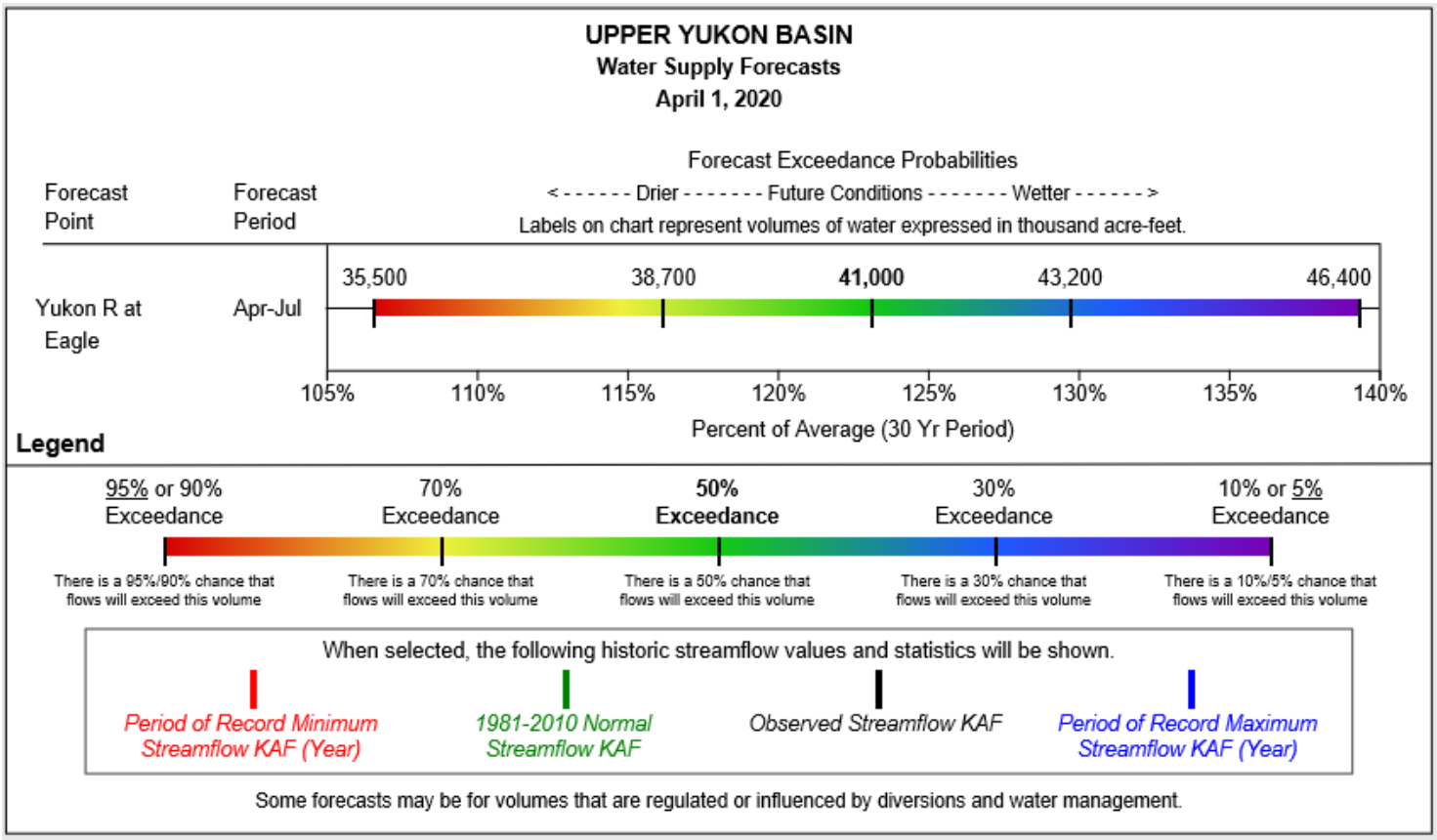
Upper Yukon Basin

Snowpack Data

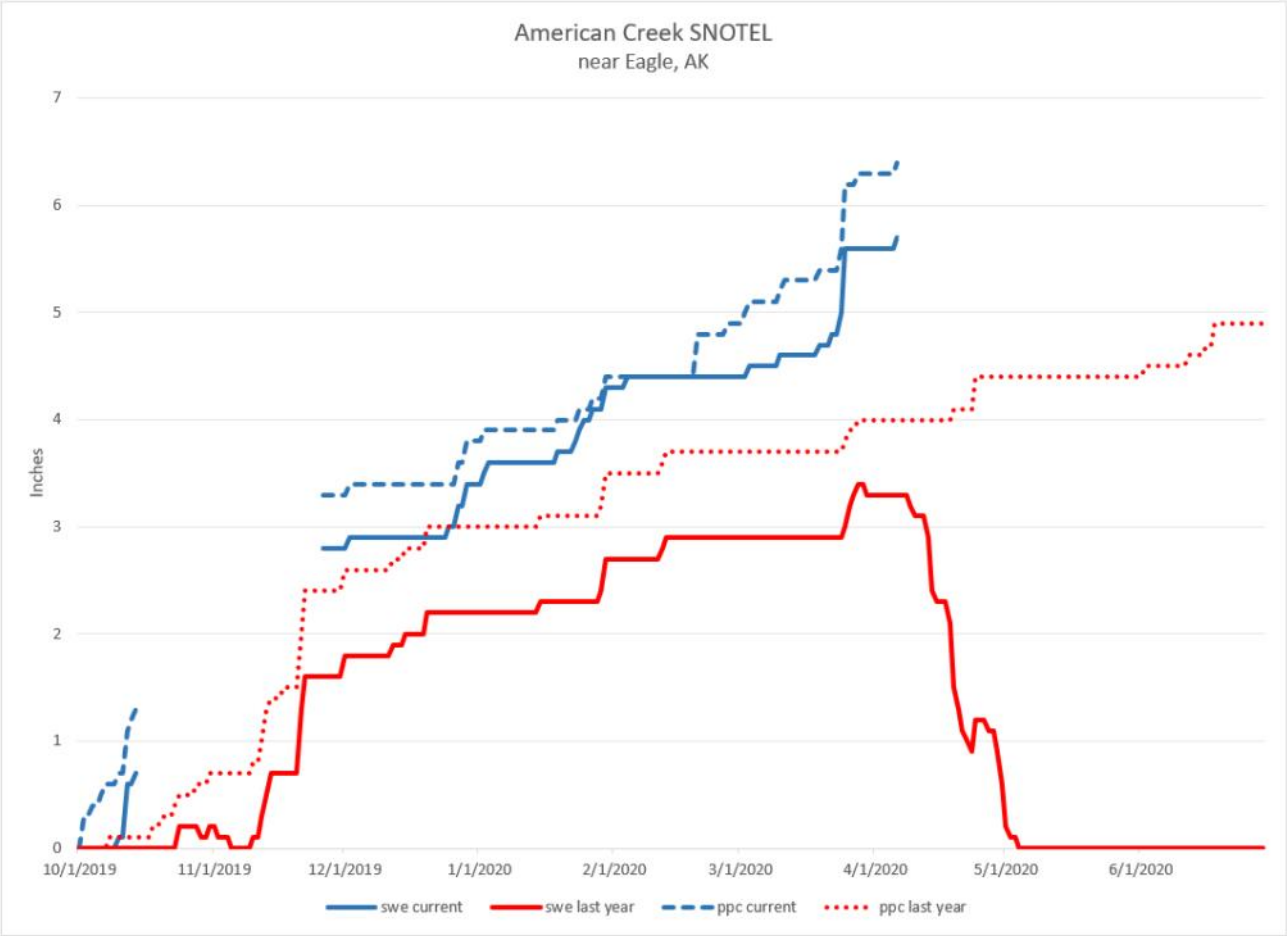
Site Name	Elev.	Snow Depth (in)			Water Content (in)		
		Current	Last Year	1981-2010 Normal	Current	Last Year	1981-2010 Normal
Beaver Creek	2150	19	9	17	3.3	2.0	3.2
Burns Lake	3650	48	25	39	12.6	6.0	8.9
Burwash Airstrip	2660	13	0	10	2.5	0.0	1.8
Calumet	4300	54	17	36	12.0	3.7	7.5
Casino Creek	3495	37	18	26	7.3	2.9	5.0
Chair Mountain	3500	26	12	20	5.1	2.4	3.5
Eagle Plains	2330	35	30	31	7.4	7.7	6.6
Eagle River	1115	27	28	26	5.3	5.8	5.2
Edwards Lake	2720	35	15	30	7.9	3.2	6.4
Finlayson Airstrip	3240	31	13	20	6.8	3.1	4.2
Fuller Lake	3695	39	22	33	9.8	4.1	7.7
Grizzly Creek	3200	43	22	31	10.9	4.7	6.8
Hoole River	3400	37	---	26	9.3	---	5.2
Jordan Lake	3050	35	9	25	9.0	1.9	5.2
King Solomon Dome	3540	44	15	30	8.8	3.3	6.3
Macintosh	3805	25	0	22	5.3	0.0	4.0
Mayo Airport	1770	33	0	18	6.8	0.0	4.2
Meadow Creek	4050	50	24	45	13.5	5.5	10.9
Midnight Dome	2805	44	19	28	9.9	4.3	5.8
Montana Mtn.	3350	28	8	26	6.7	2.1	5.9
Morley Lake	2700	29	9	26	6.5	1.8	5.8
Mt. Berdoe	3395	31	5	24	6.3	1.3	4.2
Mt. Mcintyre B	3600	34	14	28	7.6	3.6	6.2
Mt. Nansen	3350	23	6	18	4.4	1.3	3.2
Old Crow	980	26	28	24	5.3	5.5	4.4
Pelly Farm	1550	23	1	16	7.0	0.2	3.0
Plata Airstrip	2725	42	13	33	9.9	3.6	7.6
Rackla Lake	3410	43	24	37	10.2	6.0	7.8
Riffs Ridge	2130	34	23	29	7.1	5.2	5.7
Rose Creek Faro	1080	31	6	---	6.6	1.2	---
Russell Lake	3480	46	25	37	10.5	5.9	8.9
Satasha Lake	3630	22	0	20	4.8	0.0	3.8
Summit	985	34	28	35	8.2	7.6	9.9
Tagish	3540	28	10	26	6.0	2.5	6.0
Twin Creeks	2950	36	15	33	8.7	3.6	7.3
Whitehorse Airport	2300	22	6	20	4.9	1.6	4.0
Williams Creek	3000	26	7	20	5.7	1.8	3.8
Withers Lake	3200	46	22	39	11.5	6.0	8.8

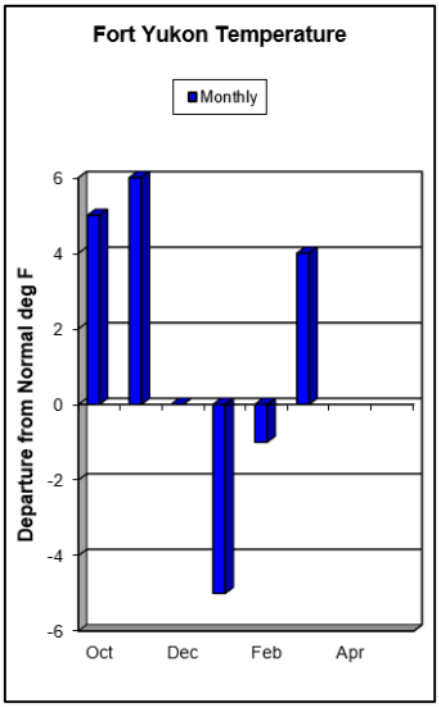
**Estimate*

Streamflow Forecasts



Central Yukon Basin





Snowpack

The measured snowpack in the Central Yukon Basin remains above normal and made greater-than-normal gains during March.

Snowpack in the Yukon-Charlie is much above normal. Most of the sites in this area are recording the deepest readings in their 15-year records. The American Creek SNOTEL site near Eagle, AK is at a nine-year record high at 150% of normal.

The sites in the White Mountains are also above normal, ranging from 117% to 150% of average.

Snowpack in the Upper Porcupine Basin is slightly above normal.

Central Yukon Basin

Snowpack Data

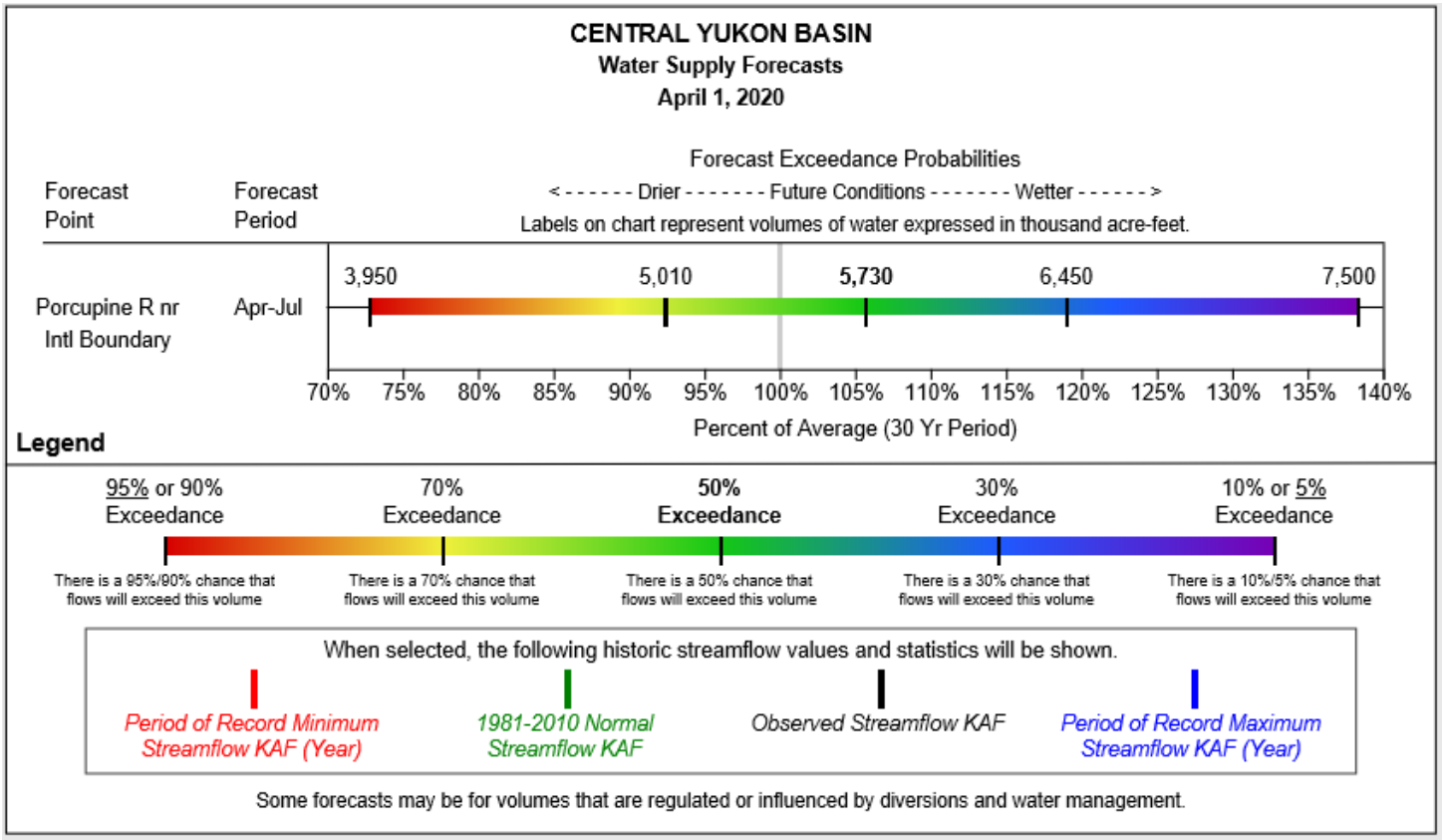
Site Name	Elev.	Snow Depth (in)			Water Content (in)		
		Current	Last Year	1981-2010 Normal	Current	Last Year	1981-2010 Normal
American Creek	1050	31	11	---	5.6	3.3	---
Atigun Pass	4800	39	49	---	---	---	---
Borealis	1330	---	18	25	---	4.5	4.8
Boundary	3500	---	19	26	---	4.8	5.3
Cathedral Creek	1800	48	---	---	9.4	---	---
Chicken Airstrip	1650	---	11	16		2.8	3.2
Circle Hot Springs	860	27	14	24	5.3	3.9	4.1
Coal Creek	1000	30	10	---	5.5	2.9	---
Copper Creek	2000	23	0	---	4.6	0.0	---
Crescent Creek	2600	29	0	---	5.9	0.0	---
Eagle Summit	3650	6	10	---	---	---	---
Fort Yukon	430	---	18	20	---	3.8	3.6
Fort Yukon SNOTEL	430	21	18	---	---	---	---
Fossil	1400	---	15	24	---	3.6	4.8
Graphite Lake	600	---	7	---	---	2.0	---
Hess Creek	1000	---	---	26	---	---	5.0
Jack Wade Jct	3585	38	24	---	7.3	4.0	---
Lost Chicken Hill	2150	---	13	18	---	3.1	4.0
Lower Beaver Creek	400	---	13	---	---	3.9	---
Midnight Dome	2805	44	19	28	9.9	4.3	5.8
Mt. Fairplay	3100	---	11	21		3.0	4.6
Old Crow	980	26	28	24	5.3	5.5	4.4
Ptarmigan Creek	2270	32	20	24	6.9	3.9	4.4
Seven Mile	600	---	---	26	---	---	4.9
Stack Pup Creek	1620	25	13	25	4.8	3.1	4.0
Step Mountain	2850	56	16	---	11.2	4.5	---
Thirty Mile	1350	---	---	34	---	---	7.6
Three Fingers	3350	---	27	---	---	7.6	---
Upper Nome Creek	2520	45	26	---	9.9	---	---
Vunzik Lake	500	---	9	---	---	2.6	---
Windy Gap	1900	---	24	26	---	5.3	5.7
Wolf	1200	---	17	23	---	4.4	4.2

