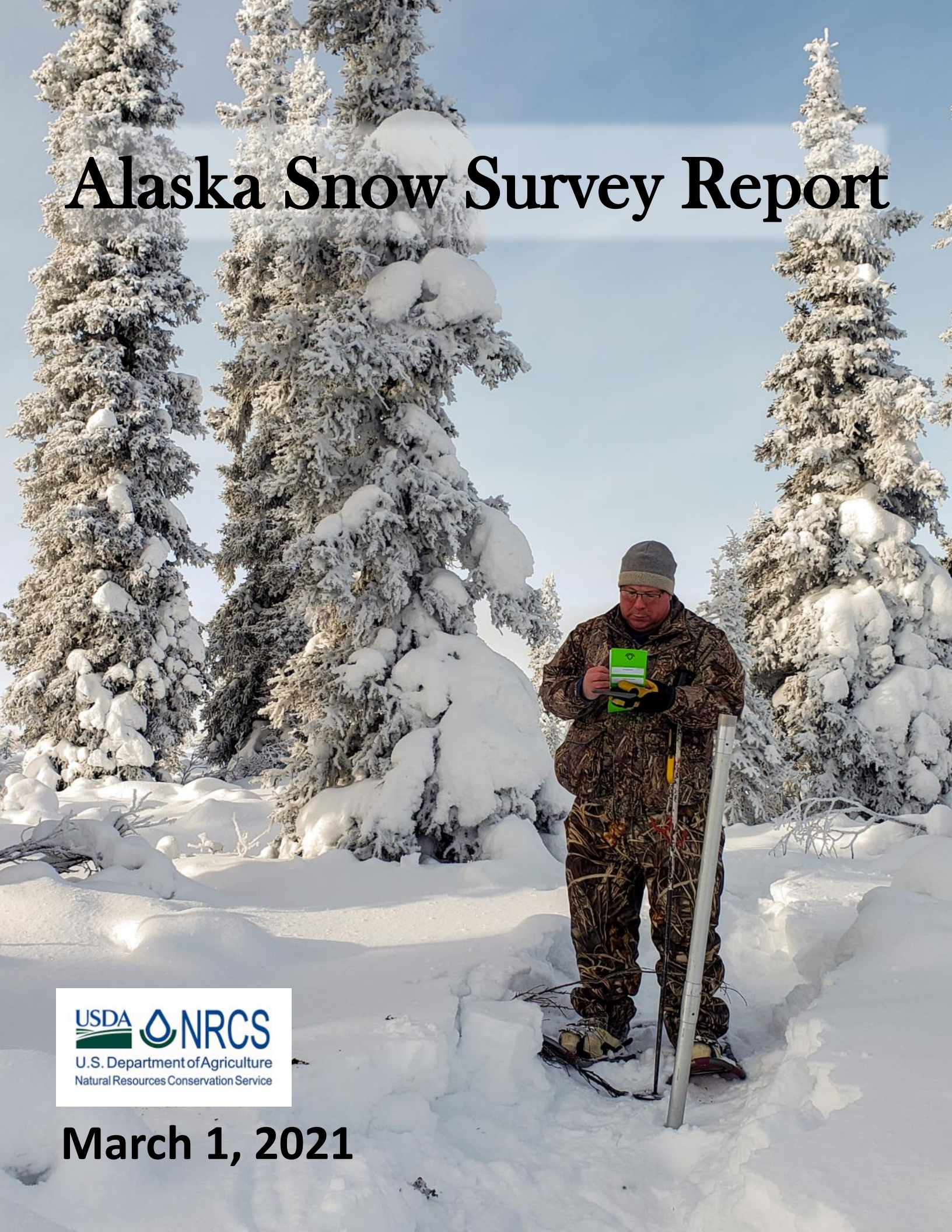
Alaska Snow Survey Report



USDA NRCS
U.S. Department of Agriculture
Natural Resources Conservation Service

March 1, 2021

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

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U.S. Depart of Agriculture - U.S. Forest Service
- 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. Geological Survey
- U. S. Fish and Wildlife Service
- National Park Service

Municipalities
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- Alyeska Resort, Inc.
- Alyeska Pipeline Service Company
- Anchorage Municipal Light and Power
- Chugach Electric Association
- Copper Valley Electric Association
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- Alaska Department of Fish and Game
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Alaska Public Schools
- Mantanuska-Susitna Borough School District
- Eagle School, Gateway School District

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- Ministry of the Environment
  - British Columbia
- Department of the Environment
  - Government of the Yukon

United States Department of Agriculture

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Cover Photo: NRCS State Engineer Brett Nelson, who is also the Alaska Snow Survey Program Manager, takes notes at Jack Wade Junction SNOTEL site. Jack Wade Junction SNOTEL is in the Fortymile River Basin and reports 26" of snow with 3.8" of water content.

Table of Contents

General Overview

SnowPack

The Kenai Peninsula was a mixed bag. The eastern mountains which started the winter deep, faltered. Turnagain Pass SNOTEL had its second driest February on record. But still the basin had much above normal snowpack with a few sites neat record high. The western side of the peninsula, however, made normal gains and also is above normal. This trend carries immediately north, where norther Cook Inlet saw below average gains on the eastern side and above normal on the western side. Snowpack, here too, remains above normal.

The Susitna Basin made above average gains, but the snowpack remains varied. The Chulitna snowpack remains below normal, while the upper basin, east of the Talkeetnas in near normal. The lower basin is near to above normal.

The Copper Valley had interspersed snowfall but generally made greater-than-average gains. The western basin is near to below normal, while the eastern half is above normal. May Creek SNOTEL, up the Chitina River, is experiencing its deepest winter in its 14-year history.

The Tanana saw average to twice average snowpack increases. The lower basin, near Fairbanks, is somewhat above average. The snowpack in the upper basin, near Delta Junction and Tok, is somewhat below average.

The upper Koyukuk remains below normal while increased snowfall in the lower basin had brought the snowpack up to near and above normal conditions. Further south, in the Lower Yukon saw variable snowfall, but retains above average snowpack as does the Kuskokwim. Though the region next to the Alaska Range is experience much above normal snowpack. Telaquana Lake Snow Course reported it deepest March 1st snowpack since 2005.

The Central Yukon snowpack was variable as well. The flats and Ramparts had below normal snowpack while the snowpack in the White Mountains was near normal. The snowpack in the Forty-mile Region was slightly below normal while the upper Porcupine was above normal.

The Upper Yukon Basin, the snowpack upstream of the border was above normal. Some locations were near or slightly below normal, but the regions 31 snow courses average to 131% of normal. The snowpack in the headwaters of the Yukon is substantial. Altin Lake Snow (51 years of record), Montana Mtn Snow Course(47 years), and Log Cabin Snow Course (61 years) all set new March 1st snowpack records.

		Basin Index	
		Current	Last Year
Alaska Statewide Snowpack	**# of Sites**	**Percent of Median**	**Percent of Median**
Upper Yukon Basin	31	133	127
Central Yukon Basin	15	93	135
Tanana Basin	22	110	135
Koyukuk Basin	6	64	137
Kuskokwim Basin	2	147	136
Copper Basin	16	100	111
Matanuska-Susitna Basin	26	97	147
Northern Cook Inlet	14	115	93
Kenai Peninsula	20	130	69
Western Gulf of Alaska	5	123	79
Southeast Alaska	5	114	127

General Overview

Precipitation

The spigot turned off on the Kenai and open up on in the Tanana. After receiving 147% of average precipitation in January, the Kenai only received 36% of average February precipitation. The Tanana Valley, however, saw 191% of normal February gains.

Precipitation in February varied by region with sundry outliers. Generally, eastern Interior and Southwest Alaska received above normal precipitation while the Gulf Coast, the western Interior and Northwest Alaska were bereft the usual February moisture.

Southeast ranged from 67% of average precipitation at Moore Creek Bridge SNOTEL near Skagway to 127% of average at the Juneau airport.

Temperature

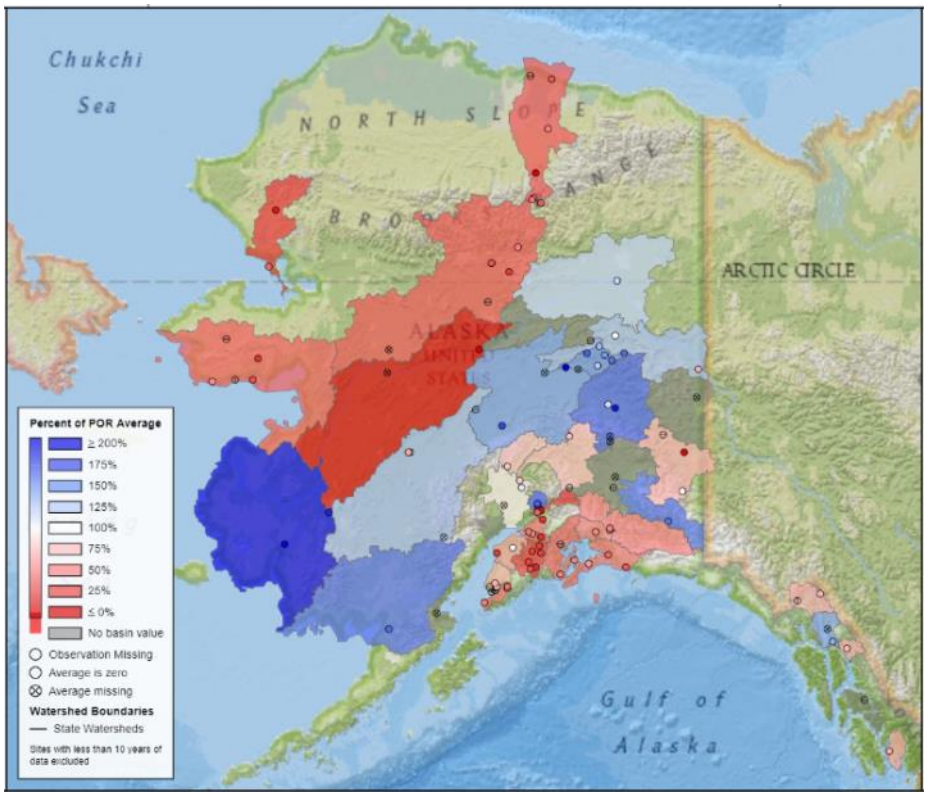
The state experienced a temperature turnaround in February. The mercury dropped and many regions had below normal monthly temperatures. Even Utqiaġvik was 1°F below normal for the month! In general, temperatures through the month fluctuated from near normal to below normal during a few cold snaps. The Interior took the brunt of the cold with Bettles 9°F below average, Fort Yukon 7°F below average, and Fairbanks 4°F below monthly average. Gulkana, in the Copper River Valley, was also 8°F below average for the month.

Temperatures mellowed towards the coasts. In the west, Nome rang in the month right at average and Bethel was 2°F above average for February. In Southcentral, Talkeetna was 3°F below, Anchorage was 2° F below, and Homer was 2°F above average for the month. Cordova recorded 4°F below average and Juneau was 1°F below average.

Alaska Statewide Precipitation Maps

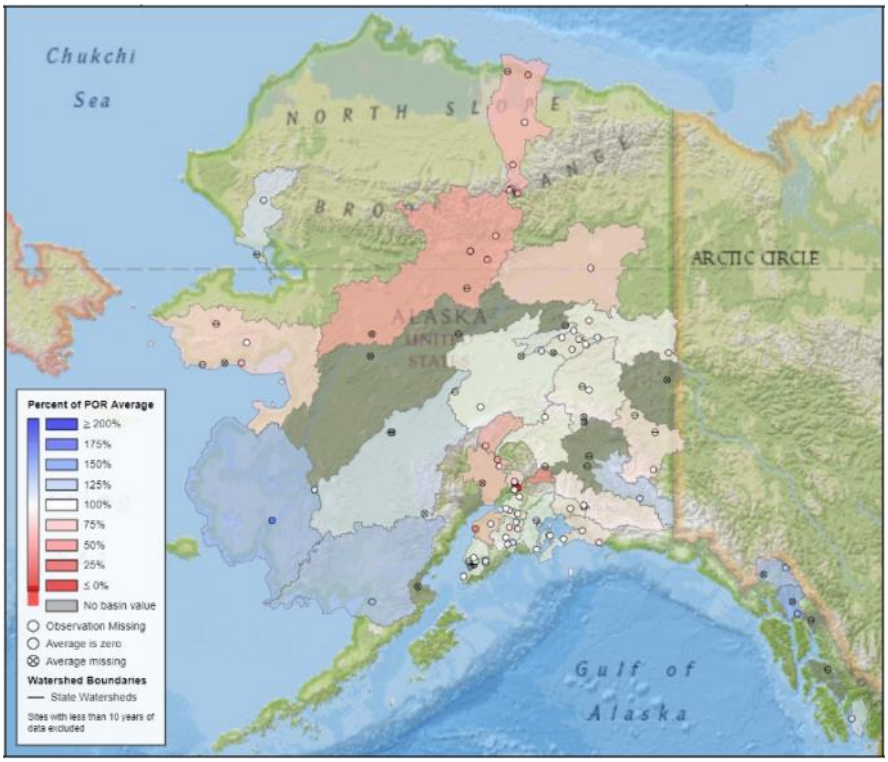
Monthly Precipitation for February, 2021

(% of NRCS 81-2010 Average)



Water Year-to-date Precipitation (Oct. 1-Feb. 28, 2021)

(% of NRCS 81-2010 Average)



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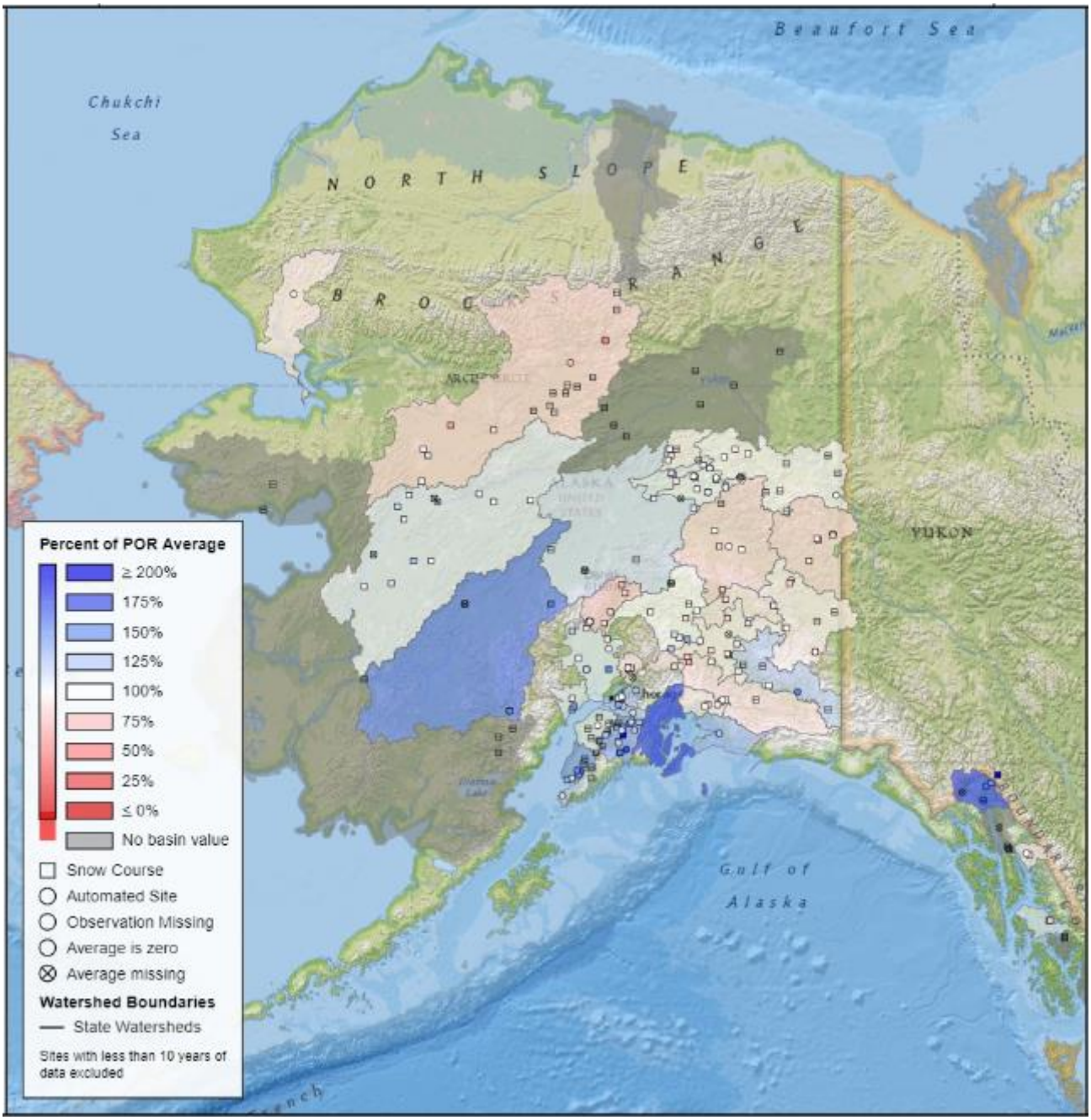
0 50 100 200 300 400 500 Miles

Created 2-03-2021

Alaska Statewide Snowpack Map

Based on March 1st, 2021 Snow Water Equivalent



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Streamflow Forecasts

FORECAST POINT*	Percent of Ave. Flow	Period
Yukon River at Eagle	117	April - July
Porcupine River nr Int'l Boundary……	99	April - July
Yukon River near Stevens Village	111	April - July
Tanana River at Fairbanks	96	April - July
Tanana River at Nenana	100	April - July
Little Chena River near Fairbanks	100	April - July
Chena River near Two Rivers	107	April - July
Salcha near Salchaket	106	April - July
Kuskokwim River at Crooked Creek	109	April - July
Sagvanirktok River near Pump Station 3	86	April - July
Kuparuk River near Deadhorse	79	April - July
Gulkana River at Sourdough	99	April - July
Little Susitna River near Palmer	94	April - July
Talkeetna River near Talkeetna	92	April - July
Ship Creek near Anchorage	112	April - July
Kenai River at Cooper Landing	108	April - July
Bradley Lake Inflow	99	April - July
Taiya River nr Skagway	100	April - July

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

FORECAST POINT	INDEX
Koyukuk River at Hughes……..	-2.0
MF Koyukuk R near Wiseman ……..	-2.5
Slate Creek at Coldfoot……..	-2.5
Beaver Creek above Victoria Creek……..	-1.0
Birch Creek below South Fork……..	-1.5
Caribou Creek at Chatanika……..	0.0
Susitna River near Gold Creek……..	0.0
Chulitna River near Talkeetna……..	-2.5
Deshka River at mouth near Willow……..	-1.0
Montana Creek at Parks Highway……..	-1.0
Willow Creek near Willow……..	-0.5
Skwentna River at Skwentna……..	-1.0
Chuitna River near Tyonek……..	—
Campbell Creek near Spenard……..	1.0
Indian Creek at Indian……..	0.0
Bird Creek at Bird Creek ……..	0.0
Glacier Creek nr Girdwood ……..	2.0
Six Mile Creek near Hope……..	2.5
Resurrection Creek near Hope……..	—
Grouse Ck at Grouse Lake Outlet nr Seward ……..	2.5
Anchor River near Anchor Point ……..	0.5
Deep Creek near Ninilchik……..	0.5
Ninilchik River near Ninilchik……..	1.5
Fritz Creek near Homer……..	2.5
Skagway River at Skagway……..	3.0
Municipal Watershed C nr Petersburg ……..	0.5
Gold Creek near Juneau……..	—-

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.