**Estimate*

Precipitation

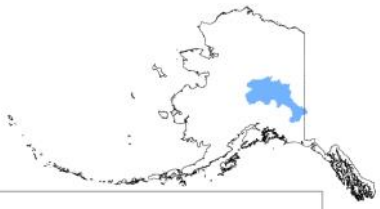
Site Name	Elev.	Inches Accumulated since October 1st			
		This Year	Last Year	1981-2010 Normal	% of Normal
American Creek	1050	6.3	4.0	---	---
Atigun Pass	4800	5.8	6.6	5.6	104%
Eagle Summit	3650	8.0	5.0	5.3	151%
Fort Yukon	430	4.0	3.8	3.6	111%
Jack Wade Jct	3585	7.6	4.2	---	---
Upper Nome Creek	2520	11.6	6.9	5.2	223%

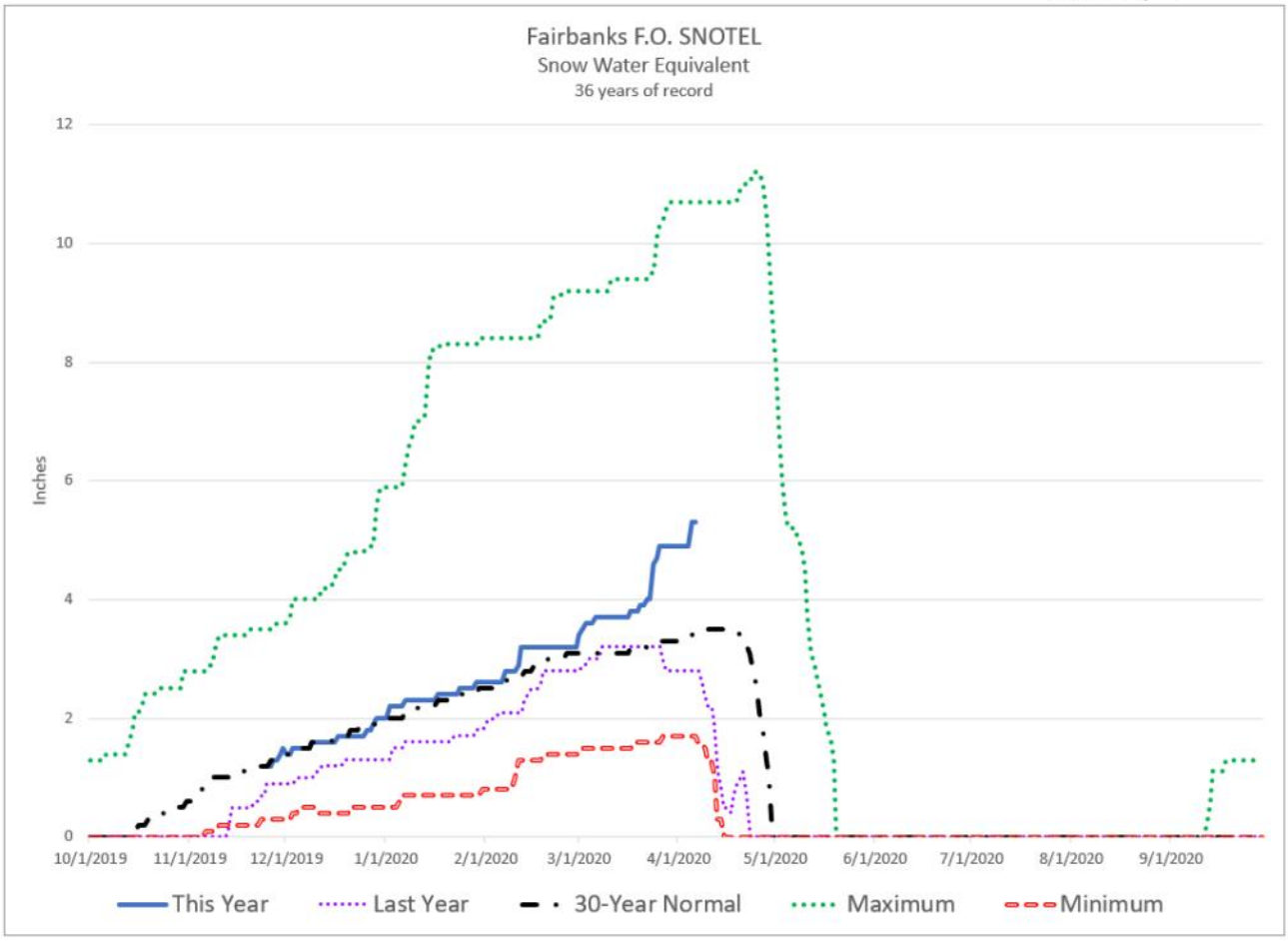
Streamflow Forecasts

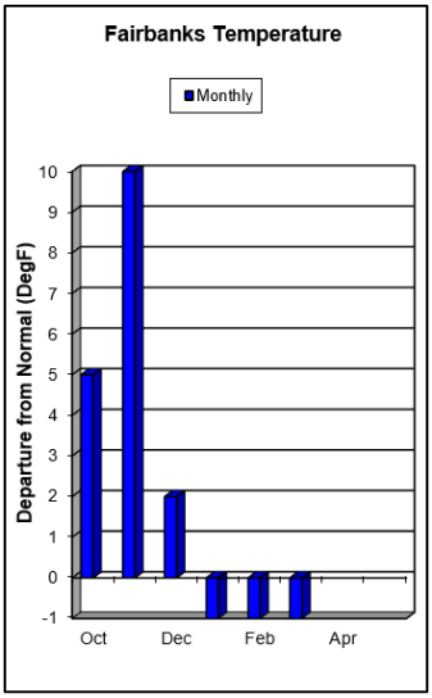


Forecast Point	Forecast Period	% of Average	Maximum(%)	Minimum(%)	50% Exceedance (KAF)	30yr Average (KAF)
Yukon R near Stevens Village	Apr-Jul	119	132	106	57400	48100

Tanana Basin







Snowpack

The snowpack in the Tanana Basin continues to have much above normal snowpack. Indeed, most locations made record gains in snowpack during March. Most locations gained 4 to 10 times normal snowpack during the month.

The only part of the basin with below normal snowpack is the very upper basin near the Wrangell Mountains in the Nabesna River Valley, but even this area made gains and is near 80% of normal.

Going down valley the snowpack quickly climbs to above normal stature. The five sites indexed near Delta Junction average 209% of normal. The Granite Creek SNOTEL site recorded its second highest reading in 32 years, just less than in 1991. Fielding Lake snow course set its new 60-year record high with 218% of normal snowpack.

The Fairbanks area made hearty gains over March and has solidly above normal snowpacks. The Chena basin sites averaged 188% of normal snowpack and the Chatanika Valley sites averaged 202% of normal.

Tanana Basin

Snowpack Data

Site Name	Elev.	Snow Depth (in)			Water Content (in)		
		Current	Last Year	1981-2010 Normal	Current	Last Year	1981-2010 Normal
Bonanza Creek	1150	---	12.0	21	---	3.6	4.0
Caribou Creek	1250	---	7.0	20	---	2.2	3.8
Caribou Mine	1150	50	3.0	24	9.9	0.8	4.7
Caribou Snow Pillow	900	---	12	20.0	---	3.9	3.9
Chisana	3320	17	13.0	---	4.0	2.9	4.6
Cleary Summit	2230	53	27.0	28	12.2	5.7	5.2
Colorado Creek	700	33	8	20.0	6.5	1.6	3.6
Fairbanks F.O.	450	27	9.0		4.9	2.8	3.3
Faith Creek	1750	38	18.0	26	8.0	4.5	4.8
Fielding Lake	3000	76	30	40.0	22.5	7.9	9.9
Fielding Lake SNOTEL	3000	59	30.0		17.4	7.4	---
Fort Greely	1500	31	0.0	17	5.8	0.0	3.2
French Creek	1800	48	9.0	24	11.3	2.1	5.2
Gerstle River	1200	31	---	17.0	5.7	---	3.1
Granite Creek	1240	---	---	18	---	---	3.6
Granite Crk	1240	33	0.0	---	7.3	0.0	3.8
Kantishna SNOTEL	1550	31	18.0	26.0	8.7	4.2	5.1
Lake Minchumina	730	---	14.0	20	---	3.2	3.8
Little Chena Bottom	1100	31	12.0	18	6.0	4.3	3.2
Little Chena Ridge S.C.	2000	32	17	27.0	6.8	5.0	5.4
Little Chena Ridge SNOTEL	2000	29	15	---	6.7	5.0	4.9
Look Eyrie	5040	151	---	---	---	---	---
Lost Creek	3030	16	8.0	18	2.8	1.7	3.7
Monument Creek	1850	42	15.0	26	9.4	4.4	4.6
Monument Creek SNOTEL	1850	41	12	---	8.5	3.7	4.6
Mt. Ryan SNOTEL	2800	46	28.0	---	10.7	7.0	5.1
Mt. Ryan S.C.	2800	49	31.0	29	11.0	7.2	6.0
Munson Ridge S.C.	3100	58	28.0	35	14.7	5.8	7.9
Munson Ridge SNOTEL	3100	62	25.0	---	12.5	6.0	6.8
Nenana SCAN	415	26	3.0	---	---	---	---
Rock Creek Bottom	2250	35	0.0	18	6.7	0.0	3.9
Shaw Creek Flats	980	28	0.0	14	5.8	0.0	2.9
Teuchet Creek S.C.	1640	36	10.0	22	7.0	4.0	3.8
Teuchet Creek SNOTLE	1640	31	7.0	---	7.2	3.1	3.8
Tok Junction	1650	27	9.0	20	5.2	2.1	3.5
Upper Chena S.C.	3000	50	---	31	12.2	---	6.5
Upper Chena Pillow S.C.	2850	54	---	---	10.9	---	---
Upper Chena Pillow SNOTEL	2850	52	26.0	---	8.1	---	6.8