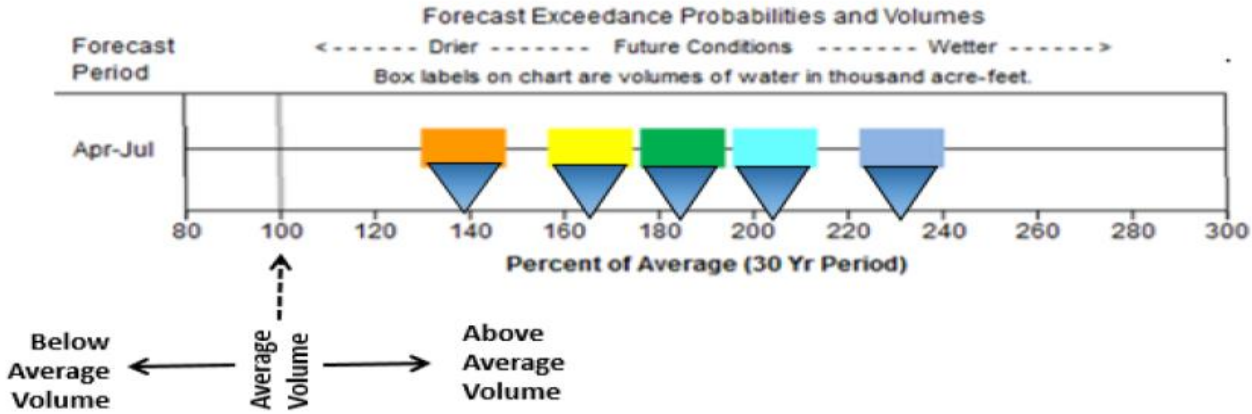
The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. 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:

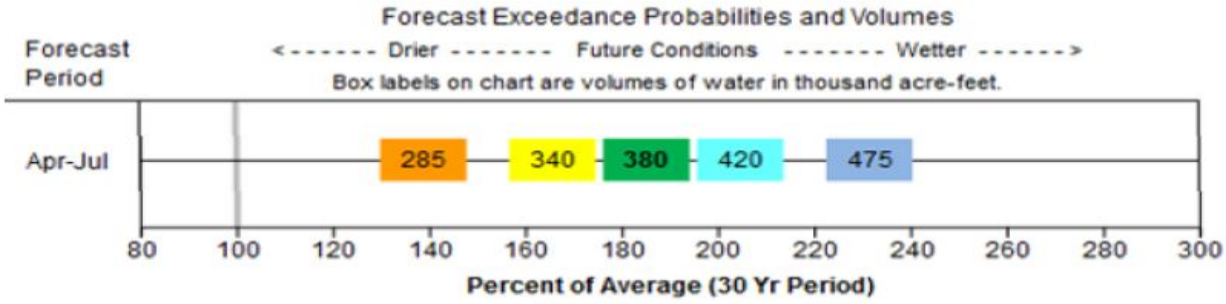
This graphic provides a visual alternative to the forecast tables the NRCS has presented for years. It gives both the volume and percent of average of each of the five forecast exceedances.

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

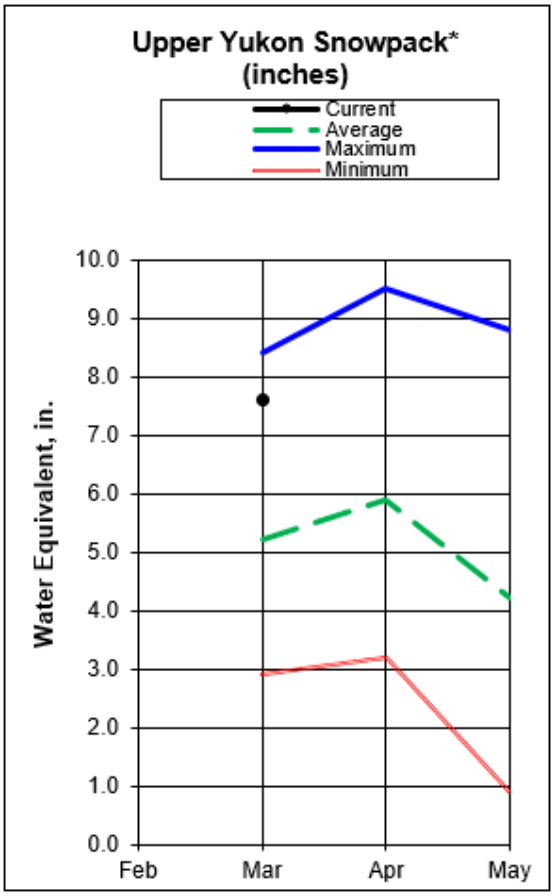


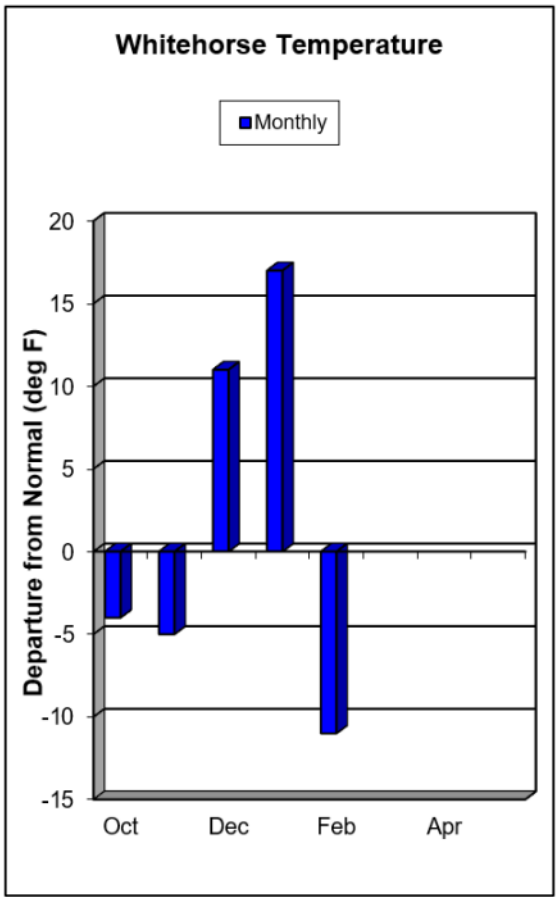
box) and increase with wetter conditions (right of green box).

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.Fisher2@usda.gov

Upper Yukon Basin





Snowpack

The snowpack in the upper Yukon is above normal. The 31 sites in this area index to 133% of normal. Sites range from just below normal to 208% of normal. The snowpack in the headwaters of the Yukon are substantial. Many snow courses are near or at record. Altin Lake Snow (51 years of record), Montana Mountain Snow Course(47 years), and Log Cabin Snow Course (61 years) all set new March 1st snowpack records. The nine courses here index to 161% of average.

Snow diminishes somewhat going north. The Stewart-Pelly basins are 113% of normal, less than last year. The area around Dawson is 137% of average, down from 160% last year. The White River Basin is 120% of average, basically the same as last year.

The basin above Whitehorse, also has twice as much snow as it did last year. The nine sites in this location average 112% of normal.

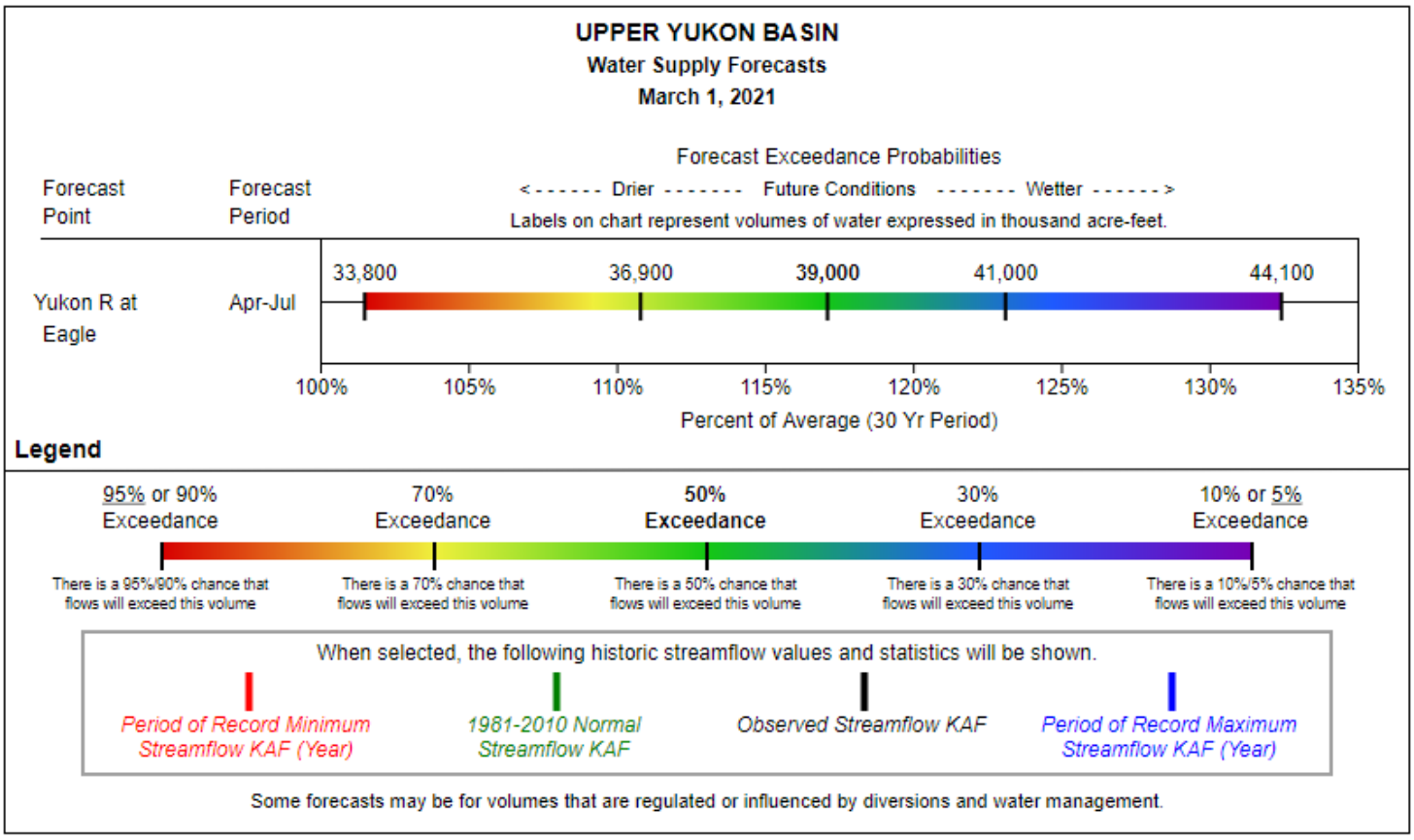
Upper Yukon Basin

Snowpack Data

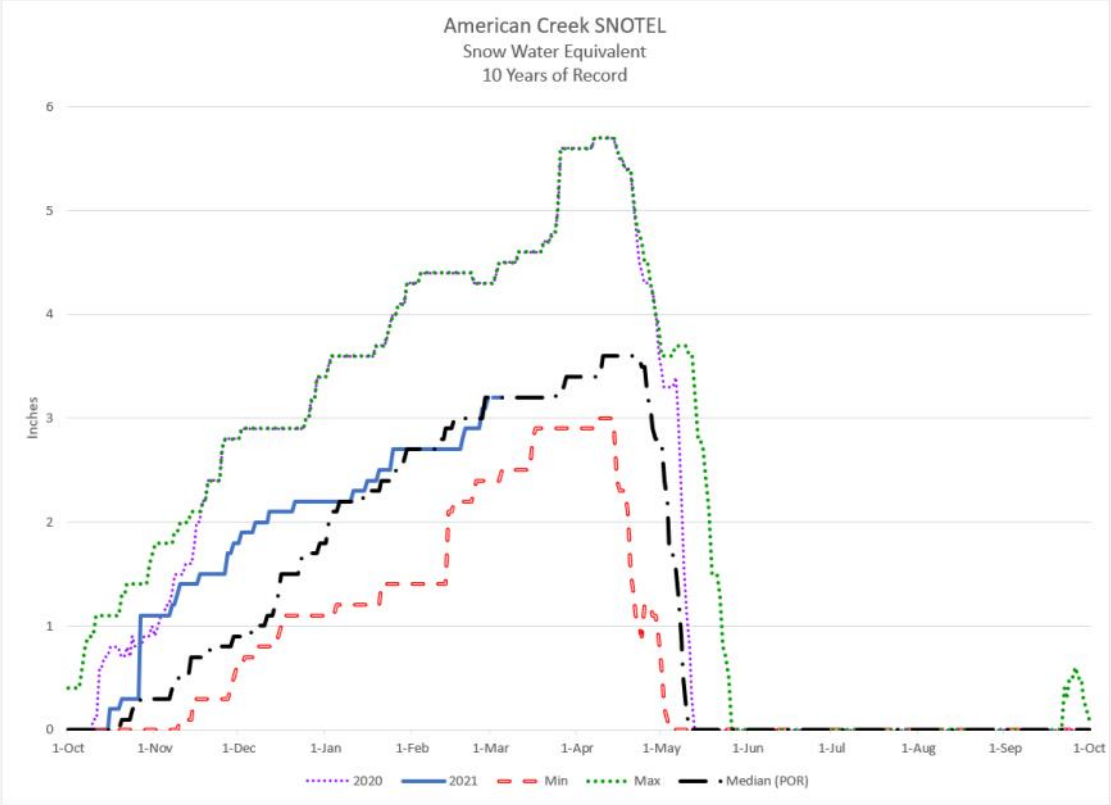
Site Name	Elev.	Snow Depth (in)			Water Content (in)		
		Current	Last Year	1981-2010 Normal	Current	Last Year	1981-2010 Normal
Beaver Creek	2150	22	18	16	4.3	2.8	2.4
Blackstone River	1020	22	28	---	3.8	4.4	---
Burns Lake	3650	42	44	33	9.3	9.8	7.4
Burwash Airstrip	2660	10	11	10	1.4	1.9	1.7
Calumet	4300	33	52	34	6.6	10.9	6.8
Canyon Mine	1160	21	17	---	3.6	2.8	---
Casino Creek	3495	29	32	24	4.4	5.0	4.0
Chair Mountain	3500	20	22	20	2.8	3.9	3.0
Eagle Plains	2330	28	29	28	5.6	4.5	5.6
Eagle River	1115	26	24	25	4.4	3.8	4.1
Edwards Lake	2720	35	---	30	6.6	---	5.4
Finlayson Airstrip	3240	27	29	20	5.4	5.8	3.6
Francis River	730	35	39	---	7.6	8.1	---
Fuller Lake	3695	35	36	31	6.4	6.7	6.7
Grizzly Creek	3200	33	47	28	7.6	10.4	5.9
Hoole River	3400	37	39	24	7.9	8.0	4.6
Jordan Lake	3050	34	---	24	6.8	---	4.8
King Solomon Dome	3540	34	41	29	7.5	7.4	5.6
Macintosh	3805	24	23	19	3.7	3.7	3.3
Mayo Airport	1770	23	35	20	3.9	6.1	3.8
Meadow Creek	4050	55	48	40	12.7	10.9	9.4
Midnight Dome	2805	34	42	26	7.5	8.6	5.0
Montana Mtn.	3350	36	25	24	8.7	5.5	5.2
Morley Lake	2700	30	27	24	5.6	4.8	5.1
Mt. Berdoe	3395	28	30	22	4.7	4.9	3.8
Mt. Mcintyre B	3600	35	31	26	7.4	6.2	5.2
Mt. Nansen	3350	21	22	17	3.3	3.1	2.6
Ogilvie River	550	25	33	---	4.2	5.7	---
Pelly Farm	1550	24	26	16	4.3	5.0	2.8
Pine Lake Airstrip	995	52	42	---	10.8	9.0	---
Plata Airstrip	2725	37	37	30	7.3	7.5	6.2
Rackla Lake	3410	31	40	31	5.8	8.6	6.4
Riffs Ridge	2130	27	32	28	5.0	6.1	4.7
Rose Creek Faro	1080	26	25	---	5.3	7.8	---
Russell Lake	3480	38	40	35	7.9	7.7	7.0
Satasha Lake	3630	24	21	18	4.0	3.5	3.1
Summit	985	55	36	34	16.2	8.0	9.2
Tagish	3540	34	26	25	7.2	5.2	5.1
Twin Creeks	2950	34	35	30	6.8	7.1	6.3
Watson Lake Airport	685	30	28	---	6.6	5.3	---
Whitehorse Airport	2300	29	22	19	5.9	4.1	3.6
Williams Creek	3000	25	26	18	4.1	4.3	3.1
Withers Lake	3200	36	43	34	6.6	10.0	7.4