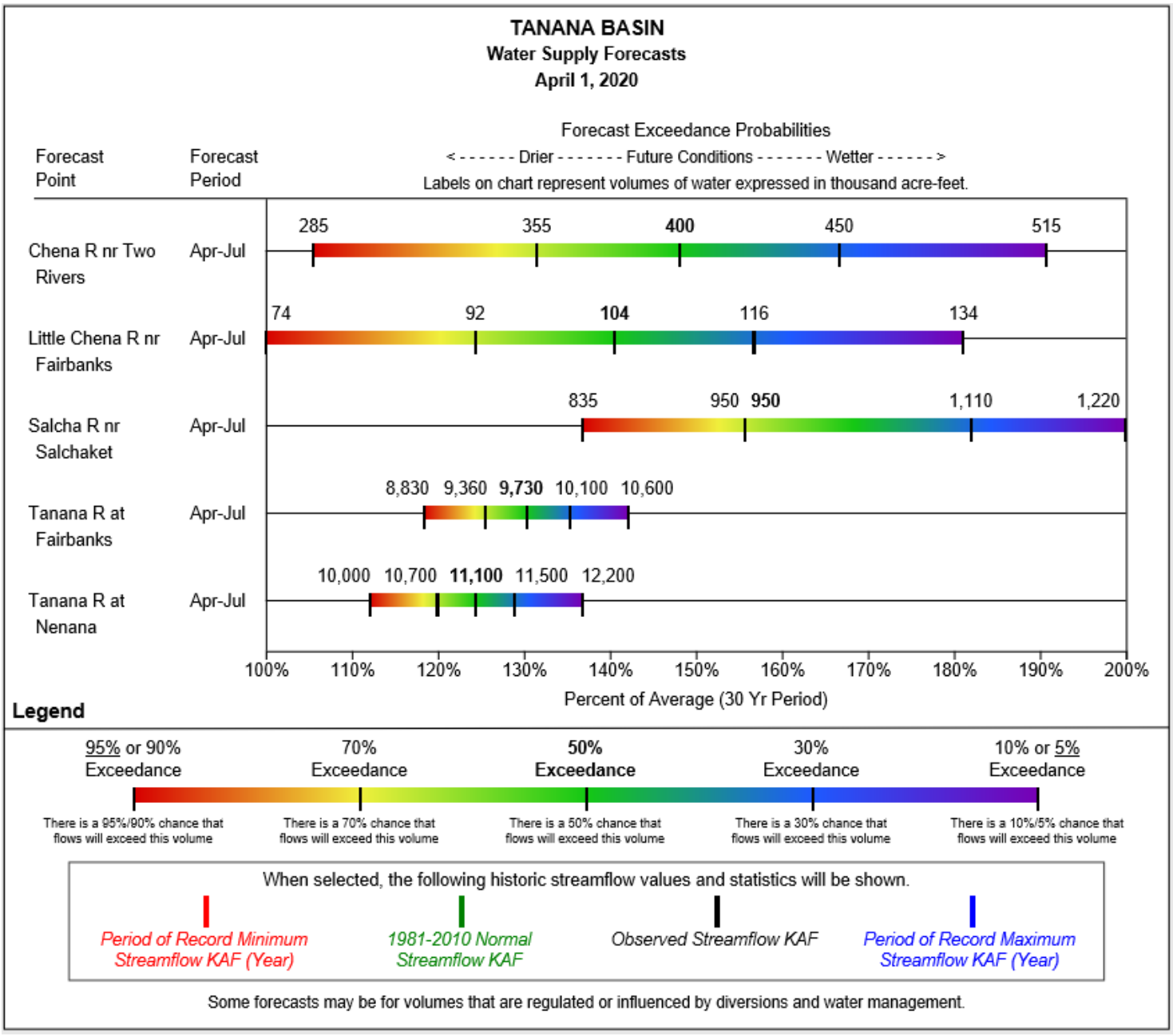
**Estimate*

Precipitation

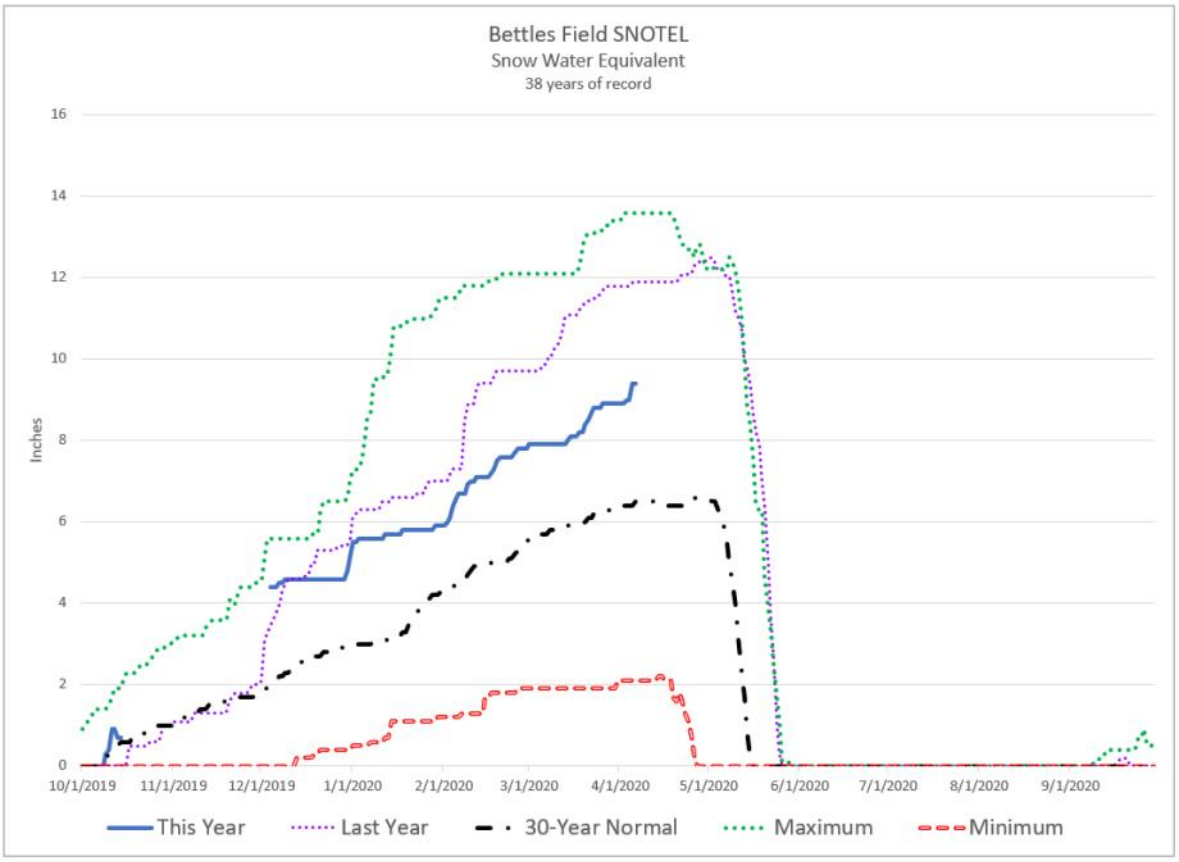
Inches Accumulated since October 1st

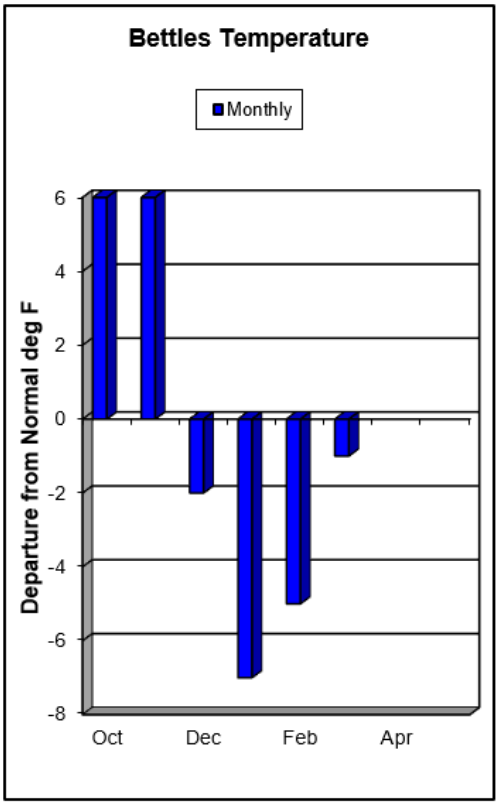
Site Name	Elev.	This Year	Last Year	1981-2010 Normal	% of Normal
Chisana	3320	4.8	3.2	---	---
Fairbanks F.O.	450	7.6	3.5	4.5	169%
Fielding Lake	3000	17.4	9.6	---	---
Granite Crk	1240	8.2	2.3	4.1	200%
Kantishna	1550	9.7	4.9	4.6	211%
Little Chena Ridge	2000	9.4	4.9	5.4	174%
Monument Creek	1850	9.9	4.9	5.4	183%
Mt. Ryan	2800	10.3	6.0	5.7	181%
Munson Ridge	3100	13.2	6.7	7.6	174%
Nenana	415	7.6	3.9	---	---
Teuchet Creek	1640	7.3	4.2	4.3	170%
Upper Chena	2850	12.1	6.4	6.7	181%

Streamflow Forecasts



Western Interior Basins





Snowpack

Koyukuk

The Koyukuk Basin continues to have above normal snowpack, but less than last year. Bettles Field SNOTEL gained 1.0 inch of Snow Water Content over March and is 135% of normal.

Kuskokwim

The Kuskokwim basin continues to have much above normal snowpack, nearly twice normal. The three snow sites in this basin all set new record highs. Telaquana Snow Course made record gains during March and was measured with 7.6” of water content, 165% of normal, a 27-year record.

Lower Yukon

The Lower Yukon has above normal snowpack. The three Aerial Markers between Galena and Tanana recorded the deepest snowpack in their 14-year record. Similarly, down river from Galena, sites were measured with deeper-than-normal conditions, with estimated water contents averaging 148% of normal.

Western Interior Basins

Snowpack Data

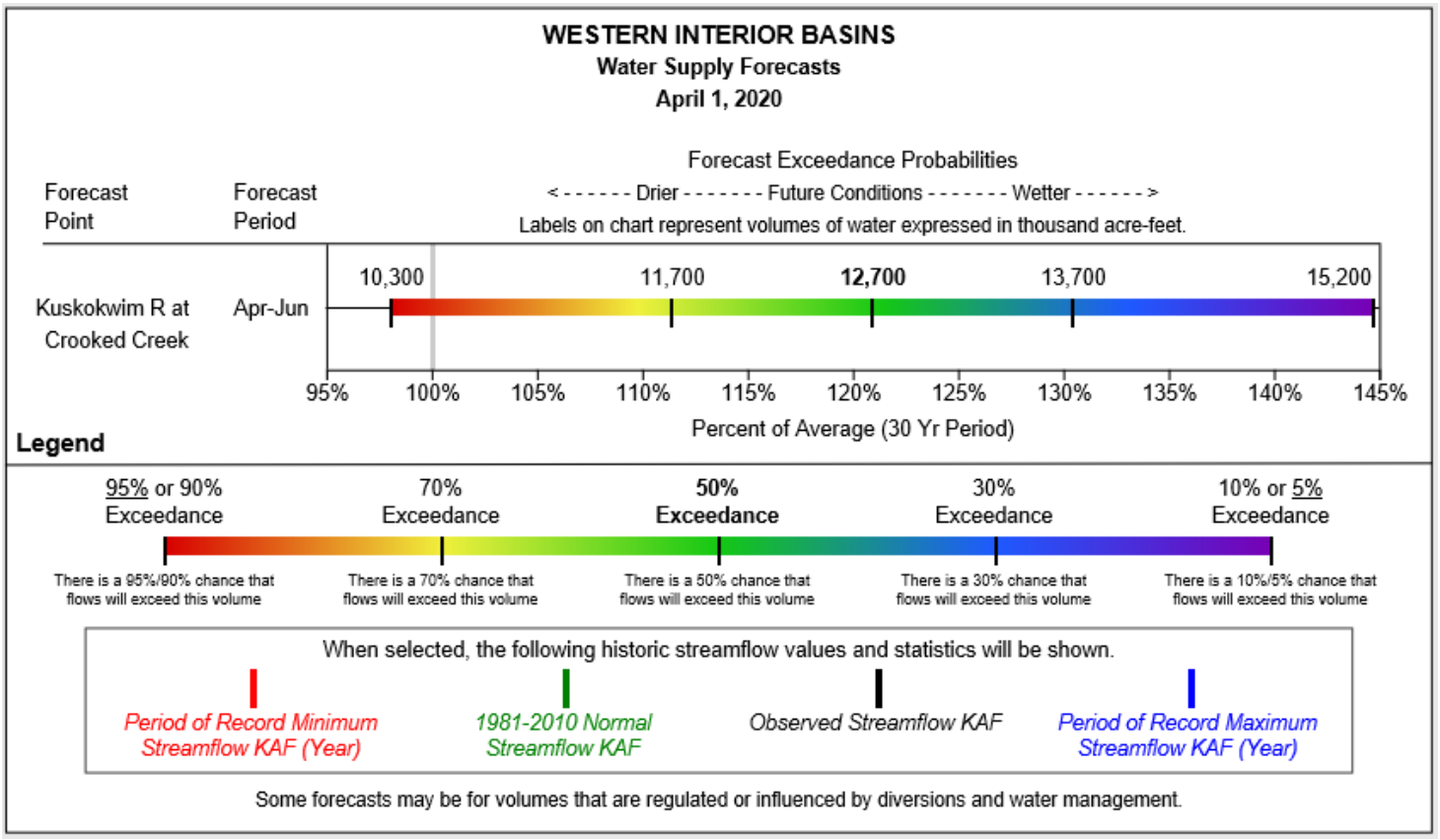
Site Name	Elev.	Snow Depth (in)			Water Content (in)		
		Current	Last Year	1981-2010 Normal	Current	Last Year	1981-2010 Normal
Koyukuk							
Bettles Field	640	38	43	---	8.9	11.8	6.4
Bonanza Forks	1200	---	---	26	---	---	5.2
Cloverleaf	170	29	25	---	8.7	7.7	---
Coldfoot	1040	37	41	---	8.0	10.6	6.4
Colville Bend	170	30	29	---	7.1	8.1	---
Disaster Creek	1550	---	---	22	---	---	4.0
East Chalatna	430	---	25	---	---	7.4	---
Gobblers Knob	2030	12	14	---	---	---	---
Hozatka Lake	206	22	22	---	---	---	---
Huggins Creek	290	40	29	---	9.1	7.8	---
Jr Slough	160	29	27		7.1	7.4	---
Kaldoyeit	750	---	34	21	---	10.6	4.2
Kanuti Chalatna	670	---	30	26	---	8.6	5.3
Kanuti Kilolitna	550	---	36	22	---	10.1	4.0
Lake Todatonten	550	---	31	29	---	8.5	5.4
Minnkokut	580	---	34	34	---	12.0	6.6
Nolitna	560	---	35	25	---	9.8	5.3
Table Mountain	2200	---	---	23	---	---	4.0
Treat Island	190	36	27	---	7.8	7.7	---
Kuskokwim							
Aniak SCAN	80	21	10	---	---	---	---
Mcgrath S.C.	340	---	22	27	13.8*	6.6	5.6
McGrath SNOTEL	340	44	---	---	15.5	---	---
Purkeypile Mine	2025	43	16	26	9.4	4.4	5.4
Telaquana Lake S.C.	1550	32	16	20	7.6	4.3	4.6
Telaquana Lake SNOTEL	1275	26	10	---	7.2	3.4	
Lower Yukon							
Bullfrog	100	42	36	---	11.7	10.3	---
Deer Creek	195	48	33	---	11.6	8.9	---
Galena AK	410	28	22	---	7.1	5.3	---
Little Mud River	855	39	15	---	9.4	4.6	---
Lower Nowitna River	205	41	21	---	9.9	6.0	---
Middle Innoko	150	39	29	34	10.6	8.3	7.7
Ninemile Island	140	35	41	---	8.6	10.9	---
Pike Trap Lake	130	16	12	---	5.0	3.4	---
Squirrel Creek	150	36	41	---	9.8	11.1	---
Upper Innoko	180	41	27	32	11.3	7.7	7.4
Wapoo Hills	220	51	41	36	14.1	12.3	7.7
Yankee Slough	100	42	43	41	11.8	12.7	9.4

**Estimate*

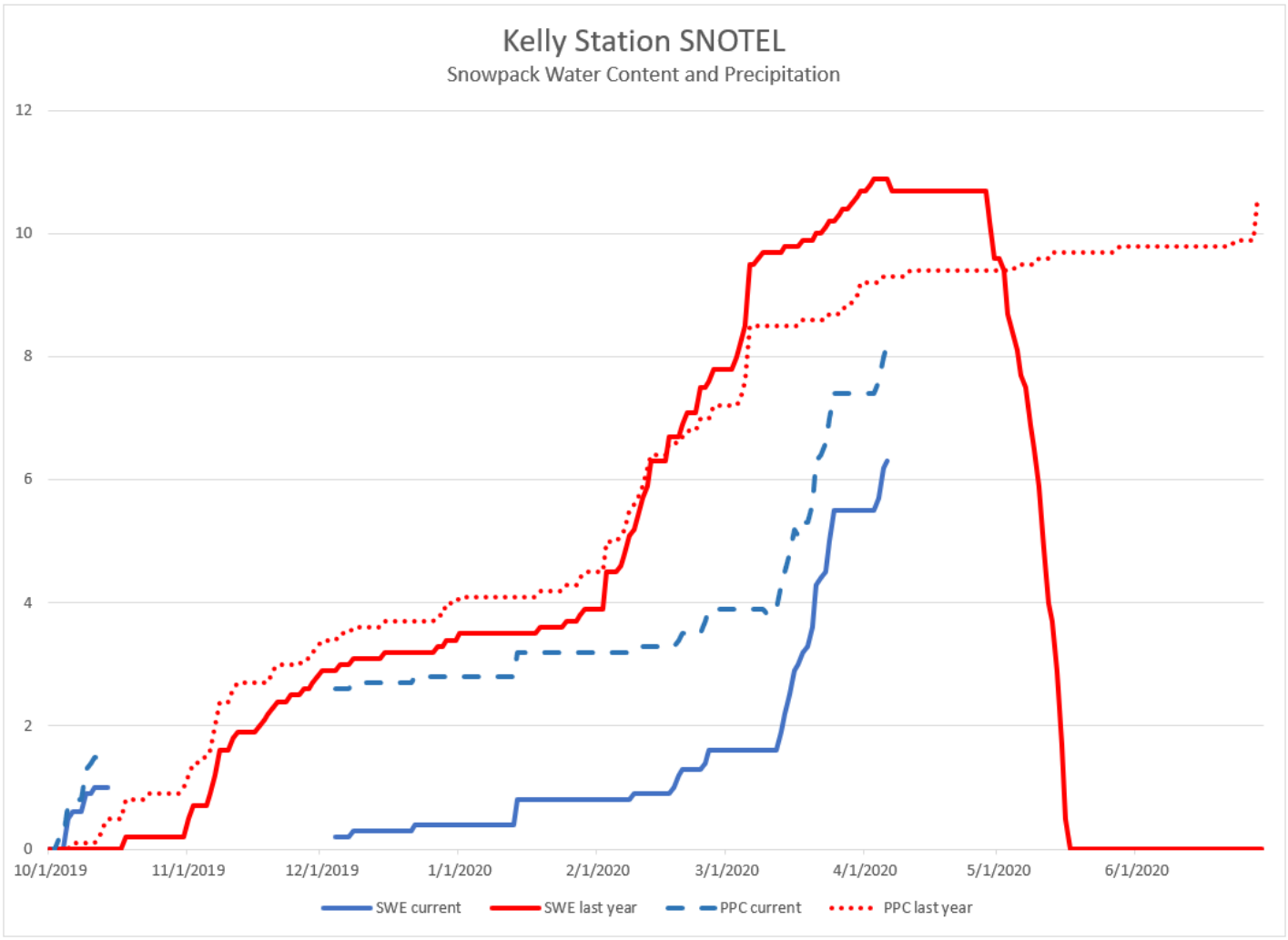
Precipitation

Site Name	Elev.	Inches Accumulated since October 1st			
		This Year	Last Year	1981-2010 Normal	% of Normal
Koyukuk					
Bettles Field	640	10.0	10.4	6.7	149%
Coldfoot	1040	9.2	11.3	6.3	146%
Gobblers Knob	2030	9.5	10.1	6.8	140%
Kuskokwim					
Aniak	80	11.5	9.3	---	---
McGrath	340	15.8	---	---	---
Telaquana Lake	1275	11.9	6.8	---	---
Lower Yukon					
Galena AK	410	8.3	5.9	---	---
Hozatka Lake	206	6.7	6.0	---	---

Streamflow Forecasts



Arctic and Kotzebue Sound



Snowpack

Arctic

The Arctic continues to have near normal precipitation this winter, though different sites in March received both above and below normal precipitation. Snow depths at the SNOTEL sites along the Dalton Highway are slightly below average.

Kotzebue

Kelly Station SNOTEL made record gains in March and went from much below normal snowpack to now being 90% of its 12-year average.

Arctic and Kotzebue Sound

Snowpack Data

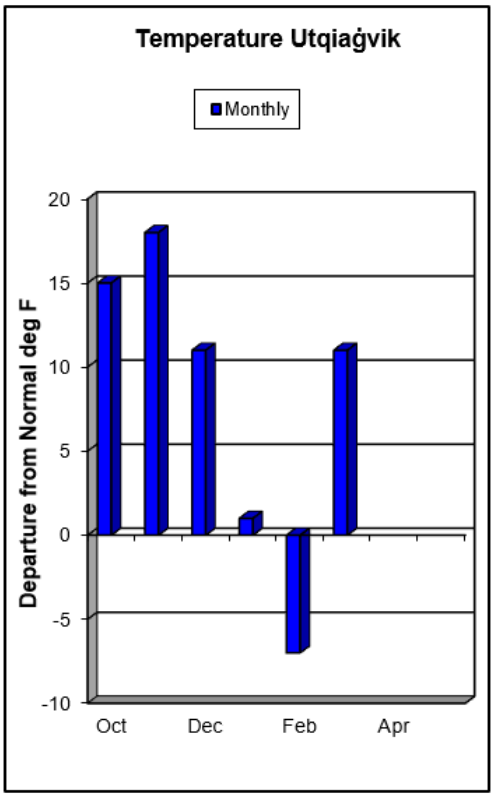
Site Name	Elev.	Snow Depth (in)			Water Content (in)		
		Current	Last Year	1981-2010 Normal	Current	Last Year	1981-2010 Normal
Atigun Pass	4800	39	49	---	---	---	---
Imnaviat Creek	3050	23	20	---	---	---	---
Kelly Station	310	27	35	---	5.5	10.7	---
Prudhoe Bay	30	13	10	---	---	---	---
Sagwon	1000	12	23	---	---	---	---

**Estimate*

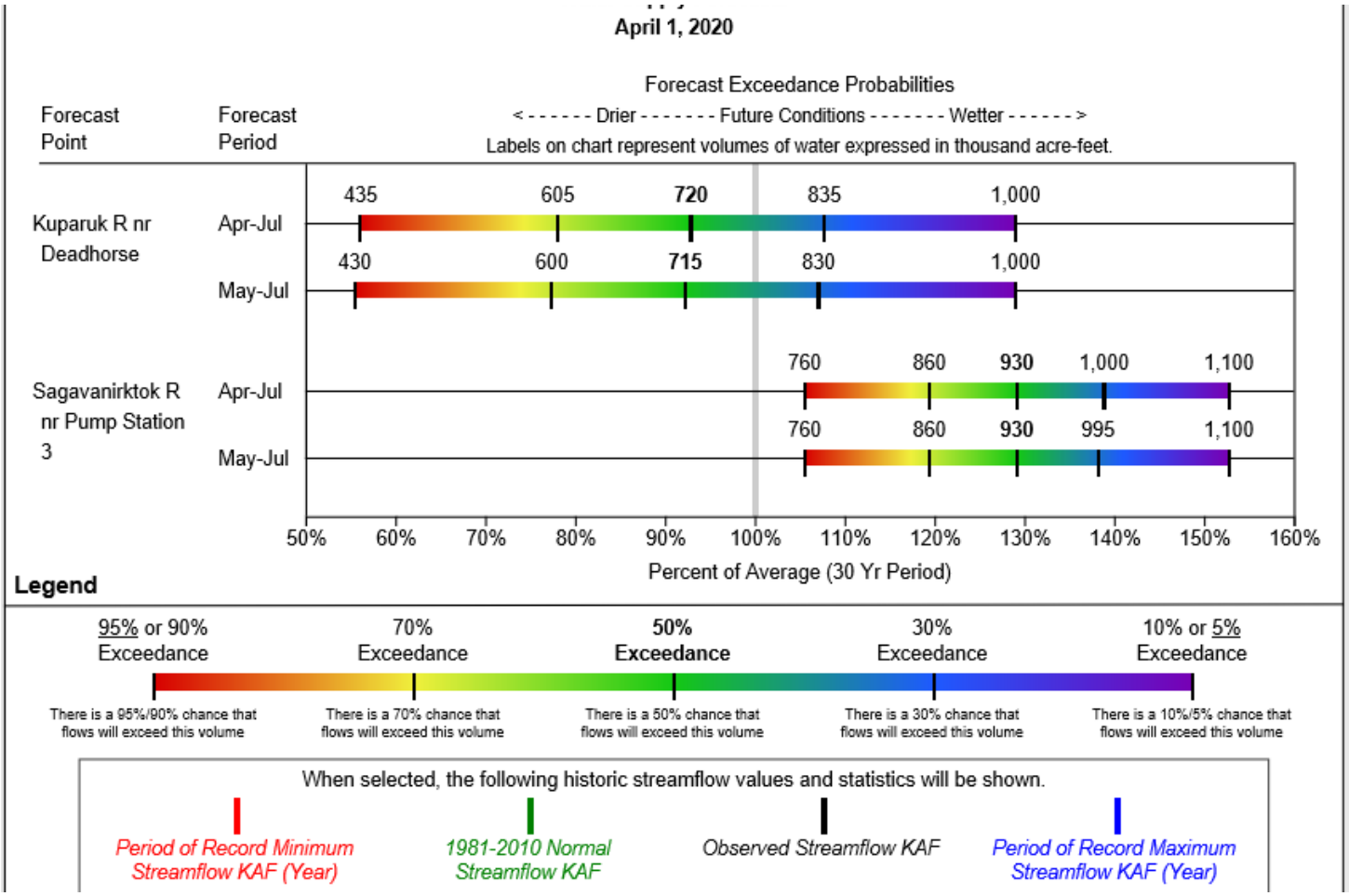
Precipitation

Inches Accumulated since October 1st

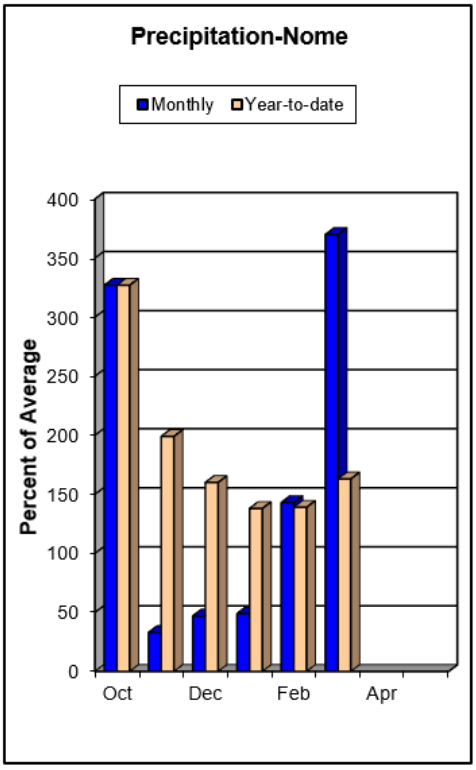
Site Name	Elev.	This Year	Last Year	1981-2010 Normal	% of Normal
Arctic					
Atigun Pass	4800	5.8	6.6	5.6	104%
Imnaviat Creek	3050	2.6	3.1	2.9	90%
Prudhoe Bay	30	3.0	2.9	3.5	86%
Sagwon	1000	2.8	2.9	3.0	93%
Kotzebue Sound					
Kelly Station	310	7.4	9.2	---	---

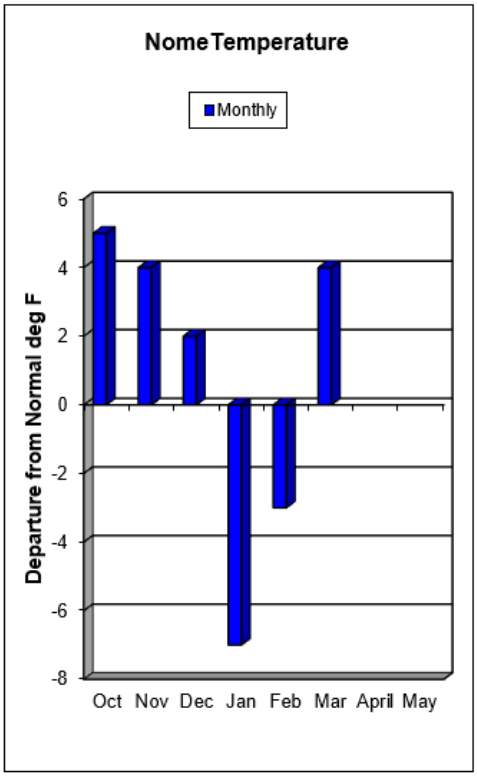


Streamflow Forecasts



Norton Sound/Y-K Delta/Bristol Bay





Snowpack

The Seward Peninsula received above normal snow during March. Snowpack is less than the last three years in the area and has similar snow depths to 2016.

Precipitation

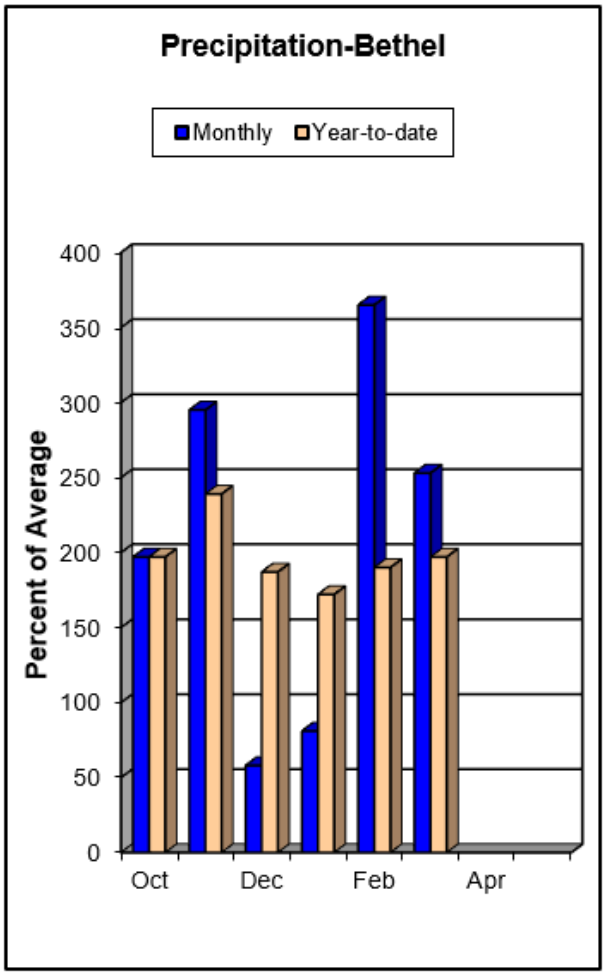
		Inches Accumulated since October 1st			
Site Name	**Elev.**	**This Year**	**Last Year**	**1981-2010 Normal**	**% of Normal**
Norton Sound					
Pargon Creek	100	6.7	8.0	5.9	114%
Rocky Point	250	5.2	6.7	5.4	96%