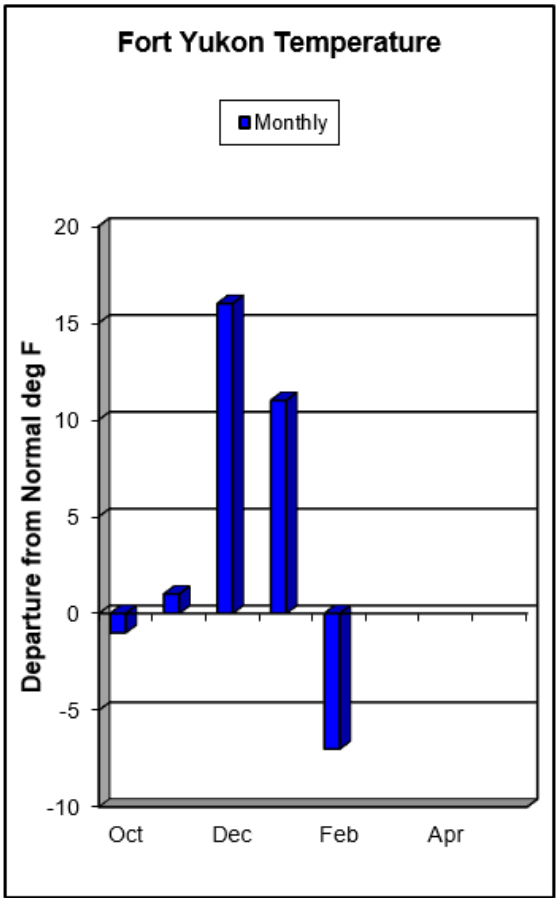
**Estimate*

Streamflow Forecasts



Central Yukon Basin





Snowpack

Snowpack in the western basin is below normal and this trend likely carries into the Yukon Flats. However, the snowpack in the White Mountains is above average and west of there is mixed closer to average. The Fortymile region has slightly below average snowpack. The snowpack in the headwaters of the Porcupine River is a tad above normal.

Central Yukon Basin

Snowpack Data

Site Name	Elev.	Snow Depth			Water Content		
		Current	Last Year	1981-2010 Median	Current	Last Year	1981-2010 Median
American Creek	1050	17	22	---	3.2	4.3	---
Atigun Pass	4800	38	41	---	---	---	---
Borealis	1330	30	28	23	4.5	5.6	4.0
Boundary	3500	25	35	22	3.9	7.8	4.3
Chicken Airstrip	1650	16	21	16	2.5	4.0	2.8
Circle Hot Springs	860	23	29	22	3.4	5.0	3.6
Eagle Summit	3650	9	8	---	---	---	---
Fort Yukon	430	14	16	---	---	---	---
Fossil	1400	25	25	22	3.9	5.1	3.8
Jack Wade Jct	3585	26	33	---	3.8	6.2	---
Lost Chicken Hill	2150	18	25	18	2.9	4.9	3.1
Mt. Fairplay	3100	20	32	20	3.4	6.6	3.8
Ptarmigan Creek	2270	26	29	23	4.2	4.9	3.6
Stack Pup Creek	1620	23	29	23	3.3*	4.8	3.7
Wolf	1200	26	26	21	4.5	5.4	3.6

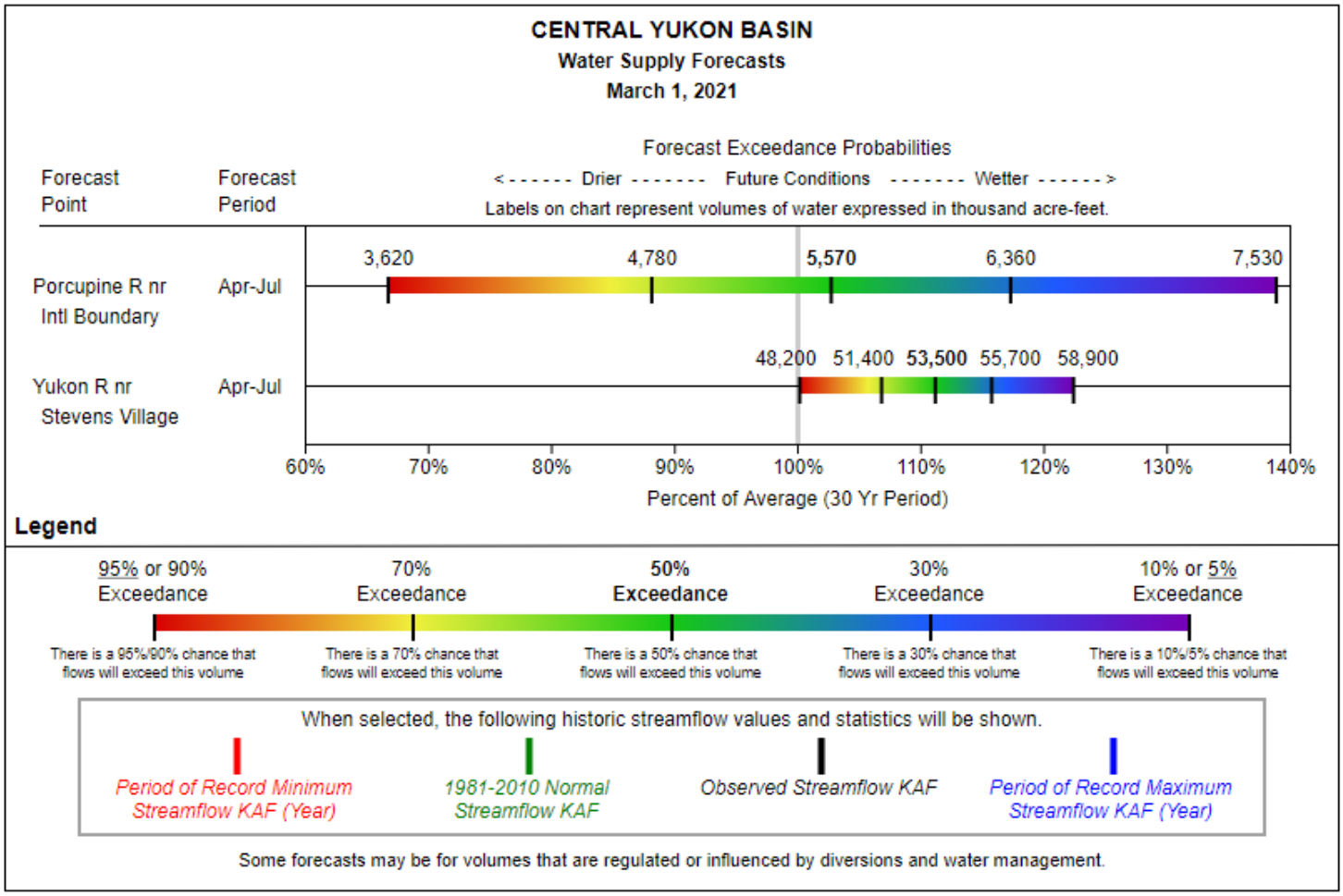
**Estimate*

Precipitation

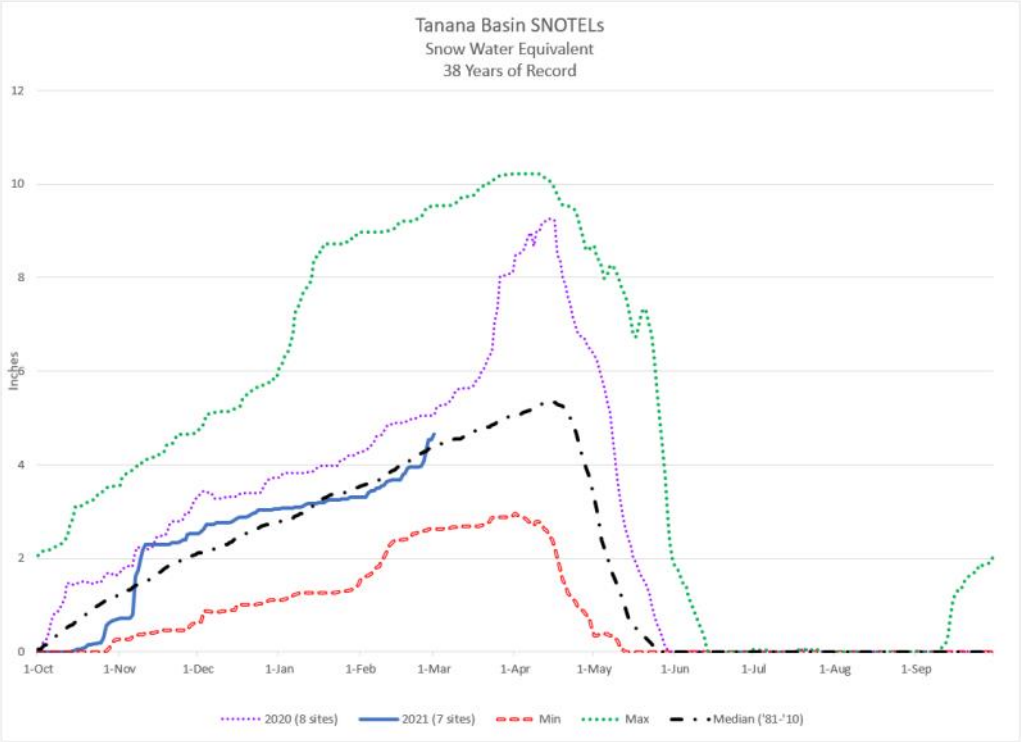
Inches Accumulated since October 1st (as of March 1, 2021)

Site Name	Elev.	This Year	Last Year	1981-2010 Normal	% of Normal
American Creek	1050	2.9	4.9	---	---
Atigun Pass	4800	3.4	4.9	4.8	71%
Chandalar Shelf	3300	2.6	5.5	3.9	67%
Eagle Summit	3650	4.0	5.8	4.7	85%
Fort Yukon	430	2.5	3.5	3.1	81%
Jack Wade Jct	3585	4.4	6.5	---	---

Streamflow Forecasts

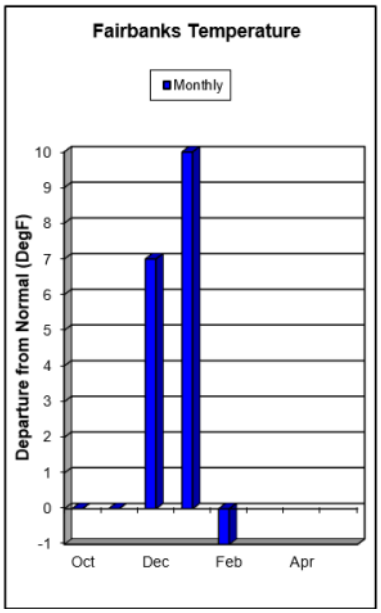


Tanana Basin



Snowpack

Except for the upper reaches, the Tanana Basin gained abundant precipitation during February with several sites recording twice average snowfall. The snowpack in the lower basin went from near average last month to above average March 1st. Snowpack totals diminish further up-stream. The snow near Delta is near average and the snow near Tok is slightly below average.



Tanana Basin

Snowpack Data

Site Name	Elev.	Snow Depth			Water Content		
		Current	Last Year	1981-2010 Normal	Current	Last Year	1981-2010 Normal
Bonanza Creek	1150	26	---	20	5.0	---	3.9
Caribou Creek	1250	26	---	20	5.0	---	3.6
Caribou Snow Pillow	900	26	---	21	4.9	---	3.6
Chena Lakes	500	22	---	---	4.0	---	---
Chisana	3320	19	16	---	2.9	2.8	4.1
Cleary Summit	2230	31	---	26	4.9	---	4.6
Colorado Creek	700	28	---	20	4.2	---	3.4
Faith Creek	1750	28	---	24	4.6	---	4.2
Fielding Lake	3000	34	---	37	7.2	---	8.6
Fielding Lake	3000	31	52	---	6.3	15.3	---
Fort Greely	1500	19	---	17	2.6	---	3.0
French Creek	1800	34	---	24	6.1	---	4.6
Gerstle River	1200	20	---	18	2.8	---	2.9
Granite Crk	1240	19	23	---	3.4	5.2	3.5
Kantishna	1550	33	---	24	---	---	4.4
Lost Creek	3030	18	---	17	2.8	---	3.0
Mentasta Pass	2430	30	---	24	5.6	---	5.1
Monument Creek	1850	25	23	---	4.6	4.8	4.0
Mt. Ryan	2800	28	31	---	5.3	7.0	4.4
Munson Ridge	3100	38	37	---	7.6	7.5	5.9
Shaw Creek Flats	980	19	---	14	2.8	---	2.5
Teuchet Creek	1640	24	21	---	4.1	4.6	3.3
Tok Junction	1650	19	---	18	2.5	---	3.0