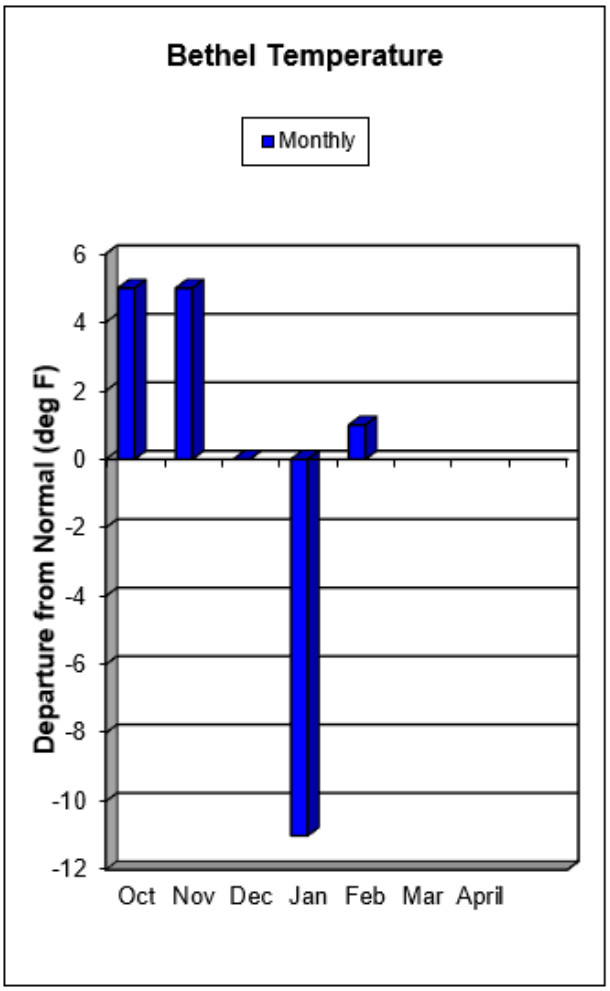
Norton Sound/Bristol Bay

Snowpack Data

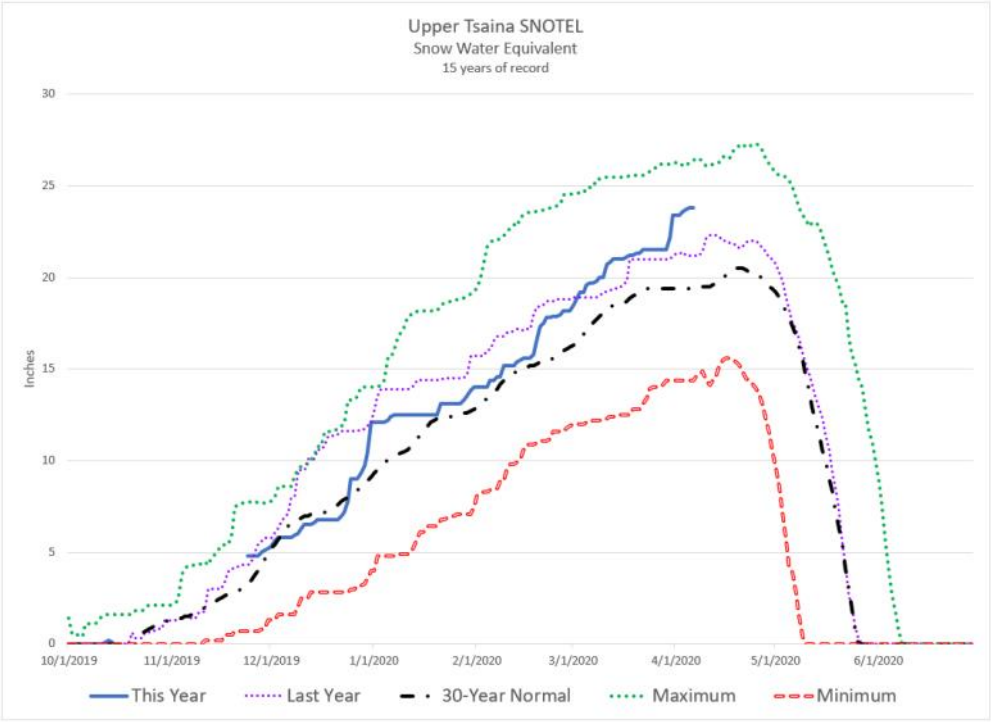
Site Name	Elev.	Snow Depth (in)			Water Content (in)		
		Current	Last Year	1981-2010 Normal	Current	Last Year	1981-2010 Normal
Norton Sound							
Johnsons Camp	25	12	41	---	---	---	---
Pargon Creek	100	---	24	---	---	---	---
Rocky Point	250	26	46	---	---	---	---

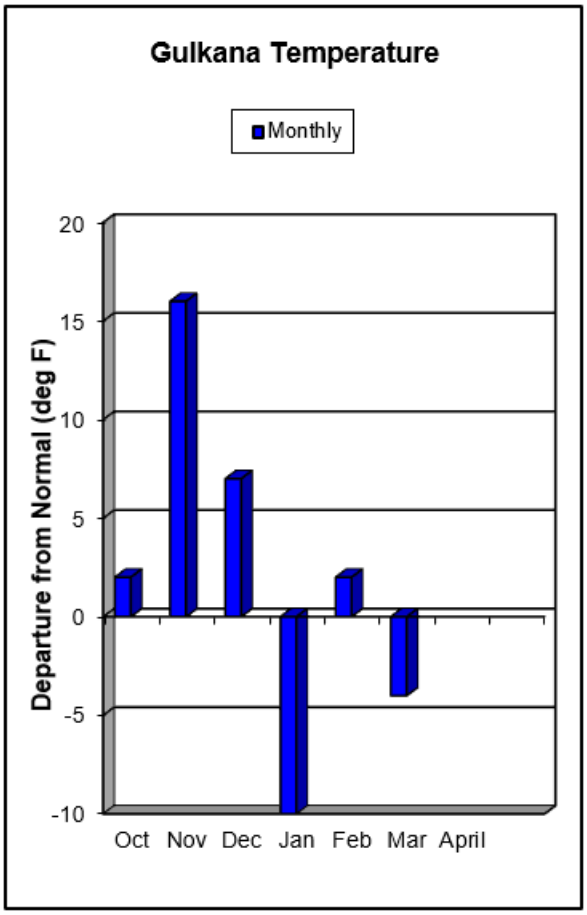
**Estimate*





Copper Basin





Snowpack

Snowpack in the Copper Basin varies from below to much above normal. The snowpack along the Alaska Range is the heartiest, with the four sites in the area averaging 170% of normal. Paxson Snow Course recorded the second largest snowpack in 39 years-second to 1990. The nearby Fielding Lake snow course set a new 60-year record high.

The Talkeetna Mountain sites were also above normal, while the snowpack in the Wrangell Mountains, Chugach Mountains, and on the valley floor were generally near normal. Snow Courses in these two areas ranged from 68% to 125% of normal.

Copper Basin

Snowpack Data

Site Name	Elev.	Snow Depth (in)			Water Content (in)		
		Current	Last Year	1981-2010 Normal	Current	Last Year	1981-2010 Normal
Chistochina	1950	21	13	20	3.1	3.6	3.5
Chokosna	1550	14	0	15	2.6	0.0	3.8
Copper Center	1264	25	8	---	5.4	2.6	---
Dadina Lake	2160	24	12	28	4.7	3.3	6.3
Fielding Lake S.C.	3000	76	30	40	22.5	7.9	10
Fielding Lake SNOTEL	3000	59	30	---	17.4	7.4	---
Gulkana River	1830	22	5	---	5.7	2.4	---
Haggard Creek	2540	34	23	28	7.1	5.0	5.5
Horsepasture Pass S.C.	4300	36	32	30	7.6	7.6	6.9
Horsepasture Pass SNOLITE	4300	36	23	---	---	---	---
Kenny Lake School	1300	17	0	16	3.3	0.0	3.6
Little Nelchina	2650	25	15	26	5.2	3.1	5.2
Long Glacier	4820	49	30	---	14.2	9.9	---
May Creek	1610	24	8	---	5.5	2.7	5.5
Mentasta Pass	2430	38	14	27	8.1	3.5	6.2
Monsoon Lake	3100	35	20	30	8.1	5.5	6.4
Nicks Valley	4280	126	131	---	---	---	---
Notch	2643	17	0	---	3.6	0.0	---
Paxson	2650	47	26	31	10.9	6.5	6.9
Sanford River	2280	31	10	28	7.5	3.2	6.0
St. Anne Lake	1990	23	8	23	4.7	2.3	4.8
Tazlina	1250	23	0	14	5.3	0.0	3.8
Tebay Lake	1930	60	---	---	17.1	---	---
Tolsona Creek	2000	25	12	22	5.3	3.0	4.2
Tsaina River	1650	52	47	56	15.8	15.4	17.0
Twin Lakes	2400	23	10	26	5.7	3.0	6.4
Upper Tsaina River	1750	80	57	---	23.4	21.3	19.4
Worthington Glacier	2100	72	64	75	26.0	24.4	24.6

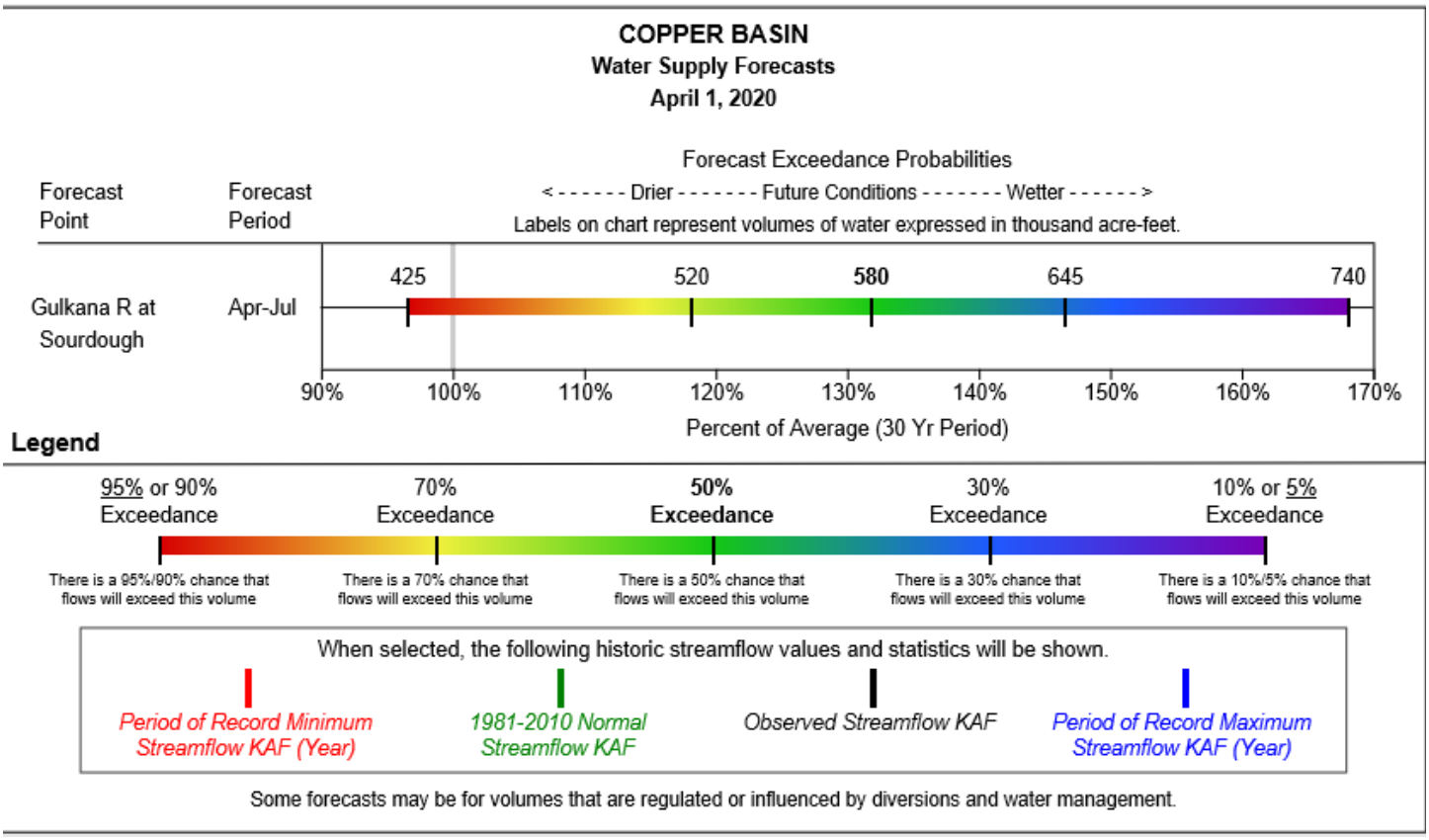
**Estimate*

Precipitation

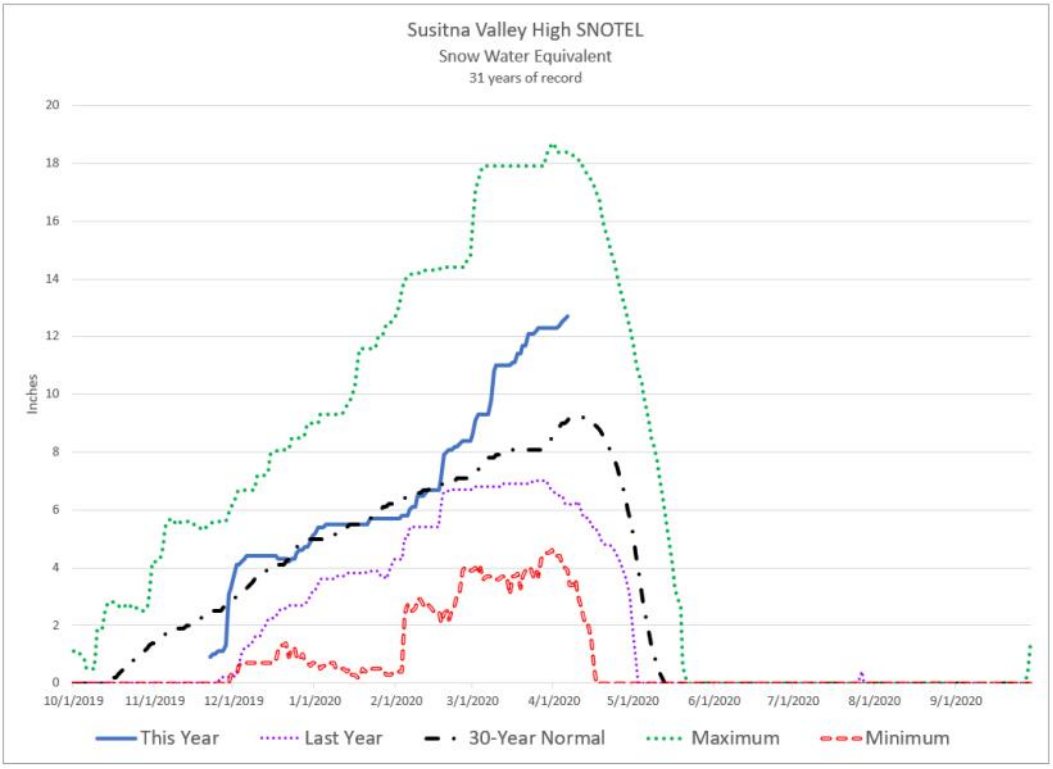
Inches Accumulated since October 1st

Site Name	Elev.	This Year	Last Year	1981-2010 Normal	% of Normal
Gulkana River	1830	6.0	3.7	---	---
May Creek	1610	6.6	6.0	6.1	108%
Upper Tsaina River	1750	25.5	33.1	27.0	94%

Streamflow Forecasts

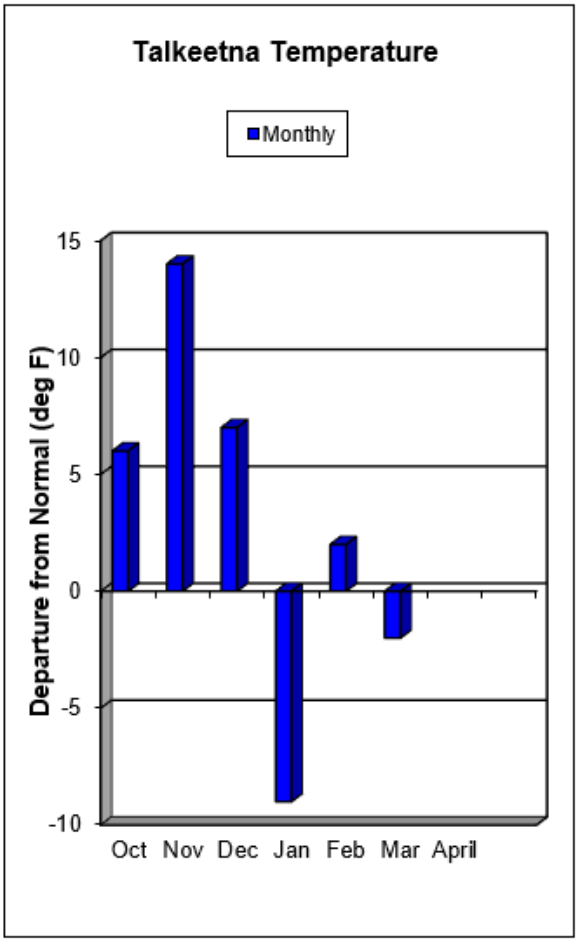


Matanuska—Susitna Basin



Snowpack

Big storms continued to hit the Susitna Valley during March. Snowpack in this area is above normal with the 24 snow sites averaging 155% of normal. Both Tokositna SNOTEL and Independence Mine SNOTEL are reporting the greatest April 1st SWE in the 14 and 17-year records. On the western side of the Talkeetna Mountains, 2005 was the last year most locations recorded a more substantial snowpack. East of the Talkeetnas, snow is still above normal, but not so amply. Lake Louise Snow Course is 111% of normal.