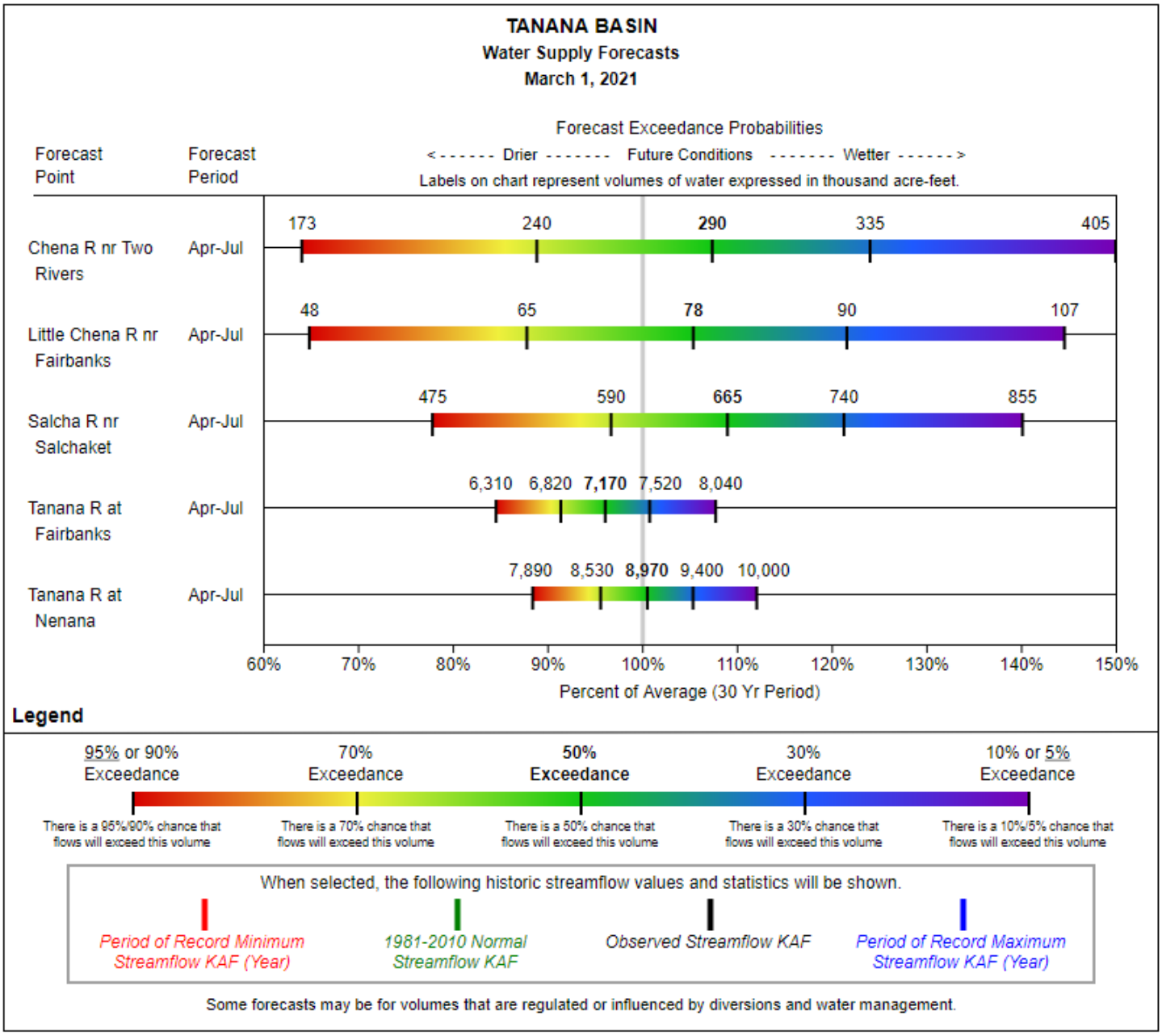
**Estimate*

Precipitation

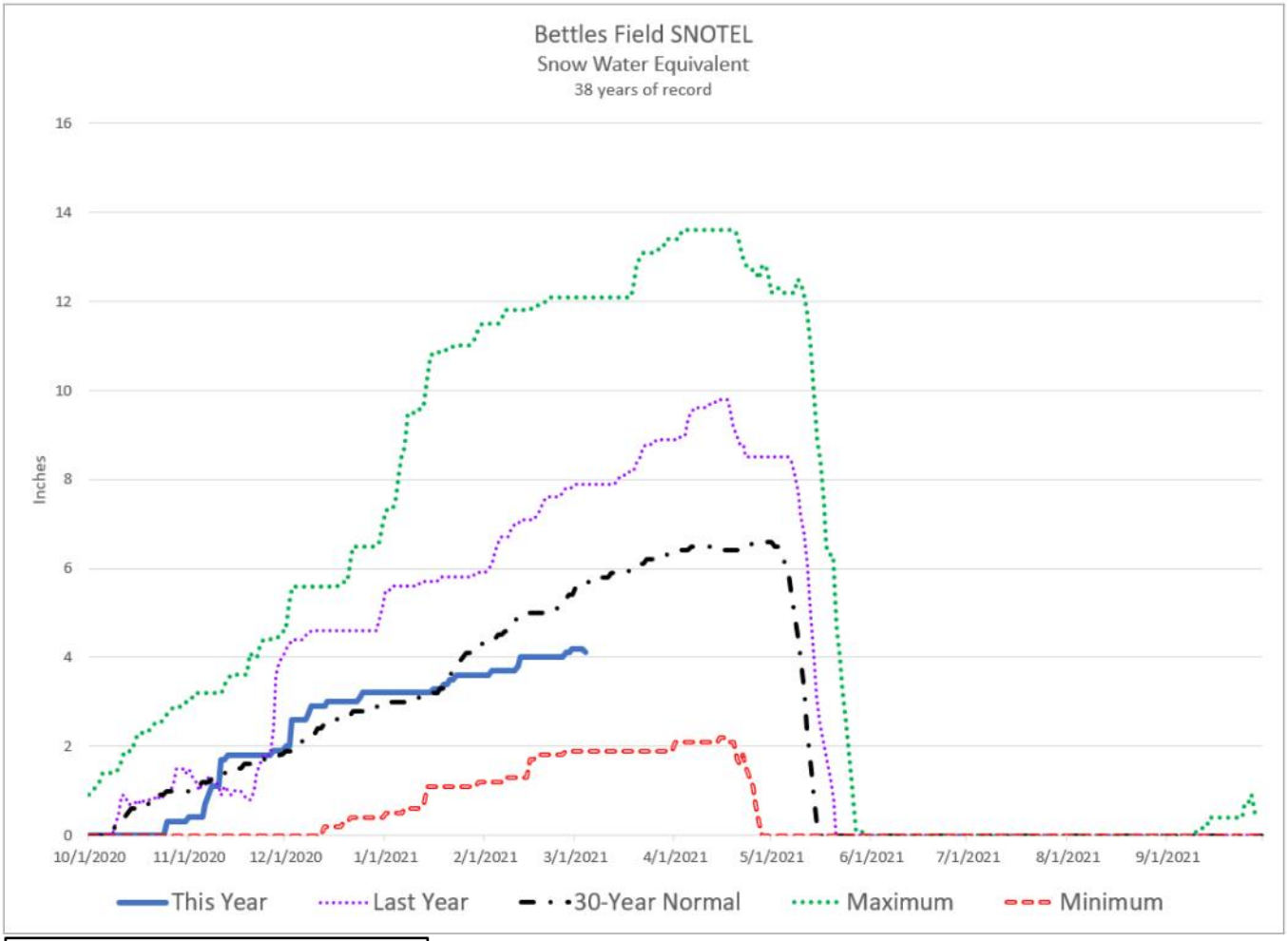
Inches Accumulated since October 1st (as of March 1, 2021)

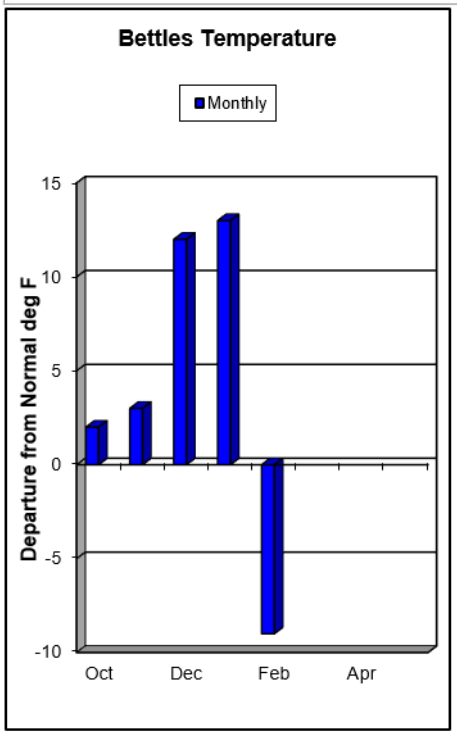
Site Name	Elev.	This Year	Last Year	1981-2010 Normal	% of Normal
Chisana	3320	3.0	4.5	---	---
Chena Lakes	500	5.2	---	---	---
Fielding Lake	3000	6.7	15.2	---	---
Granite Crk	1240	3.5	6.4	3.6	97%
Kantishna	1550	5.3	6.9	3.8	139%
Little Chena Ridge	2000	4.6	6.3	4.8	96%
Mt. Ryan	2800	5.3	7.6	4.9	108%
Munson Ridge	3100	6.1	9.3	6.6	92%
Nenana	415	3.6	6.4	---	---
Teuchet Creek	1640	4.0	5.1	3.8	105%
Upper Chena	2850	6.5	---	5.9	110%

Streamflow Forecasts



Western Interior Basins





Snowpack

Koyukuk

February only brought half of normal precipitation to the upper basin. Snowpack is lowest on the eastern side, where Coldfoot only has half its average snowpack. Further west the snowpack actually increases and snow depths are above average.

Kuskokwim

The Kuskokwim had a wetter than average February. Snowpack is near or above normal. Telaquana Lake Snow Course reported its deepest March 1st snowpack since 2005. Aniak SCAN site reports 1" less snow than last year, but still above normal.

Lower Yukon

Snow depths in the lower Yukon range from near to above historic averages. The 10 sites in this area average 113% of average. The Galena AK SNOTEL has 22" of snow with 4.8" of water content compared to 32" and 6.3" last year.

Western Interior Basins

Precipitation

Inches Accumulated since October 1st (as of March 1, 2021)

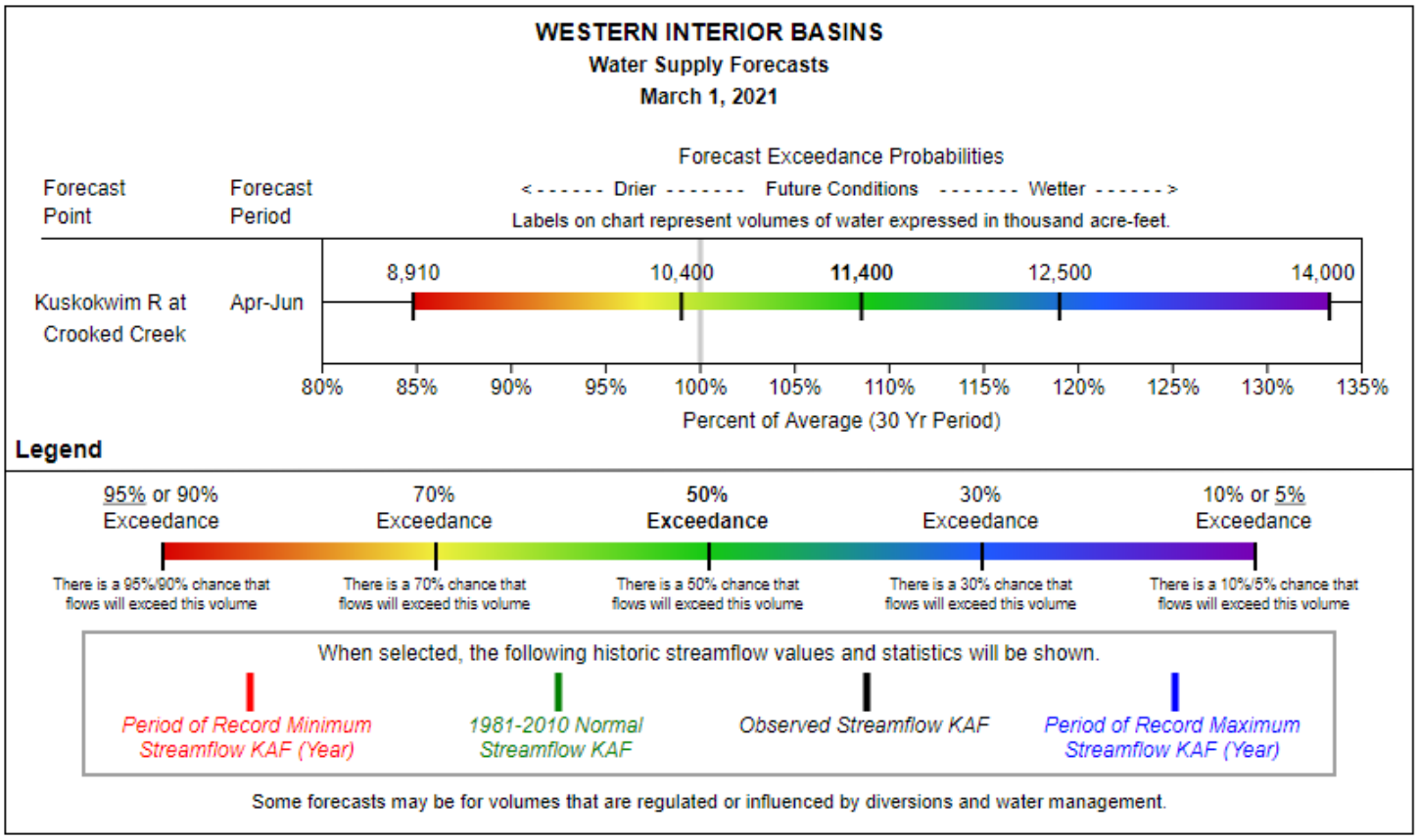
Site Name	Elev.	This Year	Last Year	1981-2010 Normal	% of Normal
Koyukuk					
Bettles Field	640	3.9	9.0	5.8	67%
Coldfoot	1040	4.0	8.2	5.7	70%
Galena AK	410	5.0	7.4	---	---
Gobblers Knob	2030	3.6	7.5	6.1	59%
Hozatka Lake	206	4.4	6.5	---	---
Kuskokwim					
Aniak	80	8.3	9.4	---	---
McGrath	340	7.4	13.8	---	---
Telaquana Lake	1275	8.0	9.8	---	---

Snowpack Data

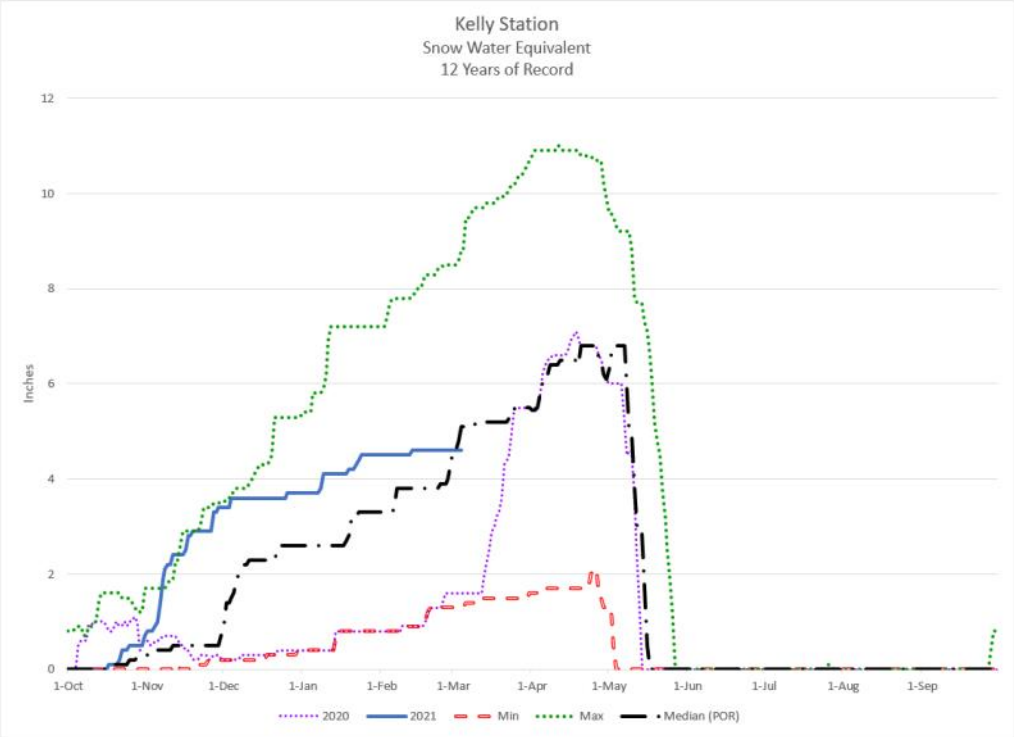
Site Name	Elev.	Snow Depth			Water Content		
		Current	Last Year	1981-2010 Median	Current	Last Year	1981-2010 Median
Koyukuk							
Bettles Field	640	21	36	---	4.2	7.9	5.6
Bonanza Forks	1200	17	28	26	3.0	5.0	4.8
Cloverleaf	170	31	42	---	6.0*	8.4	---
Coldfoot	1040	18	33	---	2.8	7.0	5.3
Colville Bend	170	30	30	---	5.7*	6.3	---
Disaster Creek	1550	14	26	22	2.0*	4.4	3.2
Gobblers Knob	2030	2	4	---	---	---	---
Huggins Creek	290	26	36	---	4.9	7.8	---
Jr Slough	160	33	31	---	5.4*	6.3	---
Table Mountain	2200	15	30	21	2.2	5.9	3.3
Treat Island	190	15	32	---	2.8*	6.6	---
Kuskokwim							
Aniak	80	23	24	---	---	---	---
McGrath	340	36	44	---	7.7	13.8	---
Purkeypile Mine	2025	38	32	24	7.2	7.4	4.6
Telaquana Lake	1550	34	27	22	6.0	4.8	4.4
Telaquana Lake SNOTEL	1275	30	21	---	6.6	5.1	---
Lower Yukon							
Bullfrog	100	43	51	---	8.5*	11.2	---
Deer Creek	195	32	46	---	6.3*	10.5	---
Galena Ecological Site	128	28	---	---	4.6	---	---
Hozatka Lake	206	20	25	---	---	---	---
Little Mud River	855	24	36	---	4.3*	8.6	---
Lower Nowitna River	205	24	36	---	4.6*	8.5	---
Middle Innoko	150	43	45	32	7.9*	10.3	6.5
Ninemile Island	140	38	38	---	7.2*	7.9	---
Pike Trap Lake	130	18	30	---	3.4*	6.2	---
Squirrel Creek	150	36	48	---	7.4*	9.2	---
Tozikaket	600	---	---	20	---	---	3.6
Upper Innoko	180	36	45	33	7.0*	10.7	7.2
Wapoo Hills	220	50	60	33	10.2*	13.5	6.8
Yankee Slough	100	41	45	38	7.7*	11.2	8.4

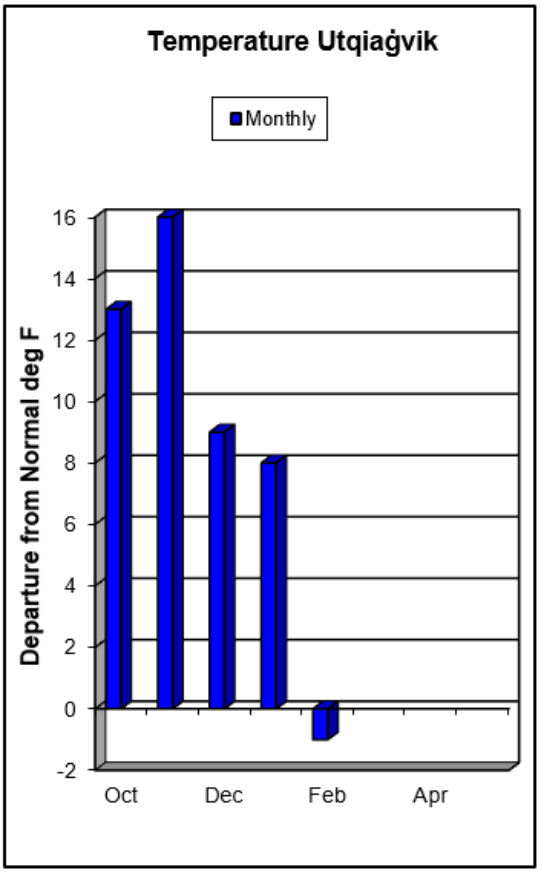
**Estimate*

Streamflow Forecasts



Arctic and Kotzebue Sound





Snowpack

Arctic

The stations along the Dalton Highway reported below normal precipitation during February while Utqiaġvik made above average gains. Imnaviat Creek and Prudhoe Bay SNOTELs have below normal snow depths while Sagwon is above average and close to the last three years

Kotzebue

February brought sparse precipitation to Northwest Alaska with stations reporting less than half of average February snowfall. Kelly Station SNOTEL, on the Noatak, is reporting just under its 12-year average snowpack.

Arctic and Kotzebue Sound

Snowpack Data

Site Name	Elev.	Snow Depth			Water Content		
		Current	Last Year	1981-2010 Median	Current	Last Year	1981-2010 Median
Atigun Pass	4800	37	36	---	---	---	---
Imnaviat Creek	3050	17	15	---	---	---	---
Kelly Station	310	20	6	---	4.5	0.8	---
Prudhoe Bay	30	5	8	---	---	---	---
Sagwon	1000	17	18	---	---	---	---

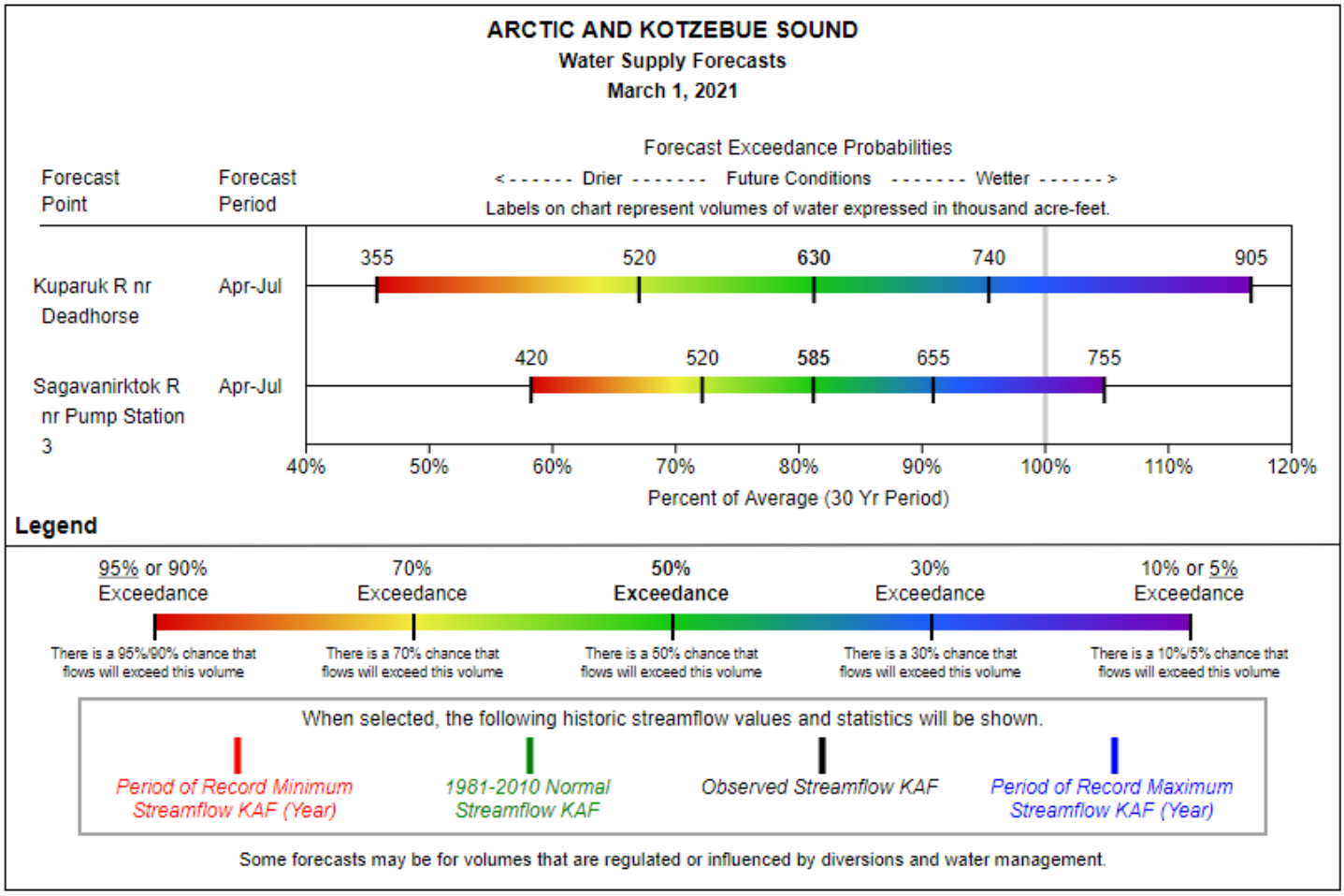
**Estimate*

Precipitation

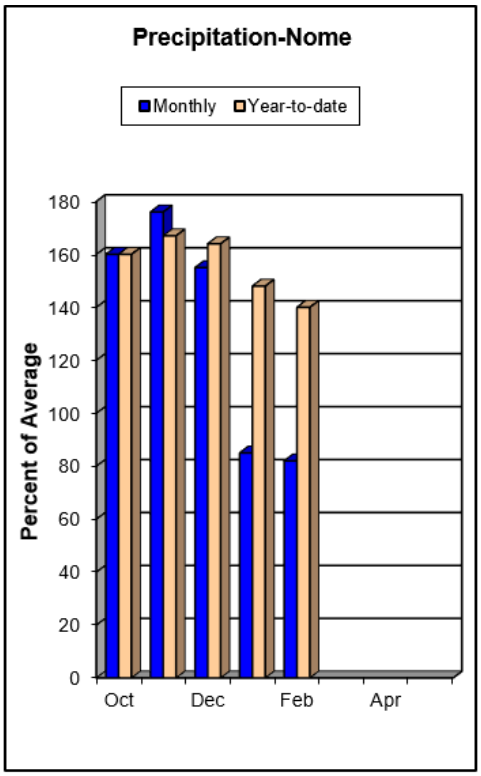
Inches Accumulated since October 1st (as of March 1, 2021)

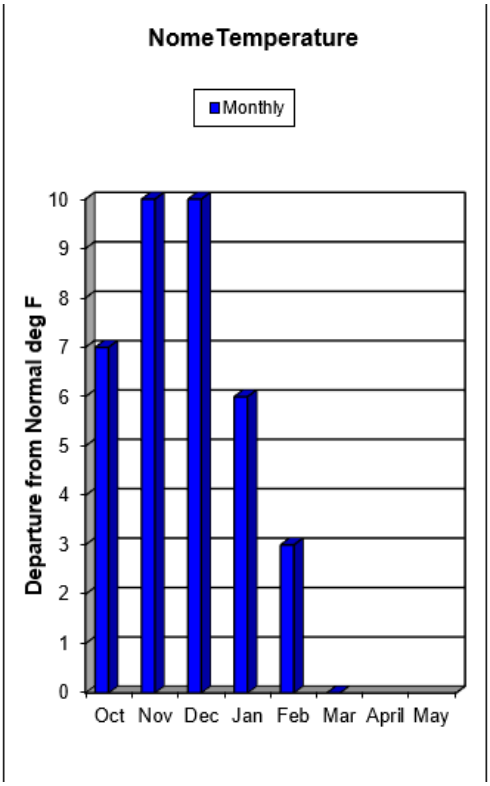
Site Name	Elev.	This Year	Last Year	1981-2010 Normal	% of Normal
Arctic					
Atigun Camp	3400	1.6	3.0	2.1	76%
Atigun Pass	4800	3.4	4.9	4.8	71%
Imnaviat Creek	3050	1.9	2.2	2.6	73%
Prudhoe Bay	30	1.5	3.0	2.6	58%
Sagwon	1000	2.1	2.5	2.6	81%
Kotzebue Sound					
Port Red Dog	50	2.3	---	3.2	72%
Red Dog Mine	950	4.5	---	3.9	115%
Kelly Station	310	6.1	3.9	---	---

Streamflow Forecasts



Norton Sound/Y-K Delta/Bristol Bay





Snowpack

The Seward Peninsula has had variable precipitation this winter. Nome is reporting above average precipitation while the SNOTEL sites to the east have reported below normal amounts. November brought above normal snowfall, but not enough to create above normal snowpack at the monitoring sites.

Precipitation

Inches Accumulated since October 1st (as of March 1, 2021)

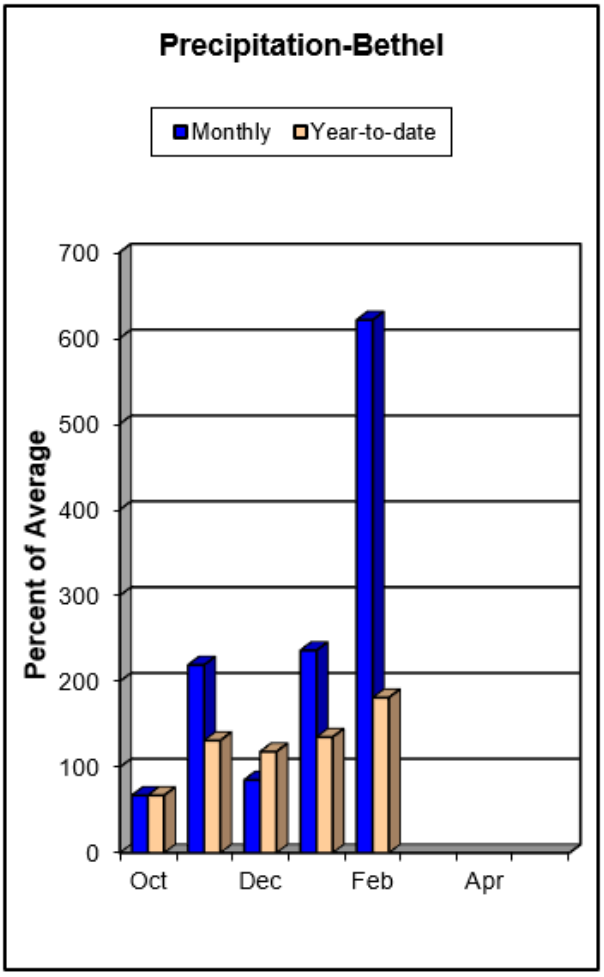
Site Name	Elev.	This Year	Last Year	1981-2010 Normal	% of Normal
Norton Sound					
Pargon Creek	100	5.0	5.0	5.1	98%
Rocky Point	250	3.4	4.4	4.8	71%

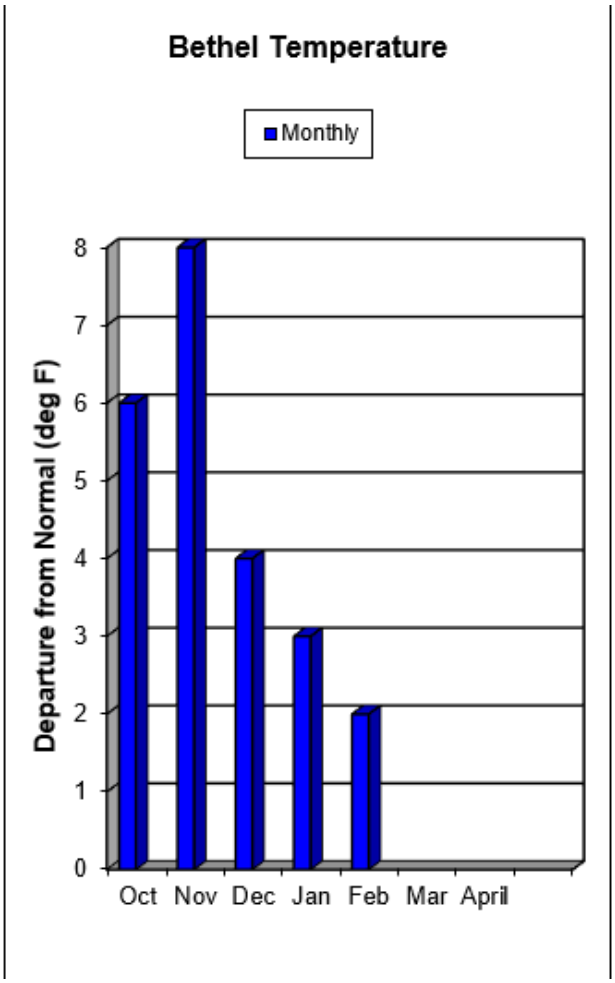
Norton Sound/Bristol Bay

Snowpack Data

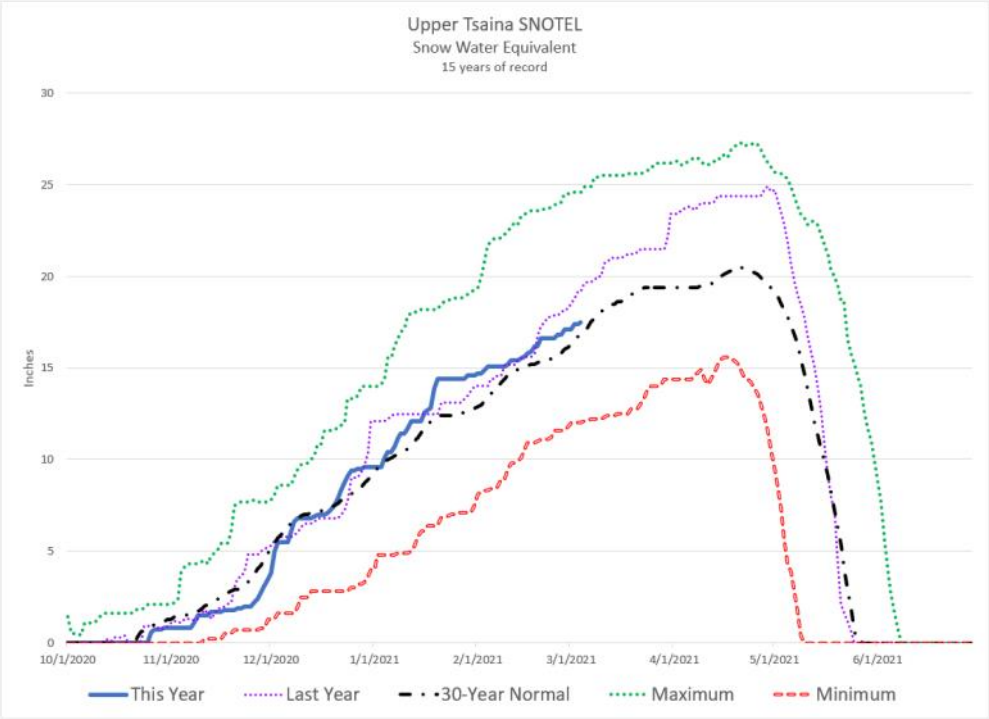
Site Name	Elev.	Snow Depth			Water Content		
		Current	Last Year	1981-2010 Median	Current	Last Year	1981-2010 Median
Norton Sound							
Johnsons Camp	25	14	6	---	---	---	---
Pargon Creek	100	8	---	---	---	---	---
Rocky Point	250	13	12	---	---	---	---

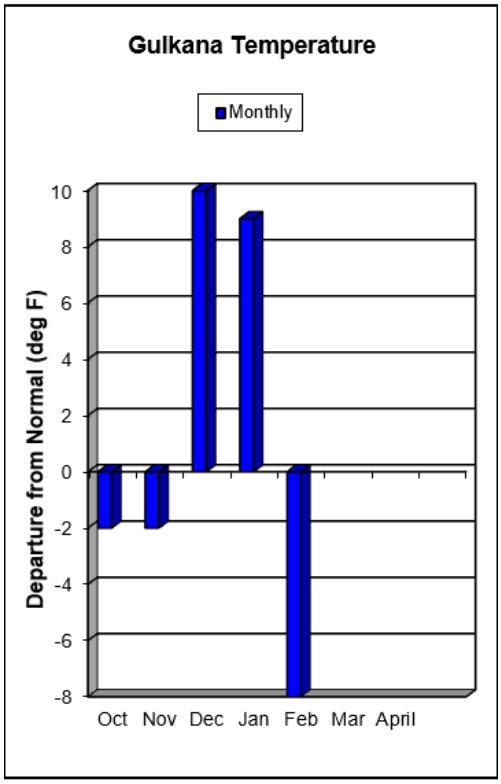
**Estimate*





Copper Basin





Snowpack

The Chugach Range received below normal February precipitation, though the rest of the valley seems to have received near normal monthly snowfall. The western part of the basin has somewhat below average snowpack while the east half of the basin has above normal snowpack. Fourteen-year-old May Creek SNOTEL, 10 miles southeast of McCarthy, is experiencing its deepest winter on record.