Matanuska—Susitna Basin

Precipitation

Inches Accumulated since October 1st

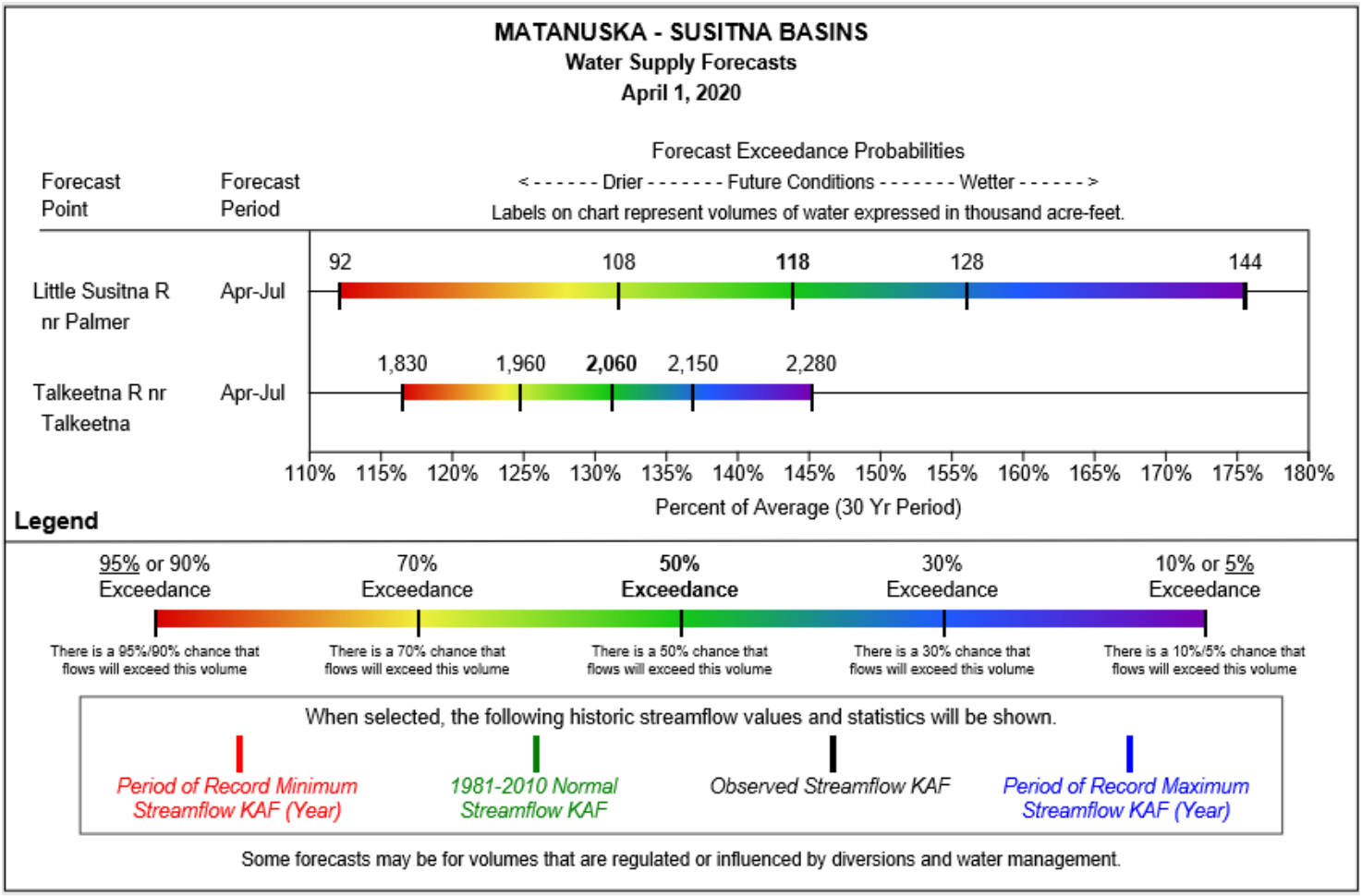
Site Name	Elev.	This Year	Last Year	1981-2010 Normal	% of Normal
Alexander Lake	160	19.9	20.7	---	---
Frostbite Bottom	2700	23.8	---	---	---
Independence Mine	3550	27.5	17.3	15.3	180%
Monahan Flat	2710	12.7	8.6	8.1	157%
Spring Creek	580	9.4	7.0	---	---
Susitna Valley High	375	20.1	12.8	11.9	169%
Tokositna Valley	850	33.4	28.8	19.0	176%

Snowpack Data

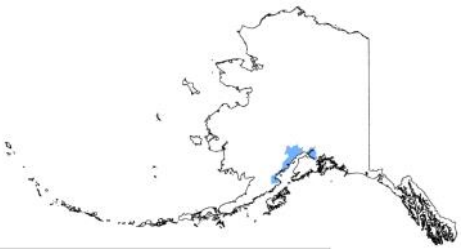
		Snow Depth (in)			Water Content (in)		
Site Name	Elev.	Current	Last Year	1981-2010 Normal	Current	Last Year	1981-2010 Normal
Alexander Lake SNOTEL	160	46	23	---	13.6	6.5	---
Archangel Road	2200	63	35	44	16.8	10.7	12.2
Birthday Pass	4020	130	68	---	49.7	22.5	---
Blueberry Hill	1200	74	36	48	21.7	12.7	13.5
Chelatna Lake	1450	53	27	45	14.6	8.4	11.0
Curtis Lake	2850	29	16	25	5.8	3.7	4.6
Denali View	700	58	26	40	15.2	8.8	12.1
Dunkle Hills	2700	68	39	---	19.7	13.3	
Dutch Hills	3100	102	80	75	35.7	29.4	24.8
E. Fork Chulitna	1770	71	41	47	22.0	13.2	12.1
Fishhook Basin	3300	99	46	55	31.2	14.5	17.8
Fog Lakes	2120	41	20	24	9.0	5.0	5.2
Frostbite Bottom	2700	67	---	---	20.9	---	---
Horsepasture Pass SNOLITE	4300	36	23	---	---	---	---
Horsepasture Pass S.C.	4300	36	32	30	7.6	7.6	6.9
Independence Mine S.C.	3550	103	53	64	32.7	16.7	19.8
Independence Mine SNOTEL	3550	88	42		22.8	11.9	11.3
Lake Louise	2400	25	15	22	5.1	3.1	4.6
Little Susitna	1700	52	28	39	14.0	8.2	10.1
Monahan Flat SNOTEL	2710	46	24		10.1	5.8	
Nugget Bench	2010	70	27	50.0	22.1	9.7	14.6
Ramsdyke Creek	2220	99	51	64	34.7	19.4	20.0
Sheep Mountain	2900	31	15	26	7.1	4.4	5.6
Spring Creek SCAN	580	3	0	---	---	---	---
Square Lake	2950	32	19	21	6.3	4.6	4.0
Susitna Valley High	375	48	21	---	12.3	6.6	8.6
Talkeetna	350	43	18	26	10.6	4.8	6.4
Tokositna Valley SNOTEL	850	82	39	---	23.4	14.4	12.4
Tyone River	2400	22	18	21	5.3	4.5	5.0
Upper Oshetna River	3150	32	18	20	6.9	4.7	4.6
Upper Sanona Creek	3100	30	19	28	5.9	4.9	5.6
Willow Airstrip	200	42	25	28	10.0	6.9	6.9

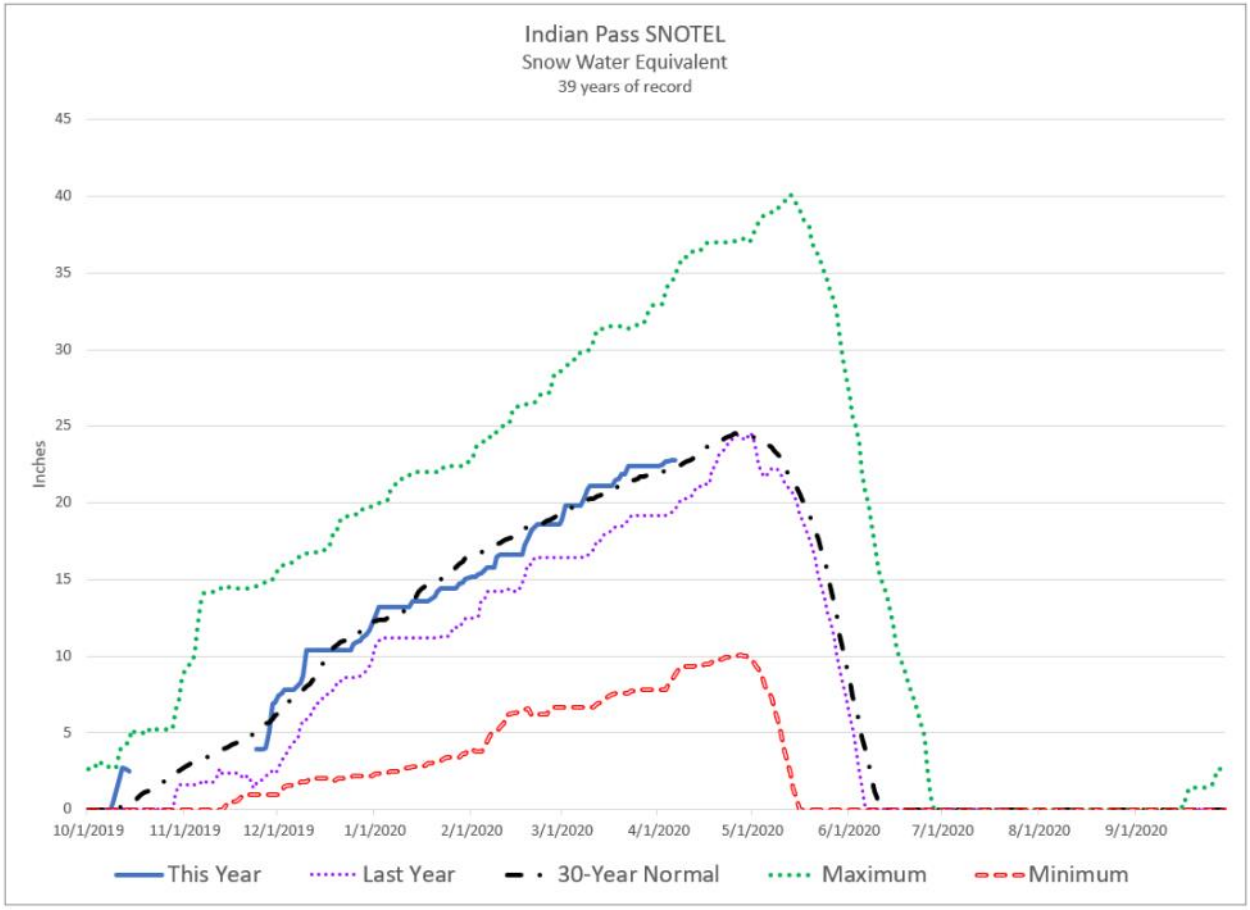
**Estimate*

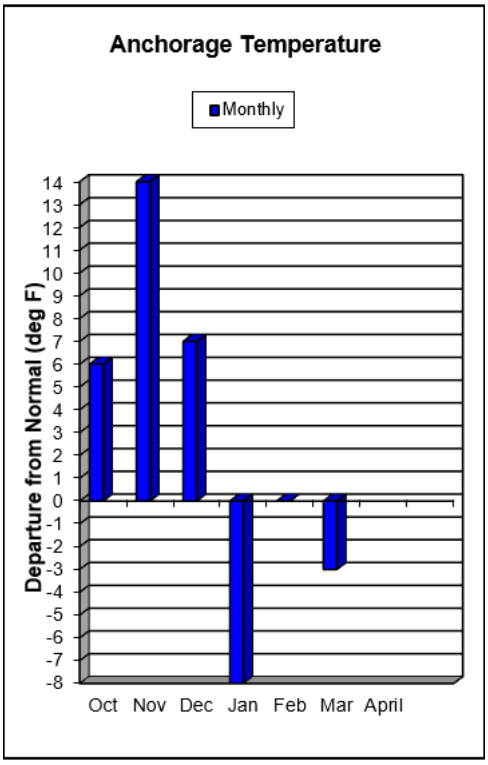
Streamflow Forecasts



Northern Cook Inlet







Snowpack

The Northern Cook Inlet area has received greater-than-average gains in snowpack during March. The snowpack is variable, with locations ranging from 54% to 124% of normal. The twelve measurement sites average 94% of normal.

Northern Cook Inlet

Snowpack Data

Site Name	Elev.	Snow Depth (in)			Water Content (in)		
		Current	Last Year	1981-2010 Normal	Current	Last Year	1981-2010 Normal
Anchorage Hillside	2080	36	15	---	10.7	5.8	10.2
Arctic Ski Bowl	3000	48	21	40	17.2	7.1	12.8
Arctic Valley #1	500	11	0	14	3.1	0.0	3.6
Arctic Valley #2	1000	20	13	18	5.4	3.6	4.8
Arctic Valley #3	1450	32	13	28	8.8	4.7	7.2
Arctic Valley #4	2030	32	12	28	9.0	4.3	7.2
East Palmer	230	10	---	---	2.3	---	---
Indian Pass	2350	---	---	70	---	---	24.2
Kinkaid Park	250	20	6	16	4.3	1.8	4.4
Moraine	2100	28	8	---	7.1	2.3	9.0
Mt. Alyeska	1540	56	37	---	17.4	14.7	32.5
South Campbell Creek	1200	21	14	28	4.5	4.8	6.9
Spring Creek	580	3	0	---	---	---	---

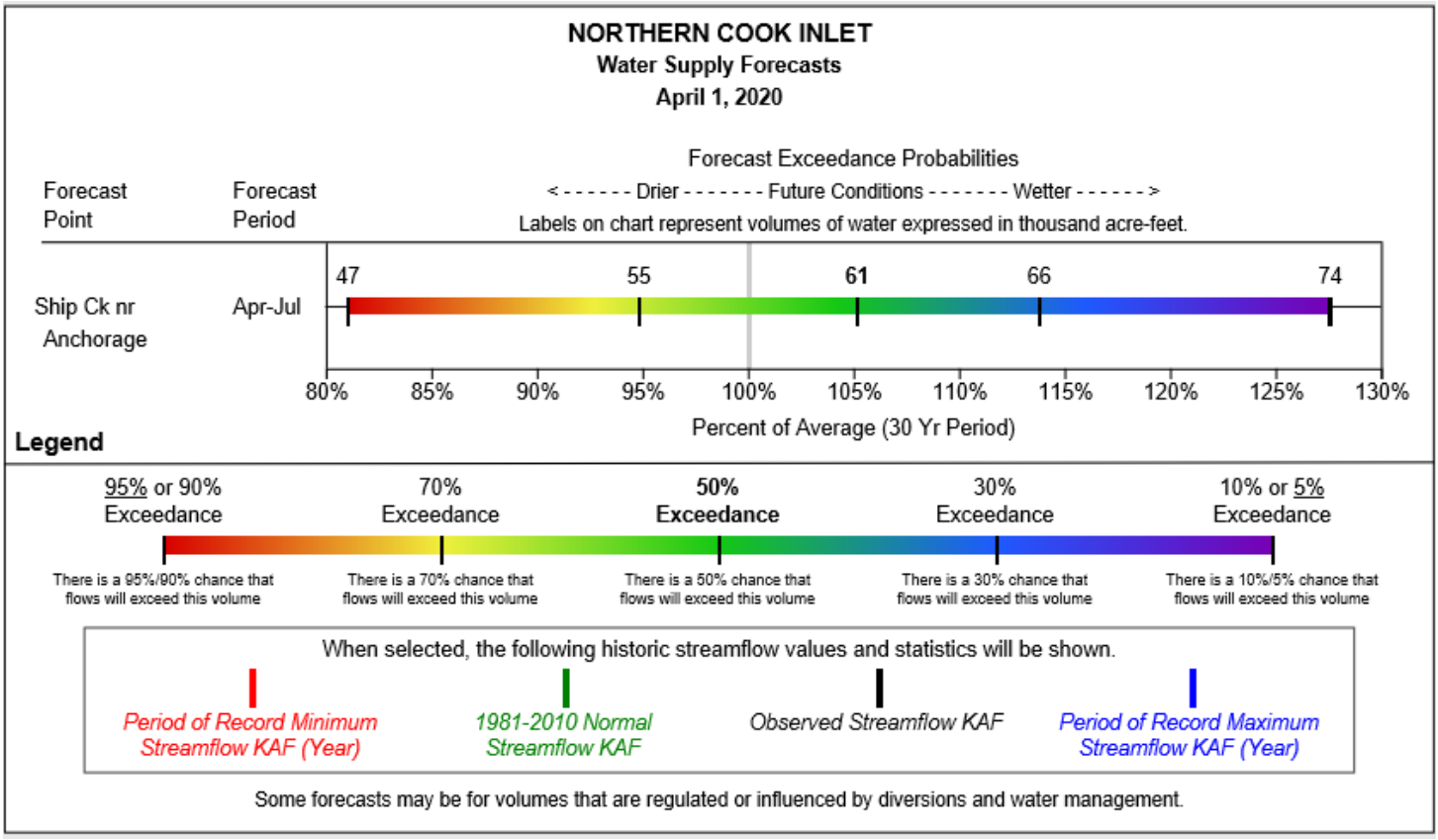
**Estimate*

Precipitation

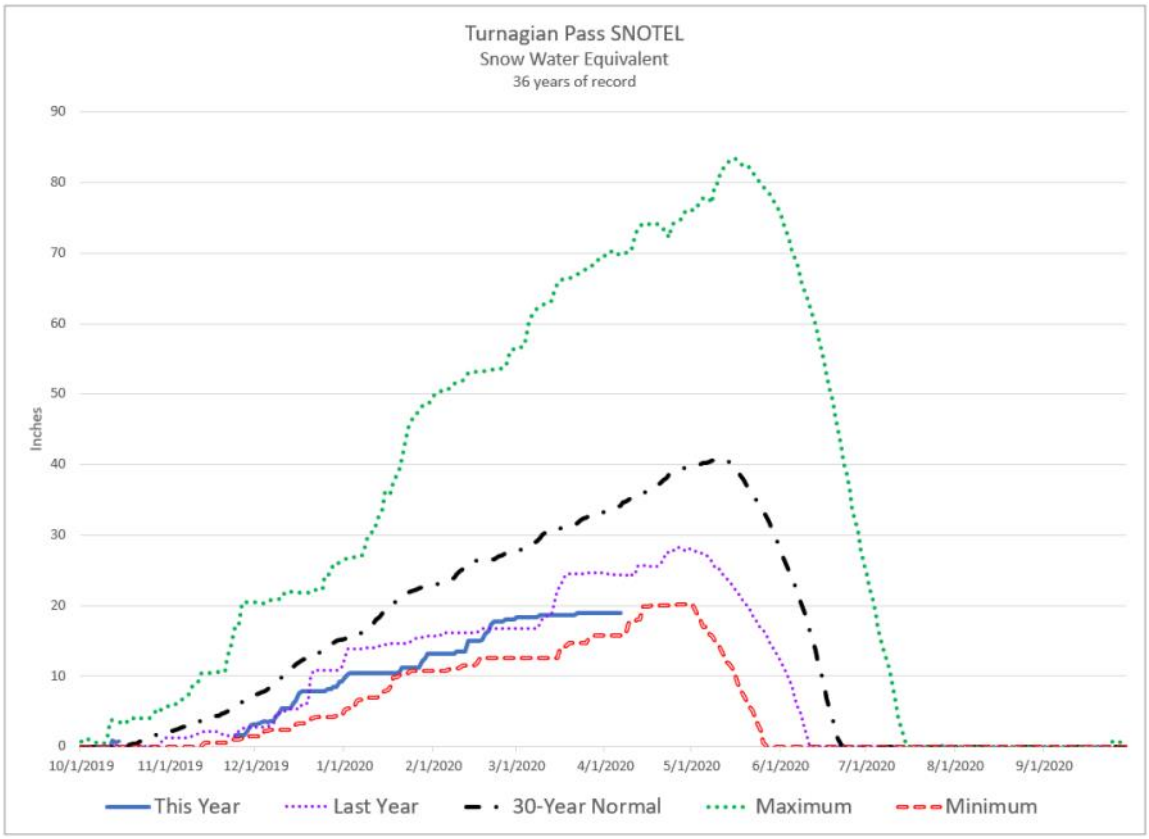
Inches Accumulated since October 1st

Site Name	Elev.	This Year	Last Year	1981-2010 Normal	% of Normal
Anchorage Hillside	2080	18.0	14.9	13.7	131%
Indian Pass	2350	32.7	24.9	25.4	129%
Moraine	2100	11.7	13.9	11.7	100%
Mt. Alyeska	1540	40.1	58.2	46.3	87%
Spring Creek	580	9.4	7.0	---	---

Streamflow Forecasts

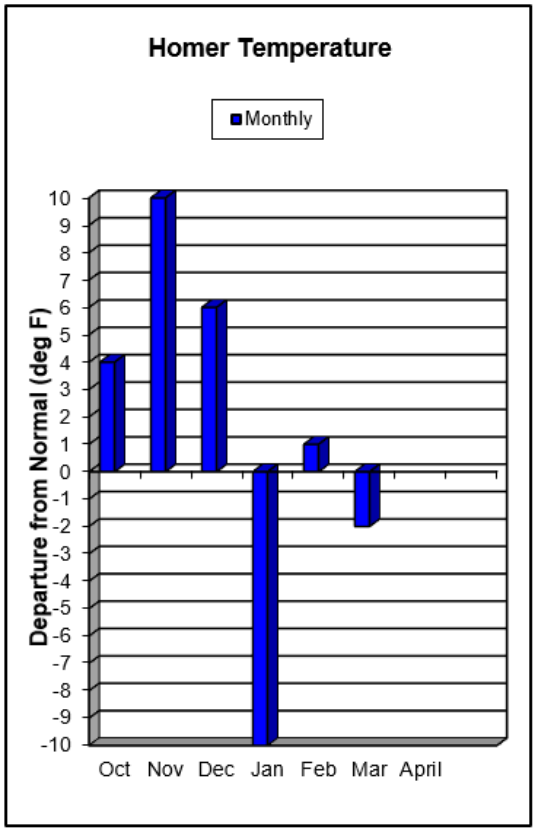


Kenai Peninsula



Snowpack

With the exception of the northwest portion of the peninsula, the Kenai snowpack made trifling gains during the month. The region had only 1/3 normal March precipitation. The 19 measured sites in this area averaged 64% of normal, only slightly better than last year. Many locations reported the 3rd or fourth lowest snowpack in the records.



Kenai Peninsula

Snowpack Data

Site Name	Elev.	Snow Depth (in)			Water Content (in)		
		Current	Last Year	1981-2010 Normal	Current	Last Year	1981-2010 Normal
Anchor River Divide	1653	37	36	---	9.6	14.1	11.9
Bertha Creek	950	36	34	53	10.3	11.9	16.6
Bridge Creek	1300	29	26	40	7.8	8.9	12.0
Cooper Lake	1200	36	33	---	9.2	12.1	14.0
Demonstration Forest	780	27	13	28	6.9	5.1	7.8
Eagle Lake	1400	31	26	42	8.2	9.0	11.9
Exit Glacier S.C.	400	31	26	51	10.0	8.7	18.2
Exit Glacier SNOTEL	400	32	26	---	9.2	9.8	18.4
Grandview	1100	46	37	---	12.5	15.8	32.0
Grouse Creek Divide	700	29	30	---	8.8	10.9	17.7
Jean Lake	620	18	0	15	4.7	0.0	3.3
Kenai Moose Pens	300	26	11	---	5.6	2.8	5.0
Kenai Summit	1390	33	29	48	9.0	10.0	14.8
Lower Kachemak Creek	1915	30	45	---	---	---	---
Mcneil Canyon	1320	29	20	---	8.1	6.0	10.6
Middle Fork Bradley	2300	29	47	---	---	---	---
Moose Pass	700	20	0	22	4.2	0.0	6.6
Nuka Glacier SNOTEL	1250	30	57	---	---	---	---
Nuka Glacier S.C.	1250	---	52	88	---	25.3	34.6
Pass Creek	1200	---	20	33	---	6.0	9.0
Port Graham	300	31	0	---	11.2	0.0	8.7
Portage Valley	50	49	4	40	17.7	1.7	14.6
Resurrection Pass	2250	---	27	38	---	7.9	10.4
Snug Harbor Road	500	11	0	16	3.7	0.0	4.5
Summit Creek	1400	28	22	---	6.9	6.2	11.1
Turnagain Pass	1880	62	67	---	18.9	24.5	33.4

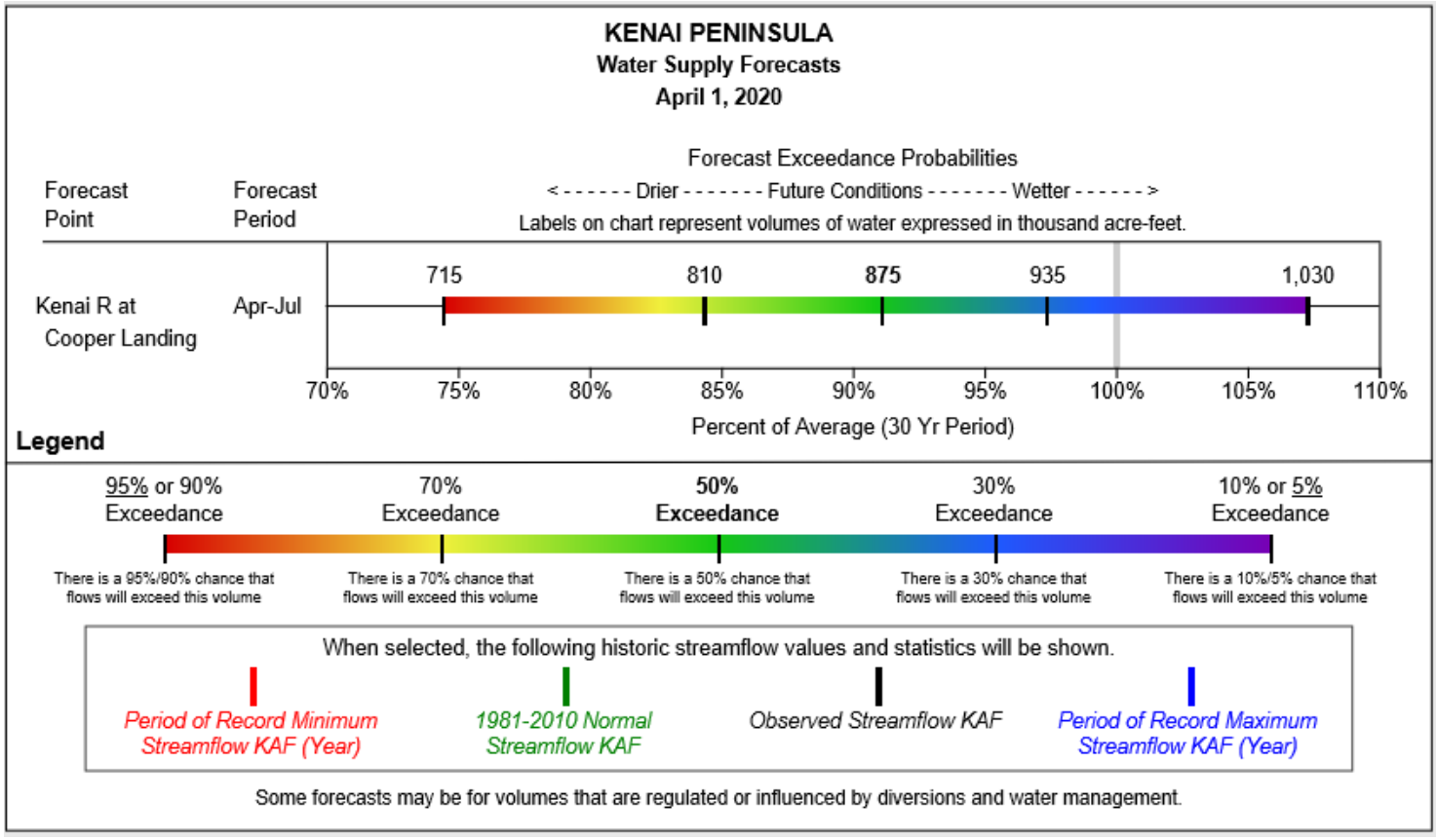
**Estimate*

Precipitation

Inches Accumulated since October 1st

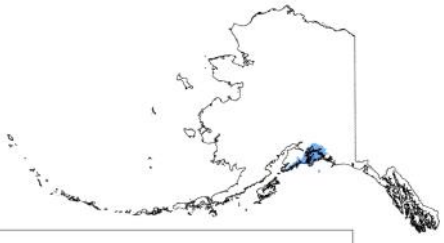
Site Name	Elev.	This Year	Last Year	1981-2010 Normal	% of Normal
Anchor River Divide	1653	23.6	23.9	16.9	140%
Cooper Lake	1200	27.7	38.9	25.2	110%
Exit Glacier	400	49.9	71.0	---	---
Grandview	1100	37.1	55.0	40.3	92%
Grouse Creek Divide	700	35.2	53.2	37.5	94%
Kenai Moose Pens	300	11.6	10.2	8.2	141%
Lower Kachemak Creek	1915	---	49.8	---	---
Mcneil Canyon	1320	18.8	20.0	16.6	113%
Middle Fork Bradley	2300	42.6	48.4	32.5	131%
Nuka Glacier	1250	---	74.0	54.3	---
Port Graham	300	52.8	52.8	48.4	109%
Summit Creek	1400	18.2	22.5	15.8	115%
Turnagain Pass	1880	31.5	51.2	40.5	78%