Copper Basin

Snowpack Data

Site Name	Elev.	Snow Depth			Water Content		
		Current	Last Year	1981-2010 Median	Current	Last Year	1981-2010 Median
Chistochina	1950	24	15	20	4.2	2.5	3.2
Chokosna	1550	16	12	16	3.2	2.3	3.2
Copper Center	1264	18	20	---	---	4.6	---
Dadina Lake	2160	---	22	27	---	3.5	5.4
Fielding Lake	3000	34	64	37	7.2	18.1	8.6
Fielding Lake SNOTEL	3000	31	52	---	6.3	15.3	---
Gulkana River	1830	20	20	---	5	4.4	---
Haggard Creek	2540	25	30	26	4.0	6.2	5.2
Kenny Lake School	1300	18	16	17	3.0	2.7	3.0
Little Nelchina	2650	18	24	24	3.3*	4.6	4.7
Lost Creek	3030	18	11	17	2.8	1.2	3.0
May Creek	1610	36	21	---	7.1	4.6	4.6
Mentasta Pass	2430	30	29	24	5.6	5.9	5.1
Monsoon Lake	3100	31	36	28	5.7	7.0	5.4
Paxson	2650	32	41	30	5.3	9.2	5.9
Sanford River	2280	31	27	28	5.0	5.3	5.2
St. Anne Lake	1990	27	23	23	4.3*	4.3	4.2
Tazlina	1250	17	21	16	3.1*	4.1	3.4
Tolsona Creek	2000	20	23	20	3.2	4.3	3.8
Tsaina River	1650	50	---	53	13.8	---	14.1
Twin Lakes	2400	23	26	28	3.6*	5.0	5.6
Upper Tsaina River	1750	65	74	---	17.1	18.5	16.3
Worthington Glacier	2100	72	---	69	18.0	---	21.6

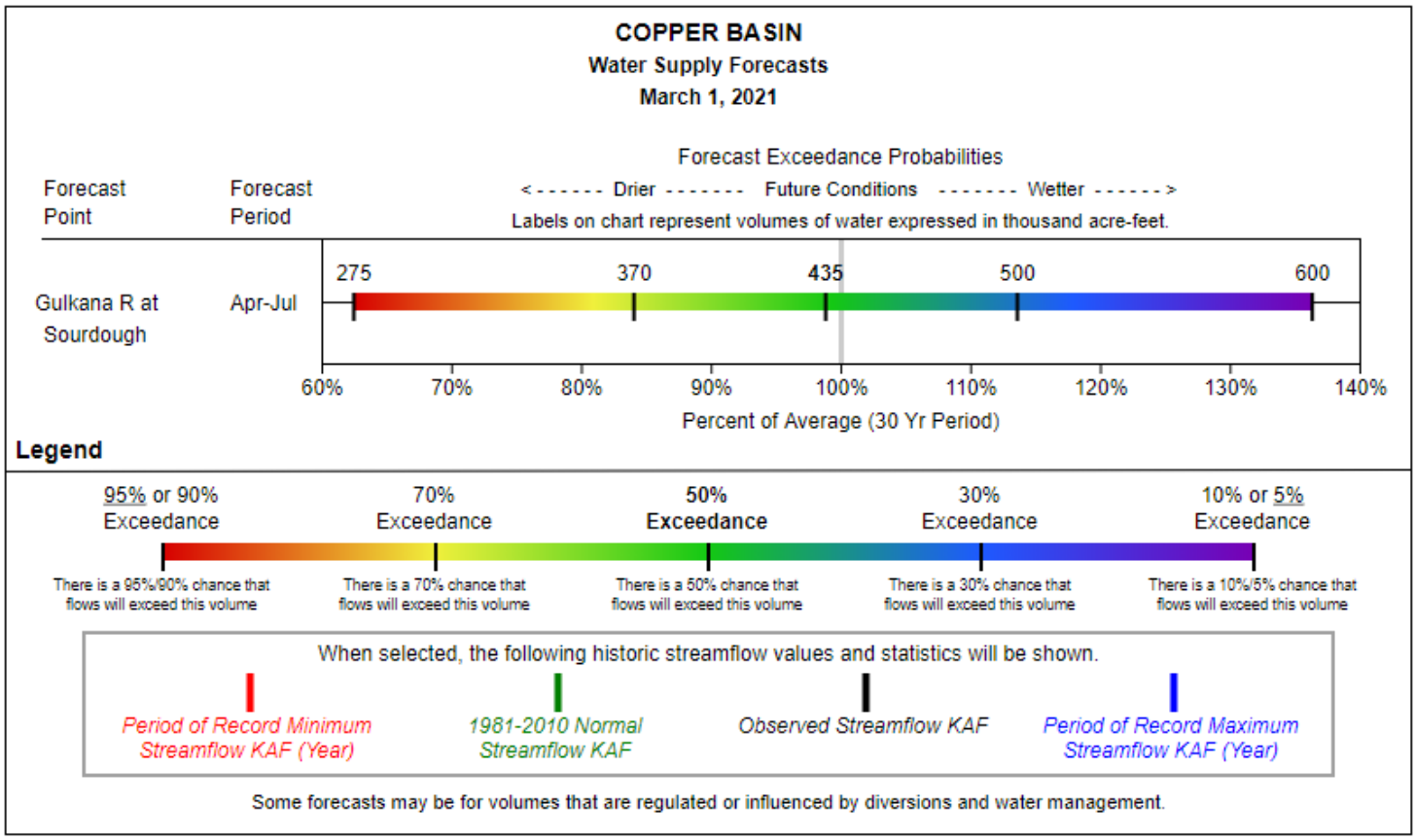
**Estimate*

Precipitation

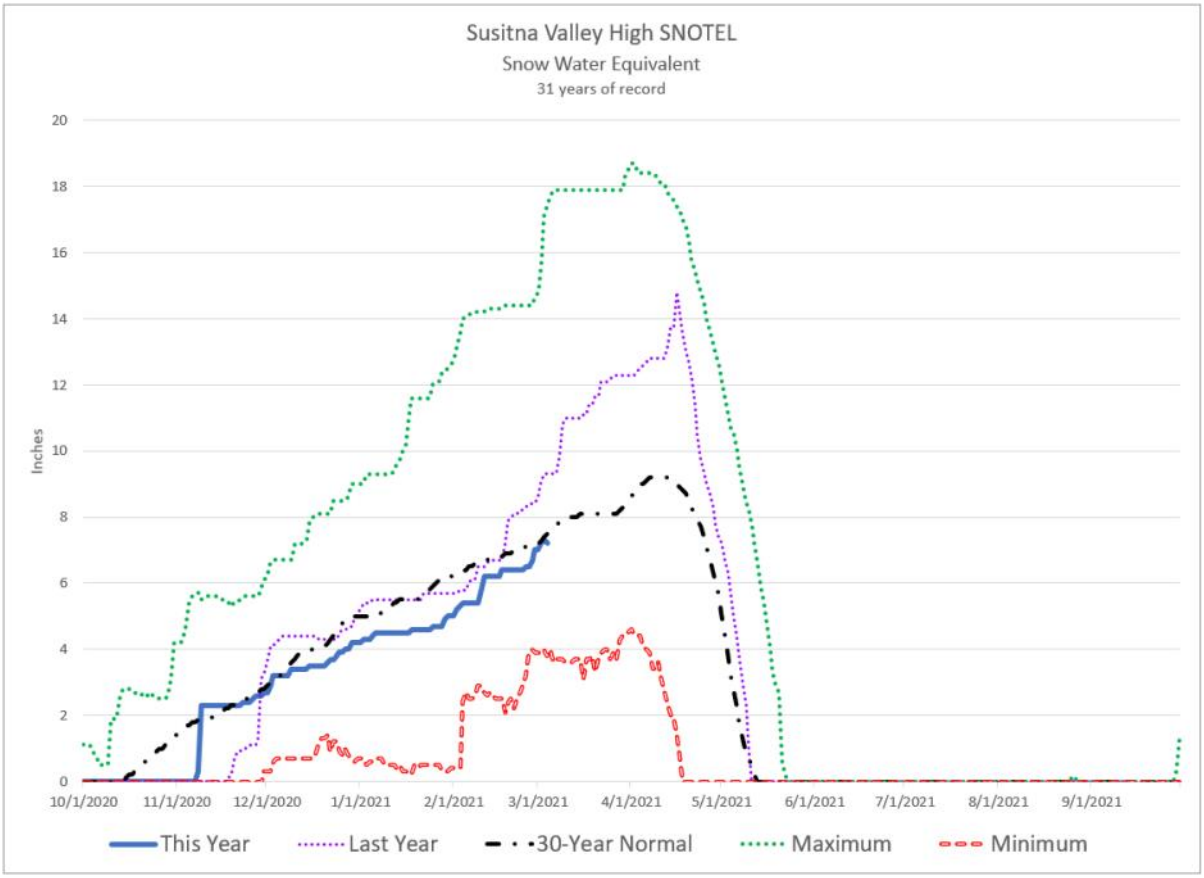
Inches Accumulated since October 1st (as of March 1, 2021)

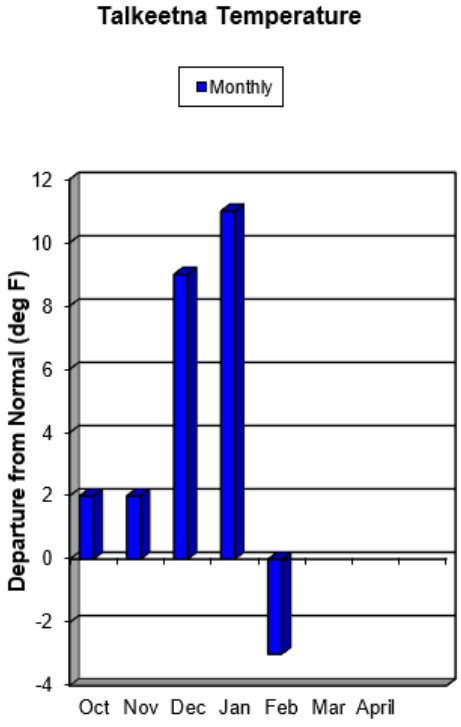
Site Name	Elev.	This Year	Last Year	1981-2010 Normal	% of Normal
Gulkana River	1830	5.9	4.9	---	---
May Creek	1610	7.1	5.9	5.5	129%
Upper Chena	2850	6.5	---	5.9	110%

Streamflow Forecasts



Matanuska—Susitna Basin





Snowpack

Most of the Susitna Basin received near normal precipitation during February while a series of late month storms brought additional snow to the Southern Talkeetna Mountains.

Snowpack in the Upper Basin, east of the Talkeetnas, is near average, while the Chulitna Basin snowpack west of the mountains is below average. Further south, the snowpack transitions to average while Willow Airstrip Snow Course reports a basin high of 157% of average snowpack. The Little Susitna Headwaters saw above normal February snowfall resulting in near normal low elevation snowpacks, but higher snowpacks remained only 85% of normal.

Precipitation

Matanuska—Susitna Basin

Inches Accumulated since October 1st (as of March 1, 2021)

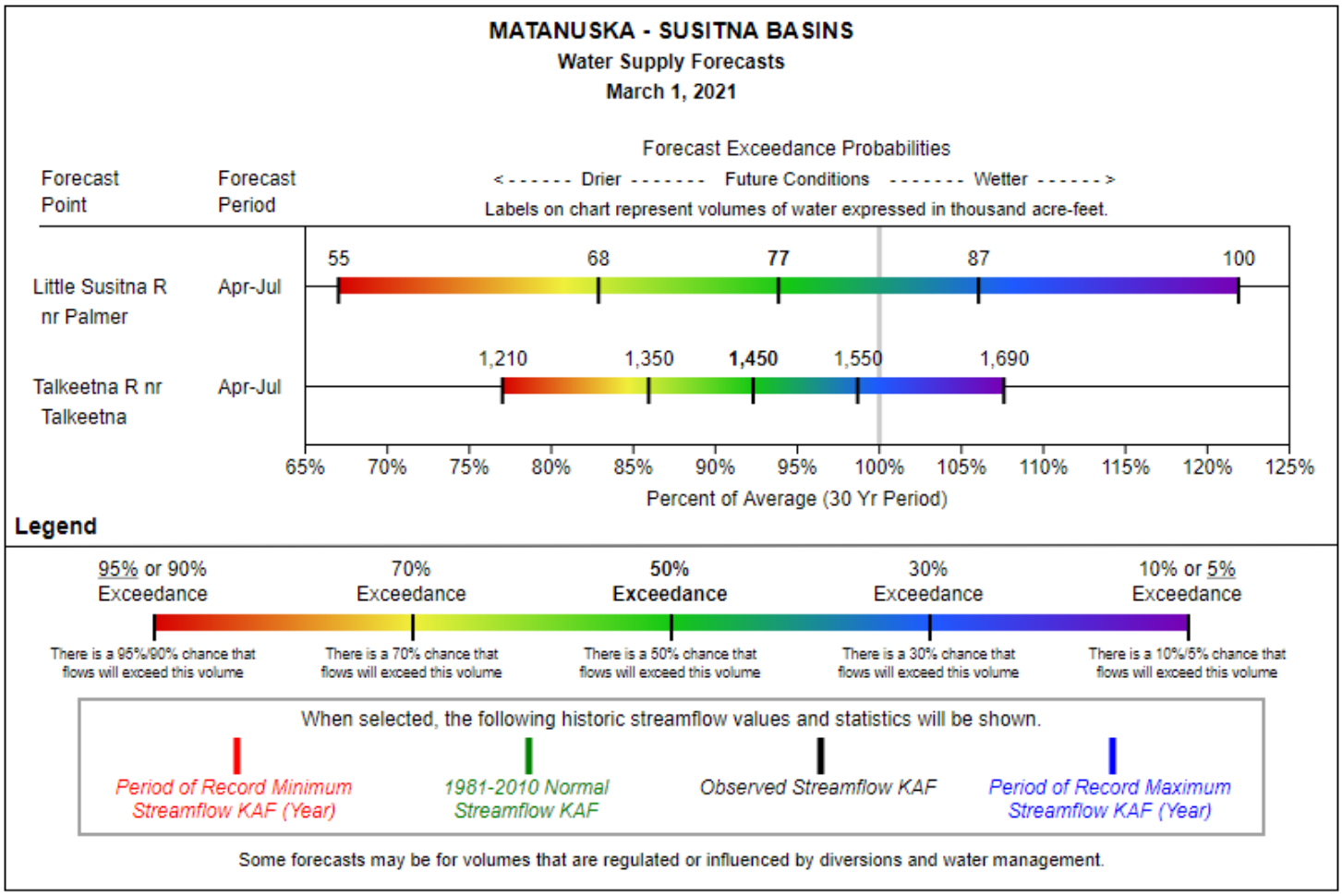
Site Name	Elev.	This Year	Last Year	1981-2010 Normal	% of Normal
Alexander Lake	160	12.3	17.9	---	---
Frostbite Bottom	2700	11.1	19.8	---	---
Independence Mine	3550	12.8	21.6	13.3	96%
Monahan Flat	2710	6.6	11.2	7.1	93%
Spring Creek	580	5.8	7.8	---	---
Susitna Valley High	375	9.4	16.8	10.5	90%
Tokositna Valley	850	13.4	31.0	17.1	78%

Snowpack Data

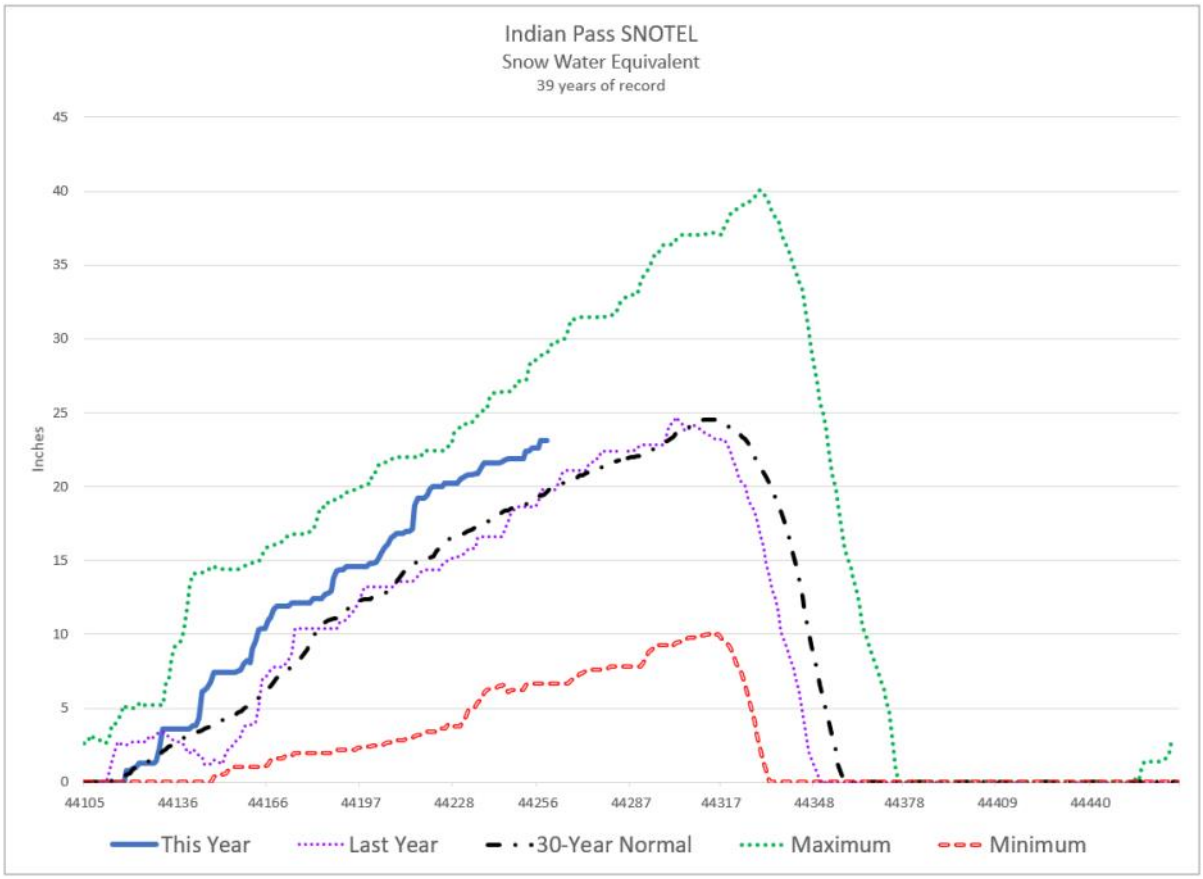
		Snow Depth			Water Content		
Site Name	Elev.	Current	Last Year	1981-2010 Median	Current	Last Year	1981-2010 Median
Alexander Lake	160	48	51	44	11.2	13.1	11.0
Alexander Lake SNOTEL	160	37	48	---	9.2	12.3	---
Archangel Road	2200	55	48	42	12.2	12.6	11.7
Birthday Pass	4020	75	102	---	18.8	35.8	---
Blueberry Hill	1200	54	74	45	11.7	19.5	12.8
Chelatna Lake	1450	50	56	44	11.9*	14.1	10.0
Curtis Lake	2850	35	27	21	5.7*	4.6	4.0
Denali View	700	41	60	38	8.9	14.2	10.9
Dunkle Hills	2700	32	60	---	7.7*	16.3	---
Dutch Hills	3100	63	99	74	16.0*	32.8	22.1
E. Fork Chulitna	1770	45	74	46	9.8	20.6	11.2
Fishhook Basin	3300	59	73	53	13.7	24.1	15.6
Fog Lakes	2120	27	36	22	4.6*	7.6	4.3
Frostbite Bottom	2700	48	55	---	11.6	16.5	---
Horsepasture Pass	4300	34	36	28	6.9	7.3	5.5
Independence Mine	3550	66	86	62	15.6	28.7	18.6
Independence Mine SNOTEL	3550	52	66	---	11.4	18.1	10.2
Lake Louise	2400	21	24	21	3.8	4.4	3.8
Little Susitna	1700	50	42	37	10.0	10.2	9.7
Monahan Flat	2710	31	41	---	6.4	8.7	---
Nugget Bench	2010	44	61	48	11.9*	18.9	13.1
Ramsdyke Creek	2220	60	100	62	14.8*	32.9	18.6
Sheep Mountain	2900	24	29	24	4.6	6.6	4.8
Skwentna	160	44	63	42	10.2	15.5	10.6
Square Lake	2950	26	31	21	4.3	5.6	3.5
Susitna Valley High	375	36	39	---	7.0	8.6	7.2
Talkeetna	350	32	37	28	6.5	8.3	6.2
Tokositna Valley	850	61	84	---	13.3	21.1	10.4
Tyone River	2400	20	22	24	3.4*	4.4	4.4
Upper Oshetna River	3150	27	31	20	4.6*	6.3	4.0
Upper Sanona Creek	3100	26	25	27	4.1*	4.6	5.0
Willow Airstrip	200	46	45	27	9.9	8.5	5.7