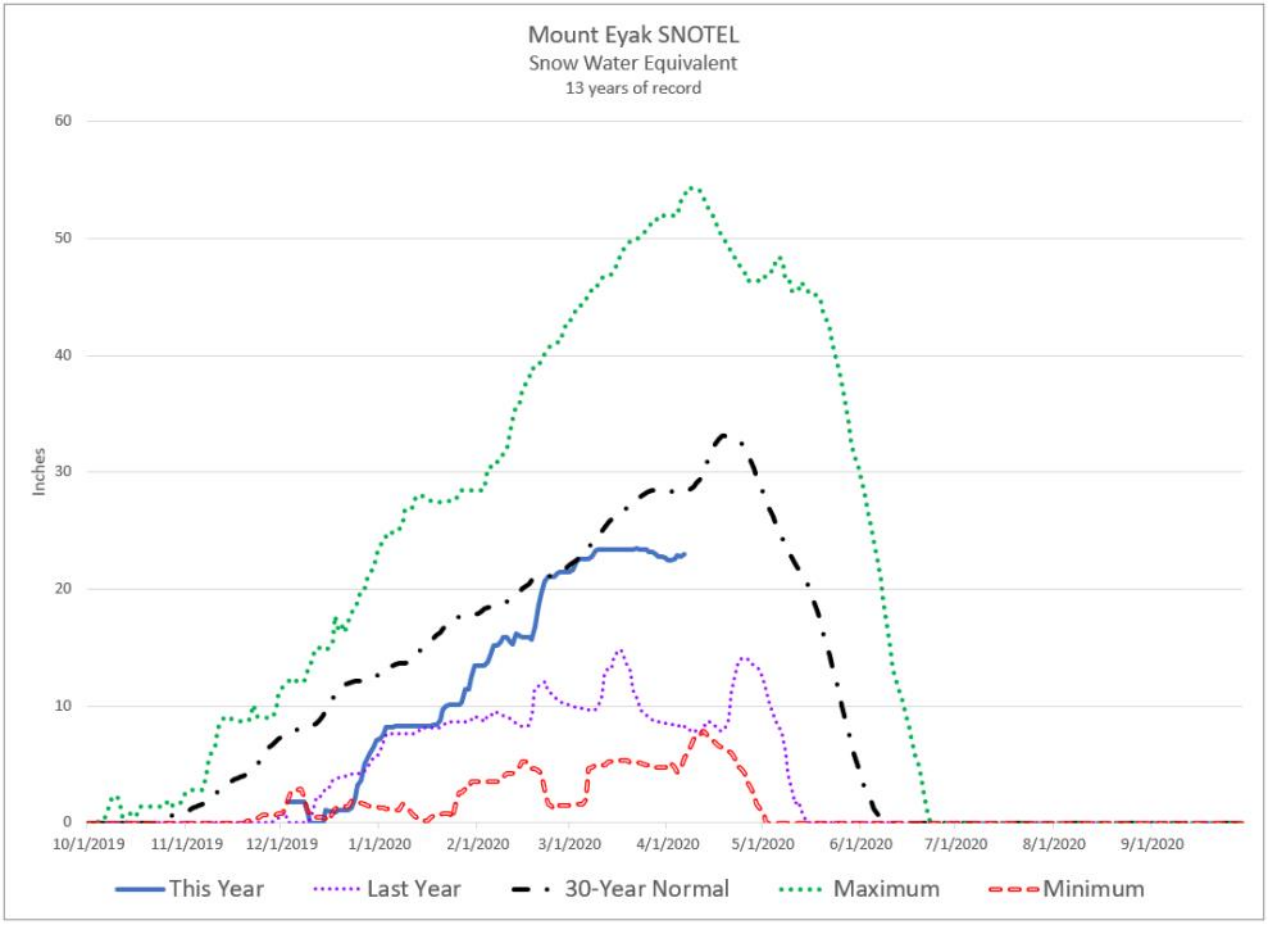
Streamflow Forecasts

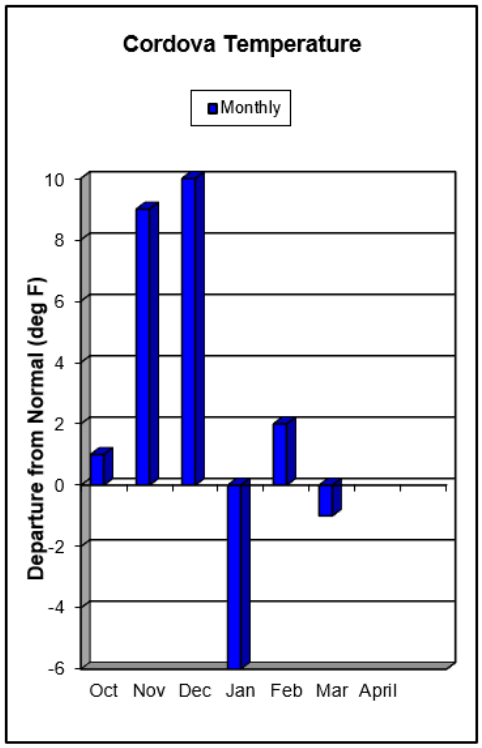


Forecast Point	Forecast Period	% of Average	Maximum(%)	Minimum(%)	50% Exceedance (KAF)	30yr Average (KAF)
Bradley Lake Inflow	Apr-Jul	102	120	82	200	197

Western Gulf – Prince William Sound







Snowpack

Prince William Sound had less than half normal precipitation during March. Snowpack remains near normal on the eastern Sound, more robust than the last two years.

Western Gulf — Prince William Sound

Snowpack Data

		Snow Depth (in)			Water Content (in)		
Site Name	**Elev.**	**Current**	**Last Year**	**1981-2010 Normal**	**Current**	**Last Year**	**1981-2010 Normal**
Esther Island	50	40	---	---	---	---	---
Exit Glacier S.C.	400	31	26	51	10.0	8.7	18.2
Exit Glacier SNOTEL	400	32	26	---	9.2	9.8	18.4
Lowe River	600	52	37	50	17.2	12.8	17.0
Mt. Eyak	1405	68	26	---	22.5	8.4	28.4
Sugarloaf Mtn	550	68	44	---	---	---	---
Valdez	50	48	31	51	16.2	10.6	15.7

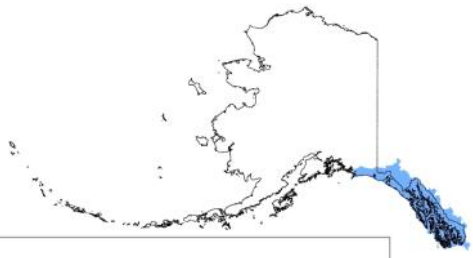
**Estimate*

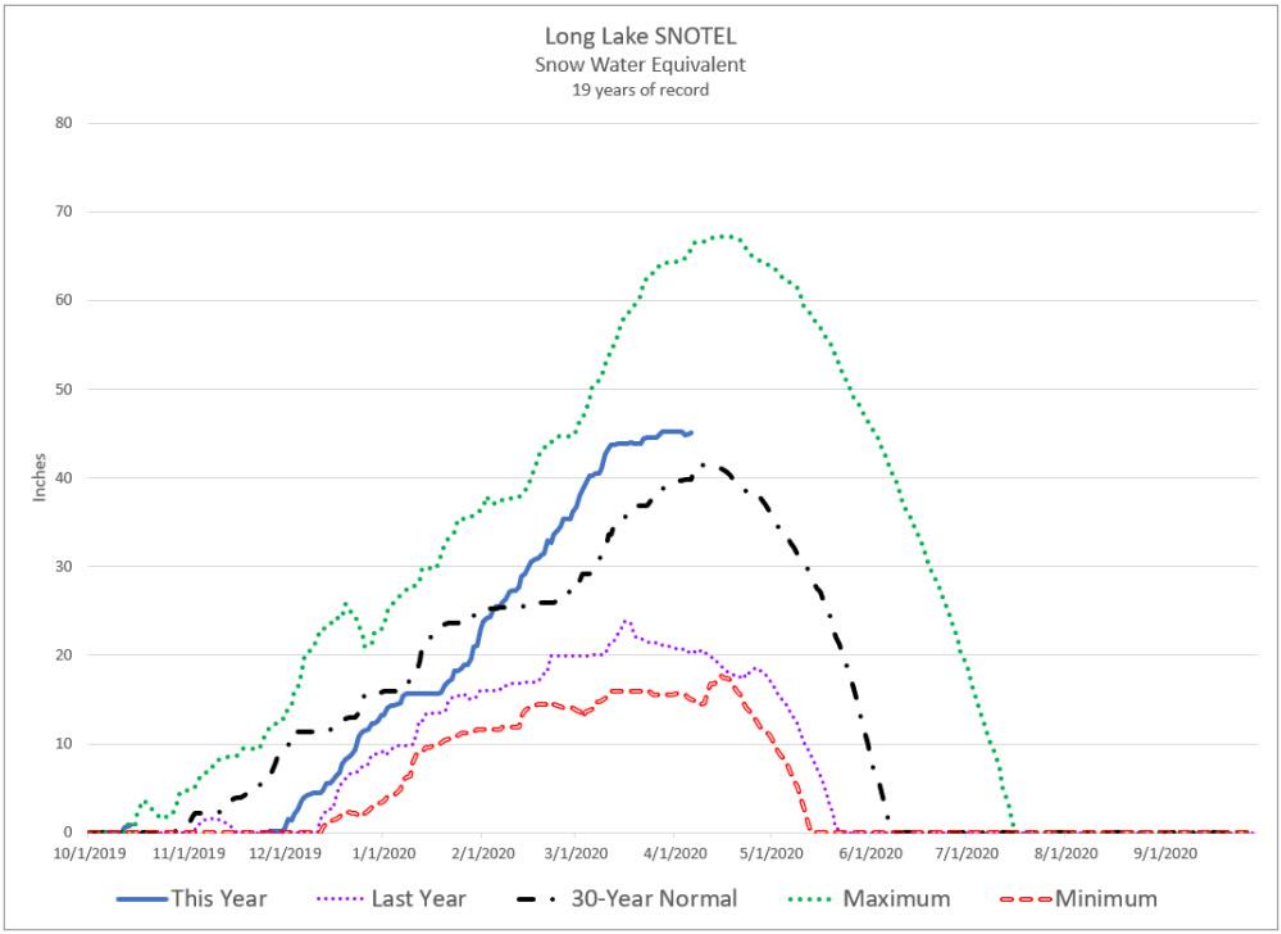
Precipitation

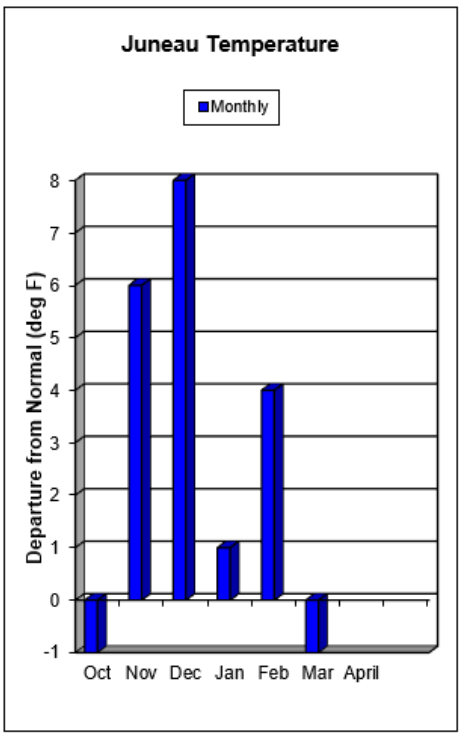
		Inches Accumulated since October 1st			
Site Name	**Elev.**	**This Year**	**Last Year**	**1981-2010 Normal**	**% of Normal**
Esther Island	50	79.0	118.3	80.5	98%
Exit Glacier	400	49.9	71.0	---	---
Grouse Creek Divide	700	35.2	53.2	37.5	94%
Mt. Eyak	1405	76.8	95.3	---	---
Nuchek	50	85.7	113.2	---	---
Port San Juan	50	72.6	102.3	75.7	96%
Strawberry Reef	30	42.5	59.1	---	---
Sugarloaf Mtn	550	50.3	55.8	40.5	124%
Tatitlek	50	47.8	59.3	40.0	120%

**Estimate*

Southeast







Snowpack

Even though Southeast Alaska received below normal precipitation during March, the snowpack remains well above normal, at least in the northern half of Southeast. Measured sites recorded the most stout snowpacks since 2013 or 2012. The five indexed sites in this region averaged 131% of normal.

Southeast

Snowpack Data

Site Name	Elev.	Snow Depth (in)			Water Content (in)		
		Current	Last Year	1981-2010 Normal	Current	Last Year	1981-2010 Normal
Cropley Lake	1650	108	34	83	39.0	12.8	30.4
Eagle Crest	1200	84	20	50	30.0	6.4	18.6
Fish Creek	500	26	0	11	8.6	0.0	2.7
Flower Mountain	2510	69	42	---	24.8	15.6	---
Heen Latinee	2065	68	16	---	25.5	5.3	---
Institute Creek	1350	---	1	---	---	0.3	---
Long Lake	850	117	53	---	45.3	20.8	39.4
Moore Creek Bridge SNOTEL	2250	86	39	---	---	---	---
Moore Creek Bridge S.C.	2250	64	30	65	24.4	10.6	21.3
Petersburg Reservoir	550	---	0	1	---	0.0	0.2
Petersburg Ridge, S.	1650	---	32	74	---	12.1	27.4
Rainbow Falls	500	---	0		---	0.0	---
Speel River	280	---	30	66	---	10.4	26.5
West Creek	475	41	0	---	13.8	0.0	---

**Estimate*

Precipitation Data

Site Name	Elev.	Inches Accumulated since October 1st			
		This Year	Last Year	1981-2010 Normal	% of Normal
Heen Latinee	2065	35.1	36.5	---	---
Long Lake	850	110.0	79.9	97.7	113%
Moore Creek Bridge	2250	30.9	25.1	27.4	113%

Streamflow Forecast

Forecast Point	Forecast Period	% of Average	Maximum(%)	Minimum(%)	50% Exceedance (KAF)	30yr Average (KAF)
Taiya River near Skagway	Apr-Jul	110	130	89	510	464

For further information contact:

NRCS Alaska web site: **www.nrcs.usda.gov/wps/portal/nrcs/main/ak/snow/**
NRCS Water and Climate Center web site: **http://www.wcc.nrcs.usda.gov/**
Alaska Meteor Burst Communication System (AMBCS) web site: **www.ambcs.org**

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