**Estimate*

Streamflow Forecasts



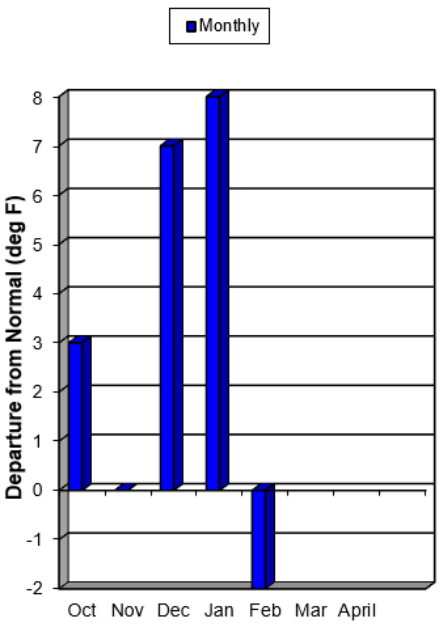
Northern Cook Inlet



Snowpack

The Northern Cook Inlet Region received below average February precipitation which resulted in below average snowpack gains during the month in most locations. Snowpack ranges from near average at Kinkaid Park Snow Course to 150% of average at Congahbuna Lake on the western side of Cook Inlet. The 14 stations reporting in this region indexed to 117% of average snowpack.

Anchorage Temperature



Northern Cook Inlet

Snowpack Data

Site Name	Elev.	Snow Depth			Water Content		
		Current	Last Year	1981-2010 Median	Current	Last Year	1981-2010 Median
Anchorage Hillside	2080	40	37	---	11.0	9.3	8.3
Arctic Ski Bowl	3000	36	---	35	11.0	---	10.8
Arctic Valley #1	500	20	13	18	3.9	2.9	4.0
Arctic Valley #2	1000	27	20	22	5.7*	4.3	4.5
Arctic Valley #3	1450	36	32	28	9.0	7.6	6.7
Arctic Valley #4	2030	33	31	28	8.4	7.6	6.4
Congahbuna Lake	550	49	47	34	13.8	12.0	9.0
Indian Pass	2350	67	69	---	22.6	18.9	19.3
Kinkaid Park	250	24	17	17	4.1	2.9	3.9
Lone Ridge	1675	82	79	76	24.6*	20.1	29.0
Moraine	2100	30	28	---	7.0	6.0	6.8
Mt. Alyeska	1540	90	65	---	30.7	16.2	26.6
Portage Valley	50	50	60	36	15.4	16.2	11.0
South Campbell Creek	1200	35	21	24	8.0	3.9	5.8

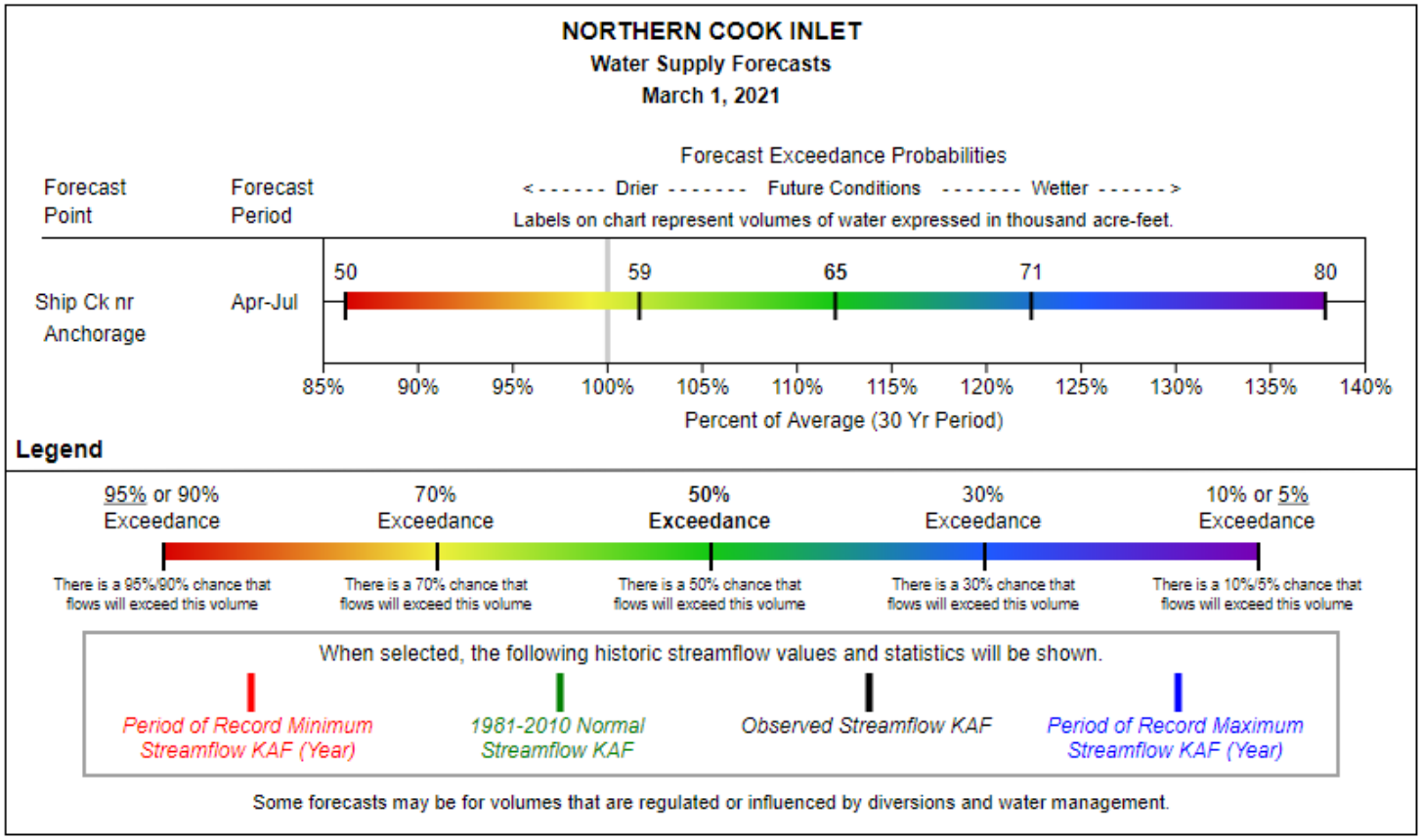
**Estimate*

Precipitation

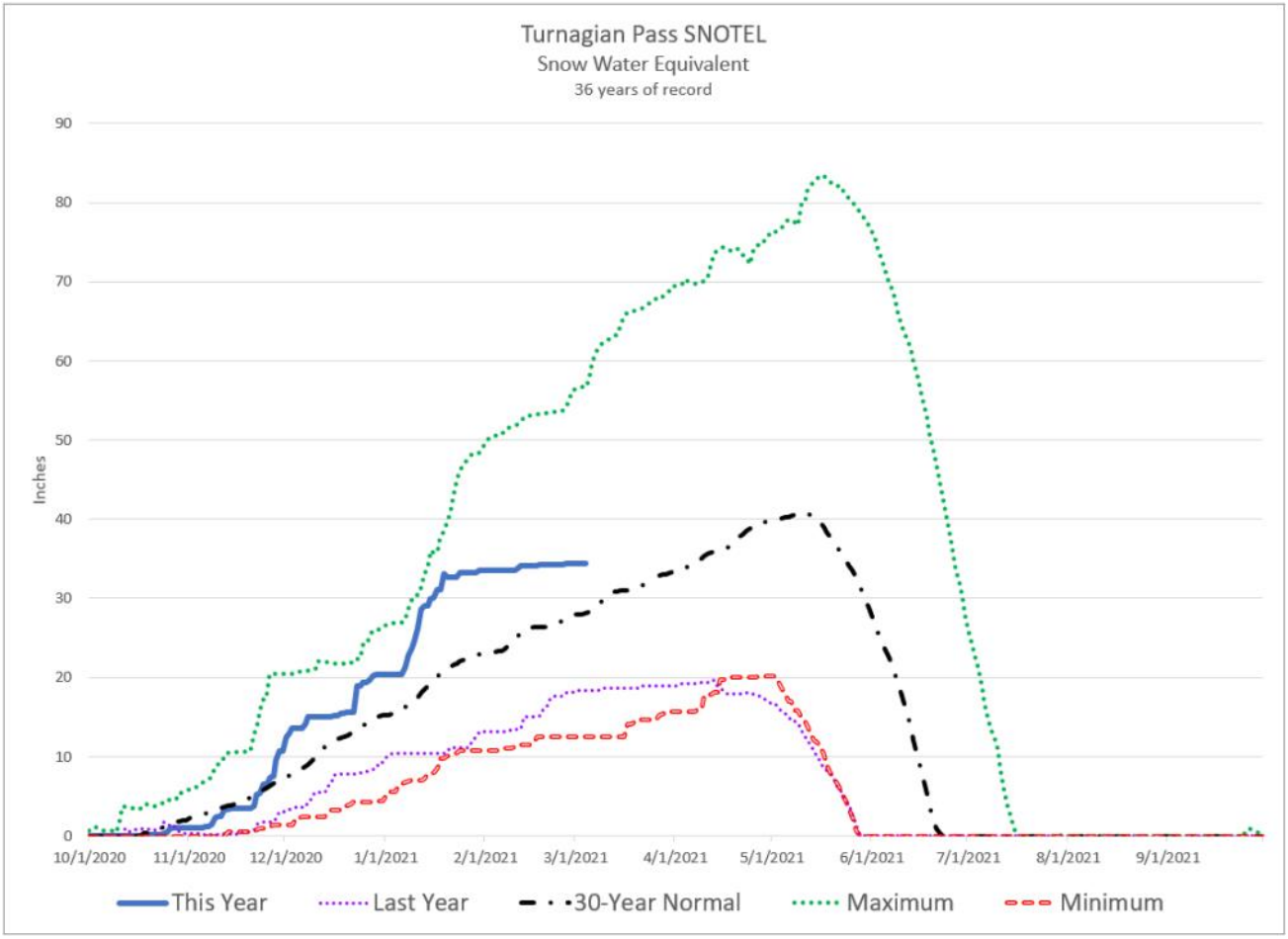
Inches Accumulated since October 1st (as of March 1, 2021)

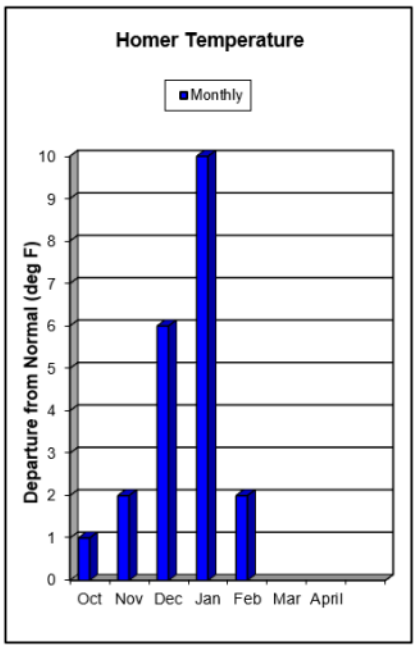
Site Name	Elev.	This Year	Last Year	1981-2010 Normal	% of Normal
Anchorage Hillside	2080	12.2	16.2	11.9	103%
Indian Pass	2350	23.5	29.2	22.0	107%
Moraine	2100	9.2	10.8	10.1	91%
Mt. Alyeska	1540	36.4	39.1	39.9	91%
Spring Creek	580	5.8	7.8	---	---

Streamflow Forecasts



Kenai Peninsula





Snowpack

After a gangbuster start to the winter, the snowpack in the Kenai Mountains made lethargic gains during February. The lower lying areas made near normal gains and the area around Homer even had above normal gains, but much of the eastern mountains only captured less than half average February snowfall. Snowpack is still above average across the peninsula, with several sites over 150% of average.

Kenai Peninsula

Snowpack Data

Site Name	Elev.	Snow Depth			Water Content		
		Current	Last Year	1981-2010 Median	Current	Last Year	1981-2010 Median
Anchor River Divide	1653	54	40	---	16.1	8.0	10.1
Bertha Creek	950	68	43	47	21.1	9.8	14.7
Bridge Creek	1300	46	28	34	11.3	5.6	9.6
Cooper Lake	1200	59	39	---	15.5	8.7	13.1
Demonstration Forest	780	35	28	23	9.0	6.0	6.6
Eagle Lake	1400	61	32	40	16.5	7.0	10.4
Exit Glacier	400	70	37	48	20.6	9.7	15.9
Exit Glacier	400	69	36	---	18.8	8.4	15.9
Grandview	1100	94	56	---	28.1	11.2	26.5
Grouse Creek Divide	700	63	29	---	23.9	8.6	14.6
Jean Lake	620	21	19	14	4.3	3.3	3.2
Kenai Moose Pens	300	24	25	---	4.1	4.8	4.0
Kenai Summit	1390	58	40	45	17.6	8.8	12.3
Lower Kachemak Creek	1915	71	39	---	---	---	---
Mcneil Canyon	1320	48	29	---	13.6	6.4	9.0
Middle Fork Bradley	2300	76	28	---	---	---	---
Moose Pass	700	45	23	20	13.3	3.6	6.0
Mt. Alyeska	1540	90	65	---	30.7	16.2	26.6
Nuka Glacier	1250	---	---	74	---	---	28.8
Pass Creek	1200	---	---	30	---	---	7.5
Port Graham	300	35	33	---	7.1	9.7	6.7
Portage Valley	50	50	60	36	15.4	16.2	11.0
Resurrection Pass	2250	---	---	36	---	---	10.1
Snug Harbor Road	500	19	16	17	4.4	3.0	5.2
Summit Creek	1400	44	32	---	11.1	6.4	10.0
Turnagain Pass	1880	113	78	---	34.4	18.4	27.9

**Estimate*

Kenai Peninsula

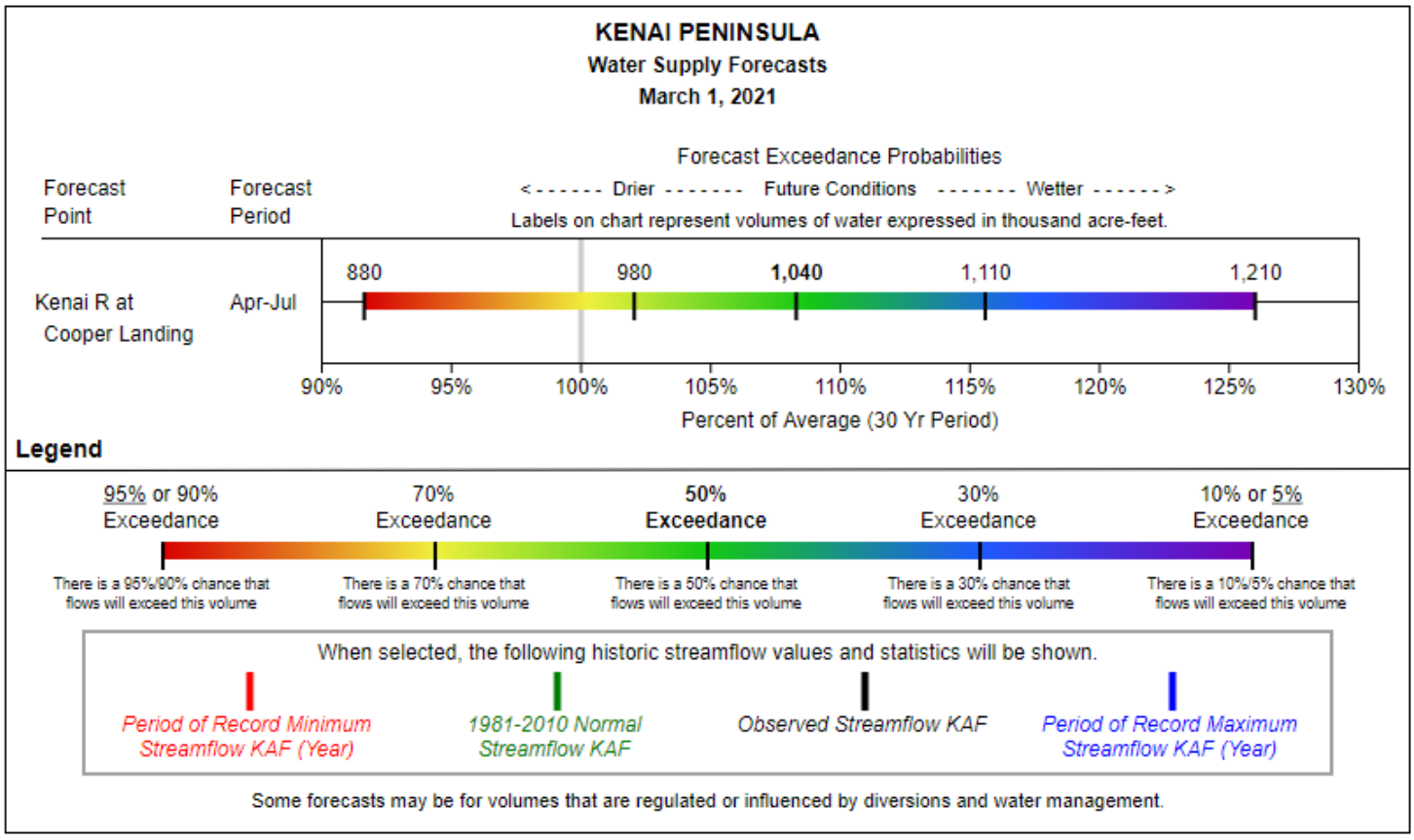
Precipitation

Inches Accumulated since October 1st (as of March 1, 2021)

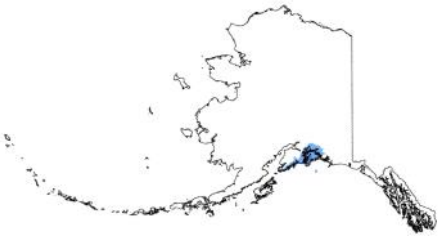
Site Name	Elev.	This Year	Last Year	1981-2010 Normal	% of Normal
Anchor River Divide	1653	16.5	22.1	14.4	115%
Cooper Lake	1200	23.4	27.3	22.9	102%
Exit Glacier	400	50.7	49.3	---	---
Grandview	1100	31.1	36.8	34.8	89%
Grouse Creek Divide	700	39.2	35.1	33.3	118%
Kenai Moose Pens	300	7.9	10.0	7.3	108%
Lower Kachemak Creek	1915	36.3	---	---	---
Mcneil Canyon	1320	15.5	17.3	14.9	104%
Middle Fork Bradley	2300	32.5	41.0	29.0	112%
Nuka Glacier	1250	50.3	---	48.2	104%
Port Graham	300	43.0	50.7	43.5	99%
Summit Creek	1400	12.4	17.4	14.0	89%
Turnagain Pass	1880	37.5	30.6	34.3	109%

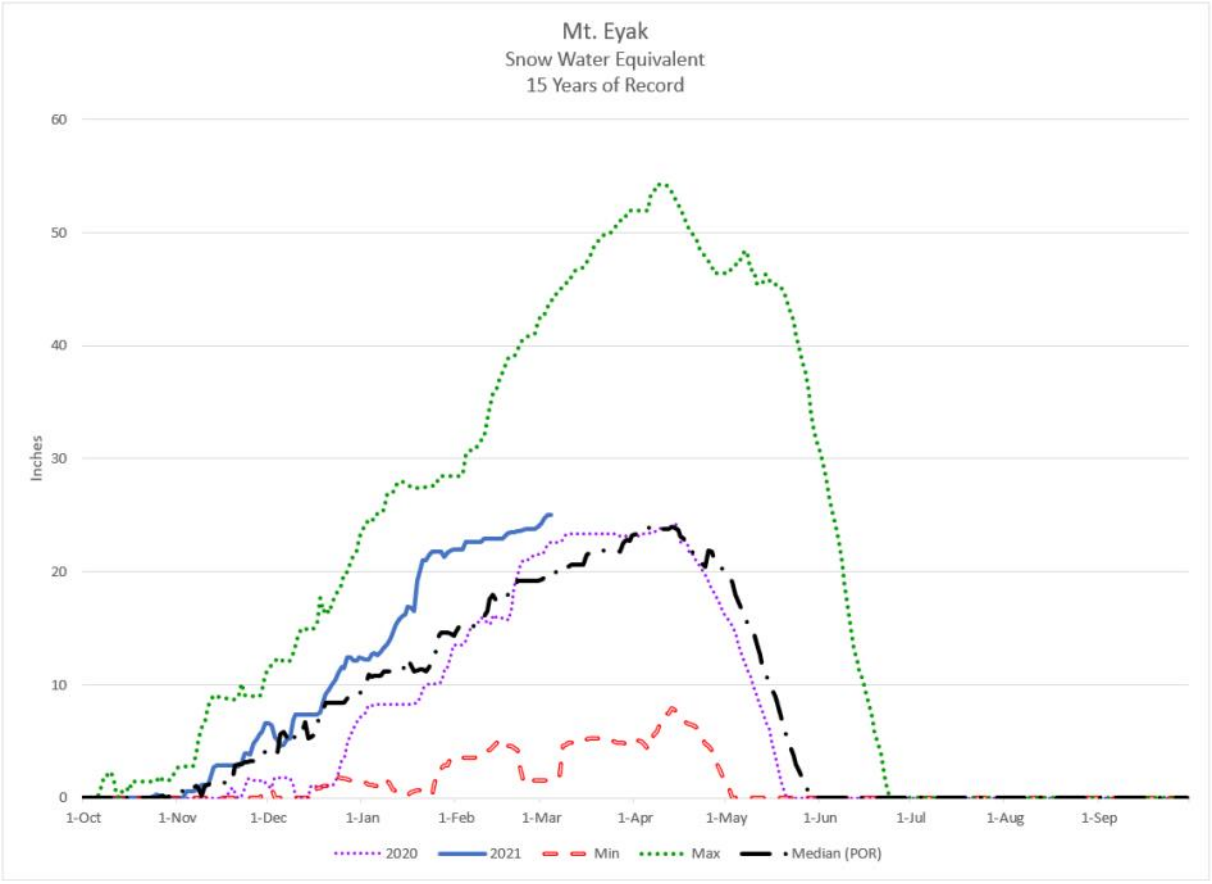
Streamflow Forecasts

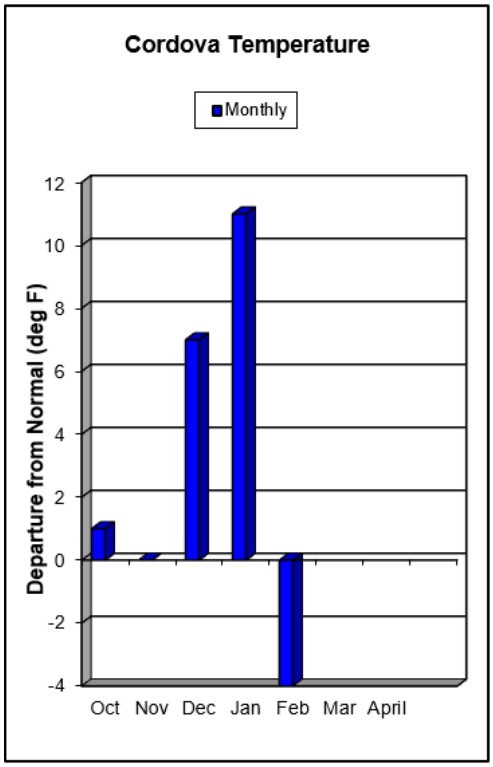
Forecast Point	Forecast Period	% of Average	Maximum(%)	Minimum(%)	50% Exceedance (KAF)	30yr Average (KAF)
Bradley Lake Inflow	Apr-Jul	99	117	79	194	197



Western Gulf – Prince William Sound







Snowpack

Prince William Sound has received below average February precipitation which led to below normal snowpack gains during the month. This translates to a just below normal snowpack near Valdez, but a retention of above normal snowpack in the western Sound.

Western Gulf — Prince William Sound

Snowpack Data

Site Name	Elev.	Snow Depth			Water Content		
		Current	Last Year	1981-2010 Normal	Current	Last Year	1981-2010 Normal
Exit Glacier	400	70	37	48	20.6	9.7	15.9
Exit Glacier SNOTEL	400	69	36	---	18.8	8.4	15.9
Grouse Creek Divide	700	63	29	---	23.9	8.6	14.6
Lowe River	600	51	---	50	14.0	---	14.8
Mt. Eyak	1405	80	72	---	24.3	21.5	22.1
Nicks Valley	4280	98	142	---	---	---	---
Sugarloaf Mountain	550	81	---	70	21.9*	---	21.1
Tsaina River	1650	50	---	53	13.8	---	14.1
Upper Tsaina River	1750	65	74	---	17.1	18.5	16.3
Valdez	50	52	---	46	12.7	---	14.0
Worthington Glacier	2100	72	---	69	18.0	---	21.6

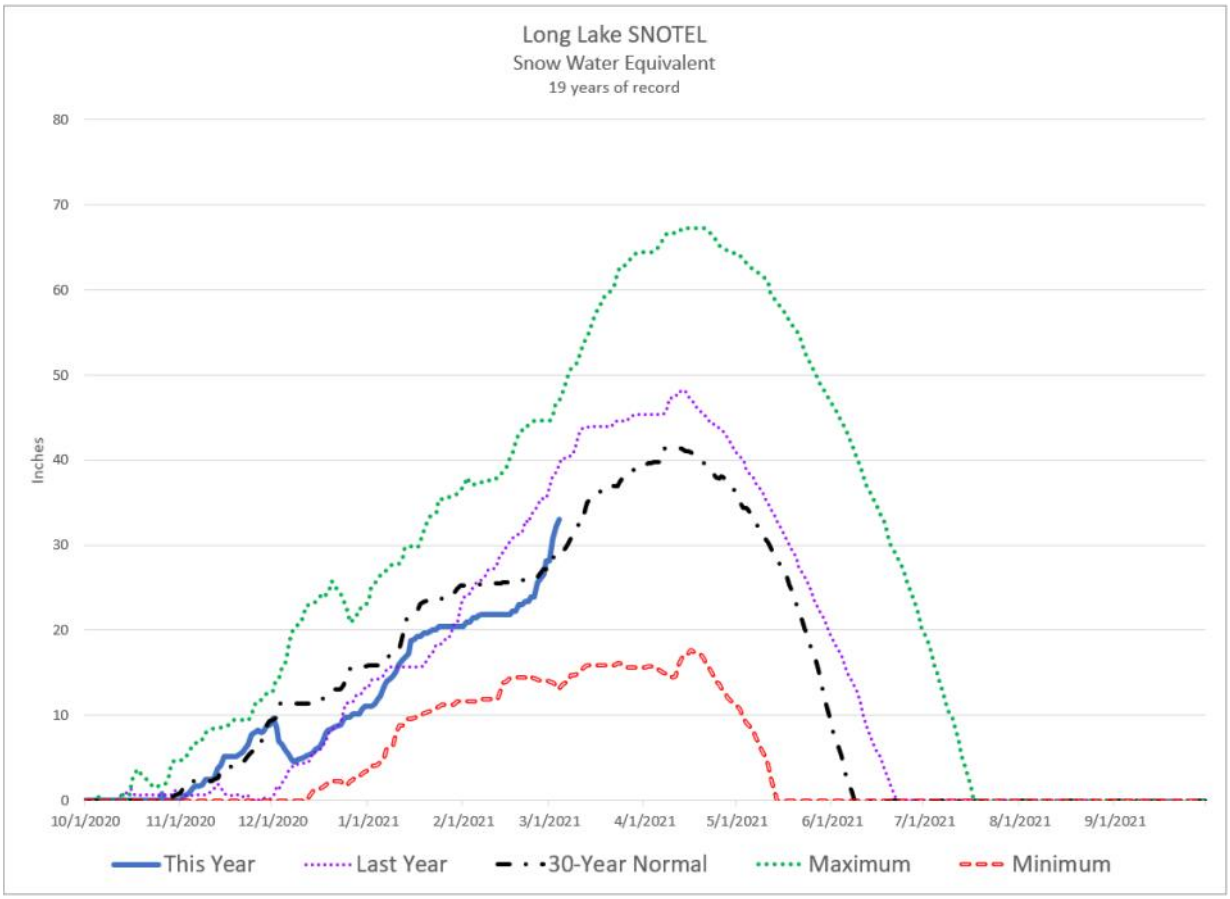
**Estimate*

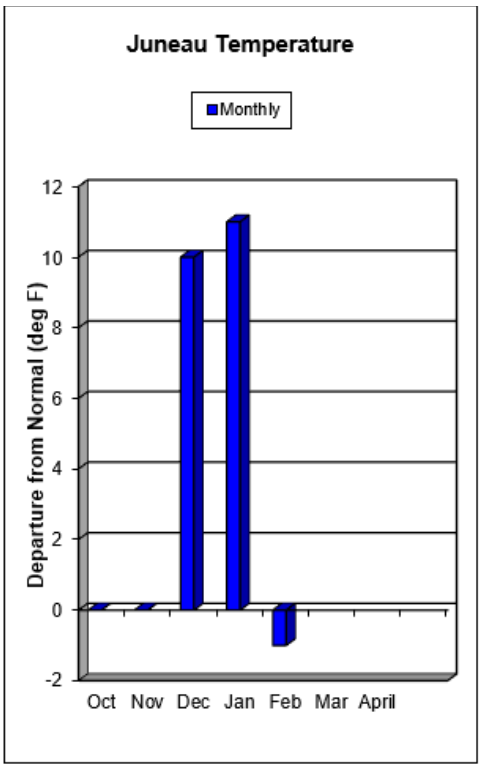
Precipitation

Inches Accumulated since October 1st (as of March 1, 2021)

Site Name	Elev.	This Year	Last Year	1981-2010 Normal	% of Normal
Esther Island	50	---	76.4	71.9	---
Exit Glacier	400	50.7	49.3	---	---
Grouse Creek Divide	700	39.2	35.1	33.3	118%
Mt. Eyak	1405	55.1	73.7	---	---
Nuchek	50	72.4	81.4	---	---
Port San Juan	50	68.2	70.8	66.1	103%
Strawberry Reef	30	35.1	41.0	---	---
Sugarloaf Mtn	550	36.0	47.8	34.5	104%
Tatitlek	50	34.6	44.8	35.7	97%

Southeast





Snowpack

Southeast received variable amounts of precipitation during February with some locations above normal and others below. Snowpack, like-wise, is variable. Snowpack in the central panhandle made large gains late in the month and is near average - less than average at lower sites and more than average at higher sites. However, northern Southeast, near Skagway, has considerably more than normal snowpack. Moore Creek Bridge SNOTEL recorded its highest snowpack since 1993. Just over the border, the Log Cabin Snow Course in British Columbia set a new 61-year record with 85” of snow and 27.6” of water content.

Southeast

Snowpack Data

Site Name	Elev.	Snow Depth			Water Content		
		Current	Last Year	1981-2010 Median	Current	Last Year	1981-2010 Median
Cropley Lake	1650	105	105	71	25.4*	34.7	23.1
Eagle Crest	1200	76	81	45	21.5*	25.3	16.5
Fish Creek	500	20	22	20	4.9	6.8	6.5
Heen Latinee	2065	62	84	---	18.8	23.4	---
Long Lake	850	100	101	---	28.2	36.7	27.2
Moore Creek Bridge	2250	85	79	64	27.2	20.4	18.9
Petersburg Reservoir	550	26	28	18	5.2	9.8	4.0
Petersburg Ridge, S.	1650	93	91	65	25.5	27.3	21.4
Speel River	280	75	89	68	22.2	26.6	23.7
West Creek	475	45	43	---	13.5	11.8	---

**Estimate*

Precipitation Data

Inches Accumulated since October 1st (as of March 1, 2021)

Site Name	Elev.	This Year	Last Year	1981-2010 Normal	% of Normal
Heen Latinee	2065	41.4	32.2	---	---
Long Lake	850	89.8	102.6	85.9	105%
Moore Creek Bridge	2250	31.0	29.6	23.7	131%

Streamflow Forecast

Forecast Point	Forecast Period	% of Average	Maximum(%)	Minimum(%)	50% Exceedance (KAF)	30yr Average (KAF)
Taiya River near Skagway	Apr-Jul	100	121	80	465	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/**

